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Labour Standards and Migration: do labour conditions matter? *

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Abstract

We study in this paper the interactions between migration rates and the level of labour standards. We use an augmented version of the Grogger and Hanson (2008) model, adding the level of working conditions into the specification. Our hypothesis is that the differential of working conditions may be a complementary determinant of migration. In a first time, we test the influence of labour standards in countries of origin using a database on emigration rates built by Defoort (2006) for the period 1975-1995. For labour standards, we built an original index with a temporal dimension. We find that labour standards in the source countries does not have a significant impact on the probability of moving abroad. In a second time, we use a bilateral migration database built by Marfouk and Docquier (2004) in order to test the influence of labour standards in destination countries. If labour standards in the source countries do not have a significant impact on migration flows, level of labour conditions in destination countries have multiple effects on bilateral migration flows. Social protection or protection of collective relations have a positive impact on migration, while job and employment protection laws have the opposite effect. We also find that high-skilled workers are much more sensitive to social security benefits while low skilled workers are more attracted by a protective job and employment legislation.

Nous étudions dans cet article les interactions entre les taux de migration et le niveau des normes du travail. Nous utilisons pour cela une version augmentée du modèle de Grogger et Hanson (2008) , en ajoutant le niveau des conditions de travail dans la spécification. Notre hypothèse est que le différentiel de conditions de travail constituerait un facteur additionnel de migration. Dans un premier temps, nous testons l'influence des normes du travail dans les pays d'origine en utilisant une base de données sur les taux dŠémigration construit par Defoort (2006) pour la période 1975-1995. Pour les normes du travail, nous construisons un index original intégrant une dimension temporelle. Nous constatons que les normes du travail dans le pays source n'a pas dŠimpact significatif sur la probabilité de migrer à l'étranger. Dans un deuxième temps, nous utilisons une base de données sur les migrations bilatérales construit par Marfouk et Docquier (2004) afin de tester l'influence des normes du travail dans les pays de destination. Si les normes du travail dans les pays d'origine n'ont pas dŠimpact significatif sur les flux migratoires, le niveau des normes du travail dans les pays de destination ont des effets multiples sur les flux migratoires bilatéraux. La protection sociale ou la protection des négociations collectives ont un impact positif sur la migration, alors que les lois visant à protéger l'emploi ont l'effet inverse. Nous constatons également que les travailleurs hautement qualifiés les travailleurs sont beaucoup plus sensibles aux prestations de sécurité sociale alors que les travailleurs peu qualifiés sont plus attirés par une législation protectrice en matière d'emploi.

J.E.L: J8, O1, F2

Key-words: Migration, labour standards, brain-drain, labour markets

1 Introduction

Regulation of migration flows is a very controversial debate, both in developping and developped countries. It brings fears and hopes within the population and some governments make use of these fears to impose new restrictive immigration laws. On the other side, these policies do not stop the emigration of the high skilled workers from developping countries. The phenomenom of brain drain was seen as a problematic issue (Bhagwati and Dellafar, 1973; Miyagiwa, 1991; Haque and Kim, 1995). High skilled emigration may slow down the accumulation of human capital and thus the development process. That is why Bhagwati and Dellafar (1973) propose to tax the migrants in the destination countries and to transfer these ressources to source countries in order to compensate the loss due to these human capital migration. More recently, a brain drain optimistic view emerges considering emigration may be beneficial for the source countries (Beine, Docquier, and Rapoport, 2001; Docquier, 2007; Mountford, 1997).

Many studies analysed the determinants of migration flows and the social and economic consequences of migration. Hatton and Williamson (2002) have shown that four determinants may explain the migration process: (1) the wage diffentials between home and host countries, (2) the share of young people within the population, (3) the diaspora effects, (4) the poverty level in the source countries.

Here we will focus on the labour markets determinants of emigration. Interactions between migration and labour are multiple. The wage diffential is one of the key determinants of migration flows Hicks (1932). Our hypothesis is that labour conditions may be an additional source of emigration. On the other side, differences of labour markets characteristics or structure may be an obstacle to migration due to weak capacities of migrants' inclusion into these labour markets. We will try to determinate empirically if labour standards in origin and destination coutries constitute an attraction or a repulsion for migrants.

In parralel, a controversial debates emerged concerning the development outcomes of labour standards. The empirical literature on this topic established the ambiguous links between

labour standards and international trade Brown (2000); Granger (2005), foreign direct investment Kucera (2002), economic coordination Aidt and Tzannatos (2002), productivity Brown, Deardorff, and Stern (1996); Maskus (1997); OCDE (1996), long-term per capita income Bazillier (2008) and income inequalities Bazillier and Sirven (2008). Most of these outcomes may influence the determinants of emigration. We will focus in this paper, firstly on core labour standards and will extend in a second time the scope of the study by analysing the effect of different labour regulation Botero, Djankov, Porta, and Lopez-De-Silanes (2004) such as social security benefits or job and employment protection laws.

The first contribution of the paper is to propose a temporal analysis on the effect of core labour standards on emigration. In order to do this, we use an original index measuring the effective level of core labour standards for a large number of countries. We find no evidences on the influence of labour standards in the *origin* country on the probability to migrate. The second contribution is to show that level of core labour standards in the *destination* country may have an influence on bilateral migration flows, depending on the level of qualification. The third contribution is the analysis of different labour regulation such as social protection or job and employment protection laws. We show that the effects on migration flows are diverse and depend on the level of qualification and on the type of labour regulation.

The paper is structured as follows. Section 2 presents the theoretical model used for the empirical analysis. Section 3 presents a multilateral analysis on the empirical relation between emigration rates in developping countries and labour standards for the period 1975-1995. Section 4 presents the influence of labour standards both in source and destination countries on bilateral migration flows.

2 The Grogger and Hanson (2008) model augmented with labour standards

Most of the migration models consider the wage differentials are one of the main determinants of emigration. Borjas (1999) attributed this insight to Hicks (1932). We consider the non-salarial part of working conditions may be an additional determinant of migration flows. In order to test this idea, we propose to include different variables of working conditions in a model developed by Grogger and Hanson (2008).

Consider migration flows between source countries and destination countries. Workers fall into different groups according to their level of education: primary educated workers, secondary educated workers and tertiary educated workers[1]. Let the wage for worker i with skill level j from source country s in destination country h be:

$$w_{ish}^{j} = exp(\mu_h + \delta_h^2 D_{is}^2 + \delta_h^3 D_{is}^3) \tag{1}$$

where $exp(\mu_h)$ is the wage for workers with an under-tertiary education, δ_h^2 is the return to secondary education, δ_h^3 is the return to tertiary education, and $D_{is}^j = 1$ if the worker from source s has schooling level j.

Let LS_{ish}^j be the level of labour standards for worker i with skill level j from source country s in destination country h be:

$$LS_{ish}^{j} = exp(\nu_h + \varepsilon_h^3 D_{is}^3) \tag{2}$$

We use the migration cost function proposed by Grogger and Hanson (2008). C_{ish}^j is the cost of migrating from s to h for worker j with skill level j. This cost has two component: a fixed

[1]However, in the next section, we will consider only two categories of workers: tertiary educated workers and other workers, because of the database of migration used.

monetary cost of moving from s to h, f_{sh}, and a component which depend on the skills of the worker, g^j_{sh} (which can be positive or negative). We have:

$$C^j_{ish} = f_{sh} + g^1_{sh} D^1_i + g^2_{sh} D^2_i + g^3_{sh} D^3_i \tag{3}$$

Migration costs are influenced by the linguistic and geographic distance between source and destination countries and by the immigration policies in the destination countries.

We define a linear utility function where the utility of migrating from country s to country h is a linear function of the difference between the sum of wages and labour standards[2] and the migration costs, as well as un unobserved idiosyncratic term ϵ^j_{ish}. This specification can be seen as a special case of the original specification proposed by grogger2008 where labour standards provide an additional utility. Here α is the marginal utility of income ($\alpha > 0$) and β is the marginal utility of labour standards ($\beta > 0$). (4) is the first order approximation of a general utility function. One of the "destination" is tje source country itself, for which migration costs are zero.

$$U^j_{ish} = \alpha w^j_{ih} + \beta LS^j_{ih} - \lambda C^j_{ish} + \epsilon^j_{ish} \tag{4}$$

We assume that workers choose whether or not to migrate so as to maximize their utility. We also assume that ϵ^j_{ish} follows an i.i.d extreme value distribution. Following grogger2008, we can apply the results of McFadden (1974) to write the log odds of migrationg to destination country versus staying in the source country for member of skill group j as:

[2]We assume that we can convert the level of labour standards in a monetary measure. The sum of wages and labour standards can thus be interpreted as an estimation of the general level of working conditions (with a salarial and a non-salarial component).

$$\ln \frac{E_{sh}^j}{E_s^j} = \alpha(w_h^j - w_s^j) + \beta(LS_h^j - LS_s^j) - \lambda f_{sh} - \lambda g_{sh}^j \quad (5)$$

This equation will be used as the basis of our empirical strategy.

3 Labour standards and migration: a temporal and multilateral analysis

In this section, we focus on the period included between 1975 and 1995. We will firstly briefly describe the migration dataset. Then we will define the labour standards and present our database. Then we will present the econometric results.

3.1 Migration flows: data and statistics

We use a database built by Defoort (2006) available between 1975 and 2000 every five years. This database includes data on international migration flows from all source countries to the six biggest OECD receiving countries (Australia, Canada, United States, France, United Kingdom and Germany). It represents 77% of the total migration flows[3].

According to this dataset, the number of migrants has globally increased from 20 millions in 1975 to 36 millions in 1995. In the same period, the high-skilled migration has increased from 4.3 to 11.5 millions, which represents around 32% of the overall migration. Two main facts may explain these figures: (1) demographic factors explain the strong increase of the absolute number of migrants. The percentage of migrants is stable over the period (around 3% of the population) (U.N, 2001), (2) the gobal increase in the level of education may explain the increase of the share

[3]A limit of this database is that it cannot capture new trends in international migration such as the growing number of migrants to new source countries (Spain, Italy...). However, for the period studied here (1975-1995) this problem is rather limited. Furthermore, our results will be confirmed in the next section by the bilateral analysis which measures migration flows towards all OECD countries.

of high-skilled migrants. The proportion of high-skilled residents has increased from 9% in 1975 to 16% in 1995.

Table 9 gives the distribution of migrants among destination countries. If the majority of migrants goes to the United States (45%) or Canada (12,78%), we also observe large differences in the profile of the migrants. High-skilled migrants are more likely to move to the United States, Canada, Australia and the UK rather than to France or Germany. In the US, 40% of the migrants are skilled, against only 8% in France. Table 10 describes the emigration rates by source countries. Three groups of countries are highly affected by emigration: (1) the islands (around 40% of high-skilled workers for the Carribean Islands[4] and 48% for the Pacific), (2) Central American countries with high skilled workers emigration rate around 15%, and (3) Sub-Sahaharian African countries with high-skilled workers emigration rate included between 6,16% in 1975 and 10,83% in 1995.

Over the period, the relative part of high-skilled emigration has fallen everywhere except in Sub-Saharian countires.

3.2 Labour Standards: definition and measurement

Labour standards can be defined by the global principes and rules governing work and professional considerations (OCDE, 1996). They are multifaceted and may vary from one country to another depending on the stage of development, political, social and cultural conditions or institutions. If most of labour standards will depend on the level of developement, the International Labour Organization (ILO) argues that some of these standards are universal and can be applied everywhere whatever is the level of development. The *Declaration on Fundamental Principles and Rights at Work* adopted in 1998 recognized four *core* labour standards. There is nowadays a consensus within international orgabizations to recognize such norms[5]. These core labour standards are the following: (1) freedom of association and the effective recognition of the right to

[4]However, the emigration rate has decreased from 54,21% in 1975 to 38% in 1995.

[5]See the Social Summit of Copenhagen (1995), the WTO declaration of Singapore (1996), the G8 dclaration (2008)...

collective bargaining, (2) Elimination of all forms of forced or compulsory labour, (3) effective abolition of child labour, (4) elimination of discrimination in respect of employment and occupation. There is an international consensus to consider that these core labour standards should be globally recognized and protected, which correspond in turn to eight ILO conventions. In a first time, we decide to focus our analysis on the linkages between these core labour standards and emigration flows. This choice can be justified by several reasons:

- First, according to their promotors, these core labour standards should not be linked to the level of development of the countries, in opposition with the *cost standards* as defined by Freeman (1996). In terms of labour market policies, most of developing countries focus on these core labour standards[6].
- Labour markets in developing countries are characterized by a large share of informality. Core labour standards are not limited to formal jobs, contrary to other standards such as minimum wage or heath and security regulations. As we study in this section the determinants of emigration in developing countries, it seems logical to focus firstly on these core labour standards.

In the next section, we will also study the influence of labour standards in destination countries. For this analysis, we will propose to enlarge the scope of the standards studied, which is not possible here because of the temporal dimension of the study.

In order to measure the effective level of core labour standards, we use an index created by Bazillier (2009) which is an extension of the agregated index of core labour standards presented in Bazillier (2008) and Bazillier and Sirven (2008). Different indexes measuring the level of core labour standards exist (Granger, 2005; Kucera, 2004; Ghai, 2003) but none of them have a temporal dimension. We provide here a first attempt to give a quantitative assessment of the effective level of core labour standards for for a large number of countries with a temporal dimension. The methodogy used to build the index is the following: in a first time, we built different

[6]On this matter, we can mention the development of the *Decent Work Country Programmes*.

indexes measuring the effective level of child labour, freedom of association and discrimination[7]. Each individual index takes a value included between 0 (weak level of enforcement) and 1 (good level). All these indexes are available between 1970 and 1995 every 5 years. We also add an index measuring the ratification's behaviour of the country, reflecting the political will of the country[8].

Once we have our four individual indexes, we propose to build an agregated index thanks to data analysis. The easiest way to obtain an estimation of the global level of core labour standards would be to sum the different indexes. This choice is not satisfactory because it will introduce a bias in the global measure for two reasons:

- Summing each index of each standards to obtain a scalar index would mean that each norm has the same explanatory power of the general level of workers rights. We have a different hypotheses considering that the discriminating power of each standards may differ
- We have to take into consideration the difficulty to obtain good data without statistical bias or measurement errors. If we suppose the existence of a "common tendancy", here the global enforcement of core labour standards, we have to isolate the effects of each standard on this common tendancy and do not take into account other effects. Data analysis is a good tool to fulfil this goal by isolating the common factors between different variables.

As we have continuous data, Principal Componenent Analysis (PCA) is the right technique to test the hypothesis of a common tendancy (here the general enforcement of labour standards) and to measure this global enforcement. Like other models of factor analysis, its aim is to pattern the variation in a set of variables common or unique. One of the use of PCA is to reduce a mass

[7]Unfortunately, because of data limitations, it is not possible to build an index measuring the evolution of forced labour. Busse and Braun (2003) provide detailed data of forced labour but these data are not available for earlier period.

[8]We assume to measure the effective enforcement of core labour standards and not the legislation related to these standards. However, the number of ILO conventions ratified can be seen as a proxy of the political will of the country. Also the results of the principal components analysis justify *a posteriori* this choice. The value of the index is positively correlated with other dimensions of core labour standards even if the weight given to this index is lower than the others.

Table 1: Statistics of LS

Year	Mean	Max	Min	Standard Deviation
1975	0.5566	0,9464 (France)	0,1083 (Oman)	0,1973
1980	0,5758	0,9830 (Norway)	0,1495 (Afghanistan)	0,2010
1985	0,5955	0,9888 (Norway)	0,1730 (Afghanistan)	1.2015
1990	0,6287	0,9994 (Norway)	0,1974 (Equatorial Guinea)	0,1992
1995	0,6471	1 (Norway)	0,2400 (Afghanistan)	0,1828

of information into an economic description (See Jolliffe (2002) for a detailed presentation of PCA).

According to the Kaiser criterion and the scree (or Cattell) test[9], we can keep the coordinates on the first factor to evaluate the global enforcement of core labour standards. We then calculate the value for each country and make a transformation in our data in order to have values included between 0 (the worst performance in terms of labour standards) and 1 (the best performance). An increase in the index value will be interpreted as an improvement of the labour standards' enforcement.

In our sample, our agregate index takes a value included between 1 (Norway in 1995) and 0,1083 (Oman in 1970). Table 1 reports descriptive statistics of *LS*. We observe a constant improvement of labour standards among time. However, the "inequality" of labour standards (approximated by the standard deviation of the index) is constant between 1970 and 1990. We observe a significant fall of the index only for the last period but it is explained by a lower increase of the index for countries with good performances. It is easily understandable. Level of *core* labour standards cannot be improved indefinitely. At a certain level, a country respects the core standards (which corresponds to a value of 1 of our index) and cannot improve its performances in terms of these specific standards.

[9]See annex B for details.

3.3 Empirical specification, data and economic strategy

According to the theoretical model, the probability of moving abroad will depend on the differences of wages and labour standards between source and destination countries, on a cost of emigrating which depends on the level of qualification and on a fixed cost of emigrating which do not depend on the level of qualification.

$$\ln \frac{E_{sh}^j}{E_s^j} = \alpha(w_h^j - w_s^j) + \beta(LS_h^j - LS_s^j) - \lambda f_{sh} - \lambda g_{sh}^j \tag{6}$$

In this section, we only study the determinants of emigration. The database of migration is not bilateral so wages and labour standards in destination countries may be approximated by the average level of wages and labour standards in the six biggest OECD receiving countries (Australia, Canada, United States, France, United Kingdom and Germany). In order to facilitate the interpretation of the results, we will just include the level in the source countries (as the level in the "destination country" will be the same for all observations). The level of wages is approximated by the level of GDP per capita [10]. The cost of migration is approximated by several variables. First, we assume that the cost of migration is an increasing function of age. The younger is the population, the lower will be the cost of migration (Hatton and Williamson, 2002). Political and institutional aspects may also influence the cost of migration and thus the probability of migration. First we assume that the more autocratic is the regime, the higher will be the cost. Most of dictatorships are characterized by a strict control of the boarders and freedom of movements tends to be limited. We include the variable POLITY as a proxy. The other aspect is that excluded or discriminated groups will tend to have a higher probability to migrate (Stark, 1991). We can consider that the more integrated is a group, the more important will be its cost of moving because of his social inclusion at home. We will use as a proxy the "competitiveness of participation", which measure the participation of the non-elites in the

[10] See Annex D for a detailed description of the variables and the sources.

public area[11]. The risk of conflicts may also influence the cost of migration. But the net impact is unclear. From one side, we can consider that a risk of conflict will increase the probability of moving abroad as security at home is not guaranteed. On the other side, conflits may increase the cost of migrating through the increased difficulties to exit the boarders. We will use the internal and external risk of conflicts as a proxy (ICRG, 2004)[12]. Concerning the costs which are specific to a certain level of qualification, we will use the general level of human capital in the country as a proxy of the specific cost for high-skilled migrants. We consider that the more high-skilled people you have in a country, the higher are the opportunities and complementaries for these high-skilled workers. This phenomenom is known as the O-ring effect **?**. The higher will be the opportunities, the higher will also be the cost of moving abroad. At the contrary, if you have very few educated people, opportunities in terms of jobs and income are rather limited. In this case, the cost of migration will also be low. Finally, we also add the total population as an additional control variable. Bhargava and Docquier (2008) show that small countries like islands tend to have a higher emigration rate.

We do not include variables measuring the linguistic, geographical, historical and political distances as proxies of the costs of migrations as our data are not bilateral in this section. Furthermore, most of this variables are time-invariant and will be drop in a fixed-effects panel estimation.

In order to capture unobserved heterogeneity between countries, we include individual fixed effects in the estimation. In order to capture the worldwide trend of migration flows, we also add time dummies. We use fixed-effects models (using the within regression estimator)[13]. The

[11]More precisly, it refers to "the extent to which alternative perferences for policy and leadership can be pursued in the political arena". Polity and parcomp values are included between 1 (repressed) and 5 (competitive) for parcomp and 7 for polity.

[12]Internal conflict expresses the political violence into the country. This variable is composed as the sum to three components: (1) Civil war/ Coup d'Etat (0-4 points) (2) Terrorism/Political violence(0-4 points) (3) Civil Disorder (0-4 points). The highest risk is expressed when the coefficient is the lowest (0 point), otherwise the lowest risk is expressed when the coefficient is the highest (12 points). External conflict expresses the foreign political violence. Three components are included into this variable: (1) War (0-4points), (2) Cross Border Conflict (0-4 points) and (3) Foreign pressure (0-4 points). The sum of these components composed the external conflict index where the highest low corresponds to highest coefficient (12 points).

[13]We performed an Hausman test on the data that confirms random effect models were not appropriate for this

Table 2: Expected sign of estimated coefficients

Variable	Expected sign Overall	Expected sign High-skilled workers
loggdp	-	-
ls_o	-	-
logpop	-	-
logeduc	?	-
young	+	+
polity	+	+
parcomp	-	-
intconf	?	?
extconf	?	?

Note: Definition and sources of variables are available in annex D

estimated model is thus the following:

$$\ln EMI^j_{s,t} = \alpha_1 LS_{s,t} + X_{s,t}\beta + u_s + v_t + \epsilon_{s,t} \tag{7}$$

Where $EMI^j_{s,t}$ is the probability of emigration for workers with a qualification j in country s at the time t. $X_{s,t}$ is the vector including all control variables, u_s are the country fixed-effects and v_t are the time fixed-effects. $\epsilon_{s,t}$, the residuals, are assumed to be i.i.d.

3.4 Results

Table 3 gives the results of the estimation using within estimators. Both for all migrants and for high-skilled migrants, level of core labour standards does not seem to have a significant impact on the probility of moving abroad. The coefficient associated to the level of GDP (which gives an approximation of the income factor in the determinants of migration) is in all specification negative and strongly significant. This effect is stronger for high-skilled workers. Coefficient of population is not significant except in (4). When significant, it takes the expected negative

analysis.

sign. General level of human capital in the country has a negative impact on the probability of moving abroad only for high-skilled workers which is consistent with the theoretical model where general level of education is assumed to be a cost only for this category of workers. The share of young people within the population has a positive impact on emigration. Concerning political variables, coefficients associated with polity are always significant and positive. It reflects the fact that dictatorships often restrict freedom of movement. At the same time, the competitiveness of participation has a negative impact on emigration. If alternative preferences for policies can be pursuied, it will reduce the incentive to migrate for political reasons. Concerning the risk of conflicts, external conflicts seem to have a negative impact on migration while internal conflicts have a positive impact. External conflicts may increase the cost of migration due to *de facto* restrictions on freedom of movement. Internal conflicts may increase the incentive to move abroad in order to flee wars.

If the wage differential has a positive impact on the probability of moving abroad, our first estimations does not confirm the possible influence of the non-salarial part of working conditions. However, in this first step of estimation, we did not control for a potential problem of endogeneity. Econometrically, we will face such a problem if the dependant variable would be correlated with the error term. We may face this problem if emigration would have an impact on working conditions in source countries. The main question is thus the following: is emigration likely to be important enough to change the general level of working conditions of workers staying at home? Theoretically, emigration may reduce the general level of the labour force and change the composition in terms of qualification due to the sorting of migrants. However, we consider this problem as rather limited. In average, emigration rate is around 2%. We consider this rate as too small to influence the *general* level of wages and working conditions of all workers. Moreover, when individuals decide to migrate, they are more likely to be outside the labour market in their country. This will also reduce the possible impact of emigration on wages and labour conditions at home.

Even if this problem of endogeneity is not crucial in our view, we propose to test the robustness

Table 3: Panel fixed effects estimations of emigration' determinants

	(1) logemigall	(2) logemigall	(3) logemigter	(4) logemigter
ls_o	0.03781	0.1118	-0.02105	-0.40443
	(0.55043)	(0.49073)	(0.75332)	(0.67132)
loggdp	-0.33231	-0.23594	-0.54504	-0.63261
	(0.10664)***	(0.11561)**	(0.14594)***	(0.15816)***
logpop	0.38604	-0.14005	-0.32203	-0.73827
	(0.25718)	(0.30599)	(0.35198)	(0.41859)*
logeduc	-0.0666	-0.02767	-0.52998	-0.28215
	(0.08900)	(0.10263)	(0.12181)***	(0.14039)**
young	3.17633	3.37408	4.04516	4.47231
	(1.39050)**	(1.47681)**	(1.90307)**	(2.02027)**
polity	0.01837	0.01034	0.02577	0.01866
	(0.00725)**	(0.00723)	(0.00993)**	(0.00989)*
parcomp	-0.11704	-0.07123	-0.18546	-0.12388
	(0.04134)***	(0.04147)*	(0.05658)***	(0.05674)**
intconf		-0.02		-0.03134
		(0.01031)*		(0.01410)**
extconf		0.05625		0.05783
		(0.01234)***		(0.01689)***
Constant	-5.33517	-1.598	6.40687	10.40669
	(2.65548)**	-3.24999	(3.63434)*	(4.44599)**
Observations	295	200	295	200
Time Fixed Effect	YES	YES	YES	YES
Country Fixed Effect	YES	YES	YES	YES
Number of countries	87	76	87	76
R-squared	0.31	0.40	0.20	0.29

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

of our estimation using the two stage least square method (TSLS) and instrumental variables. The main challenge is to find *valid* and *relevant* instruments. Such an instrument must be an important factor in accounting for the variation of labour standards that we observe, but have no direct effect on migration. We propose to use the lagged variable of labour standards ($L.ls_o$), the labour force in percentage of total population ($labourforce$) and the natural logarithm of the number of different procedures that a start-up business has to comply with to obtain a legal status (Djankov, Porta, Lopez-De-Silanes, and Shleifer, 2002), i.e. to start operating as a legal entity ($proc99b$). Assuming that at least one of these instruments is purely exogeneous, we can test the validity of such instruments using Sargan test. The condition is verified here. We also control for the relevance of such instruments in order to avoid bias of weak instruments (Staiger and Stock, 1997). The F-stat of excluded instruments is very closed to 10. We then consider that this set of instrument is valid and relevant. The estimation confirms our previous result (see table 4). The coefficient associated with labour standards is still non-significant.

At this stage, we do not find any evidence on the positive or negative impact of labour conditions on migration. The main advantage of this analysis is the use of panel data allowing the control of unobserved heterogeneity. However, the main limit is we only have the total emigration rate in the source countries and do not have bilateral flows. However, if we can say that core labour standards in source country do not influence the probability to migrate abroad, we cannot conclude on the influence of the differential of working conditions, as emphasized in the theoretical model. We also cannot conclude on the influence of labour conditions in destination countries. In order to do so, we propose to use another migration database where bilateral flows are available. This is the goal of the next section.

4 Migration and labour standards: a bilateral analysis

As noticed by Borjas (1999), very few studies have really captured the effect of immigration stock on labour markets outcomes (Chiswick, 1978; Card, 1990; Borjas, Freeman, and Katz, 1997; Schoeni, 1997; Altonji and Card, 1991). One of the main reason is that the choice of

Table 4: TSLS estimations of emigration' determinants

	(1) logemigall	(2) logemigter
ls_o	-0.90314	1.15376
	(0.84531)	(1.19931)
loggdp	0.09582	-0.26956
	(0.06760)	(0.09591)***
logpop	1.40475	0.33253
	(0.15959)***	(0.22643)
logeduc	0.06221	-0.20516
	(0.06990)	(0.09917)**
young	-1.04745	-1.96636
	(0.99590)	(1.41297)
polity	0.02546	0.02452
	(0.00623)***	(0.00884)***
parcomp	-0.08687	-0.13594
	(0.03873)**	(0.05495)**
Constant	-17.27202	-2.89836
	(1.32358)***	-1.87788
Observations	205	205
Time fixed effects	YES	YES
Country fixed effect	YES	YES
Instruments	L.ls	L.ls
	$proc_9 9b$	$proc_9 9b$
	labourforce	labourforce
F-stat excluded restrictions	9.91***	9.91***
Sargan Test	0.709	0.4063

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

locations for migrants is endogeneous to the labour markets outcome. Here, we focus on this side of the relation between labour market and migration. Is labour conditions in countries of destination have an influence on the migrants' location choice? We saw in the previous section that labour standards in coutries of origin do not have a significant impact. We will see here if this result is robust to a bilateral analysis and will test the influence of labour standards in countries of destination[14].

In order to do so, we propose to use the database built by Marfouk and Docquier (2004) which provides new estimates of skilled workers' emigration rates for about 190 countries in 2000. This database covers 92.7 percent of the OECD immigration stock.

4.1 Migration and core labour standards

Firstly, we estimate the effects of core labour standards on the migrants' choice of location. From the previous specification, we are able to integrate two additional groups of variables: (1) variables on income and working conditions in destination countries, and (2) additional bilateral variables. However, due to the lack of temporal dimension in the data, we cannot include time and country fixed effects in the estimation. The estimated equation takes the following form:

$$\ln EMI^{j}_{s,d} = \alpha_1 LS_s + \alpha_2 LS_d + \alpha_3 X_s + \alpha_4 X_d + \alpha_5 Y_{s,d} + \epsilon_{s,d} \tag{8}$$

with $\ln EMI^{j}_{s,d}$ the probability of migration from country s to country d for a worker with a level of qualification j[15]; LS_s the level of labour standards in the source country s; LS_d the level of labour standards in the destination country d[16] , X_s the control variables specific to the

[14]As we study the determinants of *bilateral* migration flows, we consider that the issue of endogeneity is not relevant here. If global immigration may have an effect on labour market outcomes, as stated by Borjas (1999), the probability that migration flows from one specific country will have a global impact in the labour market of the destination country is very low.

[15]We have a distinction between (1) workers with no education or primary educated workers, (2) secondary educated workers and (3) tertiary educated workers.

[16]Here, we use an alternative version of the core labour standards index, presented in Bazillier (2008). This

source country, X_d the control variables specific to the destination country, and $Y_{s,d}$ the bilateral control variables. $\epsilon_{s,d}$ is the error term. We assume it is i.i.d. Standard errors are clustered at the origin - destination level and are heteroscedastic-consistent.

As in the previous section, the level of wages is approximated by the level of GDP per capita[17]. We just add the GDP per capital in the destination country. The cost of migration is approximated by several variables. As in the previous section, the share of young people, level of democracy and competitiveness of participation (parcomp) in source countries will approximate different aspects of migration costs. We also add different bilateral variables ($Y_{s,d}$) such as the fact to have a common boarder (*contiguity*), the fact to have a common language (*commonlanguage*), the fact to have a former colonial relationship (*colony*), and the distance (in log) between the two countries[18]. The cost of migration will be lower for countries with common boarder, language, history and this cost is a growing function of the distance between the two countries. For the cost specific to a certain level of qualification, we keep the general level of human capital. Total populations in source and destination countries are also added in the specification, as a variable measuring the restrictiveness of the migration policy in the destination country (Grieco and Hamilton, 2004)[19].

Table 5 gives the results of the estimation. Because our dependant variable is expressed as logarithm of odd ratio, the elasticities cannot be interpreted as usual. So, we focus on the significance and the sign of coefficients. In the first column, we estimate the determinants of bilateral migration flows for all workers. As in the previous section, level of core labour standards in source countries is not significant. However, level of core labour standards in destination countries seem to have a negative impact on migration. This result is contrary to the theoretical

index is only available for the year 2000 but is more accurate than the temporal one. As more data are available for the last years, this index measures also for example the level of forced labour, which was not possible in the temporel index.

[17]See Annex D for a detailed description of the variables and the sources.

[18]For all these variables, see Mayer and Signago (2006) for details.

[19]This index is a component of the Comitment Development Index 2003. We assume that time variability of the index is low which justifies the use of this index in our estimation for the year 2000. It is composed by two sub-components: the migrant's inflows, weighted 0.9, an the refugee burden, weighted 0.10. Index is standardized in order to be included between 0 (strictest policy) and 10 (less strict policy).

Table 5: OLS estimations of bilateral migration flows

	(1)	(2)	(3)	(4)
	lnprobamig	lnprobamighigh	lnprobamigmedium	lnprobamiglow
ls_s	0.28464	0.53039	0.23771	-0.45042
	(0.24869)	(0.28684)*	(0.28690)	(0.33357)
ls_d	-0.92277	-0.98059	-1.9821	1.149
	(0.30382)***	(0.35711)***	(0.36087)***	(0.40160)***
$lngdp_s$	0.37718	-0.53486	0.21307	0.38834
	(0.06867)***	(0.08264)***	(0.07846)***	(0.09107)***
$lngdp_d$	2.56274	2.55765	2.94004	-0.36414
	(0.25136)***	(0.28922)***	(0.28521)***	(0.34428)
$lnpop_s$	-0.29232	-0.42455	-0.42357	-0.35518
	(0.02566)***	(0.03512)***	(0.03319)***	(0.03716)***
$lnpop_d$	1.05577	1.13131	0.83644	1.30858
	(0.03535)***	(0.04120)***	(0.04100)***	(0.04557)***
$lnyoung_s$	1.18343	-0.67571	1.10795	0.79896
	(0.31553)***	(0.32760)**	(0.34077)***	(0.39630)**
contiguity	0.14818	-0.04838	0.58061	0.64326
	(0.27455)	(0.27545)	(0.27522)**	(0.33301)*
commonlanguage	1.37288	1.94416	1.1466	1.01556
	(0.13136)***	(0.17580)***	(0.17569)***	(0.19110)***
colony	1.41007	0.87112	1.56596	1.41895
	(0.21512)***	(0.25867)***	(0.25792)***	(0.28241)***
lndist	-0.5592	-0.30343	-0.4878	-0.48616
	(0.05806)***	(0.05731)***	(0.06056)***	(0.07353)***
lneduc	0.61653	0.37361	-0.26454	0.73712
	(0.07764)***	(0.10480)***	(0.09519)***	(0.10658)***
polity	-0.01207	-0.05751	-0.01694	-0.01328
	(0.01123)	(0.01251)***	(0.01225)	(0.01346)
parcomp	0.05522	0.17565	0.23274	0.26717
	(0.06046)	(0.07603)**	(0.07180)***	(0.07568)***
migpol	0.17933	0.19259	0.11805	0.13138
	(0.01665)***	(0.01980)***	(0.01930)***	(0.02034)***
Constant	-51.72161	-37.64374	-44.87279	-28.01682
	(2.85939)***	(3.36238)***	(3.23204)***	(3.77284)***
Observations	1467	1342	1334	1328
R-squared	0.67	0.59	0.55	0.57

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

model. It would mean that working conditions differential between two countries can be seen as a "social distance", considered as a cost for the migrants. If this social distance is too high, the capacity of migrants to integrate the labour market can be reduced and thus this will reduce the incentive to migrate. However, if we look to the results by level of qualification, this result is only confirmed for high-skilled and medium-skilled workers. For low-skilled workers, the higher is the level of labour standards in the destination country, the higher will be the migration. For this category of workers, core labour standards differential plays as an additional source of migration, in accordance with the theoretical model. We can also suppose that low-skilled workers are more sensitive to the level of *core* labour standards, due to their lower level of productivity. They are the first victims of fundamental rights of workers' violations.

Concerning the influence of other variables, all takes the expected sign except the income variable where the level of GDP per capita in source countries has a positive impact on migration for low and medium-skilled workers. This can be explained by the fact that poverty is often used as a proxy of a fixed cost of migration. If people are too poor, they cannot afford to pay this fixed cost and do not have the capacity to migrate. An increase in their level of income will then increase their capacity to migrate. Here as we do not have measures of wages *per se*, we cannot distinguish the negative effect of wages and the positive effect of a reduction of poverty. We can also notice that migration policies in destination countries have a significant impact on the choice of location. The restrictiveness of the policy has a negative impact on the migration flows.

However these results should be, at this stage, interpreted with caution. One cannot exclude that our index of core labour standards is a broader proxy of social conditions. More precisely, it is not clear whether it is relevant or not for some destination countries to focus on these *core* standards. As noticed by ILO, these standards protects the *fundamental* rights of workers. In most of developed countries, child labour, forced labour or freedom of association is not an issue anymore and it seems logical to extend the scope of labour standards studied.

Moreover, in the last years, we observe a change in the structure of migration flows at the

international level. Traditional countries of emigration became countries of immigration. As these countries have in average a lower level of labour standards, our results may be biased by this trend.

4.2 Bilateral migration flows and other aspects of working conditions, labour standards and social protection

In this section, we want to see if the previous results (positive impact of the labour standards differential on migration for low skilled workers and negative impact for other workers) are confirmed when we focus on other type of standards. As mentioned before, labour standards can be defined by the global principles and rules governing work and professional considerations. It can includes a lot of aspects including level of social protection, of job protection. It is equivalent to what Botero, Djankov, Porta, and Lopez-De-Silanes (2004) called regulation of labour. All these aspects of labour market are particulary accurate for countries where *core* labour standards are globally considered as respected. In this section, we will retain different variables measuring different aspects of labour regulation. All these indexes were built by Botero, Djankov, Porta, and Lopez-De-Silanes (2004). Here we will focus on four main variables. The first variable is the civil rights at work (*indexcra*) which measures the "degree of protection of vulnerable groups againts employment discrimination". The second one is social securities laws (*socseca*) which measures social security benefits as the average of: (1) Old age, disability and death benefits; (2) Sickness and health benefits; and (3) Unemployment benefits. The third one is the collective relation laws, which measures the protection of collective relations laws (*industrial*4*a*) as the average of: (1) labour union power and (2) Collective disputes. And the last one is the protection of labour and employement laws (*labour*7*a*) which is the average of: (1) Alternative employment contracts; (2) Cost of increasing hours worked; (3) Cost of firing workers; and (4) Dismissal procedures. All other variables of the model remain unchanged.

As shown in annex C, correlation between different measurements of labour regulation is rather limited. Results are given in table 6. The first observation is a strong heterogeneity of the

Table 6: Bilateral migration flows and labour regulations

	(1) lnprobamig	(2) lnprobamighigh	(3) lnprobamigmedium	(4) lnprobamiglow
cra_s	0.02524	0.80235	0.12465	-0.06708
	(0.38058)	(0.42204)*	(0.41441)	(0.50230)
cra_d	1.1871	1.49564	0.28174	1.22457
	(0.46830)**	(0.49157)***	(0.50862)	(0.60358)**
$socseca_s$	0.27145	-0.87047	0.08006	-0.00473
	(0.31824)	(0.36670)**	(0.35636)	(0.43178)
$socseca_d$	3.51925	4.07783	2.67544	-0.30452
	(0.72288)***	(0.79224)***	(0.82454)***	(0.91335)
$industrial4a_s$	0.37262	0.81672	1.18556	-0.55069
	(0.37164)	(0.39144)**	(0.41662)***	(0.47414)
$industrial4a_d$	0.08239	0.79982	1.4164	-4.96121
	(0.39364)	(0.42711)*	(0.45984)***	(0.54521)***
$labour7a_s$	0.47106	0.45777	0.62133	0.31434
	(0.32482)	(0.32835)	(0.35441)*	(0.42128)
$labour7a_d$	-2.01402	-3.36173	-2.85907	2.88199
	(0.35888)***	(0.38473)***	(0.42231)***	(0.45622)***
$lngdp_s$	0.24738	-0.65091	0.06764	0.30455
	(0.09970)**	(0.10722)***	(0.11047)	(0.12956)**
$lngdp_d$	2.27296	2.50158	2.18681	-0.42487
	(0.27722)***	(0.30646)***	(0.31026)***	(0.37215)
$lnpop_s$	-0.38579	-0.40015	-0.47819	-0.32384
	(0.02972)***	(0.03301)***	(0.03402)***	(0.03878)***
$lnpop_d$	1.08044	1.14549	0.89816	1.29404
	(0.04218)***	(0.04409)***	(0.04939)***	(0.05476)***
$lnyoung_s$	1.23532	-1.93965	0.65133	0.82559
	(0.37440)***	(0.38174)***	(0.40654)	(0.48007)*
contiguity	0.42383	-0.03671	0.50523	0.89944
	(0.25829)	(0.25293)	(0.26777)*	(0.32327)***
commonlanguage	1.25401	1.55617	1.09796	0.89279
	(0.15201)***	(0.16767)***	(0.16755)***	(0.20139)***
colony	1.37533	1.06465	1.64132	1.4046
	(0.25131)***	(0.26047)***	(0.26919)***	(0.30553)***
lndist	-0.52795	-0.51819	-0.58393	-0.47603
	(0.06298)***	(0.06121)***	(0.06553)***	(0.08076)***
lneduc	0.55732	0.32819	-0.36075	0.52054
	(0.11607)***	(0.13368)**	(0.12933)***	(0.15919)***
polity	0.04621	0.00382	0.04576	0.0315
	(0.01704)***	(0.01860)	(0.01858)**	(0.02359)
parcomp	-0.0969	-0.14595	-0.08187	0.10385
	(0.09355)	(0.10372)	(0.10349)	(0.12439)
migpol	0.16198	0.1717	0.11586	0.15584
	(0.01939)***	(0.02009)***	(0.02251)***	(0.02499)***
Constant	-49.80166	-33.87427	-36.45956	-25.13249
	(3.62164)***	(4.00166)***	(4.01507)***	(4.80645)***
Observations	1004	973	970	970
R-squared	0.7	0.69	0.62	0.61

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

results depending on the level of qualification and on the type of labour regulation. According to the theoretical model, we should observe a growing relation between working conditions differential and migration. We observe this effect for the protection against discrimination at work and for the social security system. Concerning the protection of labour and employment laws, we observe the contrary. Concerning the protection of collective relation laws, the effect is non significant.

If we look at the results by level of qualification, we clearly see that different workers have different sensitivity to different labour regulations. For protection against discrimination, the *pull effect* is observed both for high-skilled and low-skilled workers.

However, and contrary to the conventional wisdow, only the high-skilled workers (and in a lower extent the medium skilled workers) are sensitive to the social security benefits. Increasing the level of social protection at home will reduce the emigration of high-skilled workers while no effects will be observed for low-skilled workers. On the contrary, level of social protection in the destination country is not a determinant of immigration for these low-skilled workers.

Concerning the protection of collective relation laws, we observe a pull effect for high-skilled and medium-skilled workers while the effect on low-skilled is negative. This latter effect can be explained by what we call the "social distance". For low-skilled workers, with low productivity, access to jobs that will benefit from collective relation laws will be too difficult. These laws may have a positive effect on the insiders but a negative one on the outsiders. If low-skilled workers consider their probability to integrate the labour market and become an insider is too low, these collective protection will be considered as negative for these migrants.

Concerning job protection and employment laws, the effect would be the opposite. These regulation will tend to attract low skilled workers while medium-skilled and high-skilled will tend to flee these kind of regulation.

Our theoretical model is thus confirmed but only for certain labour regulation and certain level of qualification. Increasing social benefits and collective relation laws will tend to attract high-skilled migrants while increasing job protection law will tend to attract low skilled workers.

For developing countries, increasing the level of social protection will tend to retain high-skilled workers. On the contrary for these countries, increasing the level of protection concerning collective relation or job protection will have the opposite effect for high-skilled workers.

4.3 Robustness check

One can argue that this last results can be biased because of problems of autocorrelation between different measures of labour regulation. As we already stated, correlation between this different components of labour regulation is limited (see annex C). Moreover, we calculate for each independant variable its variance inflation factor (VIF). Following Neter, Wasserman, and Kunter (1990), a value greater than 10 is an indication of potential multi-colinearity problems. Table 7 gives the VIF of all variables. According to this index, we do not face here a problem of multicolinearity.

Despite the fact we do not find autocorrelation between different aspects of labour regulation, we estimate the model with each individual aspect of labour regulation alone to check the consistency of our results. Table 8 presents the results only for our variables of labour regulation[20]. From the previous results, we still find an overall positive effects of social security benefits and a negative effect of job protection laws on migration. We also find the disparity between low-skilled and high skilled workers concerning the effects of these two types of regulation. Otherwise, we observe some slight changes concerning the significativity of other variables. However, it is very difficult to interpret these results because of an obvious ommited variable bias.

5 Conclusion

The links between labour standards and social protection from one side and migration from the other side has always been a very sensitive issue. Some political forces argue in developped countries that migrants would be attracted by "too generous" social benefits or labour conditions.

[20]We do not present here the results of all other control variables that do not change from the last estimation

Table 7: Variance Inflation Factors (VIF)

Variable	VIF	1/VIF
lngdp_s	8.01	0.124861
parcomp	5.91	0.169145
polity	4.63	0.215751
labour7a_d	3.78	0.264811
lnyoung_s	3.73	0.267856
socseca_s	3.24	0.308575
lneduc	3.14	0.318437
industrial4a_d	3.12	0.320984
lndist	1.91	0.523790
labour7a_s	1.88	0.532852
socseca_s	1.68	0.593640
lnpop_d	1.68	0.594111
cra_d	1.68	0.595525
migpol	1.61	0.621683
commonlanguage	1.60	0.625834
cra_s	1.56	0.640487
industrial4a_s	1.52	0.657389
contig	1.39	0.720070
lngdp_d	1.36	0.737802
colony	1.31	0.765065
lnpop_s	1.28	0.780756
Mean VIF	2.67	

Table 8: One by one estimations of labour regulation' effects

	(1) lnprobamig	(2) lnprobamighigh	(3) lnprobamigmedium	(4) lnprobamiglow
cra_s	0.228	0.6741	0.40788	-0.18196
	(0.36760)	(0.41941)	(0.39772)	(0.45076)
cra_d	0.30824	0.36399	-0.50995	1.73622
	(0.44143)	(0.49498)	(0.48539)	(0.56031)***
$socseca_s$	0.52439	-0.33516	0.52355	-0.07092
	(0.31120)*	(0.37905)	(0.35316)	(0.38286)
$socseca_d$	1.90793	2.04663	1.96731	-2.37837
	(0.62836)***	(0.70904)***	(0.69277)***	(0.87802)***
$industrial4a_s$	0.81721	1.15592	1.69626	-0.50484
	(0.33235)**	(0.37210)***	(0.36721)***	(0.42703)
$industrial4a_o$	-1.55855	-2.022	-1.0553	-2.41399
	(0.30866)***	(0.33304)***	(0.34043)***	(0.38457)***
$labour7a_s$	0.69906	0.61987	1.10389	0.05187
	(0.27949)**	(0.30067)**	(0.30372)***	(0.37811)
$labour7a_d$	-1.77051	-2.64484	-1.812	-0.33716
	(0.26922)***	(0.28368)***	(0.29640)***	(0.33409)

Estimated coefficients of all control variables are not reported here.
Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

It is clear that the differential of working conditions may be an additional force of migration, like the wage differential is. It was the hypothesis of this paper. However, the economic links that we put in evidence here are much more complex.

First of all, labour standards in the source countries is a very weak determinant of emigration. Whatever is the labour standard studied, we find a non-significant effect of the level in the country of origin. This result is confirmed by a panel-data analysis and our estimates in TSLS to control for a potential problem of endogeneity. The only remarkable exception is the social benefits for high-skilled workers. The most educated workers seem to be much more sensitive to the level of social protection than other workers, both in their country of origin and their country of destination. If a developing country wants to play with its labour regulation to retain the high-skilled workers, it seems that social protection benefits should be a crucial aspect of this politics. All other regulation would not have the same effect.

The other main result is that we observe a strong heterogeneity about the effect of labour conditions and labour regulations depending on the type of standard. Globally, we find that civil rights at work and protection against discrimination, as social protection system in destination countries will tend to attract migrants. On the other side, jobs and employment protection laws will have the opposite effect. Concerning social protection, we find that only high-skilled and medium skilled migrants are attracted by larger social security benefits, while the effect on low skilled workers is not significant. Concerning collective relation laws in destination countries, the effect is positive for high-skilled and medium skilled while negative for low skilled migrants. At the contrary, the effect of jobs and employement protection legislation is negative for high-skileld and medium skilled while positive for low skilled migrants.

Lastly, our estimates concerning the effect of *core* labour standards put also in evidence large differences between high-skilled and low-skilled migrants. If labour standards differential seems to play an attractive role on low-skilled migrants, the effect is the opposite for other categories of workers.

Globally, we find that labour regulations may have an influence on migration flows. Contrary to the conventional wisdow, migrants are not systematically attracted by larger labour standards or generous social protection systems. The final effect will also depend on the capacity for the migrants to integrate labour markets in countries of destination. That's why we observe large differences between high-skilled and low-skilled workers.

Annexes

A Descriptive statistics of multilateral migration flows

Table 9: Distribution of migrants according to receiving countries

		1975	1980	1985	1990	1995
TOTAL	Nb migrants	19 930 853	22 521 662	25 533 157	29 313 872	35 751 993
	low skilled	65.25%	61.53%	57.65%	54%	50.62%
	medium	14.67%	15.96%	16.39%	17.25%	17.06%
	high skilled	20.08%	22.51%	25.97%	28.75%	32.32%
AUSTRALIA	% migrants	10.00%	9.79%	10.14%	9.78%	8.57%
	low skilled	48.07%	41.40%	37.77%	34.87%	35.01%
	medium	20.73%	25.85%	26.87%	29.35%	28.68%
	high skilled	31.20%	32.75%	35.36%	35.78%	36.31%
CANADA	% migrants	13.87%	12.70%	11.72%	11.88%	11.22%
	low skilled	50.19%	46.80%	40.36%	37.09%	29.88%
	medium	9.36%	8.54%	10.34%	11.97%	11.72%
	high skilled	40.45%	44.66%	49.29%	50.94%	58.40%
USA	% migrants	39.16%	42.28%	46.17%	48.54%	49.12%
	low skilled	36.55%	34.88%	30.72%	25.66%	36.44%
	medium	38.17%	35.51%	34.23%	34.04%	23.71%
	high skilled	25.27%	29.62%	35.05%	40.30%	39.85%
France	% migrants	15.00%	14.04%	12.81%	11.56%	10.17%
	low skilled	92.89%	91.23%	88.41%	85.54%	79.40%
	medium	3.10%	3.37%	4.62%	5.90%	8.12%
	high skilled	4.00%	5.40%	6.96%	8.56%	12.48%
UK	% migrants	10.95%	10.49%	9.91%	9.20%	8.71%
	low skilled	78.67%	72.19%	70.22%	68.09%	51.68%
	medium	9.98%	14.94%	13.26%	11.35%	19.96%
	high skilled	11.35%	12.88%	16.52%	20.56%	28.36%
GERMANY	% migrants	10.91%	10.69%	9.26%	9.05%	12.20%
	low skilled	85.14%	82.73%	78.40%	72.75%	71.31%
	medium	6.64%	7.54%	8.99%	10.87%	10.18%
	high skilled	8.22%	9.74%	12.61%	16.38%	18.52%

Source:Defoort (2006)

Table 10: Emigration rates by source countries

		1975	1980	1985	1990	1995
AMERICA	Global rate	1.43%	1.49%	1.84%	1.99%	2.49%
	High skilled rate	2.00%	2.01%	2.48%	2.55%	2.48%
Northern America	Global rate	0.76%	0.79%	0.77%	0.66%	0.63%
	High skilled rate	0.88%	0.89%	1.05%	0.85%	0.71%
Carabean	Global rate	9.66%	10.14%	11.89%	12.37%	12.96%
	High skilled rate	54.21%	47.29%	45.45%	42.24%	38.01%
Central America	Global rate	4.48%	4.66%	6.44%	7.36%	10.22%
	High skilled rate	13.77%	10.82%	12.62%	13.10%	15.21%
Southern America	Global rate	0.50%	0.51%	0.67%	0.75%	0.82%
	High skilled rate	3.57%	3.46%	3.75%	3.73%	3.38%
EUROPE	Global rate	3.99%	4.10%	3.90%	3.68%	2.48%
	High skilled rate	8.62%	8.38%	7.85%	7.11%	4.30%
Eastern Europe	Global rate	2.37%	2.44%	2.33%	2.38%	2.44%
	High skilled rate	7.07%	8.60%	8.50%	8.85%	8.86%
Rest of Europe	Global rate	4.31%	4.43%	4.23%	3.92%	3.55%
	High skilled rate	8.78%	8.30%	7.74%	6.86%	5.64%
incl. UE-15	Global rate	4.29%	4.41%	4.23%	3.95%	3.46%
	High skilled rate	8.63%	8.12%	7.72%	6.90%	5.64%
incl. UE-25	Global rate	0.84%	0.80%	0.77%	0.73%	0.67%
	High skilled rate	8.82%	7.38%	6.07%	4.79%	3.99%
AFRICA	Global rate	0.87%	0.91%	0.94%	0.94%	1.03%
	High skilled rate	7.25%	7.63%	9.51%	8.82%	8.95%
Northern Africa	Global rate	2.52%	2.56%	2.35%	2.19%	2.13%
	High skilled rate	9.90%	8.19%	9.17%	6.61%	6.53%
Sub-Saharan Africa	Global rate	0.34%	0.38%	0.47%	0.52%	0.65%
	High skilled rate	6.16%	7.28%	9.71%	10.66%	10.83%
ASIA	Global rate	0.35%	0.38%	0.46%	0.51%	0.58%
	High skilled rate	3.81%	4.18%	4.85%	4.73%	4.54%
Eastern Asia	Global rate	0.17%	0.17%	0.24%	0.29%	0.32%
	High skilled rate	2.22%	2.41%	3.13%	3.11%	3.05%
Central and Southern Asia	Global rate	0.25%	0.25%	0.30%	0.34%	0.39%
	High skilled rate	3.33%	3.94%	3.80%	4.13%	4.04%
South-Eastern Asia	Global rate	0.57%	0.65%	0.97%	1.11%	1.27%
	High skilled rate	9.15%	9.44%	11.32%	10.11%	9.21%
Western Asia	Global rate	3.28%	3.55%	3.19%	2.84%	2.90%
	High skilled rate	12.64%	9.48%	9.29%	7.02%	5.86%
OCEANIA	Global rate	1.92%	2.10%	2.76%	2.71%	3.28%
	High skilled rate	3.66%	3.83%	4.67%	4.55%	5.14%
Australia and New Zealand	Global rate	1.78%	2.06%	2.59%	2.51%	3.00%
	High skilled rate	3.16%	3.30%	3.79%	3.62%	4.03%
Other countries in Pacific	Global rate	2.77%	2.32%	3.72%	3.80%	4.77%
	High skilled rate	45.55%	47.65%	50.84%	52.14%	48.71%

Source:Defoort (2006)

B PCA on labour standards indexes

Table 11 gives the eigenvalues found with PCA made on our four variables (CL, FACB, DISCRI, NR). The choice of the optimal number of factors to retain in order to get a satisfactory description of the data is not clear-cut. Two commonly used criteria are the Kaiser criterion and the scree (or Cattell) test. The Kaiser criterion expresses the idea that if a factor explains more than the origial variable, we extract it. We then consider factors with eigenvalues greater than one[21]. The other method, the scree test, is a graphical one. In x-coordinate, we have the number of eigenvalues and i y-coordinate, the value. We obtain a decreasing fuction. The point where the break is the most important gives the number of eigenvalues to extract. According to these two criteria, it is possible to retain only the first factor to have a good description of the fundamental rights of workers' global level. It is then possible to determine endogeneously the weight of each variable in the agregated index of core labour standards (factor 1). Table 1 gives the results obtained. The first column gives the *factor loadings*, ie. the correlation coefficient between each of the variables and the coordinates on the factor. We observe a higher correlation with child labour and freedom of association. The correlation is lower with discrimination. The second column gives the *communality* for each variable. It corresponds to the index' percentage of variation which is linked to the factor. Here the hypothesis of a common tendancy (the global enforcement of core labour standards) is validated by the significant communilaties between each indexes. Only this information will be measured in our agregated index.

Table 11: Factor Analysis

Variable	Factor 1	Communality	Uniqueness
Child Labour (CL)	0.80036	0.64058	0.35942
Freedom of Association (FACB)	0.80214	0.64343	0.35657
Discrimination (DISCRI)	0.58064	0.33714	0.66286
ILO ratifications (NR)	0.64251	0.41282	0.58718

[21] As the sum of the eigenvalues of the p variables is equal to p.

Table 12: Eigenvalues PCA

Factor	Eigenvalue	Difference	Proportion	Cumulative
1	2.03396	1.17982	0.5085	0.5085
2	0.85415	0.22534	0.2135	0.7220
3	0.62880	0.14572	0.1572	0.8992
4	0.48308	.	0.1208	1

C Correlation matrix of different labour standards

Table 13: Cross-correlation table of different labour standards

Variables	cra_q	socseca_s	industrial4a_s	labour7a_s	ls_s
cra_s	1.000				
socseca_s	0.115	1.000			
industrial4a_s	0.162	0.277	1.000		
labour7a_s	0.104	0.266	0.486	1.000	
ls_s	0.075	0.625	0.172	0.202	1.000

D Source and description of the variables

Variable	Description	Source
logemigall	Overall rate of emigration (in log)	Defoort (2006)
logemigter	Rate of emigration for tertiary educated workers (in log)	Defoort (2006)
loggdp	GDP per-capita (in logarithm) in PPP	World Development Indicators 2006
ls_o	Level of Core Labour Standards 0: weak labour standards 1: good labour standards	Bazillier (2009)
logpop	Population (in logarithm)	World Development Indicators 2006
logeduc	Percentage of "secondary school attained" in the total pop	Barro and Lee (1996, 2000)
young	Percentage of 15-24 years old in the total pop	World Population Prospect 2008 revision
polity	Agregate index of democracy	Polity IV project
parcomp	Competitiveness of participation	Polity IV project
intconf	Risk of internal conflict	ICRG
extconf	Risk of external conflict 0: High risk of conflict 12: low risk	ICRG
labourforce	Total labour force (in percentage of total population	World Development Indicators
proc99b	Natural logarithm of the number of different procedures that a start-up business has to comply with to obtain a legal status i.e. to start operating as a legal entity	Djankov et al. (2002)
contiguity	dummy equal to 1 if common border	CEPII
common language	dummy equal to 1 if same language	CEPII
colony	dummy equal to 1 if former colonial link	CEPII
lndist	simple distance (most populated cities, in km)	CEPII
migpol	Migration index extracted from Commitment Development Index 2003	Center For Global Development Grieco and Hamilton (2004)
lnprobamig	Overall rate of bilateral migration (in log)	Marfouk and Docquier (2004)
lnprobamighigh	rate of bilateral migration for tertiary educated workers	Marfouk and Docquier (2004)
lnprobamigmedium	rate of bilateral migration for secondary educated workers	Marfouk and Docquier (2004)
lnprobamiglow	rate of bilateral migration for primary educated workers or lower	Marfouk and Docquier (2004)
ls_s	level of core labour standards (2000) in source country	Bazillier (2008)
ls_d	level of core labour standards (2000) in destination country	Bazillier (2008)
cra	Measures the degree of protection of vulnerable groups againts employment discrimination	Botero, Djankov, Porta, and Lopez-De-Silanes (2004)
socseca	Measures social security benefits as the average of: (1) Old age, disability and death benefits; (2) Sickness and health benefits; and (3) Unemployment benefits	Botero, Djankov, Porta, and Lopez-De-Silanes (2004)
industrial4a	Measures the protection of collective relations laws as the average of: (1) labour union power and (2) Collective disputes.	Botero, Djankov, Porta, and Lopez-De-Silanes (2004)
labour7a	Measures the protection of labour and employment laws as the average of: (1) Alternative employment contracts; (2) Cost of increasing hours worked; (3) Cost of firing workers; and (4) Dismissal procedures.	Botero, Djankov, Porta, and Lopez-De-Silanes (2004)

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