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LABOUR MARKET OUTCOMES:
LESSONS FROM THE ABOLITION
OF COMPULSORY CONSCRIPTION
IN FRANCE**

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ABSTRACT

Demand for Education and Labour Market Outcomes: Lessons from the Abolition of Compulsory Conscription in France*

In this paper we examine the effects of the abolition of the compulsory conscription in France on the demand for education and labour market outcomes. The reform took place in 1997 and affected all men born after 1979. Before the reform, staying on in education was a way to defer the national service and get access to more interesting forms of the military service. After the reform, these specific incentives to stay on in education have disappeared and the relative cost of education for men has plausibly increased. As a matter of fact, our data reveal that the reform has been followed by a significant decrease in the number of years spent at school by male students, as well as in the proportion of male degree holders. In contrast, the reform had no significant effect on the demand for education for women nor for men of high socio-economic background. We use this exogenous variation in the demand for education to estimate the effect of education on wages as well as on the probability of being in a manual job at the early stage of one's career.

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1 Introduction

France abolished compulsory conscription in November 1997, for men born in 1979 and after. As a consequence the last Frenchmen who were subject to compulsory national service were born in 1978. Before 1997, any young Frenchmen aged 18 was exposed to the risk of being called by the military administration to do a 10 months national service.

The 1997 reform has modified the cost of staying on in education compared to the cost of direct entry into the labour market. As explained below, pursuing education was a mean to differ the national service and to get access to more interesting forms of the national service. After the reform, these specific incentives to stay in education have disappeared and the relative cost of education for men has plausibly increased.

The main purpose of the paper is to test this hypothesis and to analyse the extent to which the reform has actually diminished men's demand for education. Also, our goal is to use the variation in men's demand for education induced by the reform to evaluate the impact of education on earnings and occupational attainment. Generally speaking, our method consists in comparing the changes in educational and labour market outcomes for men and women of different socio-economic backgrounds and testing whether the reform has been accompanied by a relative decline in men's outcomes.

Many studies in many countries and time periods have shown that individuals with relatively rich parents are more likely to pursue post-compulsory education and that, subsequently, better educated individuals earn higher wages. In the absence of experimental evidence, it is nevertheless very difficult to know whether these statistical relationships represent causal links or whether they simply reflect the fact that wages and education are both determined by the same unobserved circumstances and individuals' characteristics (Card, 1999). The recent abolition of the French military service provides us with a natural experiment which sheds some light on these old questions. The reform has produced a significant shift in the relative costs of education for males. Hence, it makes it possible to evaluate the responsiveness of the relative demand for education to exogenous changes in its costs and also to evaluate whether exogenous shifts in relative education are actually followed by shifts in relative labour market outcomes.

To anticipate the rest of the paper, the main findings may be summarized as follows:

1. When we compare behaviours before and after the reform by age groups, we observe a

significant decline (-4 percent points) in the proportion of men pursuing education at age 18 to 22, but no significant shifts before age 18 nor after age 22. In contrast, we do not observe any significant shifts for women, regardless of their age. These results are consistent with the assumption that the reform has induced an increase in the relative cost of education for men and that the demand for education is significantly affected by the variations in its costs. A significant fraction of men born in 1979 would have left school later if they were born one or two years before.

2. We find that the relative decline in men's relative years of education at the entry into the labour market is accompanied by a very significant decline in their relative entry wages. The reform affected both men's education and earning capacity.

3. Further exploration of the data shows that the abolition of the national service mostly affected men's coming from a low socio-economic background. This is consistent with the assumption that the reform mostly impacted the students with the lowest discounted return to post-compulsory education and the lowest propensity to pursue education.

4. When we focus on the group of children coming from a low socio-economic background, we find that the reform has a negative and significant impact on both relative education and relative entry wages of men. In contrast, we find no impact on men's relative education nor on their relative entry wages for the group of individuals coming from a high socioeconomic background. These findings are consistent with the assumption that the national service, as such, has no impact on wages and affects the earning capacity of young workers only insofar as it affects their educational choices.

5. Lastly, the reform is used to identify the impact of pursuing post-compulsory education rather than accumulating early labour market experience on subsequent labour market outcomes. The impact of substituting formal education for early labour market experience is identified by comparing the relative outcomes of male workers' coming from a low and a high socio-economic background, before and after the reform. This analysis suggests that pursuing education rather than accumulating early labour market experience has a large positive effect on current wages and on the probability of being in a non-manual occupation (used as a proxy for permanent income). Specifically, our analysis suggests that each additional year of formal education causes a 15% increase in wages at each age. These results are all the more interesting that the treated group in our paper is composed of those at the margin of dropping out from school at the end

of compulsory education, meaning the very group that would be affected by policies targeted at increasing participation in post-compulsory education.

Overall, our findings suggest that a significant fraction of students do not pursue education because of credit constraints, even though pursuing education would significantly increase their earning capacities. Improved access to the credit market would help these students (mainly coming from a low socio-economic background) to remain in education, obtain higher wages and better jobs. In the last section of the paper, we build on our results and on a simple evaluation of the costs of military service for each conscript in order to discuss what would be the effect of such policies. These calculations suggest that the possibility of obtaining a (zero interest rate) loan of 6,000 euros at age 18 (i.e., half of the minimum wage) in order to pursue education would increase the proportion of young adults participating in post-18 education until age 22 by about 4 percent points, i.e., an effect on the demand for education equivalent to that of the suspension of the military service. The financial help for students wishing to continue their studies, which currently exists in France, is much lower and we argue that they should be simultaneously increased and focused on low-background students.

The paper is organised as follows. The next section describes the 1997 reform of the national service. Section 3 presents a very simple model of educational choices in order to define the segment of the male population which is actually affected by the reform. Section 4 shows evidence on the impact of the reform on education and section 5 that on entry wages. In addition section 5 compares our findings with those of the existing literature on the effect of veteran status on workers' earning capacity . Section 6 proposes an evaluation of the causal effect of education on wages and on the probability of being in a non-manual occupation, using the reform as a natural experiment. Section 7 discusses some policy implications and section 8 concludes.

2 The Reform

Before 1997, any young Frenchmen had to do a 10 months military service. In theory, the service had to be done at age 18. In practise, young adults had the right to defer their national service until the age of 22, without any specific justification. Additional deferments were possible up to the age of 26, especially for young adults pursuing higher education. Also, highly educated

persons had the possibility to chose specific forms of the national service (overseas or in technical assistance services) which are described in greater details in Appendix A. Generally speaking, pursuing post compulsory education was a mean to defer the national service and to get access to more interesting forms of the national service.

After the 1997 abolition, these specific incentives to stay in education disappeared. Specifically, the 1997 law abolished compulsory conscription for men born in 1979 and after¹ and plausibly increased the cost of pursuing education relative to entering into the labour market. Appendix 8 presents the French educational system. A very significant fraction of French pupils (about 45%) are held back a grade (or more) in primary school or junior high-school. They finish junior high-school at age 16-17 and have then to chose between direct entry into the labour market or pursuing higher secondary education. The reform has plausibly encouraged a significant proportion of these students to enter into the labour market without higher secondary qualification. This paper will test this assumption by comparing the behaviours of those born before 1978 and those born in 1979.

We will use the French Labour Force Surveys (LFS) conducted each year from $t = 1991$ to $t = 2002$ ² by the French Statistical Office. The annual LFS sample is a very large representative sample of the French population age 15 or more ($N = 150,000$, sampling rate=1/300). The survey provides information on the date of birth, sex and educational level of each respondent, as well as the occupation of their father. Also it provides information on the past ($t - 1$) and present (t) activity status of each respondent, i.e., whether s/he is employed, unemployed, still on education, on the military service or without specific activity.

Table 1 shows the proportion of male respondents doing the military service, by age group and birth cohorts. Comfortingly, the proportion is very close to zero for individuals whose reported date of birth is 1979 and also for individuals observed in 2002. This is consistent with the fact that the national service was actually abolished for cohort 1979 and suspended for all cohorts at the end of year 2001. Also, the total proportion of male respondents born in

¹Given that the military administration finally stopped using conscripts in August 2001, Frenchmen born in 1978 (1977) have been exposed to the risk of conscription only until age 23 (24).

²We cannot rely on the LFS conducted after 2002. This is because they are very different from the surveys of previous years, which generates spurious shifts in the distributions under consideration. The new LFS take place every three months rather than yearly. They are mostly through telephone rather than personal interview. In addition the questionnaire is very different from the previous one. In particular the activity status is not identified through the same questions nor coded with the same variables. These changes have been implemented in order to improve the conformity of the French survey with the European standards.

1975 or 1976 who actually did their national service (i.e., about 44%) is consistent with what administrative data suggest in the early nineties for cohorts born before the reform³.

For each age group, we also observe a decline in the proportion of individuals doing their military service across birth cohorts. The decline is modest between cohorts 1975 and 1976, but significant between cohorts 1977 and 1978. It confirms that the reform has been implemented progressively, with cohort 1976 being only marginally affected and cohorts 1977 and 1978 more significantly affected. According to administrative data, the number of young men in the army diminished progressively from 200,000 to 0 between 1996 and 2001.

It should be emphasized that the vast majority of individuals do not go back to education after the national service. Table 2 shows that only about 4% of the male respondents who were doing their military service at $t - 1$ are on education at t . In fact one year after the military service, most young men are in the labour market⁴. The transition rate from military service to labour market (or to education) is stable across cohorts.

We have also analysed the activity at $t - 1$ of individuals who are doing their national service at t . We find that about 67% were in education, while about 18% were unemployed, 7% hold a temporary contract and 8% a permanent contract. These figures confirm that the vast majority were either in education or waiting for their call by the military administration with weak attachment to the labour market.

As discussed below, there exists an important economic literature on the effect of veteran status -either of the second World War or the Vietnam war- on civilian earnings (see e.g., Angrist, 1990 or Angrist and Krueger, 1994). But to the best of our knowledge, there is no literature on the impact of the abolition of the national service on the demand for education and labour market outcomes. This despite the fact that several countries have abolished compulsory conscription and passed on a professional army. In the next section, we develop a very simple model for analyzing the impact of such a reform on educational choices.

³According to the administrative records, about 200,000 young men did their national service each year in the early nineties, from 1992 to 1996. Given that the duration of the standard national service was ten month, it means that about 16,600 men were drafted each month, which represents about 47% of a birth cohort, i.e. very close to what we find in the LFS.

⁴A small fraction is still in the national service, plausibly those who are doing their service overseas or in technical assistance institutions.

3 The Effects of the Reform on Educational Choices: a Model

Before the abolition of the military service, French students aged 18 had two basic options: (1) military service first, and then entry into the labour market (option MW), (2) additional education first, military service, and then entry into the labour market (option EMW). In theory, they had two supplementary options: (3) military service first, additional education, and then entry into the labour market (option MEW), (4) entry into the labour market, then military service, and then re-entry into the labour market (WMW). We observe only few such transitions in the data, however, which plausibly reflects the relatively low flows of utility obtained by non educated persons during their military service or during their first year into the labour market.

In appendix C, we express the discounted values of the four different options as a function of the discount rate δ , the cost of education ($-v_{E,i}$, for individual i), the cost of the national service ($-v_{S,i}$) and the discounted labour market outcomes before and after the reform. Assuming that students choose among the different options simply by comparing their discounted values, we explore the conditions under which male and female students chose to pursue education before and after the reform.

If L_{1i}^a (L_{0i}^a) represent the discounted value of entering the labour market with (without) additional education after the reform, then $u_i^a = v_{E,i} + \delta L_{1i}^a - L_{0i}^a$ represents the impact of education on the discounted flows of utility and the condition under which male student chose to pursue education after the reform is simply $u_i^a > 0$.

Before the reform, education is also a mean to postpone the national service and implies an additional welfare again of $r(v_{E,i} - v_{S,i})$ where $r = \frac{1-\delta}{\delta}$. The condition under which male students pursue education is ($u_i^b = v_{E,i} + \delta L_{1i}^b - L_{0i}^b > -r(v_{E,i} - v_{S,i})$).

Hence, assuming that students actually prefer pursuing education rather than doing the national service (i.e., $v_{E,i} > v_{S,i}$), the reform may be interpreted as a positive shock to the cost of education $\Delta c_{E,i} = -r(v_{E,i} - v_{S,i})$ for male students. Before the reform, some male students are faced with relatively low returns to education (i.e., $u_i^b < 0$), but choose nevertheless to stay on education in order to avoid the cost of not postponing the military service (i.e., $u_i^b > -\Delta c_{E,i}$). After the reform, the cost of not postponing the military service disappears and these

male students may choose a direct entry into the labour market.⁵

In contrast, the condition under which female students chose to pursue education is similar before and after the reform, namely $u_i^b > 0$ before the reform and $u_i^a > 0$ after the reform.

From an empirical point of view, our first purpose is to evaluate whether men's relative demand for education has actually declined after the reform, as predicted by the theory. Our second purpose is to use this specific exogenous shift in men's relative demand for education to identify the true impact of education on earnings.

Regarding the first step, the main issue is to separate the effect of the reform from the effect of any macroeconomic variation in the return to education $u_i^a - u_i^b = \Delta u$ that may have occurred during the period under consideration. Our identifying strategy relies on the fact that the reform affects males only, while any variations in the return to education plausibly affects males as well as females.

We assume that the effect of the reform is constant across individuals⁶ $\Delta c_{E,i} = \Delta c_E$ and we denote $F_u(\cdot | f)$ the distribution function of u_i^b conditional on the gender dummy f . Given that the proportion of men ($f = 0$) who stay on in education before the reform is $1 - F_u(-\Delta c_E | f = 0)$ while the proportion of men who stay in education after the reform is $1 - F_u(-\Delta u | f = 0)$. Similarly the proportion of women who stay in education before (after) the reform is $1 - F_u(0 | f = 1)$ ($1 - F_u(-\Delta u | f = 1)$). Within this framework, the variation in the probability of being in education for men may be written,

$$\Delta \Pr(E = 1 | f = 0) = F_u(-\Delta c_E | f = 0) - F_u(-\Delta u | f = 0)$$

while the variation of being in education for women ($f = 1$) may be written,

$$\Delta \Pr(E = 1 | f = 1) = F_u(0 | f = 1) - F_u(-\Delta u | f = 1).$$

The best case is clearly when we observe a non-negative shift in the demand for education for women and a negative shift for men. In such a case, we do not need to specify the distribution function of the individual returns to education u_i to test if $\Delta c_E > 0$. Specifically, the non-negative shift for female may be interpreted as $\Delta u \geq 0$ and the negative shift for male as Δc_E

⁵Most interestingly, the group of students impacted by the reform are precisely those that would be the most directly impacted by any public reform decreasing the cost of post-compulsory education.

⁶The framework could be easily extended to the case where $\Delta c_{E,i}$ is a random variable independent from u_i^b .

$> \Delta u \geq 0$, which is what is needed. The next section tests these assumptions using the French labour force surveys.

4 Impact of the Reform on Education

Figure 1 shows the proportion of men who are still in education by age groups, for the cohorts born between 1975 and 1980. It reveals a very significant negative shift after the reform for the 19 and 20 years' old. The proportion of men of these age groups who are in education is about 5 points smaller in 1979 than before 1979. There exists a smoother negative shift for the 21 and 22 years' old. In contrast, we find no significant shift for the 23 years' old nor for the 16 and 17 years' old (not shown here). Regarding women, we do not observe any significant shifts except a smooth and marginally significant shift for the 21 and 22 years' old (Figure 2). Generally speaking, these basic findings are consistent with the assumption that the reform increased the cost of education for men and diminished significantly their demand for education.

Table 3 focuses on individuals born in 1975-1976 and 1979, i.e. the two cohorts observed before the ultimate decline of the national service induced by the reform, and the cohort just after the reform. The table confirms that the proportion of men aged 18-22 who are still in education is significantly lower (-3.8 percent points) for the generation born after the reform than for the two generations born before the reform. In contrast, we do not observe any significant shift for men aged 16-17 or 23. Similarly, we do not observe any significant changes for women⁷. These results suggest that a significant fraction of the male population who left school before age 23 after the reform would have spent several additional years in the educational system in the absence of the reform.

Table 4 confirms the decline in men's relative probability of pursuing formal education after compulsory education. For each age group, it shows an OLS regression where the dependent variable is a dummy indicating whether the respondent is still in education. The independent variables are a dummy indicating the sex of the respondent, a dummy indicating the date of birth and a dummy interacting sex and date of birth (its value is 1 for men born in 1979). The

⁷In the early eighties, an earthquake hit Southern Italy and resulted in the relief from the military service granted to certain cohorts of men in the affected municipalities. Cipollone and Rosolia (2003) show that this exemption has been accompanied by an increase in the demand of education of both men and women, which is different from what we find and which they interpret as evidence of the strength of social interaction. This could also capture other type of factors, specifically an impact of the earthquake on the labour market or the economies of the municipalities concerned, which affects men and women in the same way.

estimated coefficient of the interaction variable is negative and significant at the 1% for the 18-22 age group. It is negative and marginally significant for the 16-17 age group and close to zero and not significant for the group of respondents aged 23.

5 Impact of the Reform on Entry Wages

By increasing the relative cost of education for men, the reform has diminished their demand for education. A significant fraction of men born after the reform leave school at age 16 or 17 whereas they would have left school later, between age 18 and 22, if they were born before the reform. The next question is whether this shift has also affected their earning capacity at the entry into the labour market. To address this issue, the first two columns of Table 5 focus on new entrants who left school before age 23⁸. They provide an OLS analysis of their number of years of education and of their wages at the entry into the labour market as a function of their sex, their date of birth (1975-1976 versus 1979) and a dummy interacting their date of birth and their sex (i.e. indicating whether the observation corresponds to a man born after the reform). These regressions confirm a significant decline in men's relative education after the reform and reveal that this decline has been accompanied by a significant decline in their relative hourly wages at the entry into the labour market. Specifically, it shows a 15% decline in the relative entry wages of men after the reform.

Overall, the reform has been followed by a simultaneous decrease in the relative education and entry wages of male workers. This result may be interpreted as an interesting new evidence on the causal effect of education on the earning capacity of individuals at the entry into the labour market. Another interpretation is that the national service had itself a significant positive effect on earning capacity, which disappears for those men who were affected by the reform.

A very simple way to test the effect of the national service on earnings is to focus on male workers born before the reform (in 1975-1976) and to look at whether exemptions from the military service had, as such, an effect on their entry wages. Specifically, we have regressed their entry wages on their age, educational level and on a dummy indicating whether they were doing the national service the year before or whether they were still in education. These regressions (not reported here) do not show any significant impact of the national service on entry wages,

⁸New entrants are employed in at t , but were in education or in military service at $t - 1$. The school-leaving age is $t - 1$ if they were in education at that date and $t - 2$ if they were in military service.

regardless of whether we focus on men coming from a low socio-economic background or men coming from a high socio-economic background. Assuming that the exemption from the military service is exogenous to subsequent wages, this result is clearly consistent with the assumption that the national service, as such, has no significant impact on wages.

A second possible test uses the fact that the reform has mostly affected men coming from a low socioeconomic background. One of the very interesting feature of the French Labour Force Survey is that it provides us with an information on the occupation of the father of respondents. Specifically, it is possible to separate the respondents whose father was a manual worker or a farmer (i.e., relatively low socioeconomic background) from the other respondents. Columns 3 (5) of Table 5 shows the impact of the reform on the relative education of men, for individuals coming from a low socio-economic background (for individuals coming from a high socio-economic background). Most interestingly, this shows that the reform had a very strong impact on the relative education of men coming from a low socioeconomic background (-.57 of a year), but no significant impact on the relative education of men coming from a high socioeconomic background (column 5). As discussed in section 3, the reform has affected students who are faced with relatively low discounted return to post-compulsory education and our data confirm that the vast majority of these students come from the poorest strata of the population.

This result provides a means to test whether the abolition of the national service, as such, has an effect on entry wages. If this assumption was true, we should observe a shift in the relative entry wage of men within the group of children coming from a high socioeconomic background, even though their relative education has not changed, following the reform. Column 6 of Table 5 shows no such impact. In contrast, the data confirm the existence of a significant decline in men's relative hourly wages (-21%) within the group of children coming from a low socioeconomic background (column 4).

Overall, the reform affected neither the relative education nor the relative entry wages of men coming from a high socioeconomic background, while it affected negatively both the relative education and relative entry wages of low socioeconomic background men. These results are consistent with the assumption that the national service affected men's relative entry wages mostly through affecting their relative education.

5.1 Military service and earning capacity

Generally speaking, our findings are reminiscent of the literature on the effect of veteran status. Angrist (1990) uses the introduction of the draft lottery during the Vietnam War as a natural experiment, in order to get an estimate of the causal effect of veteran status on earnings. His results suggest that the veteran status does affect earnings mostly because it constitutes a poor substitute for civilian labour market experience and only marginally because of its direct effect on individuals' earnings capacity. Angrist and Krueger (1994) exploit the fact that after 1942 men were drafted in chronological order of birth and they use quarter of birth as an instrument for veteran status. They find a negative effect of WWII veteran status on earnings and argue that the positive estimates of the WWII veteran premium found in the literature are due entirely to non random selection into the army. Angrist (1998) uses aggregate data to estimate the effect of voluntary military service on earnings. He finds that the long run gain in terms of civilian earnings is negative for whites and is negligible for non whites. Generally speaking, the impact of veteran status on earnings in the US is difficult to interpret since it combines the pure effect of war, the loss of civilian labour market experience and the effect of the educational assistance program (G.I. Bill) designed to help members of the Armed Forces to adjust to civilian life after separation from service⁹.

The compulsory national service under consideration in this paper does not render eligible to such specific programs and does not imply going through such a critical test as war¹⁰. In that sense, the study on Dutch data by Imbens and Van der Klaauw (1995) is closer in spirit to our work than existing studies on veteran status or the effect of WWII. They estimate the effect of Dutch military service on earnings, using aggregate data for the Netherlands. They use the variation in aggregate military enrolment rates induced by policy variation to deal with the issue of endogenous selection into the Dutch military service (due to both medical and psychological tests and the way exemptions from the army operate). Their results suggest a small negative

⁹ Angrist and Krueger (1994) use education among their controls in order to deal with the possibility that the military might affect earnings via the education channel (G.I.Bill). Bound and Turner (1999) use the structure of the draft during WWII and the changing manpower requirements needed by the army to estimate the effect of WWII veteran status on education. They find a small positive gain in terms of educational attainment for WWII veterans.

¹⁰ A related paper by Bauer et al (in progress) evaluates the impact of military service on labour market outcomes in Germany. They use a change in the law regarding the conscription in Germany (which defined a cohort of people who did not have to serve the army) to develop a discontinuity regression approach and provide consistent estimates of the effect of compulsory military service on wages.

impact of the army on earnings, and show that these small earning losses can be interpreted as the consequence of the corresponding losses in labour market experience.

All in all, the existing literature suggests that periods of military service as such have no significant impact on the individuals' earning capacity, the main effect on individuals' earnings being through losses of labour market experience. By comparing the effects of the abolition of the military service on different subgroups of young men (i.e., sons of white versus blue collar), we end up with a very similar conclusion, meaning that the military service, as such, has no significant impact on the earning capacities of male workers. Put differently, the existence of the compulsory national service affected labour market outcomes mostly because it affected the relative cost of education and, through that, the decision to pursue post-compulsory education¹¹. Given this reality, the abolition of the French national service provides us with a natural experiment which makes possible to shed light on the returns to post-compulsory education¹².

6 An evaluation of the returns to education

The reform of the national service has modified the distribution of education and entry wages across men and women of different socioeconomic backgrounds in a way which is consistent with the assumption that education increases very significantly the earnings capacity of young workers. It does not necessarily mean however that education increases their earnings capacity more than early experience into the labour market. This is nevertheless the key policy issue: is it really beneficial for young workers to pursue post-compulsory education rather than to accumulate early labour market experience?

The entry wages of young French workers who enter the labour market at age 20, after four years of post-compulsory education, are higher than the entry wages they would have earned at age 17 after only one year of post-compulsory education. But it is not clear whether their entry

¹¹The idea that the draft might affect earnings via other channels than the veteran status is not new. Angrist (1990) says that "it may be that the draft has affected education attainment and other career choices along with its effect on the military service". Baskir and Strauss (1978) suggest that during the Vietnam War men went to college to avoid the draft. Angrist and Krueger (1994) mention that "there is evidence that during the Vietnam War, college educated men from wealthy families managed to avoid the military service, whereas less educated-low income men were unable to do so".

¹²Recent papers using large scale natural experiment for identifying the returns to education include Chino and Winter-Ebmer (2004) and Oeropoulos (2004). Ichino and Winter-Ebner (2004) compare Germans and Austrians people with Swiss and Swedish people born in the thirties and the same groups born before or after that period. Assuming that the war affected earnings only through loss of education, they provide IV estimates of the returns to education using the 1930- 1939 cohort in Austria and Germany as the instrument. Oeropoulos (2004) focuses on the impact of changes in minimum school leaving ages.

wages are higher than the wages that they would have earned at age 20 after one year of post-compulsory education and three years of work under a labour contract with some on-the-job training. In other words, it is not clear whether formal education really increases wages within each age group and whether it does shift the distribution of wages across the life cycle.

In theory, the reform of the national service does not provide a direct answer to this question. This is because it has simultaneously affected men's number of years of education and men's number of years of labour market experience within each cohort. As shown above, it has decreased men's number of years of education at the entry into the labour market, but, subsequently, it has also increased their number of years of experience at each age (because they do not spend one year in the national service anymore). Given this reality, the variation in male relative wages within each age group cannot be interpreted as a pure effect of formal education. This variation is a mix of the (negative) effect of the decrease in formal education and the (positive) effect of the increase in labour market experience.

In practice, the reform still provides an interesting tool because it has mostly affected the demand for education of men coming from a low socio-economic background. Within each age group, the reform has increased the relative number of years of experience of men coming from a high socio-economic background without modifying their relative education. In contrast, the reform has increased the number of years of experience of men coming from a low socio-economic background and decreased their number of years of education. Given this fact, within each age group, the difference between the variations of male relative labour market outcomes for children coming from a high or a low socio-economic background provides an estimate of the impact of substituting post-compulsory education for early labour market experience.

Table 6 focuses on private-sector workers who have left school before age 23 and provides us with an analysis of their education¹³ (high-school graduate/high-school dropout) and wages as a function of their sex, age, cohort of birth (before/after the reform), family background (children of low/high background) and all the possible interactions between these explanatory variables. The first column of Table 6 confirms that the reform has been followed by a significant decrease in the relative education of men's coming from a low socio-economic background. Specifically, we find a 16 percent points decline in their relative probability of high-school graduation. The

¹³Given that we do not focus on new entrants anymore, we are not able to measure the number of years of education and, as a consequence, we are bound to use the respondents' reported degree as a measure of education.

national service provided students coming from a low socio-economic background with an incentive to pursue education at a turning point of their schooling career, i.e., at the stage where they had to decide between entering into the labour market or pursuing higher-secondary education. Most interestingly, the second column reveals that this educational shift has been followed by a significant decrease in their relative wages (-11%). Assuming that the reform has had a similar impact on the labour market experience of men coming from a low and a high socioeconomic background, these reduced-form results suggest that the substitution of a completed period of higher-secondary education for an equivalent number of years spent on the labour market increases wages by about 70% (i.e., $.11/.16$)¹⁴.

To take one step further, the fourth column of Table 6 shows the corresponding Instrumental Variable analysis of this effect using the dummy interacting sex, cohort and social background as an instrumental variable. It confirms that the first years of post-compulsory education have a significant impact on earnings. Specifically, we end up with an IV estimate of the impact of high-school graduation on earnings of about 69%, which is (unsurprisingly) very close to our initial rough evaluation and significantly larger than the corresponding OLS estimate. Given that it takes about four years of post-compulsory education to obtain this degree, this IV results suggest a 15% net impact for each additional year of post-compulsory formal education.

Table 7 provides an analysis of workers' occupational status (manual/non manual). Manual workers represent 47% of the population under consideration and earn on average 20% less than non-manual workers at the entry into the labour market. Differences in occupational status represent plausibly a better measure of differences in permanent income than differences in early wages. We have evaluated the impact of education on the probability of being in a manual occupational using probit models. The column 2 of Table 7 shows the regression results when high-school graduation is assumed exogenous whereas column 3 shows the results when it is assumed endogenous and thus instrumented by the interaction between the sex, birth cohort and socio-economic background of the respondent. The effect of the endogenous explanatory variable is estimated using the generalized least-square estimator developed by Newey (1987). These IV regression result suggest a very significant causal effect of high-school graduation on the probability of being in a manual occupation. Within the French context, high-school graduation

¹⁴In France, a 70% increase corresponds to the differences observed between the wages earned by unskilled manual worker and middle class skilled workers (i.e., technicians, teachers...)

is really a key passport for a non-manual occupational career, especially for persons coming from a low-socioeconomic background.

Generally speaking, our IV estimates are larger than the OLS or probit estimates. It may be due to errors in the measurement of the endogenous regressor (education) or reflect the fact that the impact of post-compulsory education is larger for the treated group of students than for the average student. Most interestingly, the treated group in our paper is composed of those at the margin of dropping out from school at the end of compulsory education, meaning the very group that would be affected by policies targeted at increasing participation in post-compulsory education.

Further analysis suggests that education has not any significant effect on the probability of being unemployed (these regressions are not reported). These results suggest that -within the French context- labour market experience is as important as education to avoid early unemployment.

7 Discussion

Generally speaking, our paper suggests that the returns to education are significant and that the decision to pursue education is strongly dependent on credit constraints. One simple way to increase the demand for education is to provide financial help to young students from low socio-economic background families, typically by improving their access to the credit market.

It is difficult to be more specific without evaluating the utility gap between pursuing education and doing the national service (i.e., $v_E - v_S$). The impact of the national service on the relative discounted utility of pursuing education is indeed equivalent to that of a loan that would increase current utility by about $(v_E - v_S)$. Assuming that utility v is a function of the number of hours worked and of wages, we can set $v_E = 0$ as a normalization and write $v_S = v(w_S, T_S)$ where T_S is the number of hours worked during the national service and w_S the corresponding compensation. The conscripts received only some symbolical remuneration, but they were provided free medical care, food and accommodation. In 1996 the cost of these different provisions was about 40,000 FF per conscript, which was equivalent to half of the French minimum wage. Put differently, the situation of a conscript can be thought of as roughly equivalent to that of someone in low-skill employment, but receiving only half of the corresponding wage. Hence,

assuming that the conscripts did not suffer from costs other than the missing wages, the costs of military service for each conscript was about half of the minimum wage, meaning about 6,000 euros. Within this framework, the possibility of deferring the national service is equivalent to the possibility of obtaining a loan of 6,000 euros at age 18 in order to pursue education. Our data suggest that such a possibility increased the proportion of young adult participating in post-18 education until age 22 by about 4 percent points.

Most interestingly, these findings are in line with the recent evaluation of the Education Maintenance Allowance (EMA) introduced in 15 Local Education Authorities (LEA)¹⁵ in England in September 1999. This policy was meant to raise participation, retention and achievement in post compulsory education among 16-18 year olds. It consists of a means-tested allowance paid to 16-18 years olds (either directly to them or to their parents) from lower income families¹⁶. An extended evaluation of the EMA was undertaken by a consortium of research organisations (Centre for Research in Social Policy, the National Centre for Social Research, the Institute for Fiscal Studies and the Institute for Employment Research). The main conclusions are that the policy increased post-16 education participation by on average 3.8 percentage points (5.9 percent points among eligible). The maximum weekly allowance ranges between 30 and 40 pounds per week. If the full amount was awarded, this would be equivalent to 1030 French Francs per month, that is one sixth of the French minimum wage. Hence, we end up with the same significant impact on education by providing an annual allowance equivalent to about one sixth of the minimum wage or by providing a three years loan equivalent to one half of the annual minimum wage.

In France there exist already several types of financial help to young individuals who wish to continue their education. However, these are usually much smaller than the amount calculated above. In particular, allowances for secondary education (*bourses du second degré*) are provided to about 23% of the students in junior high-school, but only offer a maximum amount of 393 euros per year. Given our results, this seems much lower than the minimum amount that would be necessary to have a significant effect on education participation. Thus this financial help

¹⁵The selection of LEA areas to participate in the EMA pilots was not random. Urban areas with relatively high levels of deprivation, low post-compulsory education participation and low levels of attainments in year 11. Other LEA's with similar characteristics were chosen as the control areas.

¹⁶There were variations (four different models- variants) in the weekly amount young people received (as a function of family income), the amount of retention and achievement bonuses and to whom the allowance it was paid (young person or his parents).

should be more important and more focused on youngsters from disadvantaged background.

8 Conclusion

Compulsory conscription in France was abolished in November 1997. Before the reform, staying on in education was a means to defer the national service, to get access to more interesting forms of the national service and to diminish the stigmatization costs of obtaining an exemption. After the reform, these incentives to pursue education have disappeared.

As a matter of fact, we find that the reform has been followed by a significant decline in the proportion of men in education at age 18-22, with no significant change before 18 or after 22. We do not find any significant change for women. A significant fraction of men born after the reform would have left school later if they were born before.

Additional investigations show that the reform had an impact mostly on children coming from a low socioeconomic background. Specifically, we find that the reform has been accompanied by a very significant decline in the relative education and the relative entry wages of men coming from a low socioeconomic background. In contrast, it has had no significant impact on either the relative education nor the relative entry wages of men coming from a high socioeconomic background. These findings are in line with the view that the reform mostly affected the students who were faced with the highest credit constraints and the lowest discounted returns to education. Also, our results are consistent with the assumption that the suppression of the national service affected workers' earning capacity only insofar as it affected their education.

We build on this assumption to provide an IV analysis of the causal effect of substituting education for early labour market experience on subsequent wages and occupational status. We end up with estimates suggesting a 15% net impact for each additional year of post-compulsory formal education on wages and a very significant impact on the probability of being in a non-manual job. The reform has been followed by a 16 percent point decrease in the relative probability of high-school graduation for sons coming from a low socioeconomic background and a 15 percent point decrease in their relative probability of being in a non-manual occupation.

Most interestingly, the treated group in our paper is composed of those at the margin of dropping out from school at the end of compulsory education. It is the very group that would be affected by policies targeted at increasing participation in post-compulsory education.

Generally speaking, our paper shows that a significant fraction of adolescents do not pursue post-compulsory education because of the poverty of their family, even though pursuing education would be highly beneficial in the long run. These very young unskilled workers have a hard time of finding good stable jobs and represent a key social issue in France, as in most western countries. Our findings suggest that their number could be reduced very significantly by increasing the financial help to low-income families with young students.

Appendix A: The pre-1997 National Service

Individuals born from 1975 to 1978 have done their military service from 1993 to 2001. They had several options. The first one is the standard military service (duration 10 months). A slightly different option is service in the police or civil security forces (10 months). There exists the additional option of civil forms of national service, i.e. forms designed to meet needs other than the defense or police ones (10 months). Other possibilities include service overseas and technical assistance services (16 months). These types of national service typically involve teaching or doing research in institutions which are dependent of the ministry of defense. Finally, there is a special form of the national service for the conscientious objectors (20 months).

The French government defines every year the number of positions as well as the skills required for the young people to be incorporated in the services of the national police (or civil security) force or in overseas services and scientific assistance services. Generally speaking, a university degree is required (i.e., four years of college or more) for overseas or scientific services.

All French men have the right of deferment of the national service until the age of 22 without any specific justification. After the age of 22 and up to the age of 26, they need to be pursuing their studies in order to obtain additional deferment. In theory, individuals employed under an indefinite term contract (or under a fixed-term contract of more than six months) can also benefit from a two years deferment. In practise, in the French context, obtaining a long-term contract at the entry into the labour market is much more difficult than pursuing education (especially for non-educated students) and pursuing education was by far the easiest way to defer the national service.

The main source of exemption concerns young persons who fail to pass the medical and psychological tests of the army. It should be emphasized that the implicit cost of failing these tests and getting exempted was plausibly higher for non-educated young persons than educated ones. Passing these tests was one of the few signals that non-educated individuals had the opportunity to send to potential employers. Within this context, pursuing education was also a way to decrease the stigmatization cost associated with failing the tests (voluntarily or not) and obtaining an exemption.

Other possible exemptions concern young people recognised as main wage earners in the family (i.e. those who have the responsibility of one or several persons who do not have sufficient

financial resources). Another type of exemptions concerns war orphans, men whose father, mother, sister or brother is declared as "dying for France", or died during a military action or an order of the public authority or public safety. The last type of exemption refers to those with double nationalities, who can certify that they lived in a different country between the age 18-21 and are in line with the law regulations in that second country, regarding their national service.

Appendix B: The French Educational System

The French educational system is organised as follows. Pre-school education consists of the nursery school (*école maternelle*) for children aged 3-5. Primary education consists in five grades from the age of 6 and until the age of 10. Secondary Education lasts in total seven years, from the 6th to the 18th grade (terminal class). It consists of two levels: the lower secondary education (undertaken in establishments called *collèges* for 4 years) and the upper secondary education (in establishments called *lycée*) which has a duration of three to four years. Upper secondary education has three main branches: general and technological education (3 years) and vocational education (4 years). General and technological education is held in *lycées* for general and technological education (*Lycées d'Enseignement Général et Technologique*, LEGT) and lead to the general and technological *baccalauréats*. *Baccalauréat* is the national diploma which is required for attending universities and other institutions of tertiary education, such as the *Grandes Ecoles*.

The main vocational degrees are the *certificat d'aptitude professionnelle* (CAP), the *Brevet d'études professionnelles* (BEP) and the *Baccalauréat Professionnel*. The *Baccalauréat Professionnel* corresponds to the longest track : it requires a minimum of four years education and opens the door to some university tracks. CAP and BEP corresponds to shorter track. They can be obtained in two years.

Generally speaking, there are two routes for preparing vocational degrees: either on-the-job (with periods of training supervised by the *Centre de Formation des Apprentis*) or at school in *lycée professionnel* (LEP).

According to the French labour survey, the vast majority of pupils are still in the general track (i.e., in *collèges* or LEGT) at age 15 or 16. Specifically, at age 15, 47% are in the 9th grade (normal age), 46% are in the 8th or 7th grades (one or two years behind), while about 4% are

in the 10th or 11th grades (one or two years ahead). One year later, at age 16, 54% are one or more years behind while about 37% are normal age or ahead. At age 16, the proportion who are on the vocational track is still relatively small (about 6%). In contrast, at age 17, about 15% of the individuals are still in the school system, but on a vocational track. These data show that the entry into the vocational track begins mostly after the end of compulsory school at the age of 17 and concerns mostly individuals who have already been held back one or two grades.

Vocational education can also be pursued on the job. At age 16, very few young individuals are on the labour market while, at age 17, about 5% hold one of the labour contracts proposed to young non-educated entrants. There are several types of labour contracts for young entrants into the labour market which combine work and training. The most common ones are the *contrats de qualification* and the *contrats d'apprentissage*. They correspond to full-time, fixed term, labour contracts during which the young worker is paid from 30% to 75% of the minimum wage (depending on his/her age and on his occupation). Periods of training are supervised by *Centre de Formation des Apprentis* and represent about 25% of the total duration of the labour contracts. Other such labour contracts for young non-educated entrants include the *contrats d'orientation*, *contrats d'adaptation et formation*. We should also mention the *contrats jeunes en entreprise* and the *contrats emploi jeune*. These contracts concern young non-educated workers, but do not include specific periods of training. The wage paid to the young worker cannot be below the minimum wage, however.

Appendix C: A Model for Educational Choices

This appendix describes the model under which the abolition of the national service can be interpreted as a positive shock Δc_E to the cost of education and provides an expression of Δc_E as a function of the cost of the national service for each conscript and of the discount rate.

Before the abolition of the military service, French students aged 18 had four options: (1) military service first, and then entry into the labour market (option *MW*), (2) additional education first, military service, and then entry into the labour market (option *EMW*), (3) military service first, additional education, and then entry into the labour market (option *MEW*), (4) entry into the labour market, then military service, and then re-entry into the labour market (*WMW*). We observe only few such transitions in the data, however.

For each student i observed before (b) the reform, we denote L_{1i}^b (L_{0i}^b) the discounted value of entering the labour market with (without) additional education. Using these notations, the discounted values of the different options may be written for student i ,

$$\begin{aligned} V_{MW}^b(i) &= v_{Si} + \delta L_{0i}^b, \\ V_{EMW}^b(i) &= v_{Ei} + \delta v_{Si} + \delta^2 L_{1i}^b, \\ V_{MEW}^b(i) &= v_{Si} + \delta v_{Ei} + \delta^2 L_{1i}^b, \\ V_{WMW}^b(i) &= v_{0i} + \delta v_{Si} + \delta^2 L_{0i}^b, \end{aligned}$$

where δ is the discount rate, v_{0i} the utility that corresponds to the period of transition into the labour market without education, while v_{Ei} reflects the utility that corresponds to pursuing education and v_{Si} the utility of doing the military service¹⁷. We can plausibly assume $v_{Ei} > v_{Si}$.

Conditional on staying on in education, the trade-off between education first (before the military service) and education after the military service is given by,

$$V_{EMW}^b(i) - V_{MEW}^b(i) = (1 - \delta)(v_{Ei} - v_{Si}).$$

The fact that we only observe very few transitions from military service to education (i.e., very few MEW) may be interpreted as a confirmation that $v_{Ei} > v_{Si}$.

Conditional on not pursuing education, the trade off between military service first and military service after a first entry into the labour market is given by,

$$V_{WMW}^b(i) - V_{MW}^b(i) = v_{0i} - (1 - \delta)v_{Si} - \delta(1 - \delta)L_{0i}^b,$$

The fact that the vast majority of students choose to do their military service before entering the labour market may be interpreted as meaning that the transition period is associated with very low v_{0i} compared with the subsequent flows of utility. For the sake of simplicity, we assume that this condition holds true.

¹⁷For the sake of simplicity, we do not take explicitly into account the fact that pursuing education is a way for being exempted from military service and c_{S2} may be understood as an expected cost which takes into account the possibility of exemption. Specifically, if p denotes the probability of being exempted from military service after some education and w_1 the wage of educated workers at the entry into the labour market, c_{S2} could be rewritten $(1 - p)c_{S2} + pw_1$.

Within this framework, the basic trade-off is between pursuing education or not pursuing education before the military service and the entry into the labour market. We have,

$$V_{MW}^b(i) - V_{EMW}^b(i) = -(1 - \delta)(v_{E,i} - v_{S,i}) - \delta u_i^b,$$

where $u_i^b = v_{Ei} + \delta L_{1i}^b - L_{0i}^b$ represents the impact of education on the discounted flows of utility. Hence, the individual chooses to pursue education (i.e., option EMW) if and only if $(u_i^b > -\frac{(1-\delta)}{\delta}(v_{Ei} - v_{Si})) = -\Delta c_{Ei}$. The quantity Δc_{Ei} represents the welfare gain of using education to postpone the military service.

After the reform (a), students have only two options: (1) direct entry into the labour market (W) or (2) education first, and then entry into the labour market (EW). The corresponding discounted values can be written

$$\begin{aligned} V_W^a(i) &= L_{0i}^a, \\ V_{EW}^a(i) &= v_{E,i} + \delta L_{1i}^a, \end{aligned}$$

where L_{1i}^a (L_{0i}^a) represents the discounted value of entering the labour market with (without) additional education after the reform.

In such a case, the student chooses education if and only if its welfare impact is positive, i.e. $u_i^a > 0$, where $u_i^a = \delta L_{1i}^a - L_{0i}^a$ represents the impact of education on discounted utility flows after the reform.

Before the reform, male (female) students stay on in education if and only if $u_i^b > -\Delta c_{Ei}$ ($u_i^b > 0$). After the reform, male and female stay on education if and only if $u_i^a > 0$. Hence, the reform may be interpreted as a positive shock to the cost of education $-\Delta c_{Ei}$ which has affected male students only. Before the reform, some students are faced with relatively high cost of education compared to the returns (i.e., $u_i^b < 0$), but choose nevertheless to stay on education in order to avoid the cost of not postponing the military service (i.e., $u_i^b > -\Delta c_{Ei}$). After the reform, the cost of not postponing the military service disappears and these students may choose a direct entry into the labour market.

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Table 1: Proportion of Men in the Military Service by Age and Birth Cohorts

	in %				
<i>Age</i>	<i>1975</i>	<i>1976</i>	<i>1977</i>	<i>1978</i>	<i>1979</i>
<i>18</i>	0.2	0	0.5	0.1	0.1
<i>19</i>	5.5	3.5	3.2	2.9	0.2
<i>20</i>	7.1	5.9	3.8	4.4	0.3
<i>21</i>	7.3	5.3	6.2	3.1	0.2
<i>22</i>	6.7	9.5	4.2	4.7	0.1
<i>23</i>	11	10.7	9.4	4	0.0
<i>24</i>	5.9	5	1.1	0.2	...
<i>25</i>	2.1	0.7	0.0	...	...

Source: French Labour Force Survey (1991- 2002)

Sample: men born between 1975 and 1979.

Interpretation: 5.5% of the men born in 1975 were in military service at age 19. Age is the age reached by the end of the year (i.e., the 31st December of the year of the survey)

Table 2: Distribution of Activity Status of Men One Year After the National Service, by Cohorts of Birth

<i>Year of Birth</i>	<i>Situation at t of those who were in the Military Service at t-1</i>			
	<i>Work</i>	<i>Unemployment</i>	<i>Education</i>	<i>Military Service</i>
<i>1975-1976</i>	59.0	24.9	4.5	11.0
<i>1977-1978</i>	57.6	27.9	3.8	9.5

Source: French Labour Force Survey (1991- 2002)

Sample: men born between 1975 and 1978, who were in the military service at the last survey (t-1).

Interpretation: 59% of the men who were born in 1975-1976 and who were in the military service at the last survey, are working at the present survey.

Table 3: Proportion of Men and Women in Education, by Age, Gender Groups and Birth Cohorts

in %			
<i>Age Groups</i>			
<i>Year of Birth</i>	<i>16-17</i>	<i>18-22</i>	<i>23</i>
<i>Panel A: Men</i>			
<i>1975-1976</i>	93.7 (0.4)	65.1 (0.5)	29.7 (1.0)
<i>1977-1978</i>	93.7 (0.4)	64.0 (0.5)	29.4 (1.0)
<i>1979</i>	93.3 (0.5)	61.3 (0.7)	29.6 (1.5)
<i>Panel B: Women</i>			
<i>1975-1976</i>	96.8 (0.3)	72.1 (0.5)	33.7 (1.0)
<i>1977-1978</i>	97.6 (0.3)	72.2 (0.5)	35.4 (1.1)
<i>1979</i>	97.7 (0.4)	71.6 (0.6)	33.3 (1.5)

Source: French Labour Force Survey (1991- 2002)

Sample: Individuals born between 1975 and 1979

Note: standard errors in brackets.

Interpretation: When we focus on respondents aged 18 to 22, the proportion of men in education is 3.8 points larger for cohorts 1975-1976 (65.1) than for cohort 1979 (61.3).

Table 4: The Effect of the Reform on Mens' Relative Probability of Being in Education, by Age Groups

	<i>Age Groups</i>		
	<i>16-17</i>	<i>18-22</i>	<i>23</i>
<i>Intercept</i>	.967 (.003)	.720 (.004)	.337 (.010)
<i>Birth Cohort=1979</i>	.010 (.005)	-.005 (.007)	-.004 (.017)
<i>Male=1</i>	-.031 (.004)	-.070 (.006)	-.040 (.014)
<i>Male=1 × Birth Cohort=1979</i>	-.014 (.007)	-.034 (.010)	.002 (.025)
<i>Nb Observations</i>	14,363	35,853	6,522
<i>R-squared</i>	.01	.01	.01

Source: French Labour Force Survey (1991- 2002)

Sample: Individuals born in 1975, 1976 or 1979.

Note: standard errors in brackets.

Interpretation: The first column focuses on individuals aged 16-17. The age is the age reached by the end of the year, the 31st December. The dependent variable is a dummy indicating whether the respondent is in education. The coefficients correspond to OLS estimators. The second column focuses on individuals aged 18-22 and the third column on individuals aged 23.

Table 5: Impact of the Reform on Years of Schooling and Entry Wages

<i>Independent Variable (1)</i>	<i>All Workers</i>		<i>Low socio-economic Background</i>		<i>High socio-economic Background</i>	
	<i>Years of schooling</i>	<i>Entry Wage</i>	<i>Years of schooling</i>	<i>Entry Wage</i>	<i>Years of schooling</i>	<i>Entry Wage</i>
<i>Male=1</i>	- .39	- .15	- .57	- .21	- .03	- .03
\times <i>Birth Cohort=1979</i>	(.15)	(.04)	(.19)	(.06)	(.27)	(.27)
<i>Nb Observations</i>	2,449	2,449	1,645	1,645	622	622
<i>R-squared</i>	.02	.012	.02	.01	.007	.007

Source: French Labour Force Survey (1991- 2002)

Sample: New entrants into the labour market, who have left school before age 23 and who were born in 1975, 1976 or 1979. Private Sector employees only.

Note 1: All regressions include a dummy indicating the sex of the respondent, a dummy indicating whether s/he was born in 1979 and a dummy interacting the sex of the respondent and its birth cohort as explanatory variables.

Standard errors in brackets.

Table 6: An IV Evaluation of the Effect of High-school Graduation on Hourly Wages

<i>Independent Variable (1)</i>	<i>Dep. Var: High School=1</i>	<i>Dep. Var: Log (Hourly Earnings)</i>		
	<i>First Stage</i>	<i>Reduced Form</i>	<i>OLS</i>	<i>IV</i>
<i>Male=1 x Low=1 x Birth Cohort=1979</i>	-.16 (.05)	-.11 (.05)	...	...
<i>High School Degree</i>	...	...	.11 (.01)	.69 (.39)
<i>Nb Observations</i>	5,086	5,086	5,086	5,086
<i>R- Squared</i>	.15	.47	.48	.30

Source: French Labour Force Survey (1991- 2002)

Sample: Full time private sector wage earners who were born in 1975, 1976 or 1979, aged 23 or less.

Note 1: All regressions include a variable for the age of the respondent, a dummy indicating the sex, a second indicating whether s/he was born in 1979 and a third dummy indicating his socio-economic background. In addition we include all interactions between the sex of the respondent, its birth cohort and its background dummies as explanatory variables.

Standard errors in brackets.

Table 7: An IV Evaluation of the Effect of High-School Graduation on the Probability of Manual Work

<i>Independent Variable (1)</i>	<i>Dep. Var: Manual Work=1</i>		
	<i>Reduced Form</i>	<i>Probit</i>	<i>IV- Probit</i>
<i>Male=1 x Low=1 x Birth Cohort=1979</i>	.15 (.07)	...	...
<i>High School=1</i>	...	-.34 (.02)	-.81 (.12)
<i>Nb Observations</i>	6,628	6,628	6,628
<i>R- Squared</i>	.25	.29	.25

Source: French Labour Force Survey (1991- 2002)

Sample: Private sector wage earners who were born in 1975, 1976 or 1979, aged 23 or less.

Note 1: All regressions include a variable for the age of the respondent, a dummy indicating the sex, a second indicating whether s/he was born in 1979 and a third dummy indicating his socio-economic background. In addition we include all interactions between the sex of the respondent, its birth cohort and its background dummies as explanatory variables.

Standard errors in brackets.

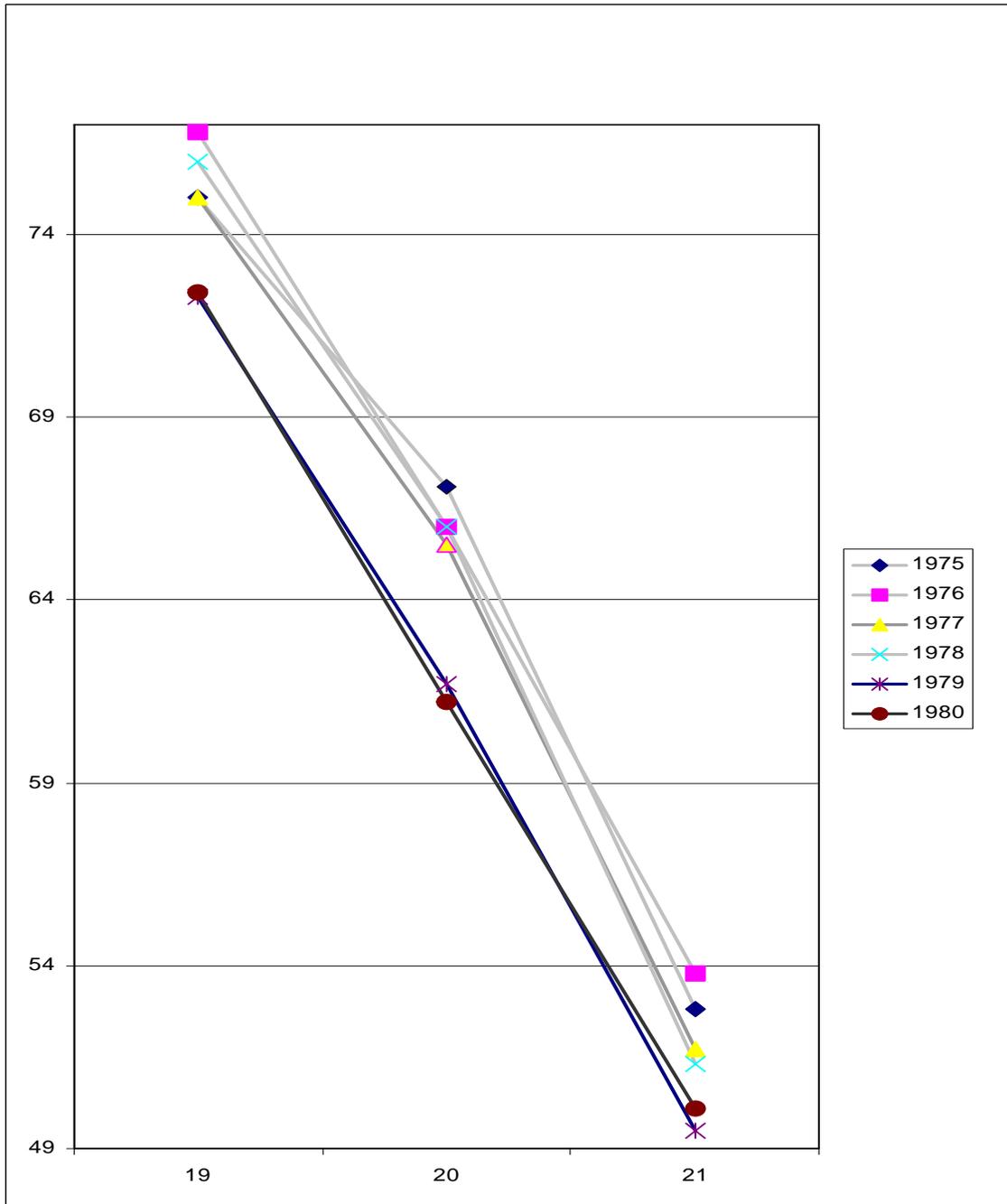


Figure 1: Percentage of Men in Education, by Age and Birth Cohort

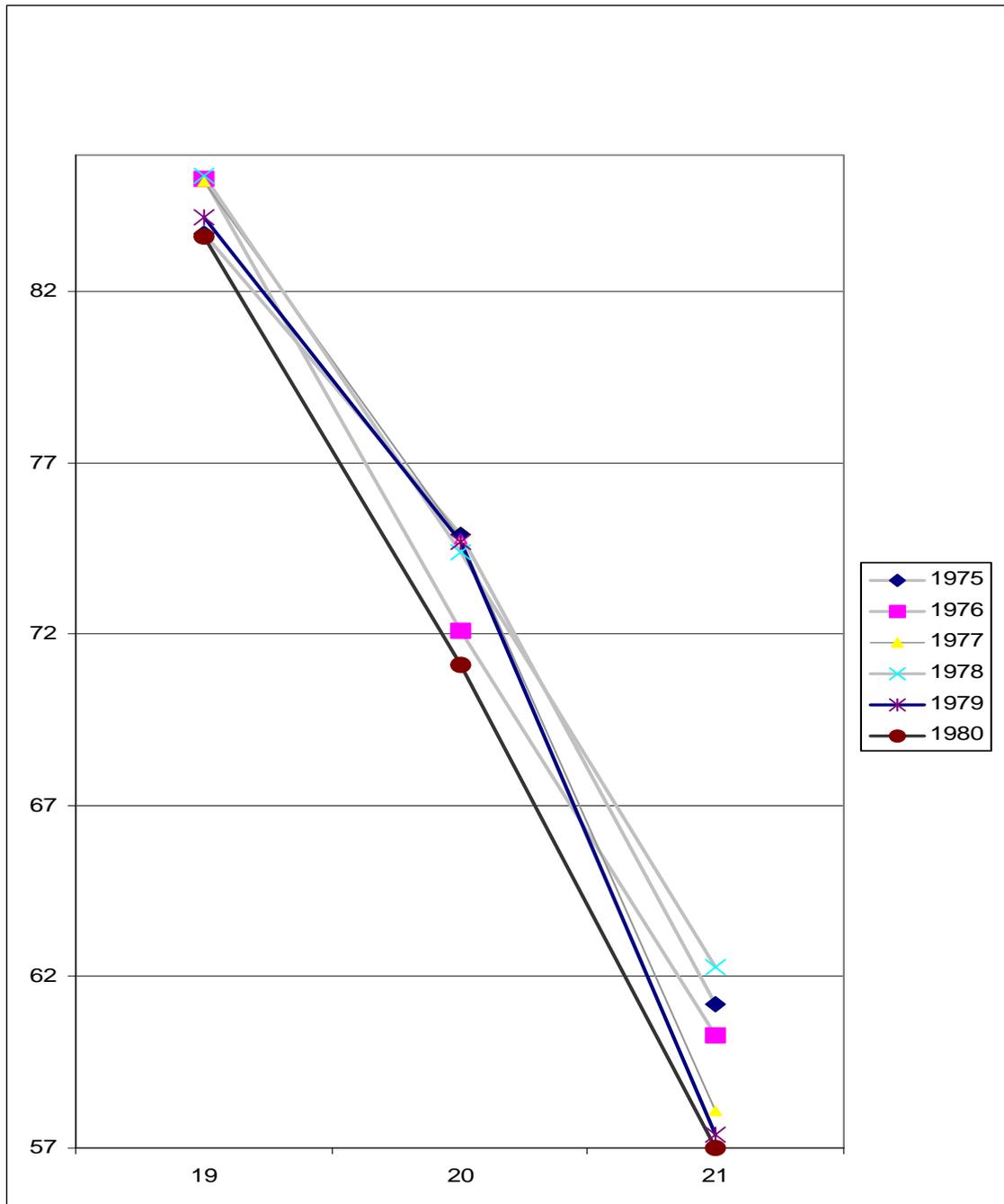


Figure 2: Percentage of Women in Education, by Age and Birth Cohort