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Educational Track, Networks and Labor Market Outcomes

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Abstract

Does the educational track (technical or professional, as opposed to general) provide individuals with networks that are useful in the labor market? And how do these networks help? In this paper, we consider the effect of the educational track on the means by which individuals find employment, the time it takes to find their first stable job and their earnings once the school-to-work transition is well established. Using data in French school leavers from 1969-1992, we find that the educational track significantly influences the means by which jobs are found, favoring networks in particular, as well as having an independent direct effect on the speed of transition into the labor market and later earnings. We also find that the means by which a job was found significantly affects the time to first job and earnings, and in a way that offsets the direct effect of the educational track on our outcome variables.

Résumé

Est-ce que la filière suivie (générale versus technique ou professionnelle), au sein du système éducatif, conditionne la qualité du réseau sur lequel l’individu pourra s’appuyer au cours de sa carrière ? Par quelle voie agit ce réseau ? Ce papier évalue l'effet propre du passage par une filière technique ou généraliste à la fois sur le mode d'obtention de l'emploi, la durée d'accès au premier emploi de plus de six mois et sur le salaire obtenu après insertion, sur des données françaises des sortants du système scolaire entre 1969 et 1992. Les résultats montrent que la nature de la filière conditionne à la fois le mode d'obtention du premier emploi et des emplois suivants ainsi que la durée d’accès au premier emploi et le salaire. Nous trouvons également un effet du mode d’obtention de l’emploi sur la durée d’accès et sur le salaire, et cet effet indirect via le mode d’obtention sert à amoindrir l’effet direct de la filière sur nos mesures de succès sur le marché du travail.

Key Words: Educational system, educational track, networks, school-to-work transition
Mots clés: système éducatif, filière éducative, réseaux, insertion des jeunes

JEL codes / codes JEL: J31, J38, J21, J23, I28

1 Introduction

To what extent does the educational track (technical or professional education, as opposed to general) provide individuals with networks that are useful in the labor market? And how do these networks help? In this paper, we test the hypothesis that technical and professional educational tracks, perhaps because they involve relatively fewer students studying relatively narrow subjects in an externally identifiable setting that favors frequent repeated contact with a stable group of peers, allow individuals to develop networks of contacts upon which they will be able to rely later in their careers. Using data in French school leavers from 1969-1992, we consider the effect of the educational track on the means by which individuals find employment, the time it takes to find their first stable job and their earnings once the school to work transition is well established.

The literature on the school-to-work transition suggests that the educational system plays an important role in the transition process. International comparisons of educational systems (OECD, 2002; Damoiselet and Lévy-Garboua, 1999) show how different aspects of the educational system are related to the school-to-work transition and emphasize the importance of a professional or technical education and private sector involvement in the educational process.

In country-specific studies, Rebick (2000) shows that more than half of all hires of university graduates in Japan are due to the persistence of contacts between employers and universities. At the other end of the educational spectrum, Simonnet and Ulrich (2000) and Bonnal, Mendes and Sofer (2002) show that, in France, students who obtained

their degrees with an apprenticeship component[*] find their jobs faster and earn more than those who had an exclusively school-based education. Furthermore, Margolis, Simonnet and Vilhuber (2001) find results for France and Germany that suggest are consistent with a strong link between an individual's educational path and his or her later career experiences. In particular, they interpret an apparent heterogeneity in job offer arrival rates across young people linked to particular sectors of activity in France as being consistent with a link between an individual's educational track and the quality of his or her labor market networks.

This paper provides a more explicit test of the educational track – networks – labor market performance link. In order to explicitly evoke the role of the educational track on network formation and effectiveness, as opposed to a direct effect via the content of the human capital acquired, it is important to model the means by which a job was found as a function of the educational track. In addition, one should allow the educational track to influence job characteristics directly, so that the estimated impact of the means by which the job was found on job characteristics is purged of correlation with the direct effect of the educational track. This we do using French data, as the distinction between educational tracks can be made at many different stages of the educational system.

We begin with a rapid review of the literature on the role of networks on labor market experiences in section 2. Section 3 briefly describes the economic model, based on the ideas that a technical or professional education improves the quality of an individual's networks and that quality networks increase job offer arrival rates, as well as the econometric models we estimate, which we follow with a discussion of the data we

[*] In France, a sub-high school level professional or technical degree can be obtained either through an entirely school-based education (lycée technique or lycée professionnel) or through a part apprenticeship,

use in section 4. We then lay out our instrumentation of the educational track and level in section 5, a necessary step given the likely endogeneity of the educational path with respect to the outcomes we study.

Section 6 considers the immediate post-schooling period. We begin by considering the impact of the educational track and level on the means by which the first job that lasted at least 6 months was found. For the lower levels of education (comprising well over half of the sample), we find that those who followed a technical or professional education path were significantly more likely to have found their first stable jobs via networks of contacts than those who did not. In addition, the means by which the job was found significantly affects the time to the first stable job, with networks being particularly helpful. Conditioning on the (instrumented) method by which the first job of at least 6 months was found, we find a significant difference in the time it took to find this first job between educational tracks at all educational levels.

Section 7 considers the year 1997, which is (by construction) at least 5 years after school leaving. Once again, we begin by considering the impact of the educational track on the means by which the job held in March 1997 (if any) was found, controlling for the possibility of selection bias. At this stage, we find that the role of the educational track has generally become insignificant for determining the means by which the job at the sample date was obtained, although at the sole educational level where it is significant the effect once again suggests that individuals who followed a technical or professional track were more likely to have found their jobs by networks than those with a general education. Again, we find that the method by which the job was found does significantly affect the outcome variable (the wage in the current job), with jobs found by networks

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part school-based education.

being the highest paying even after conditioning on the educational track and level. As in the case with the first stable job, we once again find an independent role for the educational track on the characteristic of the job studied, in this case log monthly earnings, although the indirect effect of the educational track via the means of job finding, seems to offset the direct of effect of the educational track on wages somewhat.

With this information, we conclude (in section 8) that there is some evidence that a technical or professional educational track provides French young people with effective networks of labor market contacts, that the quality of an individual's networks allow him or her to find better jobs more rapidly, that the educational track also has an important direct role to play, and that the literature, by downplaying the impact of networks on job offer arrival rates, has missed an important component of labor market behavior.

2 Theoretical and Empirical Background

Networks, be they personal, professional or family-based, have long interested sociologists.[†] In this literature, networks are typically defined as links between people and/or organizations, and most research has concentrated on characterizing who has such contacts, how the contacts affect the members and how an individual's participation in a network influences the network itself (Wasserman and Faust, 1994). Early research in economics also showed than many people find their jobs via friends and other contacts (Myers and Shultz, 1951; Rees, 1966). Since the existence of networks seems a generally accepted phenomenon, it becomes interesting to investigate the impact of these networks on the functioning of labor markets.

Initially, economists understood networks as a means of reducing uncertainty present on both sides of the labor market. In the presence of worker and job heterogeneity, and faced with the problem of adverse selection, job seekers with contacts already employed by a firm may have more precise information on the characteristics of the jobs offered by the firm. Likewise, employed individuals may help their employers, or employers may directly try to form direct contacts with schools, in order to reduce the problem of adverse selection by creating a pre-screening mechanism to sort applicants by match quality.

This is the approach developed by Montgomery (1991), who proposes a model with heterogeneous workers and firms. Contacts provide employers with information concerning the productivity of applicants, and they provide applicants with information about the characteristics of the job. Exploiting this private information provides a less-costly screening mechanism for determining match quality than other hiring strategies, thereby generating higher rents to the employment relation. These rents can be shared between employers and workers as higher profits and higher wages.

Rebick (2000) estimates a model similar to that of Montgomery (1991) in the context of the recruitment of university graduates in Japan. In this model, workers are heterogeneous both in the number of contacts they have and the university they attend. Firms also have direct contacts with universities, which are perceived as providing a sort of specific human capital that reduces search costs for employers and improves screening. Empirically, Rebick (2000) shows that almost 60% of all private sector hires correspond to pre-established employer-university recruiting pairs. In the sciences, screening is outsourced to the professors in the university, who propose their best students. In other fields, the relation-specific capital allows firms to select high quality

[†] See, for example, Granovetter's (1974) landmark study on networks and the labor market.

individuals from universities whose reputations are not the best. In this latter case, the persistence of recruiting behavior among private sector employers is found to increase with the differential between the reputations of the university and the firm.

In these models, with heterogeneity present on both sides of the market, networks generate two (in principle) empirically observable outcomes. First, they allow firms to select the best matched workers from an available pool, thereby increasing profits. Second, as rents are higher, firms can propose higher salaries and induce further self-selection on the part of the applicant pool.

Mortensen and Vishwanath (1994), however, have shown that one can observe higher salaries resulting from networks in equilibrium even when workers are homogeneous. In a model based on previous work by Staiger (1990), they consider an equilibrium search framework with workers drawing wage offers, which are associated with particular firms, from a non-degenerate distribution. Given the possibility of job-to-job mobility, workers observed in employment will have wages drawn from the upper tail of the wage offer distribution. Since firms pay all workers the same, this implies that wage offers that arrive via contacts will necessarily be drawn from a distribution of firms whose offer distribution dominates that of the universe of firms posting jobs. Contacts thus provide individuals with an offer distribution that is a mixture of two distributions, one employed and one unemployed, and this distribution strictly dominates the offer distribution for those people without contacts. In this case, workers with contacts will be observed to have higher wages in employment than those without, independent of any heterogeneity that may exist on the worker side of the market.

3 The Economic and Econometric Models Estimated

In the models presented above, networks improve the flow of information and are associated with higher earnings for workers, be they heterogeneous or not. Quantitatively, the effects of networks are important. However, both the models of Montgomery (1991) and Mortensen and Vishwanath (1994) ignore what may be the most important role for network: to increase the job offer arrival rate.[‡]

If the rate of arrival of new job offers depends both on job search intensity (another neglected parameter) and membership of labor market networks, then the direct implication of networks for wages is indeterminate. For example, suppose the offer arrival function is increasing both in job search intensity and network quality.[§] If job search is costly, then an individual with better networks can attain the same offer arrival rate as a less well-connected person by employing a lower job search intensity while still experiencing an increase in utility. Without additional hypotheses, one can not conclude as to the size, or even the sign, of the elasticity of the intensity of job search with respect to network quality, although one can conclude that individuals who differ exclusively in terms of the quality of their networks will also differ in welfare.[**] Under relatively unrestrictive conditions, there exists a level of job search intensity such that the reservation wage of an individual with contacts and that of an individual without contacts will be the same. If people with contacts search with this intensity then, contrary to

[‡] Margolis and Simonnet (2002) provide a detailed structural model of the role of networks, via an increased offer arrival rate, on the intensity of job search, reservation wages, and labor market outcomes.

[§] It may also be simply supermodular in job search intensity and network quality, in which case all of our arguments hold except in the case of the corner solution with zero job search intensity.

[**] The structural approach of Margolis and Simonnet (2002) resolves certain indeterminacies, notably the elasticity of search intensity with respect to network quality, although it is subject to the standard robustness critiques of most structural models. Our approach here is purely in reduced form.

Mortensen and Vishwanath (1994), the distribution of wages of employed workers will be independent of the quality of their networks.

Since there is a priori uncertainty concerning the theoretical relation between search intensity and networks, a reduced-form empirical evaluation becomes useful. Ideally, our data would allow us to observe job search intensity (or variables correlated with it), the means by which jobs are found, unemployment durations and reemployment wages. Although our data do not provide information on search intensity, we exploit information on the three remaining measures, namely the method by which a job was found, the amount of time it took an individual to obtain his or her first stable job and the wage observed in employment later in the career. We also observe the educational track, which we first attempt to establish is an important correlate with network quality, and then consider the method of job finding as a possible determinant of our two outcome variables. To avoid spurious correlation due to omitted variable bias, we also include the educational track directly in our reduced form models.

To test the hypothesis that technical and professional networks allow individuals to develop quality networks of contacts, we consider the means by which a given job, be it the first stable job or the later-career job, is found. If networks increase the arrival rate of job offers then, ceteris paribus and for a given offer arrival rate, a larger share of wage draws should come from contacts for people with better quality networks. If the offer distributions are identical, then a larger share of jobs will have been found through networks by people whose networks are of high quality than by those whose networks are absent or of low quality. If, as suggested by Mortensen and Vishwanath (1994), the

distribution of wages offers that arrives from contacts dominates the general wage offer distribution, then this effect of network quality is accentuated.[††]

Since the role of the educational track may be important in the formation of networks and in an individual's welfare later in life, it is likely to be endogenous with respect to the job finding and outcome variables that we study here. We thus begin by estimating the determinants of the educational track and level so as to have instrumental variables available for the rest of the analysis.[‡‡] Several modeling strategies are available for this instrumentation, including separate dichotomous and ordered estimations for the educational track and level variables, joint estimation of the same models, or multinomial estimation. As the first two approaches are more restrictive econometric specifications parametrically, we opt for a multinomial logit model of the educational track-educational level combination, although we present results of the joint probit-ordered probit estimation in an appendix for comparison.[§§]

Having instrumented the educational track and level, we analyze the means by which the first job that lasted at least 6 months was found via a series of probit models.[***] This approach has the advantage of only imposing normality on the marginal distributions, as each binary decision is modeled as 1 for the method in question having been successful

[††] The counterpart to this reasoning is that the Mortensen and Vishwanath (1994) model will also predict that a larger share of accepted jobs will come from contacts when networks are strong independently of any effect on offer arrival rates, and thus one can not rely exclusively on the method by which a job was found to distinguish between the models empirically.

[‡‡] As discussed in section 4 below, our educational track variable is dichotomous, taking on the value 0 for a technical or professional education and the value 1 for a general education. Our educational level variable takes on 4 ordered values, corresponding to different standard exit points in the French educational system.

[§§] A disadvantage of the multinomial logit approach is that it imposes a form of independence of irrelevant alternatives, in that the disturbances of the latent models are all assumed to be independent of each other. A still more flexible approach would also model the cross-equation correlations in disturbance terms, but the dimensionality of the integral (in our case, 8) that such an approach implies led us to reject this estimation strategy.

versus 0 for it not having been successful. The full joint distribution, and notably the correlations between the disturbances of the latent models, is left unspecified.

We include the set of (instrumented) probabilities of having obtained a given degree as explanatory variables, taking a level 0, general education as a reference.[†††] This allows us to see if a technical or professional education increases the probability that the first stable job was found by networks by more than a comparable individual with the same level of education, but who obtained his or her degree though a general education. A significant difference between these two marginal effects on the probability of networks having been successful is interpreted as prima facie evidence in favor of the hypothesis that a technical or professional education improves the quality of an individual's networks.

We then consider the determinants of the time it took for an individual to find his or her first job of at least 6 months. As over 11% of individuals in our sample found their first stable job either prior to or immediately upon leaving school, we use a tobit regression to capture the separate effects of the educational track and the means by which the job was found on this outcome measure. Both of these variables are instrumented, and it is of interest to see whether there is an additional effect of the educational track on the time to first job, beyond the effect already captured in the method by which the job was found.

[***] By construction, all individuals in our data had found their first job lasting at least 6 months within 5 years of school leaving, so this information is available for all individuals in the sample.

[†††] Since the probit model is nonlinear and so is the multinomial logit instrumenting equation, analytical derivation of the correct standard errors is problematic. As a result, the standard errors presented here, and in all subsequent steps, result from a bootstrap procedure in which 1000 bootstrap samples were drawn and each bootstrap sample is the same size as the relevant (non-bootstrapped) analysis sample.

However, the most relevant concern is to see whether individuals who found their jobs through networks found them faster or not. If networks increase the arrival rate of job offers then, barring a disproportionate decrease in search intensity or a disproportionate increase in the reservation wage, a faster time to the first stable job would be expected under most empirically relevant scenarios. To further test the role of networks on labor market outcomes, we also consider the earnings when employed later in the career. [‡‡‡]

Since the job held in 1997, the sample date, is often different from the first long job held after leaving school,[§§§] we reestimate the set of probit models describing the means by which the current job was found. In addition, as our sample selection criteria do not require the individual to be employed at the sample date, this second set of probit models includes a correction for possible selection bias[****]. Our set of control variables is similar to the set of variables used for the probits of the means of finding the first stable job, and the selection equation is modeled with a specification similar to that used in the tobit for the time to the first stable job.

The outcome variable of interest in the current job is log earnings at the start of the job. Since our measured variable is current log earnings, and since log earnings are likely to be determined by many other factors, we estimate a standard earnings regression, with and without correction for selection bias (Heckman, 1979). This regression is augmented by our (instrumented) education and (instrumented) probability of means of job finding

[‡‡‡] Although the Youth and Careers Survey that we use does contain information on initial earnings in the first stable job, it is retrospective (up to 29 years old) and generally considered to be of poor quality. As a result, we use information on earnings at the sample date, which should be more reliable. It should be noted that the information on the method of job finding is considered much more reliable by the data collection authorities.

[§§§] This is the case for roughly 2/3 of the individuals observed in employment at the sample date in our data.

variables. If we find that log earnings are significantly higher for individuals who found their jobs through contacts, then this, combined with a finding of a faster time to first job, could be interpreted as evidence that reservation wages are adjusted upwards in response to the increased offer arrival rate that accompanies quality networks of labor market contacts, but that the extra offers that appear more than offset the increased probability that any given offer will be rejected.[††††]

4 Data

For our analysis, we use the "Youth and Careers Survey" (Enquête jeunes et carriers) supplement to INSEE's (the French National Institute of Statistics and Economic Studies) household survey, called the Enquête Emploi. The overall household survey, albeit annual and not monthly,[‡‡‡‡] is similar to the U.S. Current Population Survey but with a 3-year rotating panel structure. The Youth and Careers Survey supplement was administered in March 1997 to people aged 19 to 45 in the 1/3 outgoing rotation group. It covers roughly 20800 individuals of which 9000 were under 30 years old at the sample date.

The Youth and Careers Survey provides detailed information on educational experiences and the school-to-work transition period, in addition to extra background information (parents education and occupation, for example), "environmental" variables

[****] See StataCorp (2001) for the implementation of the selection bias corrected probit model.

[††††] Alternatively, earnings evidence of this sort this could be interpreted as evidence in favor of Mortensen and Vishwanath's (1994) model, in which the offer distribution for people with networks dominates that of those without networks. However, since the higher offer arrival distribution should induce workers to raise their reservation wages, one would expect to see a longer, not a shorter, time to the first stable job in their context.

(whether the individual was experiencing sentimental, health or family problems during school, during the school-to-work transition or at the time of the survey) and all of the information normally available in the household survey (such as earnings, final level of education attained, hours worked, place of residence, etc…). Furthermore, the survey provides relatively detailed information of the person's career path up to the time of the survey.

Using a decomposition suggested by Sabatier (2001),[§§§§] we group the method by which a job was found into one of 4 categories:

- **Market Methods**, which includes spontaneous approaches to employers, responding to help-wanted advertisements and sending out resumes;
- **Networks**, which includes family contacts, personal acquaintances, and contacts formed through work, school, a training program or prior experience with the same employer;
- **Intermediaries**, which include job placement agencies and unemployment insurance offices;
- **Other Means**, such as self-employment, national job-competitions[*****] or any other method.

Although it is clear that the "networks" category has a broader coverage than desired (we would prefer to be able to distinguish in particular the contacts formed at and through

[###] The Enquête Emploi's sampling methodology has been modified in recent years in order to sample individuals on a year-round basis, although this reform took place after our survey data was collected.
[§§§§] Sabatier (2001) decomposes the "Networks" category into family and other networks. Our data are not sufficiently precise to apply the same distinction.
[*****] In France, all "regular" public sector jobs are attributed exclusively through national job competitions, typically with competitive entrance exams and hiring by rank order.

school), including all of these means of job finding prevents us from misclassifying friends made at school as personal, as opposed to professional, contacts.

Our education variables were based on a 4-level classification, with each level allowing for a general and a technical and/or professional option.[†††††] The levels were defined as follows:

- 0 for individuals who left school with a pre-high school diploma-level degree (CAP or BEP) or who left school before the final year of high school;
- 1 for individuals who attended the final year of high school;
- 2 for individuals doing undergraduate (DEUG, DUT) university studies, paramedical and social work studies and specialized technical (BTS) studies. All of these programs last roughly 2 years.
- 3 for individuals with higher university studies (Licence, Maîtrise, DEA, DESS, Thèse) or specialized business or engineering school (Grande école) studies. All of these programs are at least 3 years long.

We also create a variable to distinguish general education (collège, seconde, première, terminale, 1er, 2ème or 3ème cycle universitaire) from technical or professional education (all other degrees). It should be noted that our classification is based on the last grade attended, as opposed to last grade completed, since individuals can make contacts in a given grade even if they are failing in their studies.[‡‡‡‡‡]

Consistent with this classification and the analyses to be undertaken, we applied several selection criteria in the construction of our data set. First, since we consider both

[†††††] This distinction excludes those individuals with a sub-junior high school level education and those with no education at all, since it is impossible to distinguish a general from a technical or professional track in these cases.

the first job to last at least 6 months and the job held at the sample date in 1997, we eliminated all people who left school after 1992 and all of those who took longer than 5 years to find their first stable job. This selection eliminated 7727 observations from the initial sample of 20770. We then dropped all people who did not attain at least a level 0 education (553 observations) and those who were missing data used in the education instrumentation and first stable job analyses (1215 observations). The final sample, containing 11275 observations, and the effects of each selection criterion, is shown in table 1.

Table 1 makes clear that, although the first set of selection criteria had a impact on some key variables, the subsequent restrictions changed the sample relatively little. In particular, by requiring individuals to have left school by 1992, we reduce the share of those continuing on to longer studies and increase the share of those with only a level 0 education. Likewise, the increase in the share of male students could also be related to the fact that women have increasingly been overrepresented at the higher education levels and underrepresented at the lower levels. Since this selection criterion also serves to eliminate some individuals who have not completely settled into the labor market (the jump in the average number of months worked in 1997 between samples suggests that this is likely), we believe that the selection criterion is necessary in order to credibly consider the 1997 job as post-transition into the labor market.

A rapid look at the descriptive statistics suggests that networks are clearly the most frequent means by which individuals found their first stable job, and even once the transition to the labor force is finished, still are the second most frequent means of job

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Simonnet and Ulrich (2000) show that in France, as in other countries, there are important "sheepskin", or diploma, effects. This does not necessarily apply to network formation, however.

finding. Another feature that has been noticed elsewhere (Simonnet and Ulrich, 2000) is the importance of the level 0, technical education in the overall population. This is easily the most common educational path, and combined with level 0 general education, means that over half of the individuals in our sample did not make it as far as the last year of high school. Since our sample mainly covers people who left school before the drive to push all students to at least the baccalauréat (the high school exit exam in France), this is not surprising.

5 Educational Level and Educational Track

Given the importance of the educational track to our analyses, and its consequent likelihood of being endogenous, we instrument both the educational track and level in a preliminary step to our analyses. Our preferred model is the multinomial logit specification presented in table 2, although we also present a joint probit-ordered probit model in appendix table 1 for comparison.

The first thing to note about table 2 is the lack of a monotonic relation across the coefficients as the level increases for a given educational track for many variables. This implies that an ordered probit specification for the educational level is not likely to be sufficiently flexible to capture the determinants of each different level of education. Although the two models are not nested, a simple comparison of the log likelihoods of the models estimated in table 2 and appendix table 1 suggests that the multinomial logit model fits the data much more closely than the joint probit-ordered probit model. Nevertheless, it is interesting to note the positive, and very significant, correlation between the disturbances in appendix table 1. This implies that individuals who are more

likely to follow a technical or professional track are also more likely to stop their studies at an earlier stage than their fellow students.

With all of this in mind, interpreting table 2 becomes more complicated. We find that men are more likely to follow a technical or professional educational track, and although they are more likely to reach the highest level of technical or professional education (the Grande école in France), women are more likely to attain the upper levels of university education (4-year university, masters and doctorate). The only technical or professional degrees for which women are more dominant than the reference case are the paramedical, social work and specialized 2-year post-high school (level 2) degrees, although they are even more overrepresented (relative to the level 0 general degree) in the level 2 general educational track.

Table 2 also makes clear that the parents' educational background is clearly important for determining their children's educational choices and outcomes. Children whose parents have a technical or professional education[§§§§§] seem more likely, in most cases, to have a technical or professional education themselves. Children of more highly educated parents also tend to have a higher educational level themselves.

The role of the parents' occupation is less straightforward. Clearly, children whose fathers are upper managers are more likely to go further in school, especially into the level 3 technical or professional track (popularly considered the most elite educational path), but the role for other occupational categories is not as direct. That said, an interesting result appears for people whose mothers worked blue collar jobs. They are

[§§§§§] Our information on the parents' education is not as precise as the information available for the sample individuals. Furthermore, at the time the parents of the people in our sample were attending school, the professional and technical options were significantly less developed. As a result, we can not distinguish educational level from educational track beyond the decomposition described here.

significantly less likely to follow the level 1-3 technical or professional paths, a characteristic that is only evident with respect to a level 2 technical or professional education for fathers. Furthermore, the sizes of the negative coefficients are much larger, in absolute value, for a technical or professional track education than for a general education, suggesting that blue collar mothers may consider a general education to be a key to social promotion.

A final point of note concerns the set of variables “Sentimental Problems”, “Family Problems” and “Health Problems”. We provide no explicit interpretation for these variables, except to suggest that they could serve as useful instruments (“Sentimental Problems” in particular). Note that a separate set of measures exists at the 3 relevant dates for our sample, the schooling period, the transition period and the later career period. Since these variables measured during schooling are (in most cases) significantly related to the endogenous variable, the educational path, and since they are (conditional on the same variable measured at the time of the outcome variables we consider later) not directly related to the disturbance of the outcome measure, they satisfy the statistical criteria for instrument validity. We do not, however, attempt to justify their importance in any given model that follows beyond noting that their presence in the conditioning set is likely to be important for verifying the second (conditional orthogonality) instrument validity condition.

6 The First Job of at Least 6 Months

With estimates of the educational track and level in hand, we turn our attention to the first job that lasted at least 6 months. We begin by considering the means by which the

first stable job was found from among the 4 possibilities described in section 4 and continue with an analysis of the amount of time it took to start this job. The first analysis is designed to highlight the role of the educational track for network formation, and the second to bring out the role of networks on the job search process.

Table 3 presents the results of the estimation of a series of probit models (with bootstrapped standard errors). We often find significant differences across educational tracks, and with the exception of people with a level 3 education (the results at level 2 being insignificant),[******] our results favor the hypothesis that a technical or professional education increases the probability of having found the first stable job by way of one's networks. The effect at level 0 (less than the final year of high school) is particularly strong. Among individuals with a level 0 education, a shift of 0.1 from the probability of pursuing a general education to the probability of following a technical or professional track leads to an increase in the probability of having found one's first stable job by networks of over 0.03.[††††††] This "reallocation effect" of 0.3141 is the second strongest in our estimates, behind only the decrease in the probability that education level 0 find their first stable job by market methods of -0.4842.

Among other interesting results is the strong predominance of technically or professionally educated people among those who found their jobs via intermediaries at all

[******] Given that we bootstrap standard errors in these estimations, the precise values of the standard errors can vary slightly with the particular bootstrap samples that are drawn (Andrews and Buchinsky, 2000). We drew 1000 bootstrap samples each time for the calculation of our various covariance matrices to reduce this risk, but standard hypothesis tests should be treated more flexibly in a bootstrap setting.

[††††††] Given the nonlinear nature of our models, the displayed coefficients are not interpretable as marginal effects. The exercise described here as a "reallocation effect" simply determines the change in the probability of the outcome, conditional on the educational level, associated with a drop in the probability of following the general educational track and an equivalent increase in the probability of following the technical or professional educational track. Since our instrumented probabilities are continuous variables and the functional form of a probit is nonlinear, the described reallocation effects refer more properly to

levels except level 1 (last year of high school). As these methods are often considered to be the method of job finding of last resort, such a result suggests that, in a competing risk sense, the job finding hazard functions of the other methods of job search are relatively closer to that of intermediaries for technical or professional track students.

In terms of nationality, it is unsurprising to find people of French (and insignificantly, European Union) nationality finding their jobs by national job competitions or self employment more often than those with a foreign nationality other than that of a North African or EU country. Since public sector recruitment for indefinite term jobs only proceeds by this manner, and since only French and EU citizens are eligible, this result is somewhat mechanical. The relative advantage of French young people in finding jobs by market methods may be indicative of some discrimination, while their relatively lower success in using contacts may simply reflect the importance that immigrant communities put on helping each other.

Table 4 shows the relation between each of these methods of job finding, instrumented according to table 3, and the time it took to find the first stable job. With the exception of self employment and national hiring competitions, the latter of which often implies an immediately stable job that begins 2-3 months after the end of a school year, networks are clearly, and significantly, the fastest means of getting a new job. This is consistent with the idea that networks provide a faster job offer arrival rate, and that job search intensity is not disproportionately reduced, nor are reservation wages disproportionately raised, in response. In a pure Mortensen and Vishwanath (1994) world, if the only thing changing is the distribution of wage offers, then the reservation

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infinitesimal, and not discrete, probability shifts. Elasticities are not relevant measures in this context, as the sum of probabilities, when conditioning on the educational level, must remain constant.

wage will adjust upwards and the time it took to find jobs by people with networks should be longer, not shorter, than that of other methods.

On the other hand, with a higher offer arrival rate, the role of on-the-job search becomes crucial. When on the job search is pointless, the search intensity and reservation wage adjustment strategies described above are appropriate. On the other hand, when on the job search is easy, an optimal strategy with a high arrival rate would unambiguously imply a shorter time to the first job of any sort, but the extra offers would reduce the expected length of such early jobs and thus the total time to the first job that lasts at least 6 months is undetermined without additional structure on the model.

Over and above the impact of the educational track on the method of job finding, we note that, for all education levels except level 1, a technical or professional education significantly shortens the time to the first stable job. The difference ranges from -9.7 months (for level 0) to -43.5 months (for level 2) and is always significant. However, a comparison with appendix table 2, which estimates the same model without controlling for the means by which the job was found, shows the potential for specification error. In this model, omitted variable bias makes the differences much smaller (0.30 months for level 0, -9.53 months for level 2), typically changes the sign of the difference in effects (for levels 0, 1 and 3) and renders the differences insignificant for levels 0 and 1.

7 The Job Held in 1997

As we lack reliable wage information for the first job, we next consider the job held at the sample date (for which such information is available). This additional information allows us to further pursue the role of networks in determining labor market outcomes

and to investigate the persistence of the role of the educational track on the quality of networks available to individuals.

As table 5 makes clear, the importance of the educational track in determining the means by which a job is found is lessened as the school-to-work transition period recedes. The only educational level at which a significant difference in the success of networks persists is level 2, and in this case it again favors the idea that a technical or professional education provides better quality networks than the same level of education attained through a general track. The reallocation effect for level 2 educated workers is 0.4693, over 100 times larger (and of opposite sign) than for the first stable job.

With the exception of market methods, the effect of educational track on the means by which a job is found is much less often significant for the 1997 job than for the first stable job after leaving school. The chi-square tests of the joint significance of the model variables are also less clearly conclusive for market (and in a lesser measure, network) methods. And the only means of job finding for which the results for the current job are similar to those of the first stable job is the "other" category, in which the general educational track is more predominant at all levels than the technical or professional track.

The estimated correlation between the employment disturbance and the mode of job finding disturbance provides an additional interesting source of variability. Although the correlation is insignificant for networks and other methods, it is significantly positive for market methods and significantly negative for intermediaries. This is consistent with the idea that people who are least likely to be able to find a job by the three other methods are both most likely to be without a job at the sample date (a negative disturbance in the

selection equation) and most likely to be exploiting intermediaries when they eventually do find a job (a positive disturbance in the means-of-job-finding probit). Conversely, the most motivated individuals are both the least likely to be without a job at the sample date (a positive disturbance in the selection equation) and most likely to exploit market methods, which one suspects are the most sensitive to the effort devoted to job search, to find a job (a positive disturbance in the means-of-job-finding probit).

Turning to the earnings equations, table 6 provides further evidence in favor of an important role for networks. Individuals who found their 1997 job via contacts earn significantly more than those who found their job by any other method (16% more than market methods, 34% more than intermediaries and 13% more than other methods).[‡‡‡‡‡‡] This suggests that, even if job search intensity was reduced in response to an increased offer arrival rate, the reservation wage was also raised. This result could also be interpreted as coherent with the Mortensen and Vishwanath (1994) model, although our earlier result concerning the time to the first stable job casts some doubt on this approach.

Although the (instrumented) variables describing the method of job finding are often significantly different from each other, comparison with appendix table 4 does not suggest an important omitted variable bias in the direct role of the educational track due to the specification error.[§§§§§§] At all education levels except level 2, the direct effect of a technical or professional education on monthly earnings is negative. In the case of a level 1 education, those who attended their final year of high school in a professional or

[‡‡‡‡‡] Appendix table 3 estimates the same model with a correction for possible selection bias. We are unable to reject the null hypothesis of an absence of correlation between the disturbances of the earnings model and the selection equation at any standard level of confidence, and thus the results in table 6 can be interpreted as not being subject to selection bias. Heuristically, a simple comparison of the results of the two models also shows that they are very similar.

[§§§§§§] Selection bias-corrected estimation of the appendix table 4 model (results available upon request) did not allow us to reject the null of no selection bias, so we only present the least squares coefficients here.

technical high school earned over 34% less than those who attended the last year of high school in a general high school. At level 2, the positive direct effect is very large, suggesting earnings almost ¾ higher for people with a technical or professional 2-year university training, relative to those with a general education at the same level.[*******]

The direct effect of the educational track, however, ignores the fact that a technical or professional education also affects the means by which the job was found, and the indirect effect via the method of job finding may offset direct effect of the educational track in some cases. We find that the total effect of a technical or professional education, taking into account the role of the educational track on the means of finding a job and the coefficients associated with each different method in the earnings equation in addition to the direct effects described above, tends to be the opposite of the direct effect alone. At all educational levels except level 1, the total effect of a technical or professional education on log monthly earnings is positive, and even in the case of a level 1 education the negative earnings differential is reduced to only 3.3%. Furthermore, the magnitudes of the total effects are much smaller in absolute value than the direct effects, ranging from 1.5% for a level 0 education to 5.2% for a level 2 education. Such a compression in the overall effects may suggest optimizing behavior on behalf of the disadvantaged educational track at each level, in that affected individuals may intensify their use of the job search methods that lead to the highest earnings to compensate for the direct earnings penalty they would otherwise suffer.

[*******] It should be noted that the French educational system prohibits selection at entry for the general 2-year university program, provided that the applicant passed his or her high school exit exam (the baccalauréat). On the other hand, there are many private 2-year technical and professional programs, and the selection (if only based on financial resources) is likely to imply that the populations of individuals in each track are different along unobserved dimensions. That said, we instrument the educational track and level on the basis of observable characteristics according to the results in table 2, so this problem is less likely to be relevant here.

8 Conclusion

Our analysis of the role of educational track on the means of finding a job, and on the role of educational track and networks on labor market outcomes, leads to three principal empirical conclusions and suggests a potentially important oversight in the literature modeling labor market outcomes.

First, we find that the educational track does tend to affect the means by which a job is found, although the effect decreases once the school-to-work transition is finished. In particular, the hypothesis that a technical or professional education provides young people with higher quality networks of contacts than a general education finds some support in our data, although not for the highest level of education. There also seem to be patterns in the use of other methods of finding jobs that are related to the educational track, most notably the dominance of the general track among those who found their jobs either through national job competitions (typically public sector jobs) or by becoming self employed.

Second, we find that the educational track also has an important direct effect on labor market outcomes, independently of the effect it has on the means of job finding. For both of our outcome measures (the time to the first stable job and earnings on the job once the transition from school to work has finished), we find a significant role for the educational track above and beyond the impact it has on the means by which the job was obtained. The differences do not systematically favor one track over another at all educational levels, but there is evidence to suggest that (in particular concerning the time to the first stable job) the correlation of the educational track with the method by which the job was

found can induce a serious omitted variable bias in the estimate of the effect of the educational track when the means of job finding variables are excluded.

Third, we find that the means by which a job was found can be a very important determinant of labor market outcomes, to the point of reversing the direct effect of certain other model regressors when estimating the total effect. Networks in particular seem to be the best means to do well in the labor market, in that individuals who found their first stable jobs via contacts found them sooner than those whose jobs were found via market-based methods or intermediaries, and those who found their job at the sample date through connections earn significantly more than people who found their jobs by any other method.

Finally, our results suggest that the literature needs to seriously consider the possibility that the main route by which networks affect labor market outcomes is by increasing the offer arrival rate. Although the literature has focused on reducing imperfect information when considering networks, our results suggest that the empirical implications of a model of this type (Mortensen and Vishwanath, 1994) are not as well supported by the data in our reduced form analyses as the implications of a model where networks increase the job offer arrival rate. Even allowing for endogenous job search intensity, we find results that suggest that workers with effective networks increase their reservation wages while simultaneously reducing the time to their first stable job. These results may be rationalized in a Montgomery (1991) type two-sided heterogeneity, imperfect information model, but they fit just as easily into an otherwise-homogeneous world in which networks simply provide individuals with extra job offers that they would not have had otherwise.

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Table 1
Descriptive Statistics and Sample Evolution

	Sample Selection Criterion							
	Initial Data Set: Youth and Careers Survey		Left School After 1992 or Time to 1st job > 5 Years		Education Less than Level 0		First Job Variables Missing	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Demographic Variables								
Male	0,4768	(0,4995)	0,5013	(0,5000)	0,5019	(0,5000)	0,4985	(0,5000)
Nationality: French	0,9423	(0,2332)	0,9557	(0,2058)	0,9616	(0,1920)	0,9651	(0,1834)
Nationality: North African	0,0209	(0,1430)	0,0120	(0,1091)	0,0105	(0,1019)	0,0096	(0,0974)
Nationality: European Union	0,0179	(0,1326)	0,0183	(0,1341)	0,0152	(0,1224)	0,0141	(0,1179)
Education								
Technical/Professional, Level 0	0,4025	(0,4904)	0,4826	(0,4997)	0,4596	(0,4984)	0,4604	(0,4985)
Technical/Professional, Level 1	0,0718	(0,2581)	0,0695	(0,2544)	0,0726	(0,2595)	0,0736	(0,2612)
Technical/Professional, Level 2	0,1382	(0,3451)	0,1242	(0,3298)	0,1297	(0,3360)	0,1342	(0,3409)
Technical/Professional, Level 3	0,0257	(0,1583)	0,0250	(0,1561)	0,0261	(0,1594)	0,0272	(0,1628)
General, Level 0	0,1373	(0,3441)	0,1379	(0,3448)	0,1440	(0,3511)	0,1369	(0,3437)
General, Level 1	0,0672	(0,2504)	0,0685	(0,2526)	0,0715	(0,2577)	0,0725	(0,2593)
General, Level 2	0,0578	(0,2334)	0,0303	(0,1714)	0,0316	(0,1750)	0,0321	(0,1763)
General, Level 3	0,0995	(0,2994)	0,0620	(0,2412)	0,0648	(0,2461)	0,0631	(0,2432)
During School								
Health Problems	0,0777	(0,2676)	0,0593	(0,2363)	0,0586	(0,2349)	0,0588	(0,2353)
Sentimental Problems	0,0306	(0,1722)	0,0074	(0,0859)	0,0077	(0,0873)	0,0077	(0,0875)
Family Problems	0,0484	(0,2147)	0,0360	(0,1862)	0,0367	(0,1880)	0,0369	(0,1885)
After School Leaving								
Job Found by Market Methods	0,2638	(0,4407)	0,2762	(0,4472)	0,2741	(0,4461)	0,2811	(0,4495)
Job Found by Networks	0,5701	(0,4951)	0,5633	(0,4960)	0,5621	(0,4961)	0,5661	(0,4956)
Job Found by Intermediaries	0,0872	(0,2822)	0,0833	(0,2764)	0,0853	(0,2794)	0,0895	(0,2855)
Job Found by Other Means	0,0789	(0,2696)	0,0771	(0,2668)	0,0784	(0,2688)	0,0633	(0,2436)
Health Problems	0,0587	(0,2351)	0,0672	(0,2504)	0,0666	(0,2494)	0,0670	(0,2500)
Sentimental Problems	0,0166	(0,1278)	0,0127	(0,1118)	0,0131	(0,1135)	0,0134	(0,1150)
Family Problems	0,0423	(0,2012)	0,0424	(0,2015)	0,0431	(0,2030)	0,0432	(0,2033)
Time to First Long Job	14,4490	(27,3423)	9,8517	(13,0186)	9,8282	(12,9655)	9,8586	(12,9241)
1997								
Job Found by Market Methods	0,3755	(0,4843)	0,3715	(0,4832)	0,3722	(0,4834)	0,3832	(0,4862)
Job Found by Networks	0,3687	(0,4825)	0,3654	(0,4816)	0,3631	(0,4809)	0,3602	(0,4801)
Job Found by Intermediaries	0,0909	(0,2874)	0,0860	(0,2803)	0,0861	(0,2806)	0,0904	(0,2868)
Job Found by Other Means	0,1649	(0,3711)	0,1772	(0,3818)	0,1785	(0,3829)	0,1662	(0,3723)
Health Problems	0,0759	(0,2648)	0,0864	(0,2810)	0,0851	(0,2791)	0,0856	(0,2798)
Sentimental Problems	0,0214	(0,1448)	0,0155	(0,1235)	0,0160	(0,1255)	0,0168	(0,1284)
Family Problems	0,0626	(0,2422)	0,0721	(0,2586)	0,0724	(0,2591)	0,0712	(0,2572)
Log Monthly Earnings	8,8367	(0,5910)	8,9221	(0,5308)	8,9332	(0,5272)	8,9436	(0,5217)
Number of Months Worked	8,0827	(5,2616)	9,9942	(4,1277)	10,0508	(4,0750)	10,0749	(4,0550)
Number of Observations	20770		13043		12490		11275	
Obs. with Valid 1997 Earnings	12550		9524		9171		8620	

Source: Youth and Careers Survey, authors' calculations.

Notes: Means and standard errors for job finding variables and for log monthly earnings calculated only from those reporting the information (missing values not replaced with zeros).

Table 2
Multinomial Logit Model Of Educational Track and Level
(Standard Errors in Parentheses)

Variable	Tech/Prof Level 0	Tech/Prof Level 1	Tech/Prof Level 2	Tech/Prof Level 3	General Level 1	General Level 2	General Level 3
Demographic Variables							
Male	0,6194 ***	0,1219	-0,1556 **	1,0340 ***	-0,3165 ***	-0,2198 *	-0,2533 **
	(0,0598)	(0,0886)	(0,0773)	(0,1443)	(0,0917)	(0,1233)	(0,1004)
Health Problems	-0,1913	0,0003	-0,2038	-0,4469	-0,1449	-0,2518	0,2944
	(0,1277)	(0,1807)	(0,1646)	(0,3105)	(0,1954)	(0,2649)	(0,1924)
Sentimental Problems	1,1728 **	1,6230 ***	1,5364 **	2,6177 ***	0,5044	1,0318	2,0836 ***
	(0,5453)	(0,6139)	(0,6028)	(0,7743)	(0,7932)	(0,8065)	(0,6746)
Family Problems	-0,2564	-0,3365	-0,0253	-0,2374	-0,2254	0,3989	-0,0883
	(0,1606)	(0,2462)	(0,1971)	(0,3664)	(0,2419)	(0,2622)	(0,2506)
Father's Education							
Don't know or Deceased	0,2451	0,4463	-0,0549	0,2695	0,2243	0,0977	-0,2879
	(0,1900)	(0,2994)	(0,2553)	(0,4698)	(0,2915)	(0,3809)	(0,3297)
Secondary	-0,0248	0,1810	0,7612 ***	0,9591 ***	0,6027 ***	0,6766 ***	0,9275 ***
	(0,1259)	(0,1737)	(0,1389)	(0,2353)	(0,1563)	(0,1938)	(0,1679)
Technical / Professional	0,2856 ***	0,6691 ***	0,6954 ***	0,6791 ***	0,3878 ***	-0,0118	0,5478 ***
	(0,0955)	(0,1279)	(0,1159)	(0,2353)	(0,1369)	(0,1990)	(0,1577)
Tertiary	-0,3125	0,1495	0,8351 ***	1,7138 ***	0,3951	0,5410 *	1,4114 ***
	(0,2267)	(0,2906)	(0,2198)	(0,2841)	(0,2503)	(0,2862)	(0,2356)
Mother's Education							
Don't know or Deceased	0,0053	-0,3770	-0,4338	0,3018	0,2481	-0,3113	0,1427
	(0,2256)	(0,3466)	(0,3276)	(0,5470)	(0,3585)	(0,5469)	(0,4437)
Secondary	-0,1204	0,3214 **	0,6660 ***	1,2156 ***	0,6685 ***	0,9262 ***	0,9475 ***
	(0,1138)	(0,1496)	(0,1260)	(0,2046)	(0,1435)	(0,1773)	(0,1514)
Technical / Professional	0,1084	0,3130 **	0,5714 ***	0,7003 ***	0,5979 ***	0,5581 ***	0,5549 ***
	(0,1176)	(0,1569)	(0,1370)	(0,2567)	(0,1580)	(0,2133)	(0,1784)
Tertiary	-0,1856	-0,0360	1,0366 ***	1,9227 ***	0,8045 **	1,2550 ***	1,2939 ***
	(0,3119)	(0,3921)	(0,3003)	(0,3651)	(0,3377)	(0,3705)	(0,3188)
Father's Occupation							
Don't know or Deceased	-0,2970	-0,4909	-0,2384	0,4759	-0,2589	0,2779	-0,1093
	(0,2128)	(0,3503)	(0,2860)	(0,6433)	(0,3400)	(0,4961)	(0,4108)
Artisan	-0,2839	0,0046	-0,1046	1,0604 **	0,0936	0,3896	0,2313
	(0,1760)	(0,2562)	(0,2258)	(0,5167)	(0,2581)	(0,4054)	(0,3143)
Upper Manager	-0,4474 *	0,1297	0,6368 **	1,9128 ***	0,4723	1,3158 ***	1,0772 ***
	(0,2373)	(0,3223)	(0,2646)	(0,5285)	(0,3014)	(0,4287)	(0,3399)
Middle Manager	-0,2084	0,0724	0,3539	1,3055 **	0,2385	0,9223 **	0,5377 *
	(0,1791)	(0,2591)	(0,2232)	(0,5104)	(0,2582)	(0,3957)	(0,3111)
White Collar	-0,1006	0,1625	0,0220	0,7145	0,0228	0,5733	-0,1661
	(0,1664)	(0,2456)	(0,2161)	(0,5182)	(0,2492)	(0,3908)	(0,3138)
Blue Collar	-0,0644	-0,2802	-0,6585 ***	-0,0973	-0,5431 **	-0,0484	-0,6241 **
	(0,1501)	(0,2262)	(0,2018)	(0,5061)	(0,2337)	(0,3771)	(0,2973)
Mother's Occupation							
Don't know or Deceased	-0,0592	-0,3879	-0,2013	-1,1290	-0,3334	0,2065	-0,8820
	(0,2783)	(0,4159)	(0,3905)	(0,7611)	(0,4677)	(0,7223)	(0,6345)
Inactive	-0,0344	-0,5408 **	-0,1792	-0,7839	0,1871	0,4515	0,2761
	(0,1702)	(0,2475)	(0,2270)	(0,5046)	(0,2733)	(0,4663)	(0,3559)
Artisan	-0,0104	0,0519	0,2982	-0,7923	0,1693	0,8013	0,7207 *
	(0,2191)	(0,2991)	(0,2737)	(0,5680)	(0,3326)	(0,5193)	(0,3988)
Upper Manager	-0,3137	-0,3770	0,5129	-0,3661	0,9840 *	1,2471 *	1,3467 **
	(0,5334)	(0,7027)	(0,5204)	(0,7274)	(0,5744)	(0,7162)	(0,5941)
Middle Manager	0,1188	0,1229	0,4322	-0,5578	0,7232 **	0,9933 *	1,1822 ***
	(0,2452)	(0,3257)	(0,2903)	(0,5524)	(0,3395)	(0,5193)	(0,4025)
White Collar	0,0133	-0,3541	0,0705	-0,8187	0,3362	0,6388	0,3956
	(0,1747)	(0,2519)	(0,2312)	(0,5100)	(0,2791)	(0,4703)	(0,3609)
Blue Collar	-0,2705	-0,9062 ***	-0,6122 **	-1,8777 ***	-0,1440	0,0003	-0,1227
	(0,1763)	(0,2619)	(0,2405)	(0,5732)	(0,2886)	(0,4889)	(0,3757)
Observations				11275			
Log Likelihood				-16562,57			
$\chi^2(532)$				4398,30			
P value				0,0000			

Source: Youth and Careers Survey, authors' calculations.

Notes: The reference category is general education, level 0. The model also includes controls for 25 birth years, 23 regions, 4 types of nationality and 4 types of father's nationality. * indicates coefficient significant at the 10% level, ** indicates a coefficient significant at the 5% level and *** indicates a coefficient significant at the 1% level.

Table 3
Probit Models of Means by Which First Job of at Least 6 Months Was Obtained (Standard Errors in Parentheses)

Explanatory Variable	*Job Finding Method*			
	Market	Networks	Intermediaries	Other
Technical / Professional, Level 0	-1,4421 ***	0,7985 ***	0,7441 ***	0,3811 ***
	(0,0865)	(0,0856)	(0,1268)	(0,1388)
Technical / Professional, Level 1	-1,0683 ***	0,9308 ***	-0,3156	0,2941
	(0,1559)	(0,1425)	(0,2039)	(0,2228)
Technical / Professional, Level 2	-1,2120 ***	0,6182 ***	0,5769 ***	0,7349 ***
	(0,1015)	(0,0962)	(0,1357)	(0,1498)
Technical / Professional, Level 3	-0,6836 ***	0,1110	0,3472 *	0,7161 ***
	(0,1280)	(0,1255)	(0,1839)	(0,1891)
General, Level 1	-1,3430 ***	0,5857 ***	0,6279 ***	1,1229 ***
	(0,1431)	(0,1382)	(0,2068)	(0,2231)
General, Level 2	-1,5105 ***	0,6290 ***	-0,3988	1,7958 ***
	(0,2249)	(0,2227)	(0,3162)	(0,3343)
General, Level 3	-0,9015 ***	0,5148 ***	-0,5016 ***	1,2754 ***
	(0,1011)	(0,1014)	(0,1516)	(0,1439)
Nationality: French	0,0850 **	-0,1682 ***	0,0015	0,2876 ***
	(0,0413)	(0,0385)	(0,0614)	(0,0972)
Nationality: North African	-0,1325 **	-0,0534	0,1674 **	0,2141 *
	(0,0589)	(0,0557)	(0,0810)	(0,1251)
Nationality: European Union	-0,0492	-0,0719	0,1159	0,0868
	(0,0538)	(0,0508)	(0,0734)	(0,1200)
Male	-0,0006	0,0588 ***	-0,1904 ***	0,0730 ***
	(0,0114)	(0,0110)	(0,0163)	(0,0175)
Observations	11275	11275	11275	11275
Log Likelihood	-6613,60	-7632,32	-3164,74	-2547,09
$\chi^2(78)$	166,49	168,09	466,10	228,12
P value	0,0000	0,0000	0,0000	0,0000
P(¶ P(method)/ ¶ P(track))=0				
Level 0	0,0000	0,0000	0,0000	0,0060
Level 1	0,1509	0,0512	0,0002	0,0031
Level 2	0,2545	0,9659	0,0069	0,0045
Level 3	0,1434	0,0058	0,0001	0,0063

Source: Youth and Careers Survey, authors' calculations.

Notes: All models also include controls for 25 school-leaving years, 25 years of first employment on a stable job, health, family and sentimental problems, 4 types of father's nationality, 6 occupational classes for the father (plus missing) and 6 occupational classes for the mother (plus missing and inactive). The joint variables for educational track and educational level are instrumented on the basis of the results in table 2. * indicates a coefficient significant at the 10% level, ** indicates a coefficient significant at the 5% level and *** indicates a coefficient significant at the 1% level. Standard errors estimated by bootstrap, 1000 samples of 11275 observations each.

Table 4
Tobit of Number of Months to First Job of at Least 6 Months Controlling for the Means by Which the Job Was Found (Standard Errors in Parentheses)

Explanatory Variables

Method of Finding the 1st Long Job		Education Track and Level		Nationality and Sex	
Market	97,3584 ***	Technical / Professional, Level 0	-9,6943 ***	French	0,1612
	(2,3893)		(0,8403)		(0,2988)
Networks	81,7725 ***	Technical / Professional, Level 1	19,0000 ***	North African	1,4241 ***
	(2,2996)		(1,0567)		(0,4074)
Intermediaries	207,0415 ***	Technical / Professional, Level 2	3,8535 ***	European Union	0,1312
	(3,1323)		(0,8287)		(0,3456)
		Technical / Professional, Level 3	2,4005 **	Male	-0,0308
			(0,9820)		(0,1231)
		General, Level 1	6,6242 ***		
			(1,1044)		
		General, Level 2	47,3159 ***		
			(1,8830)		
		General, Level 3	12,6743 ***		
			(0,7568)		

Observations	11275	*P(∂P(method)/ ¶ P(track))=0*	
Left-Censored Obs. (Time=0)	1157	Level 0	0,0000
Log Likelihood	-37361,98	Level 1	0,0000
$\chi^2(79)$	9563,31	Level 2	0,0000
P value	0,0000	Level 3	0,0000

Source: Youth and Careers Survey, authors' calculations.

Notes: All models also include controls for 25 school-leaving years, 25 years of first employment on a stable job, health, family and sentimental problems, 4 types of father's nationality, 8 industries and 5 firm sizes. The variables for the means of job finding and the joint variables for educational track and educational level are instrumented on the basis of the results in tables 2 and 3. * indicates a coefficient significant at the 10% level, ** indicates a coefficient significant at the 5% level and *** indicates a coefficient significant at the 1% level. Standard errors estimated by bootstrap, 1000 samples of 11275 observations each.

Table 5
Selection-Bias Corrected Probit Models of the Means by Which the 1997 Job Was Obtained
(Standard Errors in Parentheses)

Explanatory Variable	*Job Finding Method*			
	Market	Networks	Intermediaries	Other
Technical / Professional, Level 0	0,3791 ***	-0,0405	-0,5728 ***	-0,0363
	(0,1018)	(0,1022)	(0,1320)	(0,1242)
Technical / Professional, Level 1	-0,0107	0,1402	-0,4908 **	0,0293
	(0,1667)	(0,1715)	(0,2239)	(0,2122)
Technical / Professional, Level 2	0,3596 ***	-0,1144	-0,4461 ***	0,1931
	(0,1182)	(0,1156)	(0,1580)	(0,1436)
Technical / Professional, Level 3	0,5326 ***	-0,2324 *	-2,1163 ***	0,4751 ***
	(0,1391)	(0,1381)	(0,2213)	(0,1658)
General, Level 1	-0,2980 *	0,4267 **	-0,9135 ***	0,6368 ***
	(0,1650)	(0,1674)	(0,2282)	(0,2011)
General, Level 2	1,1134 ***	-1,3665 ***	-0,9786 ***	0,7746 ***
	(0,2317)	(0,2436)	(0,3406)	(0,2943)
General, Level 3	-0,1987 *	0,0160	-0,9192 ***	0,9857 ***
	(0,1155)	(0,1161)	(0,1670)	(0,1340)
Nationality: French	0,0844 *	-0,3226 ***	-0,2121 ***	0,5599 ***
	(0,0463)	(0,0458)	(0,0654)	(0,0645)
Nationality: North African	-0,2344 ***	-0,3441 ***	0,3808 ***	0,5139 ***
	(0,0702)	(0,0717)	(0,0879)	(0,0924)
Nationality: European Union	-0,4295 ***	0,0753	0,0260	0,4214 ***
	(0,0611)	(0,0569)	(0,0804)	(0,0801)
Male	-0,0261 *	-0,0178	-0,1191 ***	0,1732 ***
	(0,0137)	(0,0150)	(0,0188)	(0,0172)
Correlation Between Disturbances	0,1068 **	-0,0202	-0,3055 ***	0,1670
	(0,0477)	(0,0429)	(0,0435)	(0,1814)
Observations	11275	11275	11275	11275
Non-Censored Obs. (Employed)	9354	9354	9354	9354
Log Likelihood	-10488,22	-10369,99	-7041,87	-8391,03
$\chi^2(54)$	68,37	81,01	178,69	220,77
P value	0,0903	0,0101	0,0000	0,0000
	P(¶P(method)/¶P(track))=0			
Level 0	0,0002	0,6921	0,0000	0,7698
Level 1	0,1586	0,1614	0,1410	0,0160
Level 2	0,0065	0,0000	0,1832	0,0886
Level 3	0,0000	0,1223	0,0000	0,0058

Source: Youth and Careers Survey, authors' calculations.

Notes: All models also include controls for 25 school-leaving years, health, family and sentimental problems, 4 types of father's nationality, 6 occupational classes for the father (plus missing) and 6 occupational classes for the mother (plus missing and inactive). The joint variables for educational track and educational level are instrumented on the basis of the results in table 2. The selection equation contains all of the same variables except those concerning the occupation of the parents, as well as controls for 21 regions, 5 city sizes, 3 different marital statuses and 4 family sizes. * indicates a coefficient significant at the 10% level, ** indicates a coefficient significant at the 5% level and *** indicates a coefficient significant at the 1% level. Standard errors estimated by bootstrap, 1000 samples of 11275 observations each.

Table 6
Ordinary Least Squares Estimation of Log Monthly Earnings in 1997
(Standard Errors in Parentheses)

Explanatory Variables

Method of Obtaining the Current Job			Education Track and Level			Nationality and Sex		
Market Methods	-0,0300		Technical / Professional, Level 0	-0,0807	*	French	0,1735	***
	(0,0724)			(0,0417)			(0,0202)	
Networks	0,1331	**	Technical / Professional, Level 1	-0,1642	***	North African	0,0136	
	(0,0642)			(0,0572)			(0,0270)	
Intermediaries	-0,2109	**	Technical / Professional, Level 2	0,2877	***	European Union	0,1242	***
	(0,0859)			(0,0455)			(0,0226)	
			Technical / Professional, Level 3	0,6545	***	Male	0,1788	***
				(0,0675)			(0,0050)	
			General, Level 1	0,2557	***			
				(0,0655)				
			General, Level 2	-0,2662				
				(0,0935)				
			General, Level 3	0,7350	***			
				(0,0440)				

		P(∂P(method)/¶P(track))=0	
Observations	7903	Level 0	0,0530
R^2	0,5507	Level 1	0,0000
F(85,7817)	90,84	Level 2	0,0000
P value	0,0000	Level 3	0,2748

Source: Youth and Careers Survey, authors' calculations.

Notes: The model also includes controls for the log of hours worked, job seniority, seniority^2, seniority^3, seniority^4, 8 sectors, 6 firm sizes, public or private employer status, 21 regions, health, family and sentimental problems, 4 types of father's nationality and 5 city sizes. The job finding methods and joint variables for educational track and level are instrumented on the basis of the results in tables 2 and 5. * indicates a coefficient significant at the 10% level, ** indicates a coefficient significant at the 5% level and *** indicates a coefficient significant at the 1% level. Standard errors estimated by bootstrap, 1000 samples of 7903 observations each.

Appendix Table 1
Joint (Bivariate Probit) Model of Educational Track (General=1) and Level (4 Levels)
(Standard Errors in Parentheses)

Probit (Educational Track)

Demographic and Environmental Variables		Father's Education		Mother's Education		Father's Occupation		Mother's Occupation	
Health Problems	0,1146 **	Don't Know or Deceased	-0,1145	Don't Know or Deceased	0,0839	Don't Know or Deceased	0,1502	Don't Know or Deceased	-0,0018
	(0,0541)		(0,0842)		(0,1015)		(0,0978)		(0,1276)
Sentimental Problems	-0,3408 **	Secondary	0,1184 ***	Secondary	0,1710 ***			Inactive	0,1316 *
	(0,1605)		(0,0459)		(0,0413)				(0,0770)
Family Problems	0,1069	Technical or Professional	-0,1375 ***	Technical or Professional	0,0420	Artisan	0,1730 **	Artisan	0,0989
	(0,0677)		(0,0389)		(0,0455)		(0,0765)		(0,0930)
Male	-0,3391 ***	Tertiary	0,1246 *	Tertiary	0,1565 **	Upper Manager	0,2842 ***	Upper Manager	0,3574 **
	(0,0256)		(0,0642)		(0,0795)		(0,0844)		(0,1392)
						Middle Manager	0,1711 **	Middle Manager	0,2331 **
							(0,0753)		(0,0929)
						White Collar	0,0479	White Collar	0,1258
							(0,0733)		(0,0785)
						Blue Collar	-0,0163	Blue Collar	0,2218 ***
							(0,0677)		(0,0807)

Ordered Probit (Educational Level)

Health Problems	0,0622	Don't Know or Deceased	-0,1032	Don't Know or Deceased	-0,0656	Don't Know or Deceased	0,0449	Don't Know or Deceased	-0,1941
	(0,0490)		(0,0780)		(0,0956)		(0,0910)		(0,1187)
Sentimental Problems	0,3594 ***	Secondary	0,3838 ***	Secondary	0,4429 ***			Inactive	-0,0443
	(0,1296)		(0,0399)		(0,0358)				(0,0700)
Family Problems	0,0370	Technical or Professional	0,1796 ***	Technical or Professional	0,2356 ***	Artisan	0,1945 ***	Artisan	0,1397 *
	(0,0612)		(0,0339)		(0,0396)		(0,0694)		(0,0829)
Male	-0,2531 ***	Tertiary	0,7013 ***	Tertiary	0,5998 ***	Upper Manager	0,5899 ***	Upper Manager	0,3076 **
	(0,0232)		(0,0558)		(0,0689)		(0,0756)		(0,1250)
						Middle Manager	0,3313 ***	Middle Manager	0,1912 **
							(0,0680)		(0,0829)
						White Collar	0,0923	White Collar	0,0177
							(0,0668)		(0,0713)
						Blue Collar	-0,2307 ***	Blue Collar	-0,1852 **
							(0,0624)		(0,0745)

Correlation Between Disturbances	0,5301 ***
	(0,0310)
Observations	11275
Log Likelihood	-17329,80
$\chi^2(79)$	688,98
P value	0,0000

Source: Youth and Careers Survey, authors' calculations.

Notes: The model also includes controls for 25 birth years, 23 regions, 4 types of nationality and 4 types of father's nationality. * indicates coefficient significant at the 10% level, ** indicates a coefficient significant at the 5% level and *** indicates a coefficient significant at the 1% level.

Appendix Table 2
Tobit of Number of Months to First Job of at Least 6 Months
Not Controlling for the Means by Which the Job Was Found
(Standard Errors in Parentheses)

Explanatory Variables

Education Track and Level				Nationality and Sex	
Technical / Professional, Level 0	0,2965 (0,6381)			French	-2,9785 *** (0,2749)
Technical / Professional, Level 1	3,1206 *** (1,0262)	General, Level 1	3,4353 *** (0,9832)	North African	2,8923 *** (0,4272)
Technical / Professional, Level 2	-2,1740 *** (0,6647)	General, Level 2	7,3509 *** (1,6000)	European Union	-0,0749 (0,3505)
Technical / Professional, Level 3	6,6409 *** (0,9719)	General, Level 3	-5,3883 *** (0,6774)	Male	-5,2444 *** (0,0864)

Observations	11275	*P(∂P(method)/ ¶ P(track))=0*	
Left-Censored Obs. (Time=0)	1157	Level 0	0,6422
Log Likelihood	-38554,02	Level 1	0,7988
$\chi^2(76)$	7179,22	Level 2	0,0000
P value	0,0000	Level 3	0,0000

Source: Youth and Careers Survey, authors' calculations.

Notes: All models also include controls for 25 school-leaving years, 25 years of first employment on a stable job, health, family and sentimental problems, 4 types of father's nationality, 8 industries and 5 firm sizes. The variables for the means of job finding and the joint variables for educational track and educational level are instrumented on the basis of the results in tables 2 and 3. * indicates a coefficient significant at the 10% level, ** indicates a coefficient significant at the 5% level and *** indicates a coefficient significant at the 1% level. Standard errors estimated by bootstrap, 1000 samples of 11275 observations each.

Appendix Table 3
Selection-Corrected Model of Log of Monthly Earnings in 1997
(Standard Errors in Parentheses)

Explanatory Variables

Method of Obtaining the Current Job			Education Track and Level			Nationality and Sex		
Market Methods	0,0104		Technical / Professional, Level 0	-0,0698	*	French	0,1750	***
	(0,0669)			(0,0398)			(0,0174)	
Networks	0,1689	**	Technical / Professional, Level 1	-0,1702	***	North African	0,0125	
	(0,0672)			(0,0485)			(0,0240)	
Intermediaries	-0,2228	***	Technical / Professional, Level 2	0,2993	***	European Union	0,1279	***
	(0,0737)			(0,0426)			(0,0207)	
			Technical / Professional, Level 3	0,6554	***	Male	0,1790	***
				(0,0602)			(0,0045)	
			General, Level 1	0,2627	***			
				(0,0615)				
			General, Level 2	-0,2523				
				(0,0882)				
			General, Level 3	0,7364	***			
				(0,0372)				
Correlation Between Disturbances				0,0948				
				(0,1032)				

		P(∂P(method)/ ¶ P(track))=0	
Observations	10558	Level 0	0,0800
Log Likelihood	-8129,1460	Level 1	0,0000
$\chi^2(85)$	7760,01	Level 2	0,0000
P value	0,0000	Level 3	0,2042

Source: Youth and Careers Survey, authors' calculations.

Notes: The model also includes controls for the log of hours worked, job seniority, seniority^2, seniority^3, seniority^4, 8 sectors, 6 firm sizes, public or private employer status, 21 regions, health, family and sentimental problems, 4 types of father's nationality and 5 city sizes. The selection equation contains all of the same variables except the firm-specific variables and the methods of job finding, and contains in addition controls for 3 different marital statuses and 4 family sizes. The job finding methods and joint variables for educational track and level are instrumented on the basis of the results in tables 2 and 5. * indicates a coefficient significant at the 10% level, ** indicates a coefficient significant at the 5% level and *** indicates a coefficient significant at the 1% level. Standard errors estimated by bootstrap, 1000 samples of 10558 observations each.

Appendix Table 4
Ordinary Least Squares Estimation of Log Monthly Earnings in 1997
(Standard Errors in Parentheses)

Explanatory Variables

Method of Obtaining the Current Job			Education Track and Level			Nationality and Sex		
Technical / Professional, Level 0	-0,0601		General, Level 1	0,3071	***	French	0,1648	***
	(0,0369)			(0,0630)			(0,0182)	
Technical / Professional, Level 1	-0,1037	**	General, Level 2	-0,2967		North African	-0,0133	
	(0,0519)			(0,0890)			(0,0228)	
Technical / Professional, Level 2	0,2983	***	General, Level 3	0,7707	***	European Union	0,1306	***
	(0,0409)			(0,0433)			(0,0220)	
Technical / Professional, Level 3	0,6910	***				Male	0,1825	***
	(0,0537)						(0,0045)	

		P(∂P(method)/ ¶ P(track))=0	
Observations	7903	Level 0	0,1035
R^2	0,3283	Level 1	0,0000
F(82,7820)	46,39	Level 2	0,0000
P value	0,0000	Level 3	0,2300

Source: Youth and Careers Survey, authors' calculations.

Notes: The model also includes controls for the log of hours worked, job seniority, seniority^2, seniority^3, seniority^4, 8 sectors, 6 firm sizes, public or private employer status, 21 regions, health, family and sentimental problems, 4 types of father's nationality and 5 city sizes. The job finding methods and joint variables for educational track and level are instrumented on the basis of the results in tables 2 and 5. * indicates a coefficient significant at the 10% level, ** indicates a coefficient significant at the 5% level and *** indicates a coefficient significant at the 1% level. Standard errors estimated by bootstrap, 1000 samples of 7903 observations each.