School as a shelter? School leaving-age and the business cycle in France

Mathilde Gaini, Aude Leduc et Augustin Vicard

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Abstract

This paper examines the impact of the business cycle on school-leaving decisions in France for the period 1983-2009. Business cycle effects are twofold. On the one hand, bad economic conditions reduce the opportunity cost of schooling and may induce higher school participation. On the other hand, it could entail a loss of income for families which cannot bear anymore the cost of their children's education. Using the French Labor Force Surveys, we estimate the effects of current and past unemployment rates on school leaving decisions. We find that students postpone their entry into the labor market during an economic crisis. Younger students and students from lower social background at a given age are slightly more likely to delay their entry in the labor market. These effects are statistically significant but weak. Our results suggest that students make a once-for-all school leaving-year decision or that only few of them are able to anticipate or postpone their entry during one or two years to mitigate the effects of business cycle.

Keywords: Business cycle, Endogeneous labour market entry, Initial labour market conditions

JEL-codes: I21 - J24

1 Introduction

A great amount of economic literature is dedicated to understanding the determinants of demand for education. Lot of these determinants have been extensively studied in the empirical literature: returns to education, social background, education supply, *etc.* By contrast, only few papers focus on the links between the business cycle and the decision to leave school or to do at least one more year of schooling.

Bad economic conditions may have two opposite effects on school participation. On the one hand, they imply reduced job opportunities for school leavers. This reduces the opportunity cost of schooling and may induce higher school participation. Thus, school attendance may be countercyclical: enrollment could rise with unemployment. But, on the other hand, adverse economic conditions generate unemployment. Some families affected by unemployment could not bear anymore the cost of education for their children or some students could not find a job anymore to finance their studies and reimburse their loans. This would tend to lower the school enrollment rate. When considering both potential effects, it is difficult to predict the direction and the intensity of the impact of unemployment on school enrollment.

In this paper, we investigate empirically this question, using French data over the period 1983-2009. We focus on annual retention rate which is defined as the proportion of a cohort enrolled in school in the previous year that is still enrolled in the current year. The effect of unemployment on the probability of leaving school is statistically significant, but relatively weak. According to our main specification, young students aged 18 have a probability of 9.6% of leaving school when the young entrants unemployment is very high (25%), and a probability of 11.3% when unemployment is very low (15%).[1] The difference between both probabilities is statistically significant but weak. The effect seems to be larger for young people between 16 and 20 years. We also find a larger effect for young people from lower social background at a given age. In comparison, the probability to leave school at 18 years old decreased by about 10 percentage points between the mid-1980s and the mid-1990s in response to a voluntary educational politics. Finally, we don't find any difference between men and women.

Our results contribute to the scarce literature about business cycle effects on school-leaving decisions. As far as the effect of business cycle on demand for education could be country-specific, dependent on the schooling system, collecting

[1] During our period of analysis, French young entrants' unemployment did vary from 14% to 24%.

results for different countries, *e.g.* for France, is interesting. For example, tuitions in France are very low compared to tuitions in the U.S.; French students are also less often employed during their studies than in the U.S.. Moreover, before the post-secondary education's reforms in the 2000s, almost every student completing another year of post-secondary education could earn a new degree ("DEUG" for two years of post-secondary education, "licence" for 3 years, "maitrise" for four years and "DEA" or "DESS" for five years). Remaining longer at school entailed therefore not only a higher level of schooling but also a higher degree. Yet, our results are in line with most of the papers on other countries. This tends to indicate that "individuals make a once-for-all school-leaving decision" (Card and Lemieux, 2001), whatever the country they live in.

These results are of primary interest for empirical work aiming at measuring the so-called *scarring effect*: *i.e.*, how much income will one lose when he leaves school during an economic crisis? We show that school leaving year is endogenous with respect to the business cycle, so raw comparisons between two cohorts of school-leavers who face different unemployment rates (and thus employment prospects) can be biased. Nevertheless, we show that the resulting bias is quite small.

The remainder of this paper is organized as follows. Section 2 summarizes the main results of the (scarce) literature on our subject. Sections 3 and 4 describe our dataset and the econometric model, where sections 5 and 6 present our results and proceed to some robustness checks. Section 7 presents the results of a simulation showing that the bias entailed by the weak endogeneity of school-leaving age are small. Section 8 concludes.

2 Literature

The retention phenomenon has been little studied in the literature. Most of the papers we are aware of focus on the USA and find a non significant or small positive relationship between unemployment and school enrollment rates. For instance, Betts and McFarland (1995), using US data on community college between the late 1960s and the mid-1980s, find that a 1 percent increase in the unemployment rate of recent high school graduates (respectively of adults) is associated with a rise in full-time school attendance of about 0.5 percent (resp. 4 percent). Card and Lemieux (2001) use the October CPS files for 1968-1996 and find that a rise in the prime-age male unemployment rate (age twenty-five to fifty-four) from 0.035 to 0.065 is predicted to raise enrollment of seventeen-year-olds by about 1 percentage point. For nineteen- to twenty-one-years-olds unemployment has very small effects for young men but more negative effects for young women. One

explanation for these different patterns would be that young men's earnings are more cyclically sensitive than are young women's, whereas their parents' incomes are equally responsive to local unemployment fluctuations. Dellas and Sakellaris (2003), using US data from 1968 to 1988 on college graduates, conclude that a one percentage point increase in unemployment rate is associated with a 2% increase in enrollment rate. Boffy-Ramirez, Hansen, and Mansour (2010) using US data between 1979 and 1994 find that men's odds of enrolling in college increase by 1.2 percentage point following a 1 percentage point increase in the unemployment rate.

Concerning other countries, Messer and Wolter (2010), using Swiss data from 1981 to 2001, and Genda, Kondo, and Ohta (2010) using Japanese data, also find a slightly countercyclical pattern.

Few authors find a negative effect of unemployment on enrollment and underline the role of credit constraints in the demand for education.
Edwards (1976) finds using CPS between 1947 and 1974 that the retention and enrollment rates of teenage girls vary procyclically whereas there is no significant relationship for teenage boys. Her explanation, quite old, focuses on the fact that, after a crisis, the opportunity cost of schooling falls less for girls than for boys because girls' productivity derives for a higher part from home activities. Note however that these results are at odds with the more recent ones of Card and Lemieux (2001). More recently, Christian (2007) using the October school enrollment supplements to the CPS over 1968-2000 finds a slightly positive but insignificant effect of the unemployment rate on enrollment at 18-19 years old and a pro-cyclical effect of business cycle on school participation rate among people in households expected to have lower income.

To sum up, there is a large body of literature consistent with a slightly positive effect of unemployment on school enrollment. One interpretation is that the decreasing costs of schooling exceeds the potential negative effect on parents' or students' income due to credit constraints. Another interpretation, as mentioned before, would be that students "make a once-for-all school-leaving decision" (Card and Lemieux, 2001) and are therefore not influenced by current economic conditions.

Yet, most of the papers focus on the U.S. and the results could depend on the features of educational systems. For example, in France students are less often working in a paid job during their studies or more able to repeat a grade than in the U.S.. There is also no restriction in France in high-school and college enrollment. Moreover, before the post-secondary education's reforms in the 2000s, quite each more year of post-secondary education ended by a degree. Remaining longer at school entailed therefore not only a higher level of schooling but also a

higher degree. Education costs are also lower in France than in the U.S.. It is therefore interesting to focus on other countries, hereafter in France, to investigate if results are country-specific or not. Finding similar results for countries with very different educational system would favor the "make a once-for-all school-leaving decision" hypothesis.

3 Data

3.1 School trajectory

We use the French Labor force surveys (LFS, called in French "Enquêtes Emploi") from 1983 to 2010. We focus on men and women. Using the variable "school-leaving age", we infer school trajectory since 16 years old, the French compulsory school-leaving age.[2] We only retain French people and we exclude people older than 40 years old in order to circumscribe "memory bias". We mainly focus on people having been or being at school between 1983 and 2009.[3] People being students at the time of the survey or leaving school the year of the survey are considered as censored information.[4] We focus on school-leaving age between 16 and 24 years old.[5]

We therefore build an unbalanced panel (age-individual) and a person remains in the dataset until her school-leaving age. We create a variable "leaving-school at age a"[6] which takes the value 0 for observations before the school-leaving age and the value 1 only for the year of leaving school.

Let us take an example. In LFS 2005, we observe a respondent aged 30 and who left school at 20 in 1995. This respondent corresponds to 5 observations: one for each age from 16 to 20. From 16 to 19 years old, she could have left school but chose not to do (our variable "leaving school" takes the value 0). At 20 years old, she decided to leave school (our variable "leaving school" takes the value 1). There is no observation for ages higher than 20 for this person.

[2]It is indicated to the interviewers that any interruption (resp. for more than one year) in the initial training is considered as the end of initial training in the 2003-2010 questionnaires (resp. 1982-2002).

[3]For robustness checks we also run estimations over the restricted periods 1990-2009 and 1995-2009, see Section 5.

[4]Note that for these latter, we retain information from 16 to $age - 1$ because some of them can leave school after the date of the interview.

[5]We restrict the analysis to ages 16 to 24 because the number of students older than 24 is low.

[6]We retain as definition of age the age reached in the year.

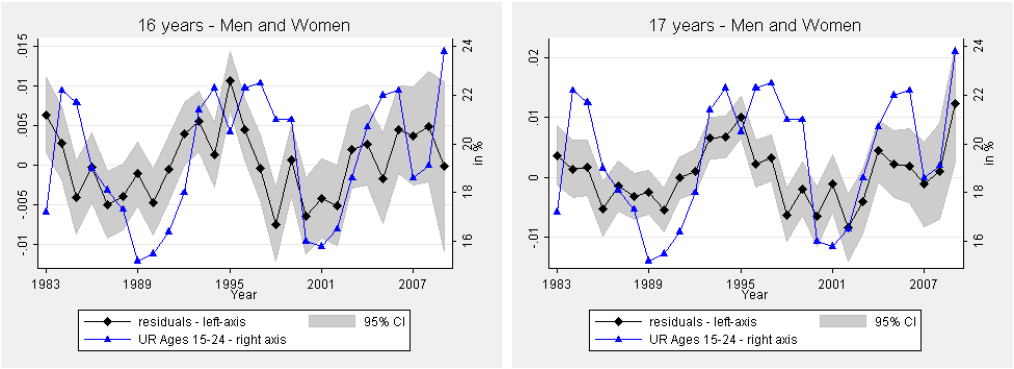
LFS have a rotative panel design but we only retain the first observation for each individual. As we don't have enough student interviewees each year, we can't exploit the panel design of the survey. This prevents us to run a per degree analysis, because we can hardly infer from the last obtained degree the past ones.

3.2 Business cycle indicator

We choose as indicator of economic conditions at age a the unemployment rate of young people on the labor-market (15-24 years old) in the third quarter of the corresponding year, as French young people leave school mostly during the third quarter (see Appendix A for some figures).

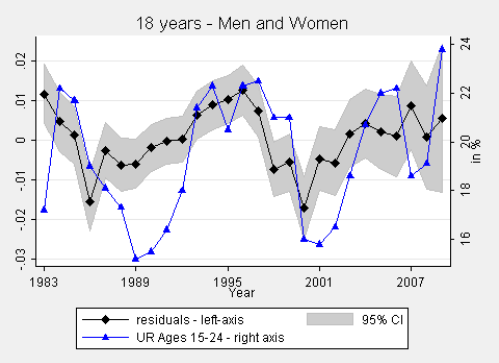
Figure 1 displays the unemployment rate of young people between 1983 and 2009 and the probability (in %) of staying at least one more year at school for students between 16 and 24, adjusted for trends in educational attainment.[7] It also displays the same figures for each age-group between 16 and 24. The correlation is positive and higher for 16 to 20 years old than for older age-groups.

Figure 1: Proportion of students staying at school (detrended) and current unemployment rate

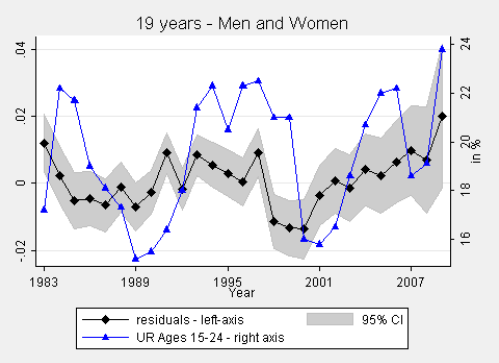


(a) 16 years (b) 17 years

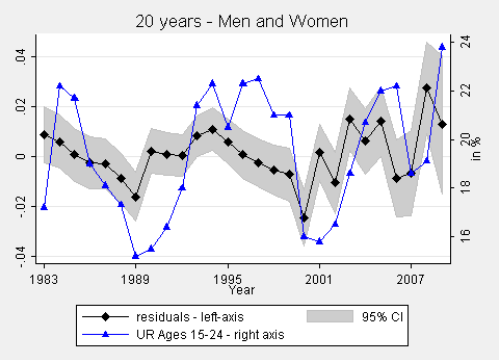
[7] More precisely, we regress the proportion of students staying at school on linear time trends to control for the increase in educational attainment and graph the residuals.



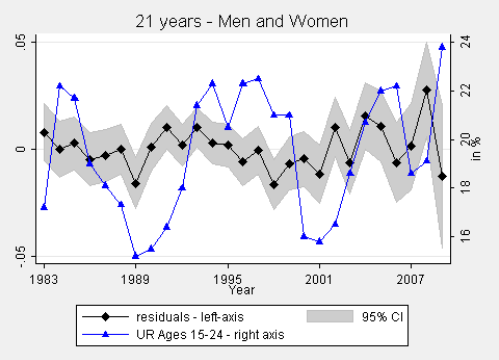
(c) 18 years



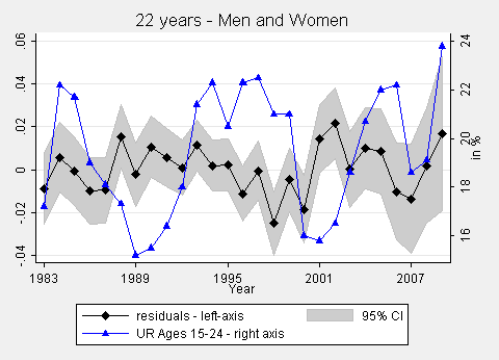
(d) 19 years



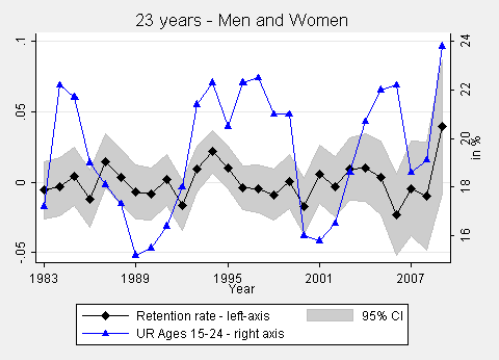
(e) 20 years



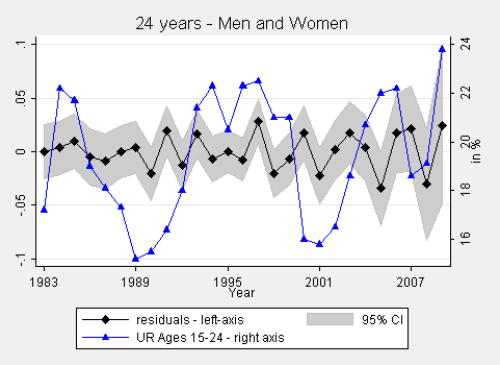
(f) 21 years



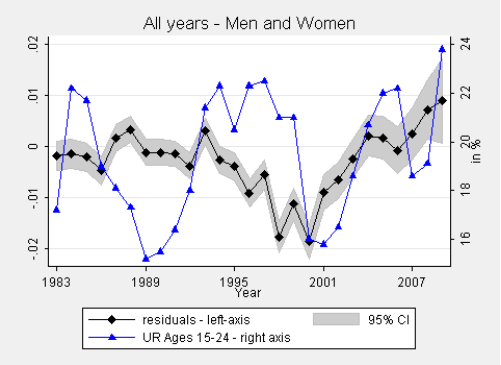
(g) 22 years



(h) 23 years



(i) 24 years



(j) All years

Note: residuals from the logistic regression of the dummy variable "staying at school" on trends are plotted.

4 Econometric model

4.1 The retention rate

In this paper, we focus on the probability of leaving-school at age a. Leaving-school corresponds to completing a degree or dropping out from school. As we only consider initial training, this is equal to the probability of leaving-school at age a conditionally on staying at school until age a.[8] We therefore focus on retention rate, and not on enrollment rate as in published papers on the subject.[9] We think that the former is a best measure of school-leaving decision a given year than the latter. For understanding this, let call $S_{i,a}$ the random variable "being at school at age a". S_{ia} measures the instantaneous probability of staying at school whereas enrollment rate derives from the probability of staying at school at age a, *i.e.* not having left school at age a or at a previous age.

As we only focus on initial training, we have theoretically $P(S_{i,a} = 1|S_{i,a-1} = 0)$

[8] Our model is in fact equivalent to a duration model, where we would be interested in the number of years spent in school by students. The hazard of this duration model would be to leave school at age a, conditionally to staying at school until age a.

[9] One notable exception is Card and Lemieux (2001) who both study enrollment rate and some retention rates.

negligible for each age.[10]

The retention rate derives from

$$P(S_{i,a} = 1|S_{i,a-1} = 1)$$

The enrollment rate derives from

$$P(S_{i,a} = 1) = P(S_{i,a} = 1|S_{i,a-1} = 1)...P(S_{i,17} = 1|S_{i,16} = 1)P(S_{i,16} = 1)$$

Note that compulsory school leaving age is 16 years old in France.

Assume that choosing to remain at school is a no memory process. Each year students make their decision only according to current economic conditions. In that case, $\mathrm{P}(S_{i,a} = 1|S_{i,a-1} = 1)$ only depends on current economic conditions whereas $P(S_{i,a} = 1)$ depends on the entire series of unemployment rates from age 16 to current age. Analyzing retention rate seems to be more appropriate to this case: as unemployment rates are highly correlated, the more we add lagged unemployment rate, the more imprecise estimations are.

However, the no memory assumption is clearly unrealistic. Alternatively, we can assume that young people may postpone their labor market entry (*i.e.* stay longer at school) for one year. We can imagine that students have a "target" school level they can adjust according to economic conditions. For instance, students in vocational training who find a job during economic boom can leave school the year before their degree completion. During crisis, students having failed an exam can repeat a year instead of entering into the labor market. But we think that it is unlikely that a student could indefinitely delay its market entry in the French educational system. French educational system is relatively partitioned and there are few possibilities to change specialization. Moreover, students don't have school taste or capacities to delay indefinitely their school leaving age. Thus, with this main assumption, the retention rate at age a only depends on current and past unemployment rates, *i.e.* unemployment rate the year t of aging a and the year $t-1$ of aging $a-1$:

$$P(S_{i,a} = 1|S_{i,a-1} = 1) \perp\!\!\!\perp (UR_{t-2}, UR_{t-3}, ...)$$

4.2 Taking into account the rise in educational attainment

Our main period of analysis is from 1983 to 2009. In 1985 a political impulse in educational system aimed at reducing young unemployment – which was persistently

[10]Yet, we can't exclude that some people having left school and faced adverse conditions went back to school but don't report as school leaving age their age at their first entry into the labor market.

higher than 20% since 1983. Students positively reacted and remained longer at school. France experienced a strong increase in high-school educational attainment from 1985 to 1993 and an increase in post-secondary educational attainment from 1991 to 1995 (see Durier, 2006). This structural trend could entail spurious correlations and bias our estimations if we don't control for it. For example, the increase in post-secondary educational attainment took place during an economic downturns –1993-1997– which could entail a spurious negative correlation between current unemployment and leaving school in our estimation. Conversely, from 1989 to 1992 unemployment rates was low, around 15% and high-school educational attainment increased, potentially leading to a spurious positive correlation. Besides these trends we can not exclude that economic downturn prompted students to remain at school on that period. This would be consistent with the weak decrease in educational attainment which occurred during the economic boom at the end of the 1990's, stronger for secondary education (see Durier, 2006). It is therefore necessary to control for the upward trend in educational attainment to disentangle business cycle effects and structural trends effects.

We therefore retain 1983-2009 for our main analysis to have enough time periods to make robust inference and we control for the increase in school attainment. We include age-dependent breaks in time trends which were determined in order to maximize the BIC of the regressions. More precisely, we include a piecewise linear function of time with one trend break in each regression. We finally perform robustness checks on shorter periods of time (respectively 1990-2009 and 1995-2009), to make sure that our results are robust to changes in observation windows.

4.3 The econometric model

For all ages - pooled regression

We firstly run a pooled regression, assuming homogenous effects for current and past unemployment (resp. UR_t and UR_{t-1}) on the instantaneous probability of leaving school $L_{i,t}$ for students in initial training.[11] This yields the following model:

$$P(L_{i,t}) = F(\alpha+\beta_0.UR_t+\beta_1.UR_{t-1}+\gamma_1.t+\gamma_2.(t-\bar{T})\mathbb{1}_{t\geq\bar{T}}+\zeta_{16}.\mathbb{1}_{a=16}+...+\zeta_{24}.\mathbb{1}_{a=24}) \tag{4.1}$$

More precisely, $L_{i,t}$ is a dummy variable equal to 1 if the student chooses to leave school year t, and to 0 if she chooses to stay at school. We control the regression by

[11] We explore the alternative assumption that students can delay for two years, running estimations with two lags of unemployment. We also use the forward of unemployment as robustness checks assuming that students can advance for one year their labor market entry, see Table 3.

piecewise linear function with a break in $\bar{T}$ (year $\bar{T}$ is reported in Table 1) and age dummies.[12] We choose F as logistic function. This model is clearly "coarse" and we mainly focus on models age per age hereafter, in order to allow for heterogeneity of unemployment effects according to age. Yet, the pooled regression is useful to present the main features of the model and some robustness checks, as the intensity of the effects but not the sign vary with age (see Table 1).

We are mainly interested in β_0, the effect of the current unemployment rate on school leaving decision. We add the past unemployment rate as a regressor in our preferred specification because it explains the school leaving decision and is correlated with the current unemployment rate, so that, if omitted, the estimated coefficient of the current unemployment rate would be potentially biased downward. To understand this, imagine that last year unemployment was very high. If unemployment has an effect, more students than usual will choose to stay at school. But, for most of them, they won't stay as long in the schooling system as would have done usual students who would have stayed at school whatever the unemployment rate: they have a higher probability to leave school one or two years after having decided to stay (one or two more years) at school. For these two reasons (past unemployment positively correlated with current unemployment and direct effect of past unemployment on the probability of leaving school), omitting past unemployment could lead us to underestimate the effect of current economic condition on the choice to stay (or to leave) school. This point is very important, because unemployment shows a high degree of viscosity. If students postpone their entry into labor market during economic downturns then we should find that β_0 is negative and β_1 positive.[13]

For each age

We also run separated regressions age per age to allow for heterogenous effects of unemployment according to age.

$$P(L_{i,a,t}) = F(\alpha_a + \beta_{0_a}.UR_t + \beta_{1_a}.UR_{t-1} + \gamma_{1_a}.t + \gamma_{2_a}.(t - \bar{T}_a)\mathbb{1}_{t \geq \bar{T}_a}) \qquad (4.2)$$

$L_{i,a,t}$ is a dummy variable equal to 1 if the student chooses to leave school at age a the year t, and to 0 if she chooses to stay at school. We perform a logistic regression of L_{ia} on our variables of interest, current and past unemployment rates the year of aging a. Breaks in trends are age-dependent (years $\bar{T}_a$ are reported in Table 1).

[12] The set of age dummies would be equivalent to the baseline hazard function in a proportional hazard model.

[13] More exactly, if students can only postpone one year, then β_1 is negative, if they postpone either one or two years, then β_1 would be a "mix" of the effects of $UR_{i,t-1}$ and $UR_{i,t-2}$.

4.4 Individual data, weights and cluster

We rely on individual data for our estimations rather than on aggregrated ones, even if the main source of identification is the variation of the unemployment rate across years. The probability of leaving school is indeed very low for young pupils or students aged 16 or 17 (see Table 1), particularly after the strong increase in educational attainment between the mid-1980s and the mid-1990s. Using a logistic linking function between the unemployment rate and the probability to leave school seems therefore more accurate than assuming a linear relationship. It also enables us to add covariates at the individual level (gender and parent's social status or degree) in one specification of our model (see section 6).

Moreover, we use retrospective information so that people leaving school at the beginning of our period of analysis are over-represented in our sample. We weight data in order to give the same weight at each year-age cell *i.e.* at each unemployment-age cell. This logistic regression is close to a least squares regression on aggregated data (see Appendix B).

We cluster standard errors at the school-leaving year level to allow for group level error terms.

5 Results

We present the odds ratio both for the pooled and for the age per age models, see Table 1.

An odds ratio of 1 indicates that the probability of leaving school doesn't depend on unemployment. For the pooled regression model (all age-groups) as well as for age per age models, odds ratio of current unemployment variable are lower than one. The odds ratio are significant at the 1 % level for the pooled regression and 17-20 and 22 years old samples. They are significant at the 5 % level for 16 and 23 years old samples. It seems therefore that, for each age-groups except 21 and 24 years old, when current unemployment increases, the probability of leaving school decreases. Interestingly, students who react most to business cycle, *i.e.* younger students, are the more able to remain one more year at school, because there is no restriction for high-school or college enrollment in France.

We also compare the predicted probabilities of leaving school for an unemployment rate of 15% and for an unemployment rate of 25%, *i.e.* a dramatic rise in unemployment, in order to illustrate the size of the effect. More precisely, in both cases the past unemployment is set at 18% (and the reference year at 2000). We

Table 1: Logistic regression of the choice of leaving school on unemployment

Odd-ratio	16 years	17 years	18 years	19 years	20 years
15-24 years Unemployment	0.985**	0.968***	0.982***	0.986***	0.982***
	(0.006)	(0.009)	(0.006)	(0.005)	(0.005)
Lag of 15-24 years Unemployment	1.007	1.011	1.010	1.013**	1.017***
	(0.008)	(0.010)	(0.007)	(0.006)	(0.005)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1992	1991	1992	1993	1993
Prob. of leaving school (%)					
when unemployment rises	3.868	3.204	9.611	11.240	16.875
from 18% to 25%	(0.140)	(0.218)	(0.315)	(0.370)	(0.425)
when unemployment drops	4.456	4.393	11.336	12.775	19.608
from 18% to 15%	(0.148)	(0.155)	(0.289)	(0.270)	(0.412)
Diff. of prob.	0.588**	1.189***	1.725***	1.535***	2.733***
	(0.237)	(0.322)	(0.579)	(0.576)	(0.715)
N	286270	260753	238637	190524	152679

Odd-ratio	21 years	22 years	23 years	24 years	All ages
15-24 years Unemployment	0.996	0.990***	0.987**	0.997	0.987***
	(0.006)	(0.003)	(0.005)	(0.007)	(0.004)
Lag of 15-24 years Unemployment	1.007	1.021***	1.010**	0.998	1.010**
	(0.005)	(0.004)	(0.005)	(0.007)	(0.004)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1993	2003	1999	1996	1991
Prob. of leaving school (%)					
when unemployment rises	19.798	22.889	29.849	37.386	
from 18% to 25%	(0.639)	(0.480)	(0.752)	(1.100)	
when unemployment drops	20.374	24.751	32.742	38.099	
from 18% to 15%	(0.424)	(0.367)	(0.502)	(0.768)	
Diff. of prob.	0.576	1.861***	2.893**	0.714	
	(0.884)	(0.601)	(1.115)	(1.599)	
N	110994	80598	55629	35378	1411462

* p<0.10, ** p<0.05, *** p<0.01

Note: standard errors clustered at year-age level are in parenthesis.

therefore compare the effect of a decrease in unemployment from 18% to 15% and of a rise in unemployment from 18% to 25%.

For instance, 18 years old students have a probability of 9.6% of leaving school (*i.e.* completing a degree or dropping out from school) when the young entrants

unemployment is very high (25%), and a probability of 11.3% when unemployment is very low (15%) and the difference is statistically significant at a 1% level. The effect is relatively weak whatever the age. In comparison, the structural increase in educational attainment between the mid-1980s and the mid-1990s decreased the probability to leave school at 18 years old by about 10 percentage points (see Figure 3).

Our regression yields another interesting result. The odds ratio of the lag of unemployment are always greater than one (except for 24 years old, non significant) and they are significant at a 5% level for pooled regression and for 19 and 23 years old and at a 1% level for 20 and 22 years old. An increase in past unemployment rate therefore increases the probability of leaving school, which is consistent with a "memory process": people having delayed their exit in the past are more likely to leave school in the current year.

6 Robustness checks

In this section, we show that our results are robust according to five criteria: (i) different period of analysis; (ii) introduction of 0, 1 or 2 lags of unemployment and 0 or 1 forwards of unemployment as covariates; (iii) other unemployment rates as regressors; (iv) different weights and cluster schemes; (v) different subsamples. We only show the results from the pooled regression (16-24 years old), for space constraints. Results for each age groups are qualitatively similar and available upon request from the authors.

6.1 Different periods of time

We estimate our model on different periods of time, 1983-2009, 1990-2009 and 1995-2009 (Table 2 for pooled regression). Results are qualitatively and quantitatively in line with our main specification: current unemployment has a negative effect on leaving school and past unemployment has a positive effect. Mechanically, results from the shorter observation windows are less significant. We reproduce the results on the 1983-2009 period for all ages without controlling by time trends. Current and lag of unemployment point estimates are in the same direction as with spline function, but insignificant. Results by age-group – not displayed – are similar.

Table 2: Logistic regression of the choice of leaving school on unemployment (various periods, all ages)

Odd-ratio	1983-2009	1983-2009	1990-2009	1995-2009
15-24 years Unemployment	0.987***	0.985	0.981***	0.984**
	(0.004)	(0.015)	(0.006)	(0.007)
Lag of 15-24 years Unemployment	1.010**	1.005	1.011	1.015*
	(0.004)	(0.016)	(0.007)	(0.008)
Trend	Yes	No	No	No
Break	1991			

* p<0.10, ** p<0.05, *** p<0.01

Note: standard errors clustered at the year level are in parenthesis.

6.2 Adding lags and forwards of unemployment

Table 3 reports the estimates on the pooled sample for different specifications, with more or less lags and forwards of unemployment. Adding past unemployment increases the negative effect of current unemployment, confirming the potential downward bias if past unemployment is not included (see column (3) and (4)). When we include the secong lag of unemployment (see column (5)), the effect of the first lag is reduced and no more significant and the effect of the second lag is significant at a 5% level. This suggests that some students postpone their entry by two years.

Results when including forward unemployment are hard to interpret (see column (1) and (2)). If students anticipate bad economic conditions in the future, they could try to entry into the labor market before the deterioration of economic situation. Yet, estimated coefficients are negative and significant at a 5% level. One explanation would be that people entering into the labor market and facing adverse conditions would return at school after one or two years but don't declare as their school-leaving age the age of their first entry. Still, effects are weak.

Table 3: Logistic regression of the choice of leaving school on unemployment (various lag or forward of unemployment, all ages)

Odd-ratio	1983-2009	1983-2009	1983-2009	1983-2009	1983-2009
Forward of 15-24 years Unemployment	0.991***	0.994*			
	(0.002)	(0.003)			
15-24 years Unemployment	0.998	0.992*	0.993**	0.987***	0.989***
	(0.002)	(0.005)	(0.003)	(0.004)	(0.004)
Lag of 15-24 years Unemployment		1.007		1.010**	1.005
		(0.005)		(0.004)	(0.005)
Lag 2 of 15-24 years Unemployment					1.006**
					(0.003)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1991	1991	1991	1991	1991

* p<0.10, ** p<0.05, *** p<0.01

Note: standard errors clustered at the year level are in parenthesis.

6.3 Other unemployment rates

We estimate the same model with different regressors (4). Our principal regressor has the advantadge to be close to the young entrants labor market conditions but could be endogeneous. In fact, the decision of staying or not at school may influence the 15-24 years unemployment rate. We use the 25-49 years unemployment rate to be sure to have an exogenous regressor with the disadvantage to be less close of the labor market entry conditions of young people. We also use the unemployment rate of young entrants (1-4 experienced year) to be closer to the labor market entry conditions. Point estimates are almost the same and always significant.

Table 4: Logistic regression of the choice of leaving school on unemployment (various unemployment rate, all ages)

Odd-ratio	UR 15-24 years	UR Young Entrants	UR 25-49 years
Unemployment	0.987***	0.990***	0.959***
	(0.004)	(0.002)	(0.010)
Lag of Unemployment	1.010**	1.013***	1.049**
	(0.004)	(0.003)	(0.013)
Trend	Yes	Yes	Yes
Break	1991	1991	1991
N	1411462	1411462	1411462

* p<0.10, ** p<0.05, *** p<0.01

Note: standard errors clustered at the year level are in parenthesis.
Analysis period: 1983-2009

6.4 Different weighting schemes

We weighted our data at an age-year level in order to give the same weight to each birth cohort in the pooled regression. Without weights, we over-represent older cohorts but if effects are quite homogenous across cohorts, non-weighted estimations should be close to weighted estimations. Results with or without weighted data are very similar, see Appendix C.

6.5 Men and Women

We run separated regressions on men and women to test if there are differences in effects between sex. We find no differences, see Appendix D. This suggests that opportunity costs for men and women are decreasing in the same way for both sex during economic downturns.

6.6 What about credit constraints?

We presented in introduction the two potential effects of an increase in unemployment on school leaving decision: (1) decreasing opportunity costs of education entailing a lower school-leaving rate, (2) higher credit constraints entailing a higher school-leaving rate. To test for the presence of credit constraints, we reestimate

our main model on two subsamples depending on father's occupation: low social background vs high social background.[14] If credit constraints exist, we expect unemployment effects to be lower for students with a low social background (because of higher credit constraints). Results are at odds with a credit constraints effect, see Appendix E. Students with a low social background react even more to changes in unemployment rates. We could imagine that social network is more likely to help students with a high social background to find a job even in economic downturns. Note that our results could be driven for a part by different scholar specialization depending on father occupation and correlated with a higher or lower probability to react to changes in unemployment rate. The decreasing education cost effect could also outweight the increasing credit constraint effect.

7 Countercyclical leaving-school and selection in labor market outcomes

We have studied so far the effect of the economic situation (unemployment rate) on the probability of leaving school. We have shown that the probability of leaving school is slightly contra-cyclic. Now we investigate how this cyclical pattern affects the labor market outcomes of a school leaving-year cohort (people who leave school during the same year). This is a main issue for empirical identification strategies relying on labor market comparisons.

Can we compare directly two cohorts of school-leavers who faced different economic conditions at their entry into the labor market? This is of primary interest for empirical work aiming at measuring the so-called *scarring effect*: *i.e.*, how much income will one lose when she completes a degree during an economic crisis? If the school-leaving age and year are endogenous to business cycle, we cannot directly compare cohorts (and thus employment prospects). If not treated, this endogeneity could lead to an underestimation of the scarring effect but we find that this bias is very low in the French case.

To do so, we use the results of our main model (see Table 2).

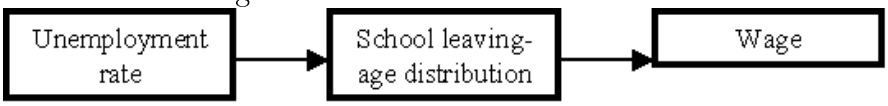
We proceed in two steps (see figure 2):

1. In a first step, we use our estimates to study how the school-leaving age distribution moves with the business cycle, from 1983 to 2009.

[14] To be very accurate, to the attention of French readers, low social background corresponds to "ouvriers" (CS=6) and "employes" (CS=5), whereas high social background corresponds to "professions intermediaires (CS=4) and "cadres" (CS=3)

2. In a second step, we simulate changes in mean wage entailed by these changes in the school-leaving age distribution (under the assumption that in average students anticipating or postponing their school-leaving are similar to other students).

Figure 2: Method of the simulation



This method is clearly crude and wages of students anticipating or postponing their school-leaving are likely to be different from wages of other students. Yet, this method gives some hints about the magnitude of the effect. We find that the difference in the wages paths are very weak (not more than 15 euros of monthly wage from one year to the following).

Unemployment therefore affects school-leaving age distribution, which mechanically entails a change in new entrants mean wage path. Yet, as suggested in this appendix, unemployment effects on school leaving-age distribution are quite small.

7.1 Method

Probability of leaving school at each age and year Recall that our main model has the following form ($F(.)$ being the logistic cdf):

$$P(L_{i,a,t}) = F(\alpha_a + \beta_{0_a}.UR_t + \beta_{1_a}.UR_{t-1} + \gamma_{1_a}.t + \gamma_{2_a}.(t - \bar{T}_a)\mathbb{1}_{t \geq \bar{T}_a})$$

Let's define p_a^t as the probability of leaving school at age a during the year t, netted out from the effect of the structural evolution of the school leaving age. We predict p_a^t using unemployment rates of year t and $t-1$ but we fix the year at 2000 for the trend evolutions. The evolution of p_a^t over time is thus only driven by the evolution of the unemployment rate. Formally :

$$p_a^t = F(\alpha_a + \beta_{0_a}.UR_t + \beta_{1_a}.UR_{t-1}\gamma_{1_a}.2000 + \gamma_{2_a}.(2000 - \bar{T}_a)\mathbb{1}_{2000 \geq \bar{T}_a}) \qquad (7.1)$$

Number of students by age: baseline We use as baseline for the repartition of students across ages the repartition derived from our main model in 2000, see table 5. We normalize the number of students at age 16 to 100. We note N_a the normalized number of students at age a.

Table 5: Number of students by age (normalized at 100 at age 16)

Age	N
16	100
17	96
18	92
19	82
20	72
21	59
22	47
23	36
24	25

School leaving-age distribution In this simulation, we are interested in the effect of unemployment on the school leaving age distribution. We therefore apply to our baseline distribution of students the predicted probabilities of leaving school for each year and each age ($p_a^t, 16 \leq a \leq 24, 1983 \leq t \leq 2009$). We deduce the share of each age group among the leaving-school students.

$$\pi_a^t = \frac{p_a^t.N_a}{\sum_\alpha p_\alpha^t.N_\alpha} \tag{7.2}$$

Wage evolution due to the cyclicality of the school leaving-age We run a linear regression to estimate the effect of the school leaving age on earnings, after one year and after 5 years of potential experience ($1990 \leq t \leq 2009$)[15]:

$$log(w_{it}) = \alpha + \beta.log(a_{it}) + \eta_t + \epsilon_{it} \tag{7.3}$$

We deduce from this regression the mean wage - W_a - for each school leaving-age a: $W_a = exp(\alpha) + a^\beta$ (after 1 or 5 years).

We then compute the mean wage for the school leavers of year t: $W_t = \sum_{a=16}^{24} \pi_a^t.W_a$.

7.2 Results

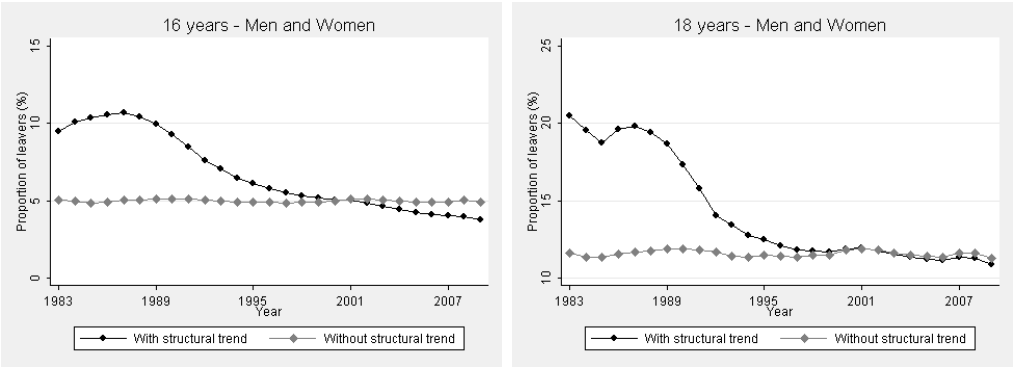
We find that changes in the unemployment rate imply very weak variations in the school-leaving age distribution during the period 1983-2009. Figure 3 displays the

[15]We use the 1990-2009 period because we don't have wages in our dataset before 1990.

annual evolution of the share of school-leavers of each age with structural trend or without structural trend (year 2000). According to our results, the predicted percentage of school leavers aged between 16 and 24 reacts very slightly to the business cycle. For comparison, we represent also the evolution of the percentage of school leavers taking into account the strucural trend.

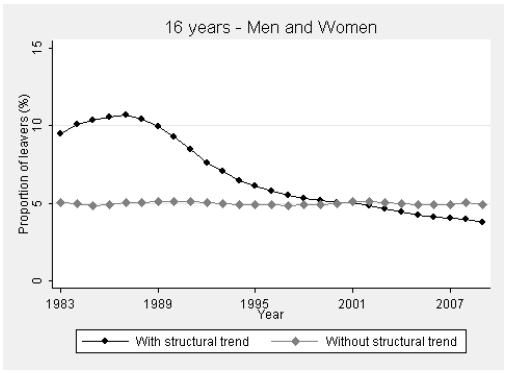
The reasons explaining why this variations are so weak are threefold. First, the estimated effects of unemployment rate on school leaving age are significant but weak. For each age, the current unemployment rate has a weak effect on the predicted probability of leaving school. The effect on the school leaving age distribution is consequently weak. Second, a high unemployment level causes students to stay at school at every age (although with an heterogeneous intensity), so that the business cycle affects more the number of school leavers than the distribution or mean of the school leaving-age. Third, the current and past unemployment rates play in opposite directions on the probability of leaving school. The viscosity of business cycle therefore causes only a small change in the school leaving age.

Figure 3: Simulations: Annual evolutions of the share of each age group among the school leavers, French case, year 1983-2009

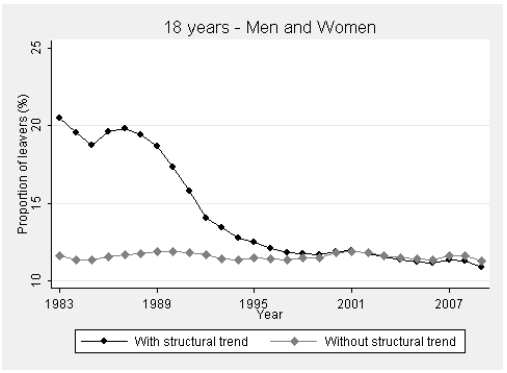


(a) 16 years

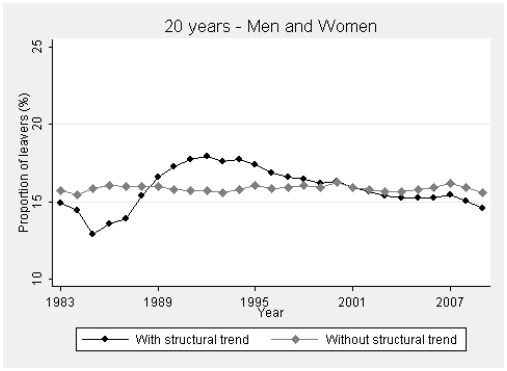
(b) 18 years



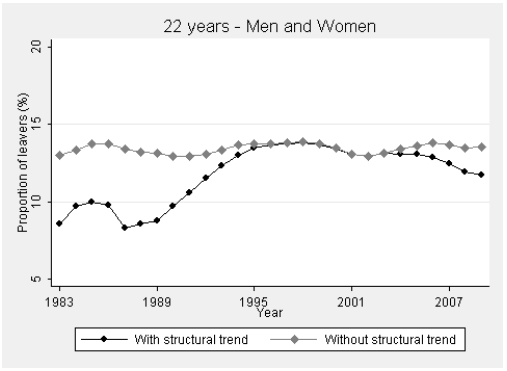
(c) 16 years



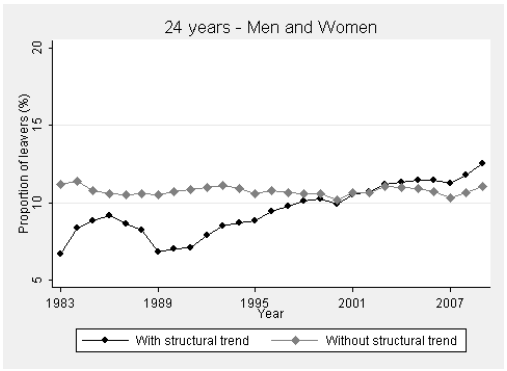
(d) 18 years



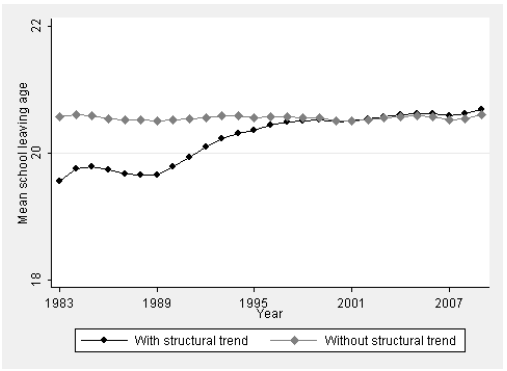
(e) 20 years



(f) 22 years



(g) 24 years

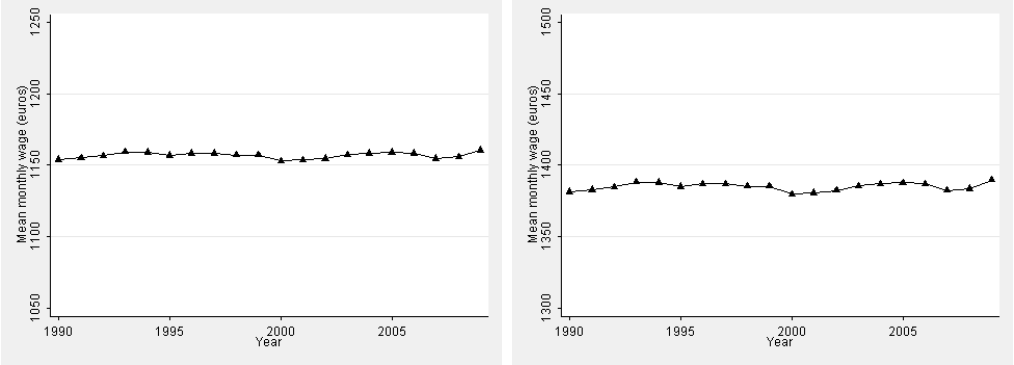


(h) Mean age

Note: confidence intervals are not calculated.

Using the school-leaving age distribution we compute the mean wage for one years and five years of potential experience, from 1990 to 2009 and for full-time workers (see Figure 4). We find that the differences in the wages paths are very weak (not more than 15 euros in monthly wage between 2 years).

Figure 4: Simulations: Annual evolutions of the mean wage, French case, year 1990-2009



(a) 1 potential experience year (b) 5 potential experience year

Note: confidence intervals are not calculated. The mean monthly wage is calculated on full-time jobs

8 Conclusion

We find that the school-leaving age in France is endogenous to the business cycle, but the negative effect of unemployment on school leaving decision is quite small. Our results are consistent with the literature on other countries. Finding similar results for countries with very different educational system would favor the idea that students make their school-leaving decision "once-for-all" (Card and Lemieux, 2001)

Our results suggest that many students don't have incentive to stay at school even if unemployment rate is very high. They know their scholar abilities and can anticipate if they will have success the coming year. If they cannot obtain a higher degree or use an additional education year to improve their productivity and their future wage, they won't benefit from staying one more year at school. The opportunity cost of one more education year is too high for them and they will prefer to enter into the labor market even if they are unemployed (because of professionalisation training process or help for job search).

Moreover, our results also suggest that credit constraints is not the most important factor in the relationship between the economic cycle and the choice of leaving school. This is consistent with the fact that in France education costs are quite low, particularly when comparing with US ones.

Finally, students react quite little to changes in economic conditions. Comparing

cohorts of young people entering into the labor market in different economic conditions without controlling for selection is thus not likely to induce large bias in estimations comparing labor market entry cohorts.

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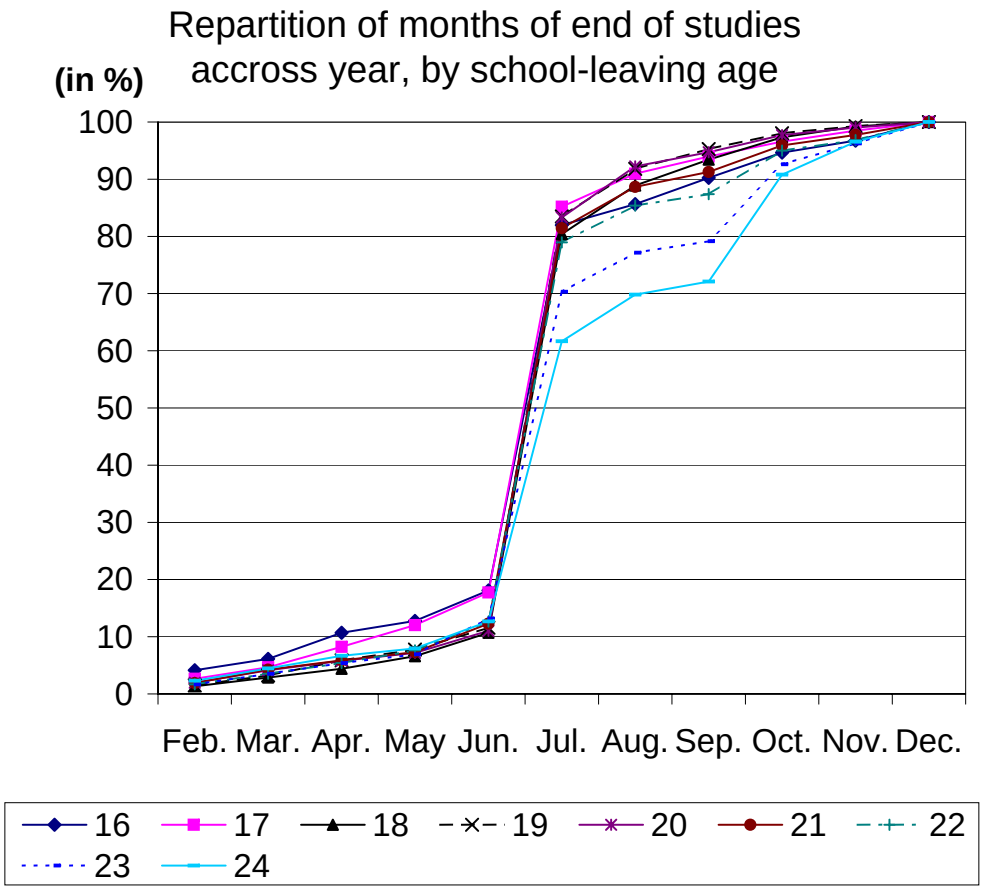
A Appendix: Most students leave school during the third quarter



Source: Survey "Generation" Cereq, 1998

B Appendix: Main model with agregated data

Table 6: OLS regression of the choice of leaving school on unemployment (agregated data)

	16 years	17 years	18 years	19 years	20 years
15-24 years Unemployment	-0.042	-0.121***	-0.131**	-0.134*	-0.283***
	(0.038)	(0.041)	(0.063)	(0.068)	(0.084)
Lag of 15-24 years Unemployment	0.008	0.019	0.069	0.148**	0.264***
	(0.039)	(0.042)	(0.064)	(0.070)	(0.086)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1992	1991	1992	1993	1993
Prob. of leaving school (%)					
when unemployment rises	4.002	3.141	9.729	11.240	16.778
from 18% to 25%	(0.253)	(0.275)	(0.420)	(0.459)	(0.565)
when unemployment drops	4.421	4.354	11.039	12.575	19.608
from 18% to 15%	(0.174)	(0.189)	(0.290)	(0.318)	(0.392)
Diff. of prob.	0.419	1.213***	1.310**	1.335*	2.830***
	(0.377)	(0.412)	(0.627)	(0.683)	(0.841)
N	27	27	27	27	27

	21 years	22 years	23 years	24 years	All years
15-24 years Unemployment	-0.057	-0.185**	-0.283**	-0.061	-0.184
	(0.099)	(0.089)	(0.121)	(0.175)	(0.327)
Lag of 15-24 years Unemployment	0.124	0.388***	0.204	-0.045	0.144
	(0.102)	(0.089)	(0.125)	(0.182)	(0.333)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1993	2003	1999	1996	
Prob. of leaving school (%)					
when unemployment rises	19.792	22.878	29.863	37.376	
from 18% to 25%	(0.667)	(0.652)	(0.924)	(1.213)	
when unemployment drops	20.361	24.727	32.697	37.984	
from 18% to 15%	(0.463)	(0.418)	(0.605)	(0.840)	
Diff. of prob.	0.569	1.849**	2.834**	0.608	
	(0.993)	(0.887)	(1.211)	(1.749)	
N	27	27	27	27	243

* p<0.10, ** p<0.05, *** p<0.01

C Appendix: Main model with non-weighted data

Table 7: Logistic regression of the choice of leaving school on unemployment (non-weighted data)

Odd-ratio	16 years	17 years	18 years	19 years	20 years
15-24 years Unemployment	0.986***	0.977***	0.982***	0.987***	0.982***
	(0.005)	(0.008)	(0.006)	(0.005)	(0.005)
Lag of 15-24 years Unemployment	1.009	1.007	1.012*	1.014***	1.014***
	(0.007)	(0.008)	(0.006)	(0.005)	(0.005)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1992	1991	1992	1993	1993
Prob. of leaving school (%)					
when unemployment rises	3.904	3.454	9.620	11.402	17.024
from 18% to 25%	(0.136)	(0.193)	(0.350)	(0.341)	(0.482)
when unemployment drops	4.482	4.320	11.359	12.812	19.740
from 18% to 15%	(0.141)	(0.159)	(0.262)	(0.252)	(0.381)
Diff. of prob.	0.578***	0.866***	1.740***	1.410***	2.716***
	(0.205)	(0.298)	(0.558)	(0.512)	(0.746)
N	286270	260753	238637	190524	152679

Odd-ratio	21 years	22 years	23 years	24 years	All ages
15-24 years Unemployment	0.991*	0.992**	0.990**	0.998	0.985***
	(0.005)	(0.004)	(0.005)	(0.007)	(0.004)
Lag of 15-24 years Unemployment	1.011**	1.019***	1.005	0.998	1.009**
	(0.004)	(0.005)	(0.005)	(0.007)	(0.004)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1993	2003	1999	1996	1991
Prob. of leaving school (%)					
when unemployment rises	19.286	23.146	30.372	37.527	
from 18% to 25%	(0.528)	(0.533)	(0.752)	(1.104)	
when unemployment drops	20.719	24.657	32.503	37.966	
from 18% to 15%	(0.391)	(0.410)	(0.445)	(0.761)	
Diff. of prob.	1.434*	1.511**	2.131**	0.440	
	(0.763)	(0.725)	(0.998)	(1.593)	
N	110994	80598	55629	35378	1411462

* p<0.10, ** p<0.05, *** p<0.01

Note: standard errors clustered at the year level are in parenthesis.

D Appendix: Result by sex

Table 8: Men: Logistic regression of the choice of leaving school on unemployment

Odd-ratio	16 years	17 years	18 years	19 years	20 years
15-24 years Unemployment	0.985**	0.970***	0.987*	0.988*	0.985***
	(0.007)	(0.009)	(0.007)	(0.007)	(0.006)
Lag of 15-24 years Unemployment	1.010	1.014	1.002	1.009	1.020***
	(0.009)	(0.010)	(0.007)	(0.007)	(0.005)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1992	1991	1992	1993	1993
Prob. of leaving school (%)					
when unemployment rises	4.421	3.671	11.734	12.877	18.457
from 18% to 25%	(0.213)	(0.246)	(0.441)	(0.458)	(0.601)
when unemployment drops	5.129	4.897	13.105	14.262	20.908
from 18% to 15%	(0.186)	(0.189)	(0.393)	(0.410)	(0.520)
Diff. of prob.	0.708**	1.226***	1.371*	1.385*	2.451***
	(0.326)	(0.367)	(0.750)	(0.814)	(0.919)
N	141215	127351	115520	89850	71189

Odd-ratio	21 years	22 years	23 years	24 years	All ages
15-24 years Unemployment	0.999	0.989	0.985**	1.002	0.989**
	(0.007)	(0.007)	(0.007)	(0.010)	(0.004)
Lag of 15-24 years Unemployment	1.003	1.027***	1.016**	0.989	1.010**
	(0.007)	(0.007)	(0.008)	(0.012)	(0.004)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1993	2003	1999	1996	1991
Prob. of leaving school (%)					
when unemployment rises	20.827	22.729	28.729	37.996	
from 18% to 25%	(0.728)	(1.001)	(1.133)	(1.569)	
when unemployment drops	21.056	24.662	32.031	37.457	
from 18% to 15%	(0.638)	(0.489)	(0.643)	(0.916)	
Diff. of prob.	0.229	1.932	3.301**	-0.539	
	(1.133)	(1.271)	(1.460)	(2.238)	
N	51108	37140	25945	16840	676158

* p<0.10, ** p<0.05, *** p<0.01

Note: standard errors clustered at the year level are in parenthesis.

Table 9: Women: Logistic regression of the choice of leaving school on unemployment

Odd-ratio	16 years	17 years	18 years	19 years	20 years
15-24 years Unemployment	0.987**	0.965***	0.974***	0.982**	0.979***
	(0.006)	(0.010)	(0.007)	(0.007)	(0.007)
Lag of 15-24 years Unemployment	1.003	1.008	1.020***	1.017**	1.013**
	(0.008)	(0.011)	(0.008)	(0.008)	(0.007)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1992	1991	1992	1993	1993
Prob. of leaving school (%)					
when unemployment rises	3.311	2.749	7.596	9.729	15.487
from 18% to 25%	(0.116)	(0.212)	(0.337)	(0.493)	(0.630)
when unemployment drops	3.762	3.888	9.628	11.443	18.452
from 18% to 15%	(0.155)	(0.141)	(0.287)	(0.263)	(0.563)
Diff. of prob.	0.451**	1.139***	2.032***	1.713**	2.965***
	(0.225)	(0.300)	(0.560)	(0.645)	(1.045)
N	145055	133402	123117	100674	81490

Odd-ratio	21 years	22 years	23 years	24 years	All ages
15-24 years Unemployment	0.994	0.990	0.989	0.993	0.985***
	(0.008)	(0.009)	(0.007)	(0.014)	(0.004)
Lag of 15-24 years Unemployment	1.011*	1.017*	1.004	1.005	1.010**
	(0.007)	(0.009)	(0.007)	(0.013)	(0.004)
Trend	Yes	Yes	Yes	Yes	Yes
break	1993	2003	1999	1996	1991
Prob. of leaving school (%)					
when unemployment rises	18.904	23.025	30.823	36.904	
from 18% to 25%	(0.933)	(1.096)	(1.137)	(1.964)	
when unemployment drops	19.841	24.839	33.290	38.486	
from 18% to 15%	(0.465)	(0.751)	(0.585)	(1.561)	
Diff. of prob.	0.937	1.814	2.467	1.583	
	(1.262)	(1.614)	(1.526)	(3.230)	
N	59886	43458	29684	18538	735304

* p<0.10, ** p<0.05, *** p<0.01

Note: standard errors clustered at the year level are in parenthesis.

E Appendix: Results by father occupation

Table 10: Father with a low social background: Logistic regression of the choice of leaving school on unemployment

Odd-ratio	16 years	17 years	18 years	19 years	20 years
15-24 years Unemployment	0.983**	0.959***	0.980***	0.980***	0.982**
	(0.008)	(0.013)	(0.006)	(0.008)	(0.008)
Lag of 15-24 years Unemployment	1.007	1.014	1.010	1.013*	1.017**
	(0.009)	(0.012)	(0.006)	(0.008)	(0.007)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1992	1991	1992	1993	1993
Prob. of leaving school (%)					
when unemployment rises	5.072	4.160	13.307	15.205	22.971
from 18% to 25%	(0.218)	(0.459)	(0.457)	(0.709)	(0.962)
when unemployment drops	5.948	6.216	15.760	17.942	26.289
from 18% to 15%	(0.253)	(0.254)	(0.378)	(0.408)	(0.623)
Diff. of prob.	0.876**	2.056***	2.453***	2.737***	3.318**
	(0.441)	(0.610)	(0.779)	(1.033)	(1.407)
N	142085	126394	113329	84431	63624

Odd-ratio	21 years	22 years	23 years	24 years	All ages
15-24 years Unemployment	0.994	0.995	0.993	0.974	0.983***
	(0.007)	(0.005)	(0.008)	(0.016)	(0.004)
Lag of 15-24 years Unemployment	1.010	1.017**	0.998	1.022	1.012**
	(0.006)	(0.007)	(0.008)	(0.014)	(0.005)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1993	2003	1999	1996	1991
Prob. of leaving school (%)					
when unemployment rises	26.320	28.740	34.913	35.666	
from 18% to 25%	(0.936)	(0.895)	(1.419)	(2.298)	
when unemployment drops	27.411	29.863	36.596	41.807	
from 18% to 15%	(0.689)	(0.512)	(0.760)	(1.760)	
Diff. of prob.	1.091	1.123	1.683	6.141	
	(1.380)	(1.116)	(1.758)	(3.776)	
N	41772	27782	17805	10813	628035

* p<0.10, ** p<0.05, *** p<0.01

Note: standard errors clustered at the year level are in parenthesis.

Table 11: Father with a high social background: Logistic regression of the choice of leaving school on unemployment

Odd-ratio	16 years	17 years	18 years	19 years	20 years
15-24 years Unemployment	0.993	0.976**	0.990	1.006	0.979***
	(0.009)	(0.011)	(0.010)	(0.007)	(0.006)
Lag of 15-24 years Unemployment	1.009	1.020*	1.005	0.994	1.022***
	(0.013)	(0.012)	(0.010)	(0.009)	(0.006)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1992	1991	1992	1993	1993
Prob. of leaving school (%)					
when unemployment rises	1.165	1.158	4.349	6.268	9.147
from 18% to 25%	(0.086)	(0.086)	(0.345)	(0.281)	(0.367)
when unemployment drops	1.249	1.471	4.776	5.951	11.120
from 18% to 15%	(0.079)	(0.081)	(0.135)	(0.208)	(0.277)
Diff. of prob.	0.084	0.312**	0.426	-0.317	1.973***
	(0.103)	(0.143)	(0.424)	(0.394)	(0.536)
N	84799	80137	75144	65908	56652

Odd-ratio	21 years	22 years	23 years	24 years	All ages
15-24 years Unemployment	1.001	0.986	1.001	1.007	0.996
	(0.004)	(0.009)	(0.007)	(0.007)	(0.004)
Lag of 15-24 years Unemployment	1.005	1.023***	1.004	0.993	1.006
	(0.005)	(0.008)	(0.008)	(0.006)	(0.004)
Trend	Yes	Yes	Yes	Yes	Yes
Break	1993	2003	1999	1996	1991
Prob. of leaving school (%)					
when unemployment rises	12.315	17.028	28.096	37.211	
from 18% to 25%	(0.347)	(0.862)	(0.898)	(1.274)	
when unemployment drops	12.163	19.054	27.925	35.632	
from 18% to 15%	(0.241)	(0.536)	(0.718)	(0.492)	
Diff. of prob.	-0.152	2.027	-0.171	-1.580	
	(0.465)	(1.267)	(1.314)	(1.508)	
N	45919	36192	26634	17468	488853

* p<0.10, ** p<0.05, *** p<0.01

Note: standard errors clustered at the year level are in parenthesis.