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Employment Protection and Migration *

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Abstract

Interactions between social policies and migration are numerous. This paper proposes to analyze the influence of employment protection on bilateral migration. We show theoretically how employment protection may affect the probability to migrate, depending on (i) the effect of employment protection on wages, (2) the effect on the probability to be employed, and (3) relative preferences over wages or employment. Empirically, we show that employment protection differential between source and destination countries is an important determinant of bilateral migration. Bilateral migration of workers is negatively affected by this differential of employment protection. This effect is stronger for high-skilled workers. We also find that the effect of the differential is largely explained by the level of employment protection in destination countries. This factor does not have a significant impact in origin countries. These results are obtained controling econometrically for the high proportion of zero using Heckman two steps procedure. Overall, we find that, contrary to the conventional wisdom, migrants are not attracted by protective legislation. On the contrary, they tend to move where this protection is closer to the one of their origin country.

Résumé

Les intéractions entre les politiques sociales et les migrations sont nombreuses. Ce papier propose d'analyser l'influence de la protection de l'emploi sur les migrations bilatérales. Nous montrons théoriquement comment la protection de l'emploi peut affecter la probabilité de migrer, dépendant notamment de (1) l'effet de la protection de l'emploi sur les salaires, (2) l'effet sur la probabilité de trouver un emploi, (3) et la préférence relative pour le salaire ou pour l'emploi. Empiriquement, nous montrons que le différentiel de protection de l'emploi entre le pays d'origine et le pays de destination est un déterminant important de la migration bilatérale. La migration bilatérale de travailleurs est négativement affectée par le différentiel de protection de l'emploi. Cet effet est plus fort pour les travailleurs qualifiés. Nous trouvons également que l'effet du différentiel s'explique largement par le niveau de protection d'emploi dans les pays de destination. Ce facteur n'a pas d'impact significatif dans les pays d'origine. Ces résultats sont obtenus en contrôlant économétriquement par la forte proportion de zéros, en utilisant une procédure d'Heckman en deux étapes. Globalement, et contrairement aux idées reçues, nous trouvons que les migrants ne sont pas attirés par une législation protectrice. Au contraire, ils ont tendance à migrer là où le niveau de protection est plus proche de celui de leur pays d'origine.

J.E.L: J8, O1, F2

Key-words: Migration, employment protection, labour markets

1 Introduction

Debates on immigration in developed countries have always been very sensitive and polemic. Nationalist politicians have often played with the fears of the population describing horde of immigrants attracted by generous social models, stealing employments to local workers. On the contrary, some others argue that immigration is the only way to save pension systems and more generally welfare states where the aging population is growing. In most industrialized states, retired population will become more or less equal to the active population. In their view, the only way to save the system is to attract new workers and thus put in place attractive immigration policies. The debate is very different in developing countries where people are concerned by mazimizing the positive effects of emigration in terms of remittances and education incentives, and by minimizing the negative effects of brain drain and emigration of high-skilled workers.

The linkages between migration flows and social policies or labour conditions are complex. The interest may diverge between countries of emigration and countries of immigration. However, the understanding of these linkages may lead to strong policy implications. It is important for countries of emigration to understand which aspect of social policies may have an effect on the probability to migrate of different workers categories. For countries of immigration, linkages between social policies and immigration regulation may become crucial in a context of a persistent unemployment and weak welfare systems. Of course, social policy is very large and lots of different aspects may be studied: working conditions, labour standards, employment regulations or social protection. We will focus in this paper more specifically on employment protection. Employment protection is often seen as a way to increase job security. It is therefore interesting to see how migrants react towards protection and security in labour markets. This paper addresses the question of the employment protection impact in source and in destination countries on bilateral migration flows, more precisely on the probability to migrate from one country to one another.

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. Other works focused on the influence of *immigration* on local labour markets. Borjas (1999) showed theoretically that immigrants should increase national income and the greater the differences in productive endowments between immigrants and native, the higher are the gains. Empirically a large number of studies tried to estimate the influence of immigration on wages using spatial correlation approaches (Borjas, 1983; Grossman, 1982; Borjas, Freeman, and Katz, 1997; Schoeni, 1997). Other approaches tried to measure this effect through natural experiment, like the influencial paper of Card (1990) which measured the impact of "Mariel" immigration flows from Cuba to Miami in September 1980. However, there is still no consensus on the real effects of immigration. And if lots of studies try to estimate the effect of immigration on social conditions, few studies explored the influence of social conditions on migration. The "welfare migration" phenomenom has been explored by several authors (see Brueckner (2000) for an overview) but these studies mainly focused on the influence of social expenditures and not labour market institutions as such. Razin, Sadka, and Suwankiri (2009) showed that welfare state benefits have an adverse effect on migrants skill composition. Concerning the influence of labour market institutions, Geis, Uebelmesser, and Werding (2008) found, in a microeconomic study, that employment protection, union coverage and unemployment benefits have a positive effect on migration.

Our paper focus specifically on the influence of employment protection in origin and destination countries, using macroeconomic data. The first contribution of this paper is to show how employment protection may affect migration decision through an expected impact on wages and employment from a simple model of migration derived from Grogger and Hanson (2008). The second contribution is the finding that differential of employment protection between source and destination countries has a strong, significant and negative impact on migration. Effects are stronger for high-skilled workers. Relative preferences over wages or employment, distinct impact on wages and employment may explain these results. These results are obtained taking into account the high proportion of zero through a Heckman two-steps procedure. The third contribution of the paper is that, if workers are sensitive to employment protection, it is explained by a *pull effect*, ie. level of employment protection in destination countries. Protection in source countries (as a *push* factor) does not have a significant impact.

The paper is organized as following. Section 2 develops a stylized theoretical model where employment protection affects wages and the probability to get an employment. Section 3 presents data used and econometric issues. Section 4 presents empirical results. Section 5 concludes.

2 Theoretical framework: An augmented version of the Grogger and Hanson (2008) model

The main goal here is to see how employment protection may affect the utility of migrants throught a possible effect on their expected wages or the probability to get a job.

Employment protection may be defined as follow: "*Any set of regulations, either legislated or written in labor contracts that limit the employer's ability to dismiss the workers without delay or cost*" (Pissarides, 2001). OECD (1999) lists five kind of employment protection: (1) administratives procedures, (2) Notice of determination, (3) Severance payment, (4) Difficulty of dismissal, (5) additional measures for collective dismissals. Botero, Djankov, Porta, Lopez-De-Silanes, and Shleifer (2004) propose a broader definition including (i) alternative employment contracts, (ii) cost of increasing hours worked, (iii) cost of firing workers, and (iv) dismissal procedures. Their index reflects *"the incremental cost to the employer of deviating from a hypothetical rigid contract, in which the conditions of a job are specified and a worker cannot be fired"*. We will use this index to capture empirically the effect of employment protection.

2.1 The scale effect

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). The goal here is to include the potential effect of employment protection both in source and destination countries. We try to capture the possible effects on wages and employment including them in the utility function of workers. We will use a model developed by Grogger and Hanson (2008), based on a linear utility function. According to this model, migration flows are driven by absolute wage differences instead of relative ones. They show that this model is clearly more consistent with the data that models using a log-linear utility function.

Consider migration flows between source and destination countries. Workers are characterized by their level of education. We will here only consider two categories of workers: primary educated workers and tertiary educated workers. Let the wage in destination country h be:

$$w_h^j = wo_h + \lambda_h^j P_h + \delta_h^j D_s^j \tag{1}$$

where wo_h is the wage for an unskilled worker in country h (without the wage effect of employment protection), P_h is the level of employment protection and λ_h^j is the wage effect of such protection for worker with skill j in destination countries. δ_h^j is the *wage premium*, ie. the absolute wage difference between high-skilled workers and unskilled workers[1]. $D_s^j = 1$ for workers with skill j, 0 otherwise[2].

There is no consensus in the literature on the final effect of employment protection on wages. Lazear (1990) predicts that firing costs drive wage down in a competitive economy with decentralized wage setting. In this model, the worker transfers the amount of the severance pay to the

[1] We should notice here that δ is not the return to education *per se* but an absolute difference between skilled worker' wages and unskilled worker' wages. We do not focus here on relative differences of wages and utilities. Grogger and Hanson (2008) show that migration flows are driven by absolute wage differences, not relative wage differences. We will then use a linear utility function instead of a log-linear utility function. Concerning the wage, Grogger and Hanson (2008) use a log-linear definition of wages which allow them to introduce directely the return to education. However, they only use this return to education when they estimate log-linear utility function models. When they estimate their utility function model, they only focus on absolute wage differences between skilled and unskilled. By defining as such the wage of skilled and unskilled workers, we make the same choice here. Following our linear utility model, we will then only need absolute wage differences.

[2] For simplificatiion, we assume there is no skill deprivation between source and destination countries, so $D_s^j = D_h^j = D^j$.

firm on signing the contract[3]. Pissarides (2001) also suggests a negative effect of employment protection on wages. In his framework, workers are risk adverse and accept a lower income during the productive period in order to receive a higher income during unproductive times.

Another field of the litterature is based on the insider/outsider theories[4]. Bertola (1990) considers that the final effect of employment protection will depend on the wage-setting institutions. When trade unions only care about working members, employment protection will increase total labor income for insiders. These workers benefit from an additional bargaining power in the wage process[5]. In an efficiency wage framework, Guell (2000) shows that severance payments increase wages of insiders in equilibrium. Garibaldi and Violante (2005) argue that workers face a trade-off between their wish for a higher wage (the income effect) and the probability to get fired (the job security effect). Under certains restrictive conditions, if the wage-setting institution is a monopolitic union and the elasticity of the firm's firing probability to wages is low enough, workers will demand higher wages when employment protection rises. Other authors consider that enhanced employment protection will increase the incentives for the firm to invest in firm-specific human capital (Arulampalam, Booth, and Bryan, 2004). Nickell and Layard (1999) show that these investments may pay off in terms of higher productivity and higher wages.

It is difficult to conclude, both from a theoretical and empirical[6] perspectives on the final effects of employment protection on wages. It will mainly depend on the wage-setting institutions and the rigidity of nominal wages. In our model, λ_h^j could be negative if employment protection has a negative effect (Lazear, 1990; Pissarides, 2001), positive if employment protection increases bargaining power of workers and thus their wages (Bertola, 1990; Guell, 2000).

[3]However, in the empirical part of this paper, he shows that employment protection reduces employment because of wage rigidities.

[4]See Lindbeck and Snower (2001) for an overview.

[5]If wage negotiations take place at the individual level, total received wages might not be affected. Outsiders offer to work for a very low wage in order to become an insider and insiders afterwards will raise wage demands above the competitive level. When the wage-setting union takes into consideration both interests of insiders and outsiders, the set-up lifeline wages would also remain unaffected.

[6]Establishment-level study (Blanchflower, Oswald, and Garrett, 1990) and cross-country study (Holmlund and Zetterberg, 1991) suggest insider wage gains. van der Wiel (2008), using a Dutch dataset of individuals of all tenures and backgrounds, also finds a strong positive effect of employement protection on wages. Leonardi and Pica (2007) found the opposite effect using Italian micro-data.

The wage effect of employment protection may also differ according to the skill level ($\lambda_h^1 \neq \lambda_h^2$). This asumption follows empirical results in the literature showing that the effects are not similar for high-skilled and low-skilled workers. van der Wiel (2008) finds that an additional month of notice increases the wages of low-skilled workers by 5.75% against only 2.77% for high-skilled workers. Similarly, Leonardi and Pica (2007) finds that the introduction of severant payment for small firms in Italy explained a decrease of the returns to tenure.

We use a very simple migration cost function:

$$C_{sh}^j = f_{sh} + g_{sh}^j D^j \tag{2}$$

f_{sh} is a fixed cost of migration. Migration costs are influenced by the linguistic and geographic distance between source and destination countries. On this aspect, the "capacity to integrate the labour market" may also be defined as a "social distance". If the gap between labour standards is too high (a high social distance), the capacity to integrate the labour market will be lower. We also include a migration cost which depends on the skill level (g_{sh}^j) which can be positive or negative. It includes for instance psychic cost or the time needed to find a job which can differ according to the skill level.

We define a linear utility function where the utility of migrating from source country s to destination country h is a linear function of the difference between the wage from one side and, the migration cost and the probability to be unemployed from another side, as well as an unobserved idisyncratic term ϵ_{sh}[7]. We also control for the unobserved characteristics of country h that may affect the migrant' utility by introducing A_h[8] into the utility function. One of the "destination country" is the source country itself, for which migration costs are zero. The utility function is

[7]Here, we follow Grogger and Hanson (2008) by defining a linear utility function and not a log-linear utility function like in Borjas (1987). The main implication of this asumption is that migration are driven by *absolute* income differentials not relative ones. Grogger and Hanson (2008) show that *"The data strongly reject log utility, implying that migration responds to absolute, not relative, rewards to skill"*. We follow them in this asumption.

[8]Mayda (2008) and Grogger and Hanson (2008) show that by not controlling for unobserved migration costs in the scale regression, the impact of earning on migration is underestimated. The lack of fixed effects may thus explain the unstable relationship between income and migration in the literature.

therefore:

$$U_{sh}^{j} = \alpha w_{h}^{j} - \beta C_{sh}^{j} - \chi Prob(u)_{h} + A_{h} + \epsilon_{sh} \tag{3}$$

The fact that unemployment level affects the migration decision is far to be new in economics. In Harris and Todaro (1970) framework, unemployment will lower the expected wage for migrants and thus the incentive to migrate. Here, the probability to get unemployed has a direct negative effect on the level of utility.

As the explanation of unemployment is not the core of this paper, we simplify the analysis considering the probability to be unemployed is only a function of employment protection.

$$Prob(u)_{h} = \delta + \gamma^{j}.P_{h} \tag{4}$$

with $\delta \in [0, 1]$ an exogeneous rate of unemployment and γ^{j} the influence of employment protection on the level of unemployment.

Concerning the sign of the parameter γ^{j}, we do not set conditions due to the lack of consensus in the literature concerning the final effect of employment protection on employment. Lazear (1990) showed that the effect of employment protection may be neutral if wages can be adjusted in order to take into account the additional cost for the firms. The cost is thus beared by workers[9]. Nevertheless, we may observe a decline in employment if wages increase due to an improved bargaining power for workers (Bentolila and Dolado, 1994)[10]. On the contrary, employment may increase if employment protection increases the level of productivity through better cooperation between workers (Fella, 2004) or through more training (Belot, Boone, and van Ours, 2002). Final effects on employment will then depend on (1) the effect of employment protection on wages,

[9] However, he finds empirically a fall in employment due to an increase in employment protection

[10] It is also what Lazear (1990) found empirically.

(2) the effect on productivity. Empirical results are also not clear cut. Blanchard and Portugal (2001) show that rates of job creation and destruction are lower in Portugal than in the US due to a higher level of employment protection. Gomez-Salvador, Messina, and Vallanti (2004) find a significant lower job creation and a non-significant effect on job destruction. Therefore, γ^j can be positive or negative.

Substituting equations 1 and 2 into equation 3, we obtain:

$$U_{sh}^j = \alpha(wo_h + \lambda_h^j P_h + \delta_h^j D_s^j) - \beta(f_{sh} + g_{sh}^j D^j) - \chi\delta - \chi\gamma^j.P_h + A_h + \epsilon_{sh} \quad (5)$$

As we can see, the effect of employment protection on utility is theoretically unclear (the sign of $\chi\gamma^j$ is not defined and employment protection may also affect w_h). It will depend on the relative effect on wage (λ_h^j), on employment (γ) and on the relative preference for wage and for employment. Parameters α and χ may be interpreted as relative preferences respectively for the wage or for the employment. If labour markets are fully flexible and the effect on wage is strictly the opposite of the effect on employment, the net effect of employment protection on the level of utility will only depend on the parameters α and χ. If $\chi > \alpha$, job security is considered as more important than the wage effect. It may be interpreted in some ways as a parameter of risk aversion.

We assume that workers choose whether or not to migrate so as to maximize their utility. We also assume that ϵ_{sh} follows an i.i.d. extreme value distribution. Following Grogger and Hanson (2008), we can apply the result of McFadden (1974) to write the log odds of migration to destination country versus staying in the source country as[11] :

[11] Alternatively, we can consider that this exogeneous rate of unemployment is specific to each country, ie. to have δ_h instead of δ. If $\delta_h \neq \delta_s$, we have:

$$\ln \frac{N_{sh}^j}{N_{ss}^j} = \alpha[(wo_h - wo_s) + (\delta_h^j - \delta_s^j)] - \beta(f_{sh} + g_{sh}^j) + (\alpha\lambda^j - \chi\gamma^j)(P_h - P_s) - \chi(\delta_h - \delta_s) + (A_h - A_s) \quad (6)$$

However, it is very difficult to assess empirically the difference of unemployment for a large number of countries. Comparibility of unemployment data is low. And in most of developing countries, informal work is a substitute of unemployment. Official level of unemployment thus does not describe the real level of underemployment.

$$\ln \frac{N_{sh}^{j}}{N_{ss}^{j}} = \alpha[(wo_h - wo_s) + (\delta_h^j - \delta_s^j)] - \beta(f_{sh} + g_{sh}^j) + (\alpha\lambda^j - \chi\gamma^j)(P_h - P_s) + (A_h - A_s) \quad (7)$$

Where N_{sh} is the population share in s that migrates to h and N_{ss} is the population share in s that remains in s. The probability to migrate will then depend on three main parameters: the difference of wages, the difference of employment protection and the migration cost. Differences of wages are expected to influence positively migration ($\alpha > 0$). Migration costs may influence negatively the probability to migrate. And the effect of employment protection is undefined, depending on the sign of the parameter $(\alpha\lambda^j - \chi\gamma^j)$. This equation will be used to estimate the *scale* of migration.

For simplification, we assume that the variable cost of migration is a function of the fixed cost:

$$g_{sh}^j = \theta^j f_{sh} \quad (8)$$

We can rewrite equation (7) as follow:

$$\ln \frac{N_{sh}^{j}}{N_{ss}^{j}} = \alpha[(wo_h - wo_s) + (\delta_h^j - \delta_s^j)] - (\beta + \beta\theta^j)(f_{sh}) + (\alpha\lambda^j - \chi\gamma^j)(P_h - P_s) + (A_h - A_s) \quad (9)$$

Here the variables measuring migration costs will be the same for different skills. However, the effect of each variable may differ according to the skill of the migrant.

The alternative would be to consider only unemployment level in destination countries which are mainly OECD countries where unemployment data are homogeneized. However, if unemployment data are not available or not relevant in source countries, unemployment level in destination countries would be empirically captured by the fixed effect A_h. Therefore, we assume that the exogeneous rate of unemployment is equal accross countries ($\delta_h = \delta_s$).

2.2 The selection effect

From the scale equation, we can deduce the selection equation to understand how migrants are selected according to their respective skill.

With $j = 1$ for low-skilled workers and $j = 2$ for high-skilled migrants, we can write:

$$\ln \frac{N_{sh}^1}{N_{ss}^1} = \alpha(wo_h - wo_s) - (\beta + \beta\theta^1)(f_{sh}) + (\alpha\lambda^1 - \chi\gamma^1)(P_h - P_s) + (A_h - A_s) \tag{10}$$

$$\ln \frac{N_{sh}^2}{N_{ss}^2} = \alpha[(wo_h - wo_s) + (\delta_h^2 - \delta_s^2)] - (\beta + \beta\theta^2)(f_{sh}) + (\alpha\lambda^2 - \chi\gamma^2)(P_h - P_s) + (A_h - A_s) \tag{11}$$

We then can write the *selection ratio model* as such:

$$\ln \frac{N_{sh}^2}{N_{ss}^2} - \ln \frac{N_{sh}^1}{N_{ss}^1} = \alpha[(\delta_h^2 - \delta_s^2)] - (\beta\theta^2 - \beta\theta^1)f_{sh} + [(\alpha\lambda^2 - \alpha\lambda^1) - (\chi\gamma^2 - \chi\gamma^1)](P_h - P_s) + (A_h^2 - A_h^1) - (A_s^2 - A_s^1) \tag{12}$$

Migrants will be "positively selected" if the share of skilled migrants is higher than the share of unskilled migrants. Emigrants will then be positively selected if wage difference between the source and destination is higher for skilled workers than for unskilled workers, all things being equal. Emigrants will also be positively selected if employment protection effects are more positive (or less negative) for high-skilled workers.

3 Data, empirical specification and econometric strategy

According to the theoretical model, the *scale* (equation 7) and the *selection* (equation 12) of migration depend on three parameters: the difference of wages, the difference of employment protection and migration costs.

For migration data[12], we use the database built by Marfouk and Docquier (2004) which provides new estimates of skilled and unskilled bilateral migration rates for 192 countries in 2000. This database covers 92.7 percent of the OECD immigation stock[13]. Employment protection is measured using the index of Botero, Djankov, Porta, Lopez-De-Silanes, and Shleifer (2004). This index is the mean of subindexes measuring (i) alternative employment contracts, (ii) cost of increasing hours worked, (iii) cost of firing workers, and (iv) dismissal procedures. The higher is the index, the higher is employment protection[14].

Concerning wage data, it is very difficult to find relevant data for a large sample of countries including lots of developing countries. Different databases exist (like the Luxembourg Income Study or the ILO wage database), however the number of countries is too limited for our sample, especially for developing countries[15]. Another possibility is to use GDP per capita as a proxy of individual income. However, doing so, we won't be able to distinguish a wage for skilled and unskilled workers.

We then use a methodology proposed by Grogger and Hanson (2008). They propose to use the GDP per capita and GINI coefficient to rebuild an estimate of income for the 20th percentile and the 80th percentile in the country. The GDP per capita for the 20th percentile will then be considered as a proxy of the unskilled wage while the GDP per capita for the 80th percentile will be considered as a proxy for the skilled wage. If we assume that income has a log-normal distribution, Gini coefficients can be used to estimate the variance of log income (see Annex B for details of calculation). GDP per capita are extracted from World Development Indicators database while GINI coefficients are from WIDER.

The cost of migration is approximated by several bilateral variables. All fixed cost which

[12]See Annex A for a detailed description of the variables and the sources.

[13]However, this database does not take into account illegal migrations. To the best of our knowledge, no migration databases including a large sample of countries include this information.

[14]The index is included between 0 and 1.

[15]The alternative would be to use only wage data for destination countries which are mainly developped countries where this information is available. However, as we include origin and destination fixed effect in our estimates, this variable will be dropped in the estimation.

are specific to the origin or destination countries will be captured by the fixed effects. We then only have to control for bilateral variables 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[16]. 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. We also add a bilateral variable which take the value of 1 if the two countries are from the Shengen area.

Following equation 7, the specification chosen to estimate the scale of migration will be the following:

$$\ln \frac{N_{sh}^{j}}{N_{ss}^{j}} = \rho_0 + \rho_1(w_h^j - w_s^j) + \rho_2(f_{sh}) + \rho_3(P_h - P_s) + A_s + A_h + \epsilon \tag{13}$$

If we write $n_{sh}^2 = \frac{N_{sh}^2}{N_{ss}^2}$, $n_{sh}^1 = \frac{N_{sh}^1}{N_{ss}^1}$, $a_h = A_h^2 - A_h^1$ and $a_s = A_s^2 - A_s^1$, the selection ratio model can be specified as follow[17]:

$$\ln \frac{n_{sh}^2}{n_{sh}^1} = \rho_0 + \rho_1[(w_h^2 - w_s^2) - (w_h^1 - w_s^1)] + \rho_3(f_{sh}) + \rho_4(P_h - P_s) + a_h + a_s + \epsilon \tag{14}$$

ϵ are the residuals which we assume to be i.i.d. All estimations firstly use OLS estimators and standard errors are clustered at the origin-destination-couple-level. However, we should take into account one important feature of our migration database which is the high proportion of zero[18] for the dependant variable (26% in the total population database) that may lead to inconsistent estimates. The use of a log specification will drop all zero observations creating

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

[17]Here we assume that $\delta_h^2 = w_h^2 - w_h^1$. If we look to the equation 1, formally we would have obtained $\delta_h^2 = w_h^2 - wo_h - \lambda_h^j P_h$ with $wo_h = w_h^1 - \lambda_h^1$. If employment protection has *globally* the same effect on skilled and unskilled workers, this asumption will be true. Here we consider that even if the effects differ, the wage effect of employment protection will be marginal compared to the skill wage premium. The difference between the two wages can be considered as a satisfactory approximation of δ_h^2.

[18]This high proportion number of zero is easily understandable in our case. According to the theoretical model, workers will decide to not move abroad if their level of utility defined in equation 5 is higher at home than in other countries. This can be explained by low wage differential or high migration costs.

biaised estimates. This problem has often be ignored in the literature on migration while it is relatively common in the international trade literature (Linders and de Groot, 2006). Some recent papers on migration deals with the high proportion of zero and propose econometric strategies to correct this biais (Beine, Docquier, and Ozden, 2009; El Yaman, Kugler, and Rapoport, 2007). We thus propose to use Heckman two-step regressions providing consistent estimates in the case of selection bias. The first step is a probit estimate of the probability to have a positive migration flow (selection equation). Estimations using Heckman two steps strategy generally propose an additional instrument for this selection equation. However, as stressed by Wooldridge (2002), the use of an additional instrument in the selection equation is not strictly necessary. As it is very difficult to find a convincing instrument which may explain the decision to migrate but not influence the size of migration flows, we decide to run two-steps Heckman estimates without additional instrument[19]. The second step then estimate the magnitude of the probability to migrate.

Another potential econometric problem is the endogeneity bias. Even if there is no consensus in the literature on the final effect of immigration on social conditions in destination countries, migration flows by changing the size and the structure of the labour force may affect wages and social legislations (including employment protection) both in destination and source countries. However, we consider this is not a problem in our case as we focus on *bilateral* migration flows. If total immigration flows *may* affect wages or labour standards, the probability that immigration from one specific countries or emigration to one specific country change the social structure of sending or receiving countries is very low. Moreover, the risk of omitted variables, which is usually common in cross-country analysis, is low because of the inclusion of fixed effects in the estimations.

[19] As noticed by Wooldridge (2002), the problem to not use an additional instrument is the high correlation between the Mills ratio and the other variables in the second equation. This will lead to a lower significancy of the coefficients.

4 Empirical Results

4.1 Influence of employment protection differential on the *scale* of migration

Table 1: Estimates of bilateral migration flows

	Total Migration ln[probamig] OLS	Total Migration ln[probamig] Heckman	Total Migration select Heckman
difflabour	0.378	-5.389***	5.428
	(0.532)	(-12.69)	(0.00405)
diffgdp	-8.57e-06	9.90e-05***	0.000500
	(-0.892)	(6.390)	(0.0336)
contig	1.513***	1.533***	1.296
	(6.596)	(9.376)	(1.514)
comlang_off	1.170***	1.183***	1.389***
	(9.005)	(9.986)	(3.411)
colony	1.688***	1.701***	1.195
	(7.173)	(10.17)	(1.274)
dist	-0.000142***	-0.000146***	-0.000352***
	(-11.72)	(-13.52)	(-6.427)
Schengen	-0.163	-0.194	-1.307***
	(-1.051)	(-1.285)	(-2.580)
mills		0.566***	
		(3.391)	
Constant	-8.792***	-8.331***	-5.132
	(-27.88)	(-15.37)	(-0.0245)
Origin fixed effect	YES	YES	YES
Destination fixed effect	YES	YES	YES
Observations	1696	2052	2052
R-squared	0.792		

Robust t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The main results concerning the estimates of the scale of migration (equation 13) are given by tables 1, 2, and 3[20]. All estimations use origin and destination country fixed-effects. Table 1 gives the results for the determinants of overall bilateral migration flows. The first colum gives the result using robust OLS estimator. The second column gives the outcome results using Heckman estimation and the third column the result of the selection equation using the same technique. The inverse Mills ratio is strongly significant suggesting a bias in OLS estimates due to a selection bias (here the high number of zero for the dependant variable). Here, labour protection differential has a strong negative effect on the probability to migrate. The higher is the differential, the lower will be the bilateral migration flows. Contrary to the conventional wisdom, migrants do not seem to look for more protective labour legislations. A large gap between labour legislations may be seen as a "social distance" that will increase migration costs. According to the theoretical model, three interpretations can be made: (1) the effect of labour protection on wages is negative, inducing a negative parameter λ_h^j, (2) the effect of labour protection on the risk of unemployment is more negative than the effect on the wage ($|\gamma^j| > |\lambda^j|$ with $\lambda^j < 0$), or (3) $\chi > \alpha$ which may be interpreted as a preference for job security over wage premium.

All other control variables take the expected sign except the Shengen dummy which is not significant. The GDP per capita differential takes the expected positive sign. The contiguity, common language, common colonial past influences positively bilateral migration flows while distance has a negative impact.

The selection equation (the third column of table 1) can be interpreted as an estimate of a probability to migrate (while the second column is an estimate of the probability to choose a specific location once the migration choice has been made). Here the labour protection differential is not significant suggesting employment protection is in average not a factor of emigration. Once workers decide to migrate, they choose the destination country taking into consideration the labour protection differential.

Tables 2 and 3 give results for respectively high-skilled workers and low skilled workers.

[20] We also estimate a similar model using log-linear utilities (the main difference is all explanatory variables are in logarithm). Results are not presented here but are relatively similar.

Table 2: Estimates of bilateral migration flows (High-skilled workers)

	High-skilled migration ln[probamig] OLS	High-skilled migration ln[probamig] Heckman	High-skilled migration select Heckman
difflabour	-0.0425	-17.80***	7.135
	(-0.0640)	(-16.33)	(0.0226)
diffgdp80	5.52e-05***	2.59e-05*	0.000350
	(5.419)	(1.797)	(0.0251)
contig	1.040***	1.048***	0.777
	(4.589)	(6.480)	(0.969)
comlang_off	1.375***	1.385***	1.511***
	(10.97)	(12.05)	(3.361)
colony	1.442***	1.447***	0.888
	(6.700)	(9.181)	(1.016)
dist	-0.000132***	-0.000135***	-0.000352***
	(-11.15)	(-13.18)	(-6.996)
Schengen	0.0583	0.0467	-0.757
	(0.378)	(0.303)	(-1.602)
mills		0.240	
		(1.481)	
Constant	-9.527***	-4.234***	-4.511
	(-15.46)	(-6.745)	(-0.147)
Origin fixed effect	YES	YES	YES
Destination fixed effect	YES	YES	YES
Observations	1474	1825	1825
R-squared	0.831		

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3: Estimates of bilateral migration flows (Low-skilled workers)

	Low-skilled migration ln[probamig] OLS	Low-skilled migration ln[probamig] Heckman	Low-skilled migration select Heckman
difflabour	-2.033**	-15.52***	4.106***
	(-2.132)	(-15.50)	(3.834)
diffgdp20	-0.000161***	-6.41e-05	0.000607***
	(-7.163)	(-1.188)	(10.14)
contig	1.979***	1.993***	1.107
	(6.563)	(9.491)	(1.398)
comlang_off	0.801***	0.822***	1.296***
	(4.735)	(5.468)	(3.371)
colony	1.927***	1.936***	0.907
	(6.827)	(9.454)	(1.099)
dist	-0.000131***	-0.000135***	-0.000241***
	(-8.786)	(-10.10)	(-6.660)
Schengen	-0.526**	-0.561***	-1.207***
	(-2.473)	(-2.780)	(-2.786)
mills		0.371*	
		(1.931)	
Constant	-11.77***	-7.450***	-3.902***
	(-16.70)	(-9.838)	(-5.068)
Origin fixed effect	YES	YES	YES
Destination fixed effect	YES	YES	YES
Observations	1454	1825	1825
R-squared	0.759		

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Effects of labour protection differential is negative for both categories of workers but it seems to be stronger for high-skilled workers. An interesting difference can be observed in selection equations. While labour protection differential is not significant for high-skilled workers, it is significant for low-skilled workers and positive. Our interpretation is the following: large employment protection differential may influence positively the *decision to migrate* for this category of workers. However, once they have chosen to migrate, they decide the destination country taking into account wages and the probability to get an employment. They choose countries with limited employment protection differential with their origin country.

All other variables take the same sign except GDP per capita (respectively for the 80th and 20th centile) which are proxies of high-skilled and low-skilled wages. Although the wage differential is positive and significant for high-skilled migrants, it is not significant for low-skilled workers (and negative and significant in OLS estimates). This can be explained by a fixed cost which cannot be paid if the level of income is too low. If level of poverty is too high, they cannot afford a cost and move abroad.

4.2 Influence of labour protection differential on the selection of migrants

We estimate equation 14. Results are given in table 4. The first column presents OLS estimates. According to this estimation, labour protection differential has a negative impact on the migrants selection. In other words, labour protection will reinforce the relative part of unskilled workers. However, we should be cautious with this result. The inverse Mills ratio show that OLS estimates are biaised due to the high proportion of zero in the dependant variable. Once we control for this using Heckman two-steps regression, this negative effect is not anymore significant[21]. More surprinsingly, the coefficient is here positive and significant in the selection equation.

[21] We should notice that when we use the log-linear utility model, we find a very strong negative and significant coefficiant (results not reproduced here but available upon request). Moreover, the fact that our results are not significant here may be explained by the use of the Heckamn two-steps methodology without instrument in the first step. According to Wooldridge (2002), not using an instrument is econometrically correct but it lower the significance of the results in the second step of the Heckman procedure.

The difference of wages between skilled and unskilled migrants has a positive influence on migrant' selection. It shows that high-skilled workers tend to have a preference for wages. Contiguity and colony have a negative impact while common language and the fact to be member of Shengen area have a positive impact on the average skill of migrants. Sharing the same border or having a common colonial link is a good proxy for diaspora in destination countries. This result is consistent with Beine, Docquier, and Ozden (2009): diaspora attracts relatively more unskilled migrants that skilled migrants. The positive coefficient of common language may be explained by the general level of education: people will benefit more from sharing the same language if they are literate. Finally, Distance has no significant effect.

4.3 Empirical extension: a push or a pull effect?

In all previous estimations, we estimate the influence of labour protection *differential*. However, it is interesting to understand the underlying mecanism. More precisely, this differential effect may be explained by (1) the level of labour protection in source countries (ie. a *push effect*), (2) the level of labour protection in destination countries (ie. a *pull effect*), or both. That is why we propose to break down this effect into a push or a pull effect.

Theoretically, we cannot use the same utility function (equation 3) which includes fixed effects A_h. Once we break down the differential between the level of employment protection in source and destination countries, these two variables would be dropped in the estimations because of the inclusion of origin and destination fixed effects. However, these fixed effects are necessary to control for unobserved country characteristics. Our choice is thus to estimate firstly the influence of labour protection in origin countries and secondly the influence in destination countries. For the first estimation, we will only add destination countries fixed effects. In order to minimize the potential problems of unobserved characteristics and omitted variables bias, we will add several control variables specific to origin countries. Level of employment protection in destination countries will be included in destination fixed effects. For the second estimation, we will drop destination fixed effects and only include origin fixed effects. For destination countries, we will

Table 4: Estimates of migrants' selection ratio

	Selection Ratio $\ln \frac{n^2_{sh}}{n^1_{sh}}$ OLS	Selection ratio $\ln \frac{n^2_{sh}}{n^1_{sh}}$ Heckman	Selection ratio select Heckman
difflabour	-1.114**	-0.145	10.63***
	(-1.991)	(-0.145)	(7.203)
diffdiffgdp	0.000214***	9.19e-05***	0.000300***
	(17.77)	(5.396)	(9.887)
contig	-0.901***	-0.888***	0.919
	(-5.566)	(-6.952)	(1.194)
comlang_off	0.515***	0.542***	1.364***
	(5.566)	(5.907)	(3.622)
colony	-0.478***	-0.469***	0.855
	(-3.662)	(-3.763)	(1.067)
dist	4.65e-06	-1.01e-06	-0.000260***
	(0.540)	(-0.122)	(-7.350)
Schengen	0.635***	0.606***	-0.856**
	(5.029)	(4.927)	(-2.038)
mills		0.397***	
		(3.467)	
Constant	4.306***	2.504***	-4.412***
	(13.32)	(4.975)	(-5.504)
Origin fixed effect	YES	YES	YES
Destination fixed effect	YES	YES	YES
Observations	1436	1825	1825
R-squared	0.827		

Robust t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

add control variables that may influence immigration such as the migration policy.

Estimated equations will thus be the following:

$$\ln \frac{N^j_{sh}}{N^j_{ss}} = \theta_0 + \theta_1 w^j_s + \theta_2 f_{sh} + \theta_3 P_s + \theta_4 X_s + A_h + \epsilon \tag{15}$$

$$\ln \frac{N^j_{sh}}{N^j_{ss}} = \theta^{'}_0 + \theta^{'}_1 w^j_h + \theta^{'}_2 f_{sh} + \theta^{'}_3 P_h + \theta^{'}_4 X_h + A_s + \epsilon \tag{16}$$

with X_s et X_h, a matrix of control variables specific to, respectively country s and h. For origin countries, the control variables include the general level of human capital (measured by the percentage of secondary school attained), the percentage of 18-34 years-old withtin the population, the level of democracy (measured by the index POLITY), and the total population. For destination countries, we include the population and the migration policy. For this latter variable, it is very difficult to measure it quantitatively. We will use a measure proposed by Hatton and Williamson (2008) using a database from United Nations (2002). It gives information about the government perception of immigration policies in 2001. In our case, we will use the following question as a proxy of immigration policy restrictiviness: is the objective of the government to raise, lower or maintain the level of immigration? For interpretation, the higher is the index and the stricter would be the immigration policy. The second variable is the share of refugees in the total number of migrants in 2000 (Grogger and Hanson, 2008; Beine, Docquier, and Ozden, 2009). Grogger and Hanson (2008) considered this variable is a proxy of immigration restrictiveness for high-skilled workers. However, this effect may be ambiguous if refugees are more educated.

Table 5 gives the estimates using Heckman two steps estimators[22] of *push factors* on bilateral migration flows. All estimates include destination country fixed effects. Overall, employment

[22]We do not present OLS estimates but results are relatively similar.

protection in source countries does not have a significant impact on bilateral migration flows, all things being equal. The effect of employment protection differential may be explain mainly by employment protection in destination countries. This result is true whatever is the skill level of migrants.

Concerning the sign and significancy of other control variables, income level in source countries has a significant and negative impact on emigration rate. However, this effect is not significant for low-skilled workers maybe because of a fixed cost which cannot be paid if the income level is too low. Small countries tend to have higher emigration rate. General educational level within the population tend to increase the level of emigration. Lastly, the level of democracy tends to retain high-skilled workers while it increases the level of low-skilled migration.

Table 6 presents the estimates of the *pull factors* of immigration. All estimates include origin country fixed effects. We should notice here that due to a lower number of control variables in destination countries, the quality of estimations is lower (see for example the lower R-squared). Here, employment protection (in destination countries) has a significant effect. However this effect differs according to the skill level of migrants. For high-skilled workers, level of employment protection has a negative and significant impact on bilateral migration flows. However, surprinsingly, the effect is here positive for low-skilled workers. One cannot exclude this new result can be explained by an omited variable bias. However, it can explain why the effect of employment protection differential estimated previously (see tables 2 and tables 3) was negatively stronger for high-skilled than for low-skilled workers. This positive estimated coefficient may also explain the positive and significant coefficient in the selection equation (table 3). Because of the impossibility to include destination fixed effects and the lower R-squared in the estimation, we should be very cautious in the interpretation of this last result. However, it remains that the negative effects is stronger for high-skilled workers both when we estimate the effects of employment protection differential or the effects of this variable in destination countries.

Concerning the sign of other control variables, our bilateral variables take the same sign as before. Concerning income level in destination countries, migrants tend to go where income is

Table 5: Estimates of push effects

	Total ln[probamig] Heckman	Total select Heckman	High-skilled ln[probamig] Heckman	High-skilled select Heckman	Low-skilled ln[probamig] Heckman	Low-skilled select Heckman
labour_o	0.188	0.174	-0.0460	0.0964	-0.184	-0.0724
	(0.866)	(0.538)	(-0.215)	(0.310)	(-0.660)	(-0.246)
gdp_o	-1.26e-05	6.56e-05***				
	(-1.511)	(4.612)				
gdp80_o			-5.72e-05***	4.52e-05***		
			(-9.452)	(4.543)		
gdp20_o					-2.75e-05	2.81e-05
					(-1.482)	(1.290)
pop_o	-1.89e-09***	2.09e-09***	-2.15e-09***	1.41e-09***	-1.64e-09***	1.81e-09***
	(-10.67)	(5.654)	(-12.66)	(4.864)	(-7.379)	(5.182)
pop15-24_o	-0.0906***	-0.00698	-0.194***	0.00619	-0.165***	-0.0836**
	(-3.726)	(-0.175)	(-8.207)	(0.164)	(-5.253)	(-2.319)
contig	1.039***	7.008	0.470**	6.790	1.568***	6.722
	(4.786)	()	(2.149)	()	(5.521)	()
comlang_off	1.234***	0.731***	1.610***	0.738***	0.891***	0.665***
	(9.044)	(2.814)	(12.04)	(2.899)	(5.112)	(2.934)
colony	1.509***	0.147	1.173***	0.211	1.925***	0.200
	(7.546)	(0.318)	(6.086)	(0.464)	(7.698)	(0.456)
dist	-0.000128***	-7.83e-05***	-0.000148***	-8.34e-05***	-0.000130***	-8.64e-05***
	(-12.54)	(-4.980)	(-14.39)	(-5.669)	(-9.337)	(-5.982)
education	0.0261***	-0.0233***	0.0134***	-0.0215***	0.0292***	-0.0102**
	(7.177)	(-4.488)	(3.645)	(-4.291)	(6.170)	(-2.195)
polity	0.0383***	0.0265**	-0.0359***	0.0227*	0.0513***	0.0294**
	(4.324)	(2.092)	(-4.196)	(1.909)	(4.646)	(2.532)
Schengen	-0.0821	0.135	0.179	0.302	-0.292	-0.109
	(-0.527)	(0.352)	(1.134)	(0.792)	(-1.430)	(-0.340)
mills	0.640***		0.329		0.891***	
	(2.621)		(1.323)		(2.766)	
Origin Fixed effect	NO	NO	NO	NO	NO	NO
Destination Fixed effet	YES	YES	YES	YES	YES	YES
Constant	-3.790***	2.617**	1.745***	2.480**	-4.540***	3.888***
	(-6.435)	(2.551)	(3.046)	(2.523)	(-6.083)	(4.320)
Observations	1686	1686	1628	1628	1628	1628
R-squared	0.771		0.794		0.709	

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

R-squared are the ones obtained using OLS estimator higher. However, this effect is opposite for low-skilled workers. We find again the same ambiguous effect of income on migration for low-skilled workers: in source countries, if income is too low, the poorest workers cannot migrate ; in destination countries, the poorest cannot go to the richest countries maybe because of higher migration costs or more difficulties to get a job.

The size of the destination country influences positively the scale of migration. Concerning our immigration policies variables, results are contrasted. Concerning our immigration policy variable extracted from United Nations (2002), the variable is significant in the second step of Heckman estimation only for low-skilled workers but the sign is positive. This can be explained by a problem of reverse causality. If governements want to lower the level of immigration, it may be explained by a high proportion of low-skilled migrants within the country[23]. The Shengen variable is not significant. The share of refugees is associated with a lower number of migrants whatever the skill of migration.

5 Conclusions

In this paper, we show how employment protection may affect the migrant' decision choice. As we saw, there is a lack of consensus concerning the final effects of employment protection on wages and employment level. However, migrants may be sensitive to the level of protection through their expected wages and the probability to get employed. They may also look for more security. We modelize these effects using a modified Grogger and Hanson (2008) framework and estimate empirically the effect of employment protection on the probability to migrate.

The main result is, contrary to the conventional wisdom, migrants are not looking for more protective labour legislation. Employment protection differential acts as a repellent for migrants. However, we found that this negative effect is stronger for high-skilled workers. Concerning low-skilled workers, results are more ambivalent. If we still find that employment protection differential has a negative impact on the scale of migration, we also find that it may have positive

[23]This linkage between immigration policy and the number of migrants is however beyond the scope of this paper even if the issue is of great interest.

Table 6: Estimates of pull effects

	Total ln[probamig] Heckman	Total select Heckman	High-skilled ln[probamig] Heckman	High-skilled select Heckman	Low-skilled ln[probamig] Heckman	Low-skilled select Heckman
labour_d	0.268	-0.495***	-0.331*	-0.717***	1.088***	0.179
	(1.357)	(-2.824)	(-1.651)	(-4.118)	(4.265)	(0.975)
gdp_d	0.000123***	7.16e-05***				
	(17.03)	(16.35)				
gdp80_d			9.14e-05***	6.10e-05***		
			(14.95)	(18.39)		
gdp20_d					-4.83e-05**	0.000196***
					(-2.259)	(22.22)
pop_d	1.05e-08***	2.85e-09***	1.11e-08***	2.47e-09***	1.44e-08***	2.31e-09***
	(19.10)	(4.376)	(20.19)	(3.640)	(20.36)	(4.302)
contig	1.699***	0.821***	1.294***	0.797**	1.787***	0.941***
	(8.346)	(2.630)	(6.228)	(2.547)	(6.771)	(2.857)
comlang_off	2.049***	0.863***	2.286***	1.081***	1.509***	0.966***
	(17.16)	(7.488)	(18.06)	(8.381)	(9.501)	(8.219)
colony	1.860***	0.221	1.477***	0.192	1.996***	0.362*
	(11.52)	(1.073)	(9.083)	(0.909)	(9.604)	(1.689)
dist	-8.95e-05***	5.00e-05***	-5.66e-05***	2.70e-05***	-7.36e-05***	1.86e-05**
	(-8.791)	(5.680)	(-5.673)	(3.042)	(-5.837)	(2.128)
policy_immigration	-0.0767	1.023***	0.0546	0.884***	0.229*	0.970***
	(-0.919)	(14.73)	(0.620)	(12.83)	(1.910)	(13.72)
Schengen	-0.309	0.496*	-0.262	0.386	0.235	-0.113
	(-1.608)	(1.793)	(-1.328)	(1.355)	(0.929)	(-0.425)
Asylee share_2000	-0.0569***	0.0998***	-0.0793***	0.0686***	-0.0686***	0.00410
	(-7.013)	(11.64)	(-9.492)	(7.801)	(-5.940)	(0.431)
mills		-0.587***		-0.614***		-1.612***
		(-2.867)		(-2.774)		(-6.452)
Origin Fixed effect	YES	YES	YES	YES	YES	YES
Destination Fixed effet	NO	NO	NO	NO	NO	NO
Constant	-12.83***	-2.178***	-10.72***	-2.006***	-11.36***	-2.498***
	(-25.02)	(-5.883)	(-20.10)	(-5.223)	(-16.68)	(-6.235)
Observations	4158	4158	3850	3850	3850	3850
R-squared	0.605		0.625		0.523	

Robust t-statistics in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

R-squared are the ones obtained using OLS estimator effect on the decision of migration. If this differential is too high, it may push some workers to take the decision to move abroad. However, once they have decided to move, they may choose their location taking into account their capacity to be integrated in local labour markets, which may explain the negative sign in our estimation.

Another important result is that this employment protection differential effect is mainly explained by the influence of employment protection in destination countries. As we saw, employment protection level in source countries does not have a significant impact on the decision to migrate. However the influence of employment protection in destination countries is strong.

The main implication of these results is the link between *immigration policies* and *employment protection*. If the goal of immigration policies is to attract relatively more educated workers, employment protection should be compensated with more open immigration policies. This linkage can also be seen from another side. Migrants are often said to look for protective legislation and generous welfare systems. Here, employment protection tends to play as a repellent more than an attractive force. If this result should be confirmed by the study of the effects of other characteristics of the social system, the main result is that migrants tend to migrate where they can find a position on the labour market, not where legislative protections are higher.

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Appendix

A Source and description of the variables

Variable	Description	Source
lnprobamig	Migration probability (in log)	Marfouk and Docquier (2004)
lnprobamighigh	High-skilled workers migration probability (in log)	Marfouk and Docquier (2004)
lnprobamiglow	Low-skilled workers migration probability (in log)	Marfouk and Docquier (2004)
labour	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, Lopez-De-Silanes, and Shleifer (2004)
gdp	GDP per-capita (in logarithm) in PPP	World Development Indicators 2006
gini	GINI	WIDER
gdp20	Wage for low-skilled	Authors computations
gdp80	wage for high skilled	Authors computations
pop	Population	World Development Indicators 2006
pop15-24$_o$	Percentage of 15-24 years old	World Population Prospect 2008 revision
education	Percentage of "secondary school attained" in the total pop	Barro and Lee (1996, 2000)
polity	Agregate index of democracy	Polity IV project
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
dist	simple distance (most populated cities, in km)	CEPII
immigration policy	1 if the goal of the gouvernment is to lower migration 0 if the goal is to maintain or no intervention	United Nations (2002)
Schengen	1 if Shengen agreement	European Commmission
Asylee share	Share of refugees in the total number of migrants	Beine, Docquier, and Ozden (2009)

B Wage data

We use GDP per capita from WDI and Gini coefficient from WIDER. This methodology is proposed by Grogger and Hanson (2008) to rebuild estimates of high-skilled workers and low-skilled workers wages. The first step is to transform Gini coefficient into the standard deviation of log income. If income X is lognormally distributed, we have: $\ln X \sim N(\mu, \sigma^2)$.

If G is the Gini coefficient, we have $\sigma = \sqrt{2}\phi^{-1}(\frac{G+1}{2})$, where ϕ^{-1} is the inverse of the standard normal cumulative distribution function (Bendel, Higgins, Teberg, and Pyke, 1989).

Quantiles of income x_α such that $P(X < x_\alpha) = \alpha$ are given by:

$$x_\alpha = \exp(\mu + z_\alpha \sigma) \tag{17}$$

z_α is the α quantile of a unit normal random variable Johnson and Kotz (1970). Since under lognormality, $E(X) = \exp(\mu + \sigma^2/2)$ we can rewrite the previous equation as follow:

$$x_\alpha = E(X)\exp(\sigma z_\alpha - \sigma^2/2) \tag{18}$$

We use the GDP per capita to estimate $E(X)$ and the Gini coefficient to estimate σ according to the previous formula.