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The Impact of Migration on Wages: Empirical Evidence from French Youth

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ABSTRACT:

The paper deals with the impact of migration on wages. We introduce a spatial dimension into the job search framework, so that the agent faces neither the same job offer distribution nor the same search costs when he looks for a job located inside as compared to searching outside his local labor market and he also has to take into account migration costs. We estimate wage equations in which we introduce the decision to migrate as a binary choice, and later as a polychotomic choice (stayer/mover from provinces to Paris/mover from provinces to provinces). We find no selection effect for people with low levels of education, and positive selection effect for highly-educated migrants. When we distinguish the migration destination for highly-educated from provinces, we find that men who migrate to provinces are positively selected while those who migrate to Paris are negatively selected.

JEL: J31, J61

Section 1: Introduction

The links between labor market and migration decisions are usually analyzed by considering employment and migration choices as decisions regarding human capital investment (Sjaastad, 1962; Greenwood, 1975, 1985). One of the major questions in this literature is to measure the effect of migration on income, and, since Nakosteen and Zimmer (1980), numerous empirical studies have examined this question using the human capital framework. These studies suggest that any such relationship is far from obvious, and can depend on many factors. For instance, Axelsson and Westerlund (1998) point out the fact that migration decisions influence the total household income and not only the income of one individual in the household. They also consider real income instead of nominal income to control the differences in living costs. Krieg (1997) argues that "*it is important that urban and regional researchers do not place too much emphasis on simple migration dummies included in earnings functions*." (Krieg, 1997, p.14). He shows that the effects of migration on earnings can be partially attributed to other factors such as career changes (a change in occupation, change in employer or both). Borjas et al (1992) insist on the importance of considering dynamics: just after migration there may be losses in earnings, followed by eventual gains, depending on the success of assimilation into the new labor market.

This paper concerns these issues, focusing in particular on the impact of migration on wages for young people when they enter the labor force. Unlike the papers we quote above, we explicitly consider that job related migration is the outcome of a job search process (Molho, 1986). A typical job search process implies a succession of job offers, with each offer characterized by a wage drawn from a random distribution (Lippman and McCall, 1976a, 1976b). The searcher's strategy is based on a reservation wage, with the first offer exceeding it being accepted. The spatial dimension of these search processes is often neglected. The agent faces neither the same distribution of job offers nor the same search costs when he looks for a job located outside his local labor market, since he also has to take migration costs into account. This factor will alter the reservation wage accordingly. Dealing with changes in these three dimensions, (job offer distribution, search and migration costs), we attempt to make some predictions on who will migrate and who will be a stayer and on the consequences on wage levels. In this context, it becomes clear that the relationship between migration and wages will depend on the type of labor market the individual faces. In particular, the selection effects will be different depending on whether the agent searches in a labor market where the distribution of the wages is quite homogeneous, with small spatial heterogeneity, or if he searches in a labor market where wages are spread and the distribution of the offers varies across locations. So, to test empirically our predictions, we first estimate wage equations in which we introduce the decision to migrate as a binary

choice, distinguishing two populations of young French men by educational level. Using this method we illustrate the impact of the labor market heterogeneity on the relationship between migration and wages. We then consider the spatial heterogeneity of the distribution of the offers, especially for highly-educated people, and a distinction between Ile-de-France labor market and the others considered is proposed (Gendron, 1997). Consequently, we suggest to specify the selection rule as a polychotomic choice (stayer/mover from provinces to Paris/mover from provinces to provinces). Using this method we can test the impact of spatial heterogeneity on the relationship between migration and wages.

As we show in the prediction part, auto-selection phenomena can occur and have to be controlled for. From an econometric point of view, we estimate the first case using two different methods: the two-stage Heckman procedure (Heckman, 1979) and the maximum likelihood estimation. The second case (polychotomic selection rule) uses the generalized model of Lee (1983). We show that selection effects differ with the type of labor market the individual faces and can be predicted by dealing with differences in the components of the job search process. In particular we find no selection effect for people with low levels of education, and positive selection effects for highly-educated migrants. When we distinguish the migration destination for the highly-educated from Provinces, we find that there is a positive selection bias associated with men who migrate to provinces, but a negative selection bias associated with those migrating to Paris.

In the following section we give an outline of our theoretical approach to obtaining some predictions, which are presented in section 3. The empirical framework for measuring the impact of migration on wages and the data are described in section 4, with the main results being presented in section 5. In section 6, we provide some concluding remarks.

Section 2: Job search processes in space

Studies that analyze the impact of migration on wages in the human capital framework start from the idea that an individual who migrates may be intrinsically more highly motivated to invest in human capital (not only through migration) than another. Therefore, whatever his migration decision, this individual will receive better wages (Greenwood, 1975) and it is necessary to control for this positive selection effect. The opposite mechanism is also possible: individuals could choose to migrate to compensate for the lack of another human capital form. In that case, the selection effect could be negative. In our paper, we try to predict the conditions and the sign of the selection process. We choose to place our paper in the job search framework, considering migration decisions as a part of the job search process (Détang-Dessendre, Molho, 1999).

The standard job search model

As we examine young workers entering the labor force, we can utilize the typical job search model (Lippman and McCall, 1976a, 1976b). Every agent, characterized by a vector of attributes X, looks for job opportunities characterized by the expected value of the stream of wages over all future periods, and by non monetary attributes (stability of the job, duration time, working conditions). Designating w the wage and Y the vector of the other job characteristics, we can write the global value of a job v as $v=V(w,Y,X)$.

At period t, the search entails cost equal to $c_t(X)$ and randomly draws an offer from the distribution $F_t(v,X)$. The optimal strategy is to accept the offer if v exceeds a reservation value V_t^*, which is equal to the value of continuing the search at least to period $t+1$. Let us first assume that only the unemployed look for vacant job offers. The series of reservation values is recursively determined using the Bellman equation,

$$V_t^* = -c_t + \beta \int_0^{+\infty} \max\left(v, V_{t+1}^*\right) dF_t(v) \tag{1}$$

A particular case of (1) is when the lifetime horizon is infinite and all periods are identical in terms of search process. In that case, the model remains stable over time. Then, $c_t = c$, $F_t = F$, and $V_t^* = V^*$. The reservation value is V^* determined by the equality:

$$\begin{aligned} c(X) &= -V^* + \beta \int_0^{V^*} V^* dF(v) + \beta \int_{V^*}^{+\infty} v dF(v) \\ \Leftrightarrow c(X) &= -V^* \left[1 - \beta F\left(V^*\right)\right] + \beta \left[\left(1 - F\left(V^*\right)\right) E\left(v / v > V^*\right)\right] \end{aligned} \tag{2}$$

and then:

$$V^* = V^*\left[c(X), F(.,X)\right] = V^*(X)$$

The observed wages are the outcome of this search process. Assuming that we perfectly observe the entire set of relevant characteristics, the global value of a job is a random variable, following the distribution $G(v,X) = \dfrac{F(v,X) - F(V^*,X)}{1 - F(V^*,X)}$. All changes implying a higher return from future search, for example lower search costs, also imply a higher reservation value (or utility) and a higher mean accepted value.

The model determines reservation values $V^*(X)$. However, neither the reservation values determined by the model, nor the global value of the accepted job can be observed. We only have information on current wages (i.e: those that have been accepted), job attributes and location. Therefore, knowing the distribution of accepted job values $G(v,X)$ for given job characteristics Y and agent's

characteristics X, we have to turn to the identification of the equation for accepted wages, henceforth referred to as $\tilde{w}$.

Assuming again that $v = V(w, Y, X)$ is perfectly known, let us note that V is an increasing function of w, which can be inverted, so that $w = W(v, Y, X)$. The observed wage is then supposed to reflect its attributes and more generally its global value for the agent with characteristics X, who has accepted the job. Therefore, conditional on X and Y, the distribution of accepted wages is:

$$H(\tilde{w}, X, Y) = prob\{W < \tilde{w} | X, Y\} = prob\{V(W, Y, X) < V(\tilde{w}, Y, X) / V(W, Y, X) > V^*(X)\}$$
$$= G(V(\tilde{w}, Y, X), X)$$

So, for every individual with characteristics X, the wages of the current job with characteristics Y has been drawn from the random distribution:

$$H(\tilde{w}, Y, X) = G(V(\tilde{w}, Y, X), X)$$

Let $\overline{W}(X, Y)$ be the expectation from this random distribution:

$$\overline{W}(X, Y) = \int w dH(w, X, Y) = \int W(v, Y, X) dG(v, X)$$

Then, we can write the observed wages as:

$$\tilde{w} = \overline{W}(X, Y) + \varepsilon \qquad (3)$$

where ε is a random error with an expected value of zero. However, in most cases, the function $\tilde{v} = V(\tilde{w}, Y, X)$ is not observable and most components of Y are not available. For example, we may have no information on working conditions, on job stability, or on local attributes capitalized in wages. Therefore, the relation $\tilde{v} = V(\tilde{w}, Y, X)$ and its inverse $\tilde{w} = W(\tilde{v}, Y, X)$ are no longer perfectly known. We instead have random distributions of V knowing $\tilde{w}$ and Y, and of W knowing $\tilde{v}$ and Y. However, we still can write something like (3), but with a different interpretation. When the relation linking $\tilde{w}$ and $\tilde{v}$ is perfectly known, the randomness of e is the outcome of the randomness of the search process. When this relation is not perfectly known, the term ε represents two factors of randomness, with the second coming from the distribution of job values if the offered wages and observable attributes are known.

Spatial search, migration and wages

The model may be easily generalized to a spatial setting, with searchers moving between local labor markets. To keep things simple, we will consider only two local markets (h and e, where h is the home market and e the external one). Moreover, in line with most empirical evidence (at least for European countries), we assume migration to be contracted (Gordon, Molho, 1995; Détang-Dessendre, 1999): searchers migrate after a job has been found. We do not consider speculative migration by unemployed who decide to move before searching.

At home, the agent faces a search cost $c_h(X)$ and a home distribution of offers $F_h(v,X)$. If he extends his search to the other region, he entails an additional cost[1] $c_e(X)$, so that the total search cost is $c_g = c_h + c_e$. However, he also receives additional offers extracted from the distribution abroad $F_e(v,X)$. The global distribution of internal and external offers is designated F_g with $F_g(v) = F_h(v)F_e(v+m)$, considering F_h and F_e as independent and noting that the external offers must compensate for the cost of migration *m*. The searcher has a global reservation value, $V_g^*(X)$, which is determined from (2):

$$c_g = -V_g^*\left[1-\beta F_g\left(V_g^*\right)\right] + \beta\int_{V^*}^{+\infty} vF_g(v)$$

He accepts the first offer with a value, net of migration costs *m*, that exceeds the global reservation value: $v_g > V_g^*(X) + m$. There is contracted migration when the accepted offer is an external one.

This simple framework has several interesting implications:
First of all, at the time agents engage in search for job opportunities located abroad, they have not yet decided to migrate. Migration is still a random event, depending upon the first acceptable opportunity to be from abroad instead of from the local labor market. Even when not explicitly searching abroad, as outside opportunities may also travel through local channels, this risk of migrating is not zero. But, by deciding to actively look for outside jobs, the agent accepts a higher risk of migrating. As noted by Gordon and Vickerman (1982), the relevant distinction is between people with a low or a high risk of migration.
Since the worker is engaged in a unique search process, he has a unique reservation value and he compares all job opportunities on the same basis (their global net value), wherever they come from. The difference between local and outside job opportunities is not a matter of reservation value, but a matter of migration costs: the global value of an outside job opportunity is net of migration costs, these costs being nil for local opportunities.
If a rational worker engages in search for outside job opportunities despite the additional search costs, it is because he expects these costs to be at least offset by the gains from an improved distribution of offers ($F_g < F_h$), i.e. more opportunities and, maybe, better ones. As he expects a higher net gain, the value of continuing the search is higher, which implies a higher reservation value. In addition, the agent incorporates his migration costs into his requirements, so that he will refuse an external job if the migration costs are not offset by a better wage. Therefore, if all workers were identical, migrants would always have higher wages than stayers. Nevertheless, individuals are not homogeneous. Moreover, a central assumption of

[1] There are two main components: Firstly, the agent has to pay some costs such as newspapers, ads or travelling costs. The other part concerns the opportunity cost of continuing the search. The increase is only relevant to the first component.

search models is the existence of a non-degenerate distribution of wage offers, and this cannot hold with a homogeneous population of searchers. Furthermore, if we consider the fact that workers are heterogeneous, migrants and non-migrants can be self-selected.

Therefore, unknown worker attributes may generate a correlation between the level of the migration risk they accept to face and the wage they receive if they take an outside opportunity. As the exogenous determinants of our model are the search costs, the migration costs, and the local and external distribution of opportunities, we must examine the consequences of shifts in these variables on both the migration risks and the wages of accepted job opportunities.

Section 3: Empirical predictions of the model

In this section we compare agents that differ in the local distribution of job offers, the external distribution of these offers, migration costs and search costs. We will examine the consequences of each difference separately, without modification in any other respect.

Differences in the local distribution of job offers

Let us first examine the effect of an unambiguously better distribution of local job offers for an agent i compared to j. The distribution F_h^i stochastically dominates (for all v, $F_h^i(v) < F_h^j(v)$) or is a mean preserving spread of $F_h^j(v)$. For this person, the global distribution of job offers is also unambiguously better, inducing a higher value of searching, a higher reservation value, and consequently an upward effect on the value of accepted jobs and observed wages, whatever migration decision this agent takes. Since the improvement in the global distribution of job offers comes only from a better local distribution, the probability of an acceptable offer being a local one increases for him, reducing his migration probability. The agent may either decide to stop searching abroad if the difference between both distributions (the one he faces at home and the one he faces abroad) is marked. He will then stay at home, unless he receives an external acceptable offer without having to search for it.

Therefore, unknown differences in the home distribution of job offers do have opposite effects on wages and migration probabilities. Agents facing an unambiguously better distribution of job offers should have higher wages and a lower migration probability, hence there is a positive auto-selection effect for non-migrants. However, there is no a priori change in the difference between migrants' and non-migrants' observed wages, as both are influenced by changes in the common reservation value.

Differences in the external distribution of job offers

Let us now examine the effect of an unambiguously better distribution of external job offers. As before, the global distribution of job offers for this agent is also unambiguously better. The agent faces a higher value of searching, a higher reservation value, and consequently a higher value of accepted jobs and observed wages. The improvement in the global distribution of job offers now comes from a better external distribution, so the probability for this agent of an acceptable offer to be a local one decreases, and hence there is a higher migration probability.

Therefore, unknown differences in the external distribution of job offers do have positively correlated effects on wages and migration probabilities. Agents facing an unambiguously better distribution of job offers should have higher wages and a higher migration probability. Migrants will earn more, but this surplus is due to a positive auto-selection effect and, as before, there is no a priori direct impact on the difference between migrants' and non-migrants' observed wages, as both are influenced by changes in the common reservation value.

Differences in migration costs

The impact of differences in migration costs is now analyzed, without modification in any other respect: if an agent faces a higher migration cost *m*, the global distribution of the value of job opportunities he faces becomes $F_g(v) = F_h(v)F_e(v+m)$. The distribution has shifted upward and job offers (especially the external ones) become less valuable for the individual. Searching abroad is much less profitable and the offers from outside have to offset the migration cost to be acceptable. At every level of the reservation wage, the probability of an acceptable offer to be non-local decreases, hence leading to a lower probability of migration. Considering wages, the upward shift of F_g implies that searching has a lower value and consequently that the agent's reservation wage decreases. Agents facing unknown higher migration costs have lower migration probabilities and they are ready to receive lower wages to stay at home. In other terms, differences in migration costs should produce negative auto-selection effect for non-migrants.

Differences in search costs

Let us now examine differences in search costs. The higher the search costs, the lower the net expected benefit of searching, the lower the reservation value, the lower the mean value of accepted jobs and, without further changes, observed wages. Thus, we expect higher search costs to have a downward effect on observed wages. The effect on migration is ambiguous, however. If, with a lower reservation value, the searcher has a higher probability of accepting a job, the probability of

this job to be an external one may increase, decrease, or remain unchanged. Therefore, unknown differences in search costs have no a priori effect on the correlation between migration probabilities and wages.

A synthesis

Unknown attributes do have various effects on migration self-selection, depending upon whether they mainly generate differences in migration costs, search costs, or the distribution of job offers at home or abroad. A difference in the local distribution of job offers has opposite effects on wages and migration probabilities, and generates positive self-selection for non-migrants. However, this difference has no a priori direct effect on the wage difference between migrants and non-migrants. Differences in external distribution have similar effects on wages and migration probabilities. They may generate positive selectivity effects for migrants, but they have no a priori direct effect on the difference in wages between migrants and non-migrants. A difference in migration costs is the only factor that can imply a direct impact of migration on wages. Concerning auto-selection processes, the higher the migration costs, the lower the probability of migration and the lower the wages for non-migrants: hence, we observe negative auto-selection for non-migrants. Last, changes in search costs have an unambiguous effect on wages, but no a priori effect on migration probabilities, and hence no expected selectivity effect.

To illustrate these different cases, we distinguish two types of labor market in terms of job characteristics: one consists of low skilled jobs, aimed at people with low levels of education, whereas the second consists of skilled jobs, aimed at highly-educated people. We hypothesize that men with low levels of education search in a quite homogeneous labor market in terms of wages, with a small spatial heterogeneity. This limited disparity in wages has to be related to the limited disparity in productivity for blue collar workers (For France, see Jayet, 1988). It is also well known that the spatial heterogeneity of this type of labor market is very weak (Rose 1998). So, distributions of the offers at home and abroad should not be very different. Hence, there is no reason for self-selection bias when we analyze migrant and non-migrant wages. On the contrary, wage disparities are much larger for skilled labor markets and this disparity has also a spatial dimension (Inoki and Suruga, 1981). Big metropolitan labor markets, in particular Paris, should present a wider distribution of offers. Therefore, we can expect (i) auto-selection effects for this population, (ii) different effects depending on the size of the labor market.

Concerning the direct impact of migration on wages, we hypothesize that migration costs decrease with educational level (Da Vanzo, 1983). So, migration should have a relatively higher direct impact on wages for people with low education than for highly-educated men. Nevertheless, even in the case of people with low education, the restricted range of the distribution of wages strongly limits migrants' ability to raise their reservation wage. Furthermore, it is also well known that migrants with

low education do not move very far, so that the migration cost they effectively face is not so high (Jayet, 1988). Thus, we may observe no direct impact of migration on individual wages whatever the educational level of the agents.

Section 4. Measuring the impact of migration on wage

An empirical framework for measuring these effects thus begins with the specification of the wage equation, based on the Mincer (1974) equation. In addition to the classical determinants likely to influence wages such as educational level and job characteristics, we want to take into account the impact of migration. We first make a distinction between wages for migrants w_{i1} and wages for non-migrants w_{i0}, as did Nakosteen and Zimmer (1980).

$$\begin{aligned} W_{i1} &= \beta_1' X_{i1} + u_{i1} \\ W_{i0} &= \beta_0' X_{i0} + u_{i0} \end{aligned} \tag{4}$$

In this linear approximation $W_{ij} = Logw_{ij}$, X_i is the set of explanatory variables and u_{i1} and u_{i0} are the stochastic error terms, assumed to be normally distributed with zero mean and variances $\sigma_{u_{i1}}$ and $\sigma_{u_{i0}}$. Parameters β_j are to be estimated.

Treatment of the selection bias when the selection mechanism is dichotomous

We can explain the decision to migrate by the following model:

$$\begin{cases} M_i = 1 \text{ if } M_i^* > 0 \\ M_i = 0 \text{ if } M_i^* \leq 0 \end{cases} \tag{5}$$

$$\text{and } M_i^* = \gamma' Y_i + e_i$$

where M_i is equal to 1 if the individual migrates and 0 otherwise and Y_i is a set of explanatory variables for the migration benefit M_i^*, which is latent. We therefore introduce the fact that wages are observed knowing whether or not that the individuals migrated. We assume that u and e are bivariate normally distributed with ρ the correlation,

$$E(W_i / M_i = 1) = \beta_1' X_{i1} + E(u_{1i} / M_i = 1)$$

$$E(W_i / M_i = 1) = \beta_1' X_{i1} + E(u_{i1} / e_i > -\gamma' Y_i) = \beta_1' X_{i1} + \rho\sigma_{u_{i1}} \frac{\phi(\gamma' Y_i)}{\Phi(\gamma' Y_i)}$$

$$E(W_i / M_i = 0) = \beta_0' X_{i0} - \rho\sigma_{u_{i0}} \frac{\phi(\gamma' Y_i)}{1 - \Phi(\gamma' Y_i)}$$

where ϕ and Φ are, respectively, the density and the distribution function.

First, we use the Heckman two-step estimation procedure (Heckman, 1979) which is as follows:

the probit estimation of (3) provides estimations for $\hat{\gamma}.\phi(\hat{\gamma}' Y_i)$ and $\Phi(\hat{\gamma}' Y_i)$ can therefore be computed. So, we obtain λ, the inverse of Mills' ratio:

$$\hat{\lambda}_{i1} = \frac{\phi(\gamma' Y_i)}{\Phi(\gamma' Y_i)} \text{ for individuals who migrate } (M_i = 1)$$

$$\hat{\lambda}_{i0} = \frac{\phi(\gamma' Y_i)}{1 - \Phi(\gamma' Y_i)} \text{ for individuals who do not migrate } (M_i = 0)$$

We then estimate two wage equations, one for migrants and one for non-migrants:

$$W_{i1} = \beta_1' X_{i1} + \beta_{\lambda 1}\hat{\lambda}_{i1} + \varepsilon_{i1}$$

$$W_{i0} = \beta_0' X_{i0} + \beta_{\lambda 0}\hat{\lambda}_{i0} + \varepsilon_{i0}$$

$$\text{With } \beta_\lambda = \rho\sigma_u$$

The estimators described above are consistent but not fully efficient. So, we also estimate the models by maximum likelihood. In this case, we do not estimate β_λ but directly ρ and σ_u (the estimation is done in one step, using all the information)[1].

To capture the direct effect of migration decisions, we estimate a model $W_i = \beta' X_i + \alpha M_i + \varepsilon_i$. As M and ε can be correlated (the result of selection effects), OLS estimation will likely be inconsistent. So, we use the predicted probabilities from the probit equation as the instrumental variable for M (Greene, 2000).

Treatment of the selection bias when the selection mechanism is not dichotomous

To take into account a possible differentiation in the labor markets of destination, the selection mechanism has to be polychotomic. We focus the test on a possible specific effect of the Ile-de-France[2] labor market. So, there are three possibilities associated with the selection rule: no migration, migrate to Ile-de-France labor market and migrate to a provincial labor market. Lee (1983), with his generalized model, gives a way to estimate the sample selection model using a multinomial

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[1] To obtain the likelihood function, we start from:

$$P[W_i, M_i = 1 | X_i, Y_i, u_i] = P[W_i | X_i, u_i] \times P[M_i = 1 | Y_i, u_i].$$

Since u_i and e_i are joint normally distributed, we can write for every i selected observation:

$$P[W_i, M_i = 1 | X_i, Y_i, u_i] = \phi(W_i - \beta' X_i) \times \Phi\left[\gamma' Y_i + (\rho/\sigma)(W_i - \beta' X_i)/\sqrt{1-\rho^2}\right].$$

Then, the log-likelihood function:

$$ln\, L_i = -\frac{1}{2} ln\, 2\pi - ln\sigma - \frac{1}{2}\left[(W_i - \beta' X_i)/\sigma\right]^2 + ln\, \Phi\left[\gamma' Y_i + (\rho/\sigma)(W_i - \beta' X_i)/\sqrt{1-\rho^2}\right]$$

[2] Ile-de-France groups together Paris and border departments which are under influence of Paris.

logit model. His method uses the fact that when we know the distribution of a random variable, we can transform it into a standard normal random variable.

His two-step estimation procedure is as follows. First, the multinomial logit model is estimated by maximum likelihood and the predicted probabilities P_{ij} are computed. Then, we apply the transformation for individuals for which M takes the value $j, j = (1,2,3)$

$$H_{ij} = \Phi^{-1}\left(P_{ij}\right)$$
$$\lambda_{ij} = \phi\left(H_{ij}\right) / \Phi\left(H_{ij}\right)$$

The estimated model is then:

$$W_{ij} = \beta'_j X_i + u_{ij}$$
$$\text{and } M_{ij}^{**} = H_j\left(\gamma'_j Y_i\right) + e_{ij}^*$$
$$\left(e^*, u\right) \text{are bivariate normally distributed.}$$

The wage equations are estimated, including λ_j:

$$W_{ij} = \beta'_j X_i + \left(\rho_j \sigma_j\right) \frac{\phi\left(H_{ij}\left(\gamma'_j Y_i\right)\right)}{\Phi\left(H_{ij}\left(\gamma'_j Y_i\right)\right)} + \eta_{ij}$$
$$W_{ij} = \beta'_j X_i + \left(\rho_j \sigma_j\right) \lambda_{ij} + \eta_{ij}$$

The last operation is to compute the appropriate asymptotic covariance matrix (Greene, 1998)[1].

The data and estimated models

Our data are derived from two surveys compiled by CEREQ[2], concerning young French men who are employed. One survey concerns young men with a low educational standard (i.e. certificate of technical education or less) and the other one deals with highly-educated people, (i.e individuals who left school with a college degree or equivalent and more[3]). The first sample consists of 4 624 individuals and the latter 8 306 agents. These two sets do not concern exactly the same generation of young people: the youths with low levels of education were interviewed in 1993 about their professional life since they left school in 1989,

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[1] $C = \left(Z'_j Z_j\right)^{-1} \left[\sigma_j^2 Z'_j \left(I - \rho_j^2 \operatorname{diag}\left(\lambda_{ij}^2 + H_{ij}\lambda_{ij}\right)\right) Z_j + \rho_j^2 \sigma_j^2 F_j \sum F'_j \left(Z'_j Z_j\right)^{-1}\right]$ with Z the matrix of the regressors including λ_j, Σ the asymptotic covariance matrix of the logit parameters and F is the product of Z with the matrix of the derivatives of λ_j with respect to the logit parameters.

[2] Research Center on Employment and Skills.

[3] We use a classical French distinction for highly-educated levels: the number of years of education after the baccalaureat (+2, +3, +4, +5, PhD).

whereas highly-educated men left school in 1988 and were interviewed in 1991. Nevertheless, we compare results, albeit with all the necessary caution.

Information was collected by a questionnaire in both surveys. In addition to socio-economic information (age, parents' occupation, etc.), the survey covers education and gives details of the last occupation (wage, type of contract, sector, function in the company, etc.). It also includes retrospective questions covering the last 3 or 4 years and allows us to build up some historical variables on employment status (experience, etc.). We consider as migrant an individual declaring that he had moved from one French *département*[1] to another at least once during the previous 3 or 4 years. It is reasonable to suppose that these migrants will have changed their local labor market, although "border" effects will of course exist in certain instances.

The decision to migrate is essentially governed by human capital (essentially educational level) and personal characteristics (age, parents' job situation). We also know the origin of the agent as we know where the parents lived at the end of the school period. In equation (4), wages are a function of personal characteristics (age, educational level, professional experience, migration) and job and firm characteristics. Concerning the jobs, we have information on skill level, function, work contract and weekly work time, and concerning the firms, we know the sector and the size. We also can control for the type of labor market as we know the location of the firm. In practice, for some factors, we do not have the same information for both samples (for example, we do not know the weekly work time for the highly-educated people). Nevertheless, the same main explanatory dimensions are included in all wage equations.

Section 5: Empirical results

Highly-educated workers migrate more than workers with low levels of education (Greenwood, 1997). Our results largely confirm this point: 47% of the former have changed departments while only 19% of the latter have moved. The difference between the average monthly wages[2] of highly and low educated people is about 4 000 FF; the latter earns 6 220 FF on average, whereas the former earns 10 505 FF. The difference between migrant and non-migrant wages is much higher for highly-educated than for low-educated men (10% versus less than 2%[3]). Non migrant qualified men from Provinces earn 13% less than migrants to Provinces and 32% less than migrants to Paris.

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[1] A *département* is an administrative geographic subdivision, roughly equivalent to the British or US *county*. In France, there are about 100 *départements*.

[2] We use nominal wages at the time of the survey. The information comes from individuals' declaration of monthly net wages, including bonus and perks.

[3] The difference for people with low levels of education is just statistically significant.

The wages variation by educational level is greater for highly-educated than for men with low levels of education: when they leave school with a degree equivalent to "bac + 2", men earn on average 8 153 FF and 12 768 FF with an equivalent to "bac + 5"[1], or 57% more. Men without any diploma earn on average 5 721 FF and men with the highest technical diploma (BEP) earn on average 6 511 FF, that is to say 14% more.

A better explanation of migration decisions for highly-educated than for low-educated men

We hypothesized that migration decisions are job related decisions. So, the variables we take into account to explain these decisions concern essentially job situations. It seems for, men with low levels of education job motivations are not so critical, and other factors, such as family or household considerations should be taken into account. Unfortunately, the available information does not allow us to control for them. The result is that the explanation of the decision to migrate is lower for this population.

In the sample of men with a low educational level (Table A1), the difference between those with and those without professional certificates remains unclear, even slightly unexpected. There is, however, a weak effect suggesting that those with certificates are less likely to migrate than others. We may hypothesize that those without any certificate are also those without any local connection. So, they are less likely to find employment in the local labor market. For highly-educated people (Table A2), the relation between the level of education and the probability to move is very clear and has the expected sign: the probability to change departments (I think it would be best to use the French word, this means something different in English) increases with the number of educational years after the baccalaureat.

Concerning people with low levels of education, parents' job situation seems to have a great impact on the decision to migrate, particularly with respect to two situations concerning the father. An individual whose father is unemployed is more likely to migrate (reference: father employed) while an individual whose father is retired is more likely to be immobile. Income may provide an explanation for this phenomenon. When the father is unemployed, the son will logically wish to find a job and leave the family as soon as possible. On the other hand, retired people in France enjoy a fixed income and are able to support their children.

Unfortunately, we do not have the same information for highly-educated men concerning parents' job situations. So, we consider the impact of parents'

[1] We put together people with university, engineering and business school degrees. It is well known that wages are highest for youths with engineering and business school degrees.

professional situation (whether they are in retirement, or unemployed. In addition we know the last employment position). Young men whose fathers are (or were) executives have a lower probability to migrate than all others. This fact reflects, in another way, the income mechanism described before. When the father is an executive, the family income is normally higher than the others. So, children can stay longer at home.

In both equations, the size of the origin location has a strong impact, with an opposite sign. Highly-educated people have a lower probability to migrate when they are from big towns (more than 400 000 inhabitants) and people with low levels of education leave big cities more often. The relative immobility of urban highly-educated people is explained by the high concentration of skilled job in big cities (Jayet, 2000). On the contrary, low-educated people have no advantage to stay in big cities, as they face more competition)

Wages and migration: what type of selection effect?

The predictions discussed earlier are largely confirmed by our estimations. We find:

- a positive selection effect for migrants in the case of highly-educated people (Table 1[1]). On the contrary, we find no support for selection bias for people with low levels of education.
- a difference in the selection effect when we distinguish the size of the labor market of the destination.
- the direct impact of migration is globally not significant (except for the population of highly-educated men from Provinces).

So, the selection effects conform to the predictions. Highly-educated men look for a job in a national labor market, with large disparity in wages and with non observable sources of productivity differences. Hence, a significant positive selection is observed for migrants. The specificity of the labor market of Ile-de-France (Paris and around) appears clearly. Young highly-educated men from Provinces are positively selected when they migrate to other Provinces' labor markets, but are negatively selected when they migrate to Ile-de-France labor market. The mechanisms driving the job search are not the same in both cases. The former follows the classical scheme: people searching for a job in the "primary labor market" and those who migrated have unknown characteristics that ameliorate the distribution of the offers they receive from abroad. People who migrated to Ile-de France labor market seem to follow another process: since the distribution of the offers from this labor market is larger, people who accepted a job are ready to accept lower wages in order to build job experience and careers.

[1] As the estimation with maximum of likelihood improves the efficiency without changing the value of the estimated coefficients, we give the result of this estimation method for all factors and we just add the estimated coefficient of the inverse of Mill's ratio obtained by the Heckman method.

Hence, they appear to be negatively self-selected. Less educated men search in the local labor market first. Therefore, their probability to migrate is low. However, there is no evidence of auto-selection for this population, probably because there is no way to express significant differences in productivity in their jobs.

The direct impact of migration on wages depends on the migration costs. So, at least we should find a non negative effect. As we hypothesize a negative link between migration costs and educational level, the scale of the positive effect should be higher for people with low levels of education. First, the estimated effect is never negative. Second, the only positive effect is observed for highly-educated men from Provinces. The interpretation is not straightforward. The empirical results could suggest that migration costs are low enough to not interfere in the decision to accept or decline a job abroad. Another explanation concerns the time dimension of the migration return (Borjas and al., 1992). The decision to migrate is the result of a trade-off which takes into account the total income the individual will receive during his life. We observe here wages at the beginning of employment and so we estimate the impact of the decision to migrate on w and not on V .The hypothesis that an individual needs time to capitalize on human capital would repay further exploration and testing[1].

Table 1
Summary of the estimation results

	Selection effect on migrants	Selection effect for non-migrants	Migration direct effect 2SLS
Not qualified	ns	ns	ns
Total qualified	+	ns	ns
Qualified from Provinces	ns	ns	+
Distinction between :			
-migrants to Provinces	+		
-migrants to Paris	-		

We find, of course, some common mechanisms when we interpret the estimations of these eleven different wages equations. Skill plays an important role in all equations: the more skilled the job, the higher the wages, whatever labor market and the decision to migrate we observe. Nevertheless, this work also reveals interesting differences between highly and men with low levels of education and according to the size of labor market of destination.

Educational standard, job search process and wages

The differences between highly educated men and men with low levels of education confirm the importance of distinguishing types of job search process according to the extent of the spread of the distribution of the offers. A major impact of educational level on wages is found for highly-educated people. This fact

[1] For a more complete discussion on the potential biases, see Greenwood (1997).

reveals the large productivity disparity for this labor market. On the other hand, educational level has a very weak impact on wages for men with low levels of education. Once again, it confirms the difference in observed productivity disparity between both labor markets. One can notice that technical certificates seem to earn more when they do not migrate. This result is in accordance with the public intention, in France, to adapt local structure of education in technical fields to the local labor demand.

Table 2
Wage equations for highly-educated men

	Migrants		Non Migrants		Whole Population		Descriptive Statistics
	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic	(%)
Intercept	3.981	372.344	3.948	317.986	3.972	473.653	
28 years or more at the interview	0.023	4.552	0.022	4.117	0.023	6.182	0.225
26-27 years at the interview	0.015	3.476	0.011	2.427	0.014	4.634	0.410
25 years or less at the interview	Ref		Ref		Ref		0.365
Baccalauréat + 2 and +3 years	-0.120	-22.234	-0.105	-17.628	-0.112	-27.837	0.399
Baccalauréat + 4 years	-0.059	-11.145	-0.056	-10.336	-0.058	-14.915	0.136
Baccalauréat + 5 years	Ref		Ref		Ref		0.434
PhD	0.038	3.819	0.005	0.367	0.023	3.311	0.031
Agriculture	-0.048	-3.796			-0.048	-3.181	0.005
Industry	Ref		Ref		Ref		0.457
Building, civil engineering	0.008	1.103	0.010	1.240	0.008	1.545	0.052
Commerce	0.002	0.260	0.005	0.734	0.002	0.417	0.048
Service for private individuals	0.000	-0.050	0.003	0.345	0.000	0.033	0.031
Administration, education, health	-0.046	-5.751	-0.033	-3.578	-0.038	-6.255	0.098
Service to companies	-0.016	-4.051	0.001	0.114	-0.008	-3.014	0.298
unknown	-0.002	-0.185	-0.001	-0.034	-0.002	-0.156	0.011
Employee in private sector=1 (if not=0)	0.008	1.903	0.005	1.003	0.006	1.953	0.747
Paris Labor market	0.052	12.642	0.065	9.985	0.056	15.806	0.119
Ile de France LB (without Paris)	0.030	7.230	0.051	9.499	0.038	13.979	0.217
Provinces Labor Market	Ref		Ref		Ref		0.664
Size of company: 1-9 employees	Ref		Ref		Ref		0.068
10-49 employees	-0.015	-2.422	0.008	1.284	-0.002	-0.370	0.139
50–499 employees	-0.008	-1.311	0.010	1.693	0.003	0.553	0.266
500 employees and more	-0.004	-0.723	0.017	3.282	0.009	1.898	0.484
Unknown size	-0.004	-0.491	0.026	3.501	0.015	2.119	0.043
Permanent contract (incl. civil servants)	0.017	3.497	0.024	5.328	0.023	5.764	0.905
Executive	0.062	15.923	0.062	15.621	0.065	21.251	0.607
Production-maintenance-upkeep	Ref		Ref		Ref		0.584
Secretariat	-0.018	-2.313	-0.038	-5.507	-0.030	-5.431	0.056
Commerce	0.002	0.491	0.004	0.813	0.003	0.955	0.272
Education-research	-0.012	-1.425	-0.016	-1.808	-0.015	-2.329	0.066
Other	0.026	3.052	-0.006	-0.539	0.010	1.155	0.022
Time spent in the job	0.001	3.618	0.000	1.758	0.000	3.198	15.038
Time before the first job	-0.002	-8.452	-0.002	-8.507	-0.002	-12.381	10.046
Vocational course planed in the training	0.009	2.563	0.014	3.414	0.012	4.322	0.442
Vocational course not planed in the training	0.014	2.423	0.013	1.947	0.014	2.941	0.056
Migration					-0.009	-1.478	0.475
σ	0.090	123.957	0.103	161.669			
ρ	0.168	2.646	-0.069	-0.912			
Inverse of Mills ratio	0.012	2.159	-0.004	-0.514			

Concerning the wage differences depending on firm characteristics, industrial sectors offer higher wages than all others for blue collar workers. On the job training and technical abilities certainly produce larger productivity disparities in these sectors than in others. This difference does not exist for jobs with responsibilities. For this last labor market, only two sectors offer lower wages, namely administration and services to companies.

Table 3
Wage equations for men with low education:

	Migrants		Non Migrants		Whole Population		Descriptive statistics
	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic	(%)
Intercept	3.770	87.904	3.722	318.520	3.723	412.214	
24 years or more at the interview	0.000	-0.020	0.002	0.226	0.003	0.430	0.188
23 years at the interview	0.015	0.960	-0.001	-0.189	0.002	0.312	0.361
22 years at the interview	0.015	1.007	-0.004	-0.571	0.000	-0.022	0.379
21 years or less at the interview	Ref		Ref		Ref		0.072
CEP-BEPC (basic school leaving qual.)	-0.024	-2.487	-0.013	-2.739	-0.014	-3.201	0.180
CAP-BEP (apprenticeship)	-0.006	-0.650	0.004	1.022	0.003	0.768	0.253
CAP (vocational training qual.)	Ref		Ref		Ref		0.331
BEP (certificate of techn. Education	0.004	0.430	0.015	3.618	0.012	3.177	0.236
Agriculture	-0.014	-0.624	-0.012	-0.998	-0.012	-0.970	0.013
Industry	Ref		Ref		Ref		0.374
Building, civil engineering	-0.006	-0.580	-0.012	-2.605	-0.011	-2.674	0.202
Commerce	-0.034	-2.842	-0.032	-6.125	-0.033	-6.719	0.152
Service for private individuals	-0.045	-3.498	-0.036	-5.110	-0.036	-5.131	0.073
Administration, education, health	-0.053	-3.611	-0.026	-3.625	-0.032	-4.831	0.075
Service to companies	-0.001	-0.084	0.009	1.687	0.007	1.217	0.111
Size of company: 1-9 employees	Ref		Ref		Ref		0.281
10-49 employees	0.028	3.073	0.022	5.450	0.024	6.638	0.301
50–499 employees	0.054	5.784	0.045	10.203	0.047	12.041	0.276
500 employees and more	0.092	7.666	0.085	14.340	0.086	15.591	0.099
Unknown size	0.055	4.027	0.047	6.264	0.049	6.875	0.043
Permanent contract (incl. civil servants)	0.051	5.670	0.035	9.326	0.038	10.337	0.792
Production	Ref		Ref		Ref		0.480
Maintenance	-0.003	-0.296	0.008	1.661	0.007	1.778	0.190
Upkeep	-0.096	-3.611	-0.038	-3.095	-0.047	-4.856	0.026
Transport, warehousing	-0.010	-0.843	0.004	0.646	0.003	0.509	0.132
Secretariat	-0.002	-0.132	0.018	2.388	0.016	2.070	0.066
Commerce	-0.006	-0.492	0.017	2.951	0.014	2.507	0.106
Unskilled worker	-0.050	-3.966	-0.045	-7.689	-0.047	-8.759	0.088
Semi-skilled worker	-0.025	-2.767	-0.022	-5.255	-0.023	-6.626	0.240
Skilled worker	Ref		Ref		Ref		0.481
Employee	0.003	0.207	-0.016	-2.320	-0.014	-2.104	0.087
Supervisor, middle management	0.055	3.551	0.027	3.639	0.034	4.492	0.037
Other	0.006	0.483	-0.004	-0.659	-0.003	-0.456	0.075
Big urban labor Market [a]	0.025	2.947	0.027	5.985	0.031	6.556	0.237
Part time [b]	0.034	3.645	0.020	3.935	0.023	4.330	0.077
Full time (39-45 hours) [b]	Ref		Ref		Ref		0.851
Work time>45 hours [b]	-0.102	-8.339	-0.070	-12.963	-0.076	-13.888	0.072
Time spent in the job in months	0.000	0.354	0.000	3.701	0.000	3.512	20.621
Migration					-0.027	-0.671	0.192
σ	0.095	12.307	0.090	88.522			
ρ	-0.376	-1.511	0.065	0.222			
Inverse of Mills ratio	-0.022	-0.789	-0.025	-0.634			

For men with low levels of education the effect of the firm size is fairly pronounced in all cases: the larger the company the higher the wages, whatever migration decision they take. This fact is not replicated for highly-educated men; the estimation reveals a small negative effect of working in small firms (10-49 employees)[1] for non-migrants, and a small positive effect of working in a very big firm (more than 500 employees) for migrants. Big firms give a better environment in which to build a career for highly-educated men. So, if they want to be attractive, small firms have to pay at least the same wages. The result concerning blue collar workers may be due to a structural effect. We just remarked that wages were higher in industries; moreover, industrial firms tend to be bigger than others (Jayet, 1988, 1993), so that wages in big firms may appear larger than elsewhere.

Finally, wages are mostly higher in big cities. These variables control, at least partially, for the fact that we observe nominal and not real wages (Alexsson and Westerlund, 1998). Estimations distinguishing Paris and Province labor markets reveal that differences between both types of labor market are not embodied in that result.

Wages and labor market spatial heterogeneity

Estimations on highly-educated men from Provinces, distinguishing their destination choice, give rise to some interesting possibilities to confirm the idea that mechanisms can differ according to the type of labor market. The impact of educational level seems to be lower in Ile-de-France than in Provinces (Table 4). It can suggest that men who accept a job in Ile-de-France labor market are waiting for something else, for example job training.

Moreover, to have a permanent job has no impact for people who migrated to Ile-de-France while it has a significant effect in all other situations. The labor market of executive temporary jobs in Ile-de-France is larger than that observed elsewhere, so that firms have to raise wages to remain attractive to the workers. Moreover, "Parisian" firms cannot pay wages for unsettled people that would be very low compared to those paid to settled people because of the cost of living for that specific market. Thus, wages for young people are about the same level whatever the stability of the job. These results are consistent with the hypothesis we made above concerning the specific distribution of offers in the Ile-de-France labor market.

[1] The better wage received in the very small firm is due to the fact that the executive is also very often the head of the company.

Table 4
Wage equations for highly-educated men from Provinces, distinguishing labor market destination

	Migrant Provinces		Migrant Paris	
	coefficient	t-statistic	coefficient	t-statistic
Intercept	3,909	169,223	4,092	113,665
λ	0,051	2,704	-0,062	-2,425
28 years or more at the interview	0,039	5,787	0,035	4,289
26-27 years at the interview	0,019	3,490	0,017	2,405
25 years or less at the interview	Ref		Ref	
Baccalauréat + 2 and +3 years	-0,131	-16,905	-0,068	-4,148
Baccalauréat + 4 years	-0,066	-9,140	-0,040	-3,320
Baccalauréat + 5 years or more	Ref		Ref	
Big size labor market	0,014	2,645		
Industry	Ref		Ref	
Building, civil engineering	0,003	0,305	0,025	1,945
Commerce	0,008	0,842	-0,007	-0,508
Service for private individuals	-0,008	-0,581	0,017	1,172
Administration, education, health	-0,059	-5,258	-0,036	-2,717
Service to companies	-0,025	-4,777	0,000	-0,082
Unknown	-0,013	-0,696	0,021	0,956
Employee in private sector=1 (if not=0)	0,000	-0,036	0,016	2,600
Size of company: 1-9 employees	Ref		Ref	
10-49 employees	-0,015	-1,662	-0,015	-0,939
50–499 employees	-0,003	-0,318	-0,018	-1,198
500 employees and more	0,006	0,714	-0,027	-1,851
Unknown size	-0,001	-0,123	-0,024	-1,134
Permanent contract (incl. civil servants)	0,029	3,692	-0,010	-0,887
Executive	0,060	10,975	0,065	8,762
Production-maintenance-upkeep	Ref		Ref	
Secretariat	0,001	0,101	-0,038	-3,115
Commerce	-0,005	-0,988	0,012	2,138
Education-research	0,004	0,366	-0,004	-0,257
Other	0,035	2,606	0,036	1,414
Time spent in the job	0,001	5,529	0,002	6,666
Time before the first job	-0,017	-3,653	-0,033	-5,605
Vocational course planed in the training	0,004	0,845	0,004	0,593
Vocational course not planed in the training	0,015	1,713	0,010	0,997

Concluding remarks

The main purpose of this paper was to examine the impact of migration on wages for young French men. The issue is considered from a spatial job search perspective and we take into account the possibility of self-selection. The predictions of the model are confirmed by our estimations. We find a positive self-selection for highly educated migrants, especially when they move into provincial labor markets. This confirms the idea that, for them, migration consists of the choice of the best job opportunities. Furthermore, we do not find any support for selection bias in the case of workers with low levels of education, suggesting that differences in individuals' productivity are low. Another interesting result is the negative selection effect for the highly educated who migrate to Ile-de-France. This phenomenon may reflect the fact that people are willing to accept lower starting wages when this strategy can help them to build a better professional career.

The last result we want to emphasize is the absence of any direct impact of migration on wages, except for the case of highly educated provincial workers. The main explanation may well be the restrictive nature of our datasets. Even if we do not observe any effect of migration on wages earned immediately after the change of location, it remains possible that wages grow faster in the future thanks to migration (Krumm, 1983).

So, that discussion opens some new research perspectives and in particular, we propose to investigate the dynamics of the relationship between migration decisions and wage levels. For Greenwood (1997), "*some studies are based on data that have very limited time horizons of perhaps 5 yers or less. Sizable returns to migrate may accrue in the more-distant future, but these are not observed. Thus, measures of lifetime returns to migration are biased downward by the use of right-censored data that are too recent to the time of migration*" (Greenwood, 1997, p. 690). If the problem of limited time horizons could be abrogated, the objective would be to test if there is difference in the anticipation of the career progress between migrants and non-migrants *ceteris paribus*. To conduct this investigation, we would need historical data on wage levels. Finally, another extension of our paper would be to consider the impact of speculative migrations as compared to contracted ones. However, once again, the empirical test will not be easy to carry out because of the lack of data with historical information.

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APPENDIX

Table A1: Migration equation for agents with low education

	Coefficient	T-statistic	Statistics
Intercept	-0,903	-10,321	
24 years or more at the interview	0,062	0,662	0,188
23 years at the interview	-0,036	-0,413	0,361
22 years at the interview	-0,101	-1,167	0,379
21 years or less at the interview	Ref		
CEP-BEPC (basic school leaving qual.)	0,114	1,842	0,180
CAP-BEP (apprenticeship)	0,049	0,865	0,253
CAP (vocational training qual.)	Ref		
BEP (certificate of techn. Education	-0,034	-0,565	0,236
Father employed	Ref		
Father unemployed	0,236	2,344	0,042
Father inactive	0,076	1,074	0,264
Father retired	-0,352	-3,965	0,162
Mother employed	Ref		
Mother unemployed	-0,113	-0,933	0,036
Mother inactive	0,012	0,247	0,366
Mother retired	-0,093	-0,858	0,054
Lived in a big town at the end of school	0,266	5,384	0,220

Table A2: Migration equation for highly educated agents

	Coefficient	T-statistic	Statistics
Intercept	0,589	9,908	
28 years or more at the interview	0,084	1,634	0,225
26-27 years at the interview	0,117	2,883	0,410
25 years or less at the interview			
Baccalauréat + 2 and +3 years	-0,681	-14,223	0,399
Baccalauréat + 4 years	-0,478	-9,665	0,136
Baccalauréat + 5 years			
PhD	-0,010	-0,105	0,031
Lived in a big town at the end of school	-1,037	-31,733	0,351
Wish to change company and/or job	-0,232	-5,807	0,168
Father: unskilled worker	-0,069	-1,671	0,170
Father: skilled worker			
Father: employee	-0,043	-0,875	0,110
Father: executive	-0,157	-3,296	0,124
Father: independent	-0,091	-0,897	0,021
Father: unknown job	-0,287	-4,107	0,050
Vocational course planed in the training	0,066	1,815	0,442
Vocational course not planed in the training	0,052	0,804	0,056

Table A3: Wage equations for highly-educated men from Provinces

	Migrants		Non Migrants		Whole Population Statistics		
	coef-ficient	t-statistic	coef-ficient	t-statistic	coef-ficient	t-statistic	
Constant	3,990	337,790	3,955	211,526	3,951	368,420	
28 years or more at the interview	0,025	4,770	0,024	3,447	0,024	5,466	0,205
26-27 years at the interview	0,015	3,417	0,012	2,146	0,013	3,866	0,402
25 years or less at the interview							
Baccalauréat + 2 and +3 years	-0,111	-15,630	-0,113	-12,098	-0,106	-21,127	0,433
Baccalauréat + 4 years	-0,055	-8,819	-0,069	-8,255	-0,057	-12,200	0,135
Baccalauréat + 5 years	0,043	4,154	-0,004	-0,234	0,028	3,363	0,029
Ph.D							
Agriculture	-0,061	-4,037			-0,054	-3,342	0,006
Industry							
Building, civil engineering	0,011	1,559	0,016	1,607	0,013	2,408	0,052
Commerce	0,001	0,153	0,012	1,377	0,006	0,969	0,049
Service for private individuals	0,003	0,436	-0,008	-0,782	-0,002	-0,290	0,031
Administration, education, health	-0,046	-5,559	-0,033	-2,909	-0,041	-5,973	0,104
Service to companies	-0,015	-3,659	0,001	0,182	-0,008	-2,532	0,277
unknown	-0,004	-0,273	-0,010	-0,433	-0,005	-0,481	0,012
Employee in private sector=1 (if not=0)	0,008	1,841	-0,004	-0,649	0,004	1,072	0,741
Paris Labor market	0,053	12,650			0,037	3,969	0,083
Ile de France LB (without Paris)	0,031	7,421			0,014	1,577	0,132
Other labor markets							
Size of company: 1-9 employees							
10-49 employees	-0,013	-2,030	0,007	0,920	-0,002	-0,418	0,145
50–499 employees	-0,006	-1,004	0,013	1,829	0,003	0,503	0,275
500 employees and more	-0,005	-0,846	0,026	3,806	0,009	1,654	0,465
Unknown size	-0,006	-0,727	0,019	2,090	0,006	0,767	0,045
Permanent contract (incl. civil servants)	0,015	2,963	0,031	5,562	0,019	4,104	0,899
Executive	0,062	15,290	0,056	11,229	0,057	16,393	0,570
Production-maintenance-upkeep							
Secretariat	-0,018	-2,342	-0,040	-4,823	-0,028	-4,505	0,059
Commerce	0,002	0,613	0,000	0,026	0,002	0,744	0,251
Education-research	-0,010	-1,179	-0,010	-0,984	-0,009	-1,272	0,070
Other	0,031	3,600	0,002	0,163	0,014	1,464	0,022
Time spent in the job	0,001	3,439	0,000	2,272	0,001	3,916	15,007
Time before the first job	-0,002	-8,213	-0,001	-4,914	-0,002	-9,644	10,071
Vocational course planed in the training	0,009	2,474	0,014	2,689	0,011	3,431	0,420
Vocational course not planed in the training	0,016	2,718	0,000	-0,001	0,009	1,670	0,050
Migration					0,042	2,528	0,553
σ	0,090	126,276	0,106	132,081			
ρ	-0,042	-0,349	0,038	0,314			
Inverse of Mills ratio	-0,008	-0,694	0,007	0,518			