

Baccalaureate Tracks and Employment at the End of Education: Contribution of the Educational Pathway and Analysis of Gender Gaps

Estelle Herbaut, Carlo Barone, Louis-André Vallet

▶ **To cite this version:**

Estelle Herbaut, Carlo Barone, Louis-André Vallet. Baccalaureate Tracks and Employment at the End of Education: Contribution of the Educational Pathway and Analysis of Gender Gaps. Economie et Statistique / Economics and Statistics, 2022, (530-31), pp.61-81. 10.24187/ecostat.2022.530.2065 . hal-03809771

HAL Id: hal-03809771

https://sciencespo.hal.science/hal-03809771

Submitted on 10 Oct 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - NonCommercial - NoDerivatives 4.0 International License

Baccalaureate Tracks and Employment at the End of Education: Contribution of the Educational Pathway and Analysis of Gender Gaps

Estelle Herbaut*, Carlo Barone* and Louis-André Vallet**

Abstract – The aim of this article is to identify the consequences of the stream followed in high school on the professional opportunities of baccalaureate holders at the beginning of their career. By combining the 1995 panel of secondary level pupils with the survey on entry into adult life, we are able to identify the effects that grouping pupils by track at secondary level has on the early stages of their professional careers. This rich database allows us to account for this grouping of different students in different streams. A mediation analysis makes it possible to estimate the extent of the divergence in trajectories according to the stream, whether or not the baccalaureate holders continued their studies. The results highlight the importance of taking into account the characteristics of students prior to orientation when comparing the early career opportunities of baccalaureate holders. Mediation analysis also allows us to identify a complex dynamic between academic skills and levels of qualification, which tends to partially conceal inequalities between women and men at the beginning of their careers, whereas the track of the baccalaureate obtained tends to explain them.

JEL Classification: I26, J16
Keywords: baccalaureate, tracks, early career, gender inequality

** Observatoire sociologique du changement (OSC), Sciences Po (estelle.herbaut@sciencespo.fr); **CNRS-OSC, Sciences Po (at the time of writing)*

This work was carried out as part of the "Life-course dynamics of educational tracking" (LIFETRACK) project. This project has received funding from the French National Research Agency (ANR) as part of a joint NORFACE research project entitled "Dynamics of Inequality across the Life Course (DIAL)", which is co-financed by the European Commission via the Horizon 2020 initiative (Grant No.462-16-020). The authors would like to thank two anonymous reviewers whose comments and suggestions helped to improve this article.

Received in August 2020, accepted in April 2021. Translated from "Filières du baccalauréat et emploi à la fin des études : contribution des parcours scolaires et analyse des écarts entre femmes et hommes"
The opinions and analyses presented in this article are those of the author(s) and do not necessarily reflect their institutions' or Insee's views.

Citation: Herbaut, E., Barone, C. & Vallet, L.-A. (2022). Baccalaureate Tracks and Employment at the End of Education: Contribution of the Educational Pathway and Analysis of Gender Gaps. *Economie et Statistique / Economics and Statistics*, 530-31, 61–81. doi: 10.24187/ecostat.2022.530.2065

Education systems can be distinguished by an organisation that differentiates education by streaming pupils to a greater or lesser extent: in some systems, pupils are grouped into tracks at an earlier or later stage; in others, more unified, they are grouped only for certain courses and on an ad hoc basis (Lafontaine, 2017). While various research projects have identified the consequences of education tracks on education and schooling (Felouzis *et al.*, 2011; Hanushek & Wößmann, 2006; Holm *et al.*, 2013), analyses of the consequences on employment opportunities in the longer term are rare (Brunello & Checchi, 2007).

In France, this grouping of pupils in distinct education tracks takes place at the entry in high school, with all tracks leading to the baccalaureate. Several works describe the effect of the track chosen by the students leaving secondary education, and especially vocational education (Arrighi & Sulzer, 2012; Dauty & Lemistre, 2010). More recently, the impact of intermediate-level qualifications on integration into the labour market, for given final qualifications, has also been analysed (Béduwé *et al*., 2009; Dauty & Lemistre, 2010; Lemistre & Merlin, 2018; Ménard, 2020). While these works show the importance in the long-term of the baccalaureate track chosen, they do not allow an assessment of the extent of the divergences in paths depending on the secondary education track. To analyse the link between the track chosen in secondary education and integration into the labour market, it is necessary to look at the professional future of all baccalaureate holders, not only those leaving education at this level. Indeed, the track chosen during secondary education also influences the professional career as it is an important determinant of access to higher education and of the greater or lesser probability of obtaining a degree.

This article analyses the consequences of the choice of education track (i.e. stream and specialty)[1] made at high school, taking into account not only the type of baccalaureate (general, technological or vocational) but also the specialty. Contrary to the majority of French studies into these issues, but in keeping with the emerging international literature on the consequences of the educational choices made in secondary education, we seek to identify the effects of these choices for all baccalaureate holders, irrespective of whether or not they continued their studies in higher education.

Each baccalaureate track has pupils with common characteristics in terms of academic performance, social or migratory background (Ichou & Vallet, 2013; Duru-Bellat & Kieffer, 2008). In order to assess the impact of the track chosen on the professional future of baccalaureate holders, we must control for social and academic characteristics of the pupils before the choice of an education track.

We also analyse the link between the baccalaureate tracks and labour-market integration in order to shed light on inequalities associated with gender. Research shows that, in almost all developed countries, women today have, on average, higher educational levels than men (DiPrete & Buchmann, 2013) but still have less favourable careers and wages. In higher education, the gendered choice of track leads to occupational segregation on the labour market (Smyth & Steinmetz, 2008). But this gendered choice could begin to take effect earlier. In other words, does the track chosen in high school contribute to the gender inequalities observed at the start of working life?

After a literature review in section 1, we present in section 2 the data used as a basis for this work and our estimation approach. In section 3, we analyse the link between the tracks in secondary education and integration into the labour market taking into consideration the socio-demographic and academic differences between pupils prior to the choice of track in secondary education. Then in section 4 we analyse the differences in the outcomes of educational trajectories by gender.

1. Literature Review

1.1. The Influence of the Baccalaureate Track on Employment Opportunities

The link between the track chosen during secondary education and integration into the labour market depends on several mechanisms (Birkelund *et al.*, 2021). Firstly, the different secondary-level tracks are very hierarchical and group together pupils who differ widely in terms of academic performance and social characteristics (Ichou & Vallet, 2013; Duru-Bellat & Kieffer, 2008). These characteristics influence their trajectories once they reach higher education (Lemistre & Ménard, 2019) and, therefore, have a potential impact on their integration into the labour market. While the most prestigious tracks are associated with better employment

1. In France, in the period analysed here, there were 3 streams of secondary education, leading to 3 types of baccalaureate (general, technical and vocational), and several series (3 in the general stream, 8 in the technical stream and more in the vocational stream) based on the specialty (e.g. within the general stream: S for 'scientific', L for 'literature' and ES for 'economic-social').

opportunities, this is not necessarily an effect of the track itself but may reflect the fact that the pupils in these tracks have, even before being guided towards a particular pathway, common characteristics that favour their labour-market integration. This could create a spurious association between the track chosen and employment opportunities; this is one of the recurrent methodological challenges in the literature seeking to identify the specific effect of education tracks (Gamoran, 2010).

Secondly, the choices made during secondary education are likely to have considerable consequences on professional careers due to the path dependence mechanism (Kerckhoff, 1993). The educational system is cumulative in nature and some tracks are better in preparing students for academic achievement in higher education and access to the most prestigious qualifications. We can therefore expect higher education and the qualification obtained through this to play a considerable mediating role in the association between the baccalaureate track and labour market integration.

Lastly, the track chosen in secondary education has a specific effect on labour-market integration. Several theories can explain the causal link between the education track and employment opportunities. The human capital approach (Becker, 1964) focuses on the skills developed in each education pathway, which would generate greater or lesser productivity gains and, in doing so, determine the value of the qualifications on the labour market. The distinction between general skills and specific skills can lead to other hypotheses. Skills gained from vocational training, specific to a task or meeting the needs of a company via work-study contracts or internships, and which are specific and immediately available on the labour market, are said to be of greater value than general skills (Wasmer, 2006; Rözer & Bol, 2019). However, employees may initially prioritise cross-disciplinary skills. For example, according to the job competition model (Thurow, 1975), employers primarily value the abilities to adapt and to learn, skills that may be better developed in the general tracks than in the vocational ones. The assignment theory (Sattinger, 1993) highlights the multiplicity of tasks in each job and the heterogeneity of the skills of each individual, which makes the process for assigning individuals to different jobs complex and only partially dependent on academic qualifications.

Conversely, the filter theory (Arrow, 1973) and the signalling theory (Spence, 1974) hypothesise that education does not have an influence on productivity as such, but that qualifications reveal employers individual skills that are not easily observed during a job interview. This function of the educational system implies that the labour market assigns lesser value to qualifications obtained via the vocational route at high school because the tracks within that route generally involve young people with poorer academic results (Ichou &Vallet, 2013). From the perspective of social reproduction, based on the work of Bourdieu, the general route is also seen as bringing together pupils with the highest cultural capital (Bourdieu & Passeron, 1964; 1970). This could therefore promote a socialisation that would develop familiarity with the culture and the conventions of the ruling class, a familiarity that would be valuable in accessing managerial positions.

Finally, the wealth of literature on the issue of downgrading (e.g. Baudelot & Glaude, 1989; di Paola & Moullet, 2018; Doazan & Eckert, 2014; Lemistre, 2003) shows that the value assigned to a qualification on the labour market also depends on the balance between the demand for a skill level or type on the labour market and the corresponding number of people holding that qualification. It also highlights the importance of the economic context and of cyclical effects when interpreting the returns to various qualifications (di Paola *et al*., 2018).

In the case of France, few empirical studies have assessed the consequences of grouping pupils into tracks in secondary education on their educational and professional paths. Without empirically isolating the effect of each of the mechanisms presented above, our contribution to the literature is twofold. Firstly, we examine the consequences of educational choices in secondary education on employment opportunities: here, we consider the academic performance and socio-demographic characteristics of the pupils, prior to making those educational choices. Secondly, we assess the mediating role of higher education, which is a consequence of the cumulative nature of academic pathways.

1.2. Professional Inequalities Between Men and Women

The opening up of education over the last decades has had a much greater impact for women, whose average level of qualification has now exceeded that of men (Baudelot & Establet, 1992; Bouchet-Valat, 2015). The standardised assessments throughout schooling also show that girls have better performance in France and that

this advantage has become more pronounced over the last few years, while the advantage for boys in maths has reduced (Chabanon & Steinmetz, 2018). However, this progression in girls' academic results has not translated into wage equality. In particular, research had shown that, from the early 1990s to the early 2000s, the gap in average monthly wage between men and women in France had been stagnating at around 25% (Meurs & Ponthieux, 2006). According to the authors, 75% of these wage gaps could be explained by differences in qualification and characteristics of the job held. Structural differences in the types of jobs held can be explained by gender segregation on the labour market. The distribution of men and women across the different sectors is unequal, with the highest concentration of women in the lowest-paying sectors, for example the public sector or personal services, which contributes to the wage gaps (Couppié *et al.*, 2012; Meng & Meurs, 2001). This occupational segregation largely reflects academic segregation, even though a specific occupational segregation mechanism at the early career stage is modulating the segregation seen in the final stages of education (Couppié & Épiphane, 2006). The arrival of a child also contributes to wage inequalities as this leads to changes to mothers' working time (Pailhé & Solaz, 2006; Meurs & Pora, 2019). However, the links between professional segregation and gender pay gaps are not identical across all professions (Couppié *et al*., 2012; 2014). These results show that professional gender inequalities are linked, in part, to the study choice made in the education system. Despite the convergence in skill levels in maths and science, the educational choices made while in school continue to be gender-based, both in general education as in technological and vocational education, where production-based tracks primarily attract boys and service-sector tracks primarily attract girls (Caille *et al.*, 2002; Vouillot, 2010). It is therefore particularly important to assess the impact of these educational choices made in high school on employment opportunities at the end of education and their contribution to gender inequalities (see Section 4).

2. Data and Approach

The first aim of this article is to identify the consequences of the educational choices made in secondary education on the employment opportunities of baccalaureate holders, by isolating the contribution of their characteristics before those choices and the mediating role of higher education, i.e. the educational path dependence mechanism. We also examine the contribution of secondary school track to gender inequalities at the beginning of working life, taking into account academic performance before streaming.

We use the data from the *Panel d'élèves du second degré, recrutement 1995*[2] (hereafter Panel 1995 – a panel of the French ministry of education statistical services, DEPP, following the pupils entering secondary education in 1995), combined with data on integration into the labour market from the INSEE survey *Entrée dans la vie adulte* (EVA, a survey on entry into adult life).

We are focusing on baccalaureate holders, whether they have or not continued their studies in higher education, and on the first job they reported in the EVA survey, which does not always correspond to the first job held by the individual after their studies (*infra*). This allows us to cover the largest possible situations in terms of education path. We model the link between the track of the baccalaureate obtained and two variables characterising professional integration at the beginning of working life: holding a job in the executive or intermediate categories and the net monthly salary received. The independent and dependent variables used in the analysis are available for 5,090 out of the 7,101 baccalaureate holders who reported a job in the EVA survey. The characteristics of individuals with or without missing data are relatively similar in terms of social background or academic results on starting middle school and we have checked that imputing missing data changed the results only marginally.

We first present our data in more detail, our modelling approach and then some descriptive statistics on our sample of baccalaureate holders.

2.1. The Data

The Panel 1995 from the DEPP monitored about 17,000 pupils starting secondary school in 1995 throughout their secondary education and, for those going further, into their higher education, until the end of their studies or the achievement of a degree equivalent to 5 years of higher education (Bac+5). Between 2005 and 2012, those who had completed their studies were interviewed every year about their labour-market integration; those leaving higher education were transferred to the EVA sample in the year following that in which they reported having stopped their studies.

2. Panel d'élèves du second degré, recrutement *1995 - 1995-2006. Ministère de l'Éducation, DEPP (producteur), ADISP (diffuseur).*

This therefore provides extremely rich data to study the links between academic career and integration into the labour market. This is currently the only French database enabling us to take into account the academic performance before the choice of educational track and the social background in such a detailed way; this is particularly interesting to account for the effects of differences prior to educational choices. However, with a few exceptions (Le Rhun & Monso, 2015; Olympio & di Paola, 2018), research into labour market integration in France uses rather Céreq's "Generation" surveys. This can be explained by the complexity and methodological limits of the EVA survey.

Indeed, the young people followed in the EVA survey, who have all started secondary education during the same year, have not all finished their studies the same year. Those leaving education are then not interviewed at the same point of their labour-market integration: for example, a pupil leaving without a qualification in 2000 is, at the time of the survey, i.e. between 2005 and 2012, out of the education system for between 5 and 12 years. Conversely, a student who obtained a Master's in 2008 would be transferred to the EVA survey the year after, and interviewed for the first time in 2010; the information on their labour-market integration then corresponds to their very first years in the world of work. As a result, the first job reported in the EVA survey is closer to the end of education for those with higher education qualifications than for those leaving at the end of secondary education.

In order to limit the heterogeneity of the time spent on the labour market, and in possibly in employment, after the end of education, we focus on baccalaureate holders. On average in our sample, 2.4 years (with a standard error of 1 year) pass between leaving the education system and the first job reported in the EVA survey (see Appendix 1, Table A1-1).

2.2. The Modelling Approach and Variables

In order to analyse the link between the track of the baccalaureate obtained and labour market integration, we start by the estimation of the total association between baccalaureate track and labour-market integration, then we introduce in sequence variables aimed to capture the effect of students characteristics prior to the choice of track (social background and academic performance in lower secondary education), then the academic performance at the end of upper secondary education and the highest degree achieved in higher education, in the framework of a mediation analysis. This type of analysis (sometimes referred to as a pathway model) makes it possible to estimate both the direct effect of a variable X (in this case, the stream followed in high school) on an outcome Y (in this case, successively the two variables characterising the first job reported in the EVA survey) and its indirect effect via a mediating variable.

We must point out that this approach is not in line with the literature on returns to qualifications, which distinguishes between the effect of the baccalaureate as a final or as an intermediate qualification. This approach is of particular interest in identifying the long-term effects of the baccalaureate track where final qualifications are equivalent (Ménard, 2020). However, it does not allow us to distinguish within the effects of the tracks those related to the students' characteristics prior to making educational choices and those related to path dependence in higher education, which are the focus of this article.

The baccalaureate track is approached by nine categories combining the baccalaureate stream (general, technological and vocational) and the series or specialty within each of them. For vocational baccalaureate, we group the specialties into three tracks, in order to ensure a sufficient number of observations in each one: an "industrial" track, a "trade and administration" track (for example, secretarial, management, accounting, etc.) and a "health, social and services" track. In the same way, for technological baccalaureates, we regroup the "industrial and technical" tracks (STI and STL, respectively), the "trade and administration" tracks (STT) and the "health, social and services" tracks (SMS and hotel industry). For general baccalaureates, we retain the three series: scientific (S), economic and social (ES) and the literary (L).

For each of our dependent variables, we estimate models of linear regression, including for the probability of access to a job in a managerial or intermediate category; in this case, with robust standard errors in heteroscedasticity. The linear regression was preferred over logistic modelling in order to avoid logistic coefficient and odds ratio comparison issues between nested models (Mood, 2010). We start by estimating the total association between the baccalaureate obtained and our two dependent variables that characterise the first job reported in the EVA survey (model 1 in Section 3). We then add in sequence the variables that may contribute indirectly to the effect of the baccalaureate track on employment opportunities: firstly the

students characteristics before the choice of track, distinguishing socio-demographic characteristics (model 2) and performance on leaving middle school (model 3) to assess the effect of the pupil's characteristics before making their educational choices.

The socio-demographic variables controlled for are: the student's gender, the parents' level of education (defined as the highest qualification obtained between the two parents), the socio-professional category of the household reference person, the parents' country of origin (France or abroad) and the urban unit of the secondary school on starting secondary education (less than 20,000 inhabitants, between 20,000 and 200,000 inhabitants, city over 200,000 inhabitants excluding Paris, and the Paris region). The academic performance prior the choice of track is approached through the average of the grades obtained in French and maths in the continuous assessment for the French certificate of general education (*Diplôme national du brevet*, obtained at the end of lower secondary education).

We then add the baccalaureate honours, which depends on the average of all the grades obtained (model 4) to estimate the effect of the performance at the end of secondary education. Finally, to assess the importance of the path dependence mechanism, we introduce the highest degree achieved in higher education (model 5). The highest qualification in higher education is defined with the following modalities: no higher education degree, 2 years of higher education, Bachelor's degree, baccalaureate+4/5 years at university, qualification from a *Grande école*.[3]

In this last sequence, since the first job reported in the EVA survey is more or less close to the end of education depending on the final highest qualification (*supra*), we must ensure that the effects of these qualifications are definitely due to the latter and not to the differences in the number of years spent on the labour market, age or economic situation at the time of entry. We then estimate a model 5bis in which we control for the age and year at the time of first reporting a job in the EVA survey, and the time elapsed (in years) since leaving the education system.

The comparison of the coefficients of the baccalaureate tracks from models 1 to model 5 allow us to identify the contribution of each additional variable to the association between the baccalaureate track and the dependant variable. For example, if the estimated coefficient of a baccalaureate track is reduced by adding a variable, this means that this variable contributes to the effect of the track (role of mediation). Conversely, if the coefficient is increased by adding a variable, this means that this variable is helping to "conceal" that gap (role of moderation or even suppression). A reduction in the coefficient between model 1 and model 2 (with the introduction of socio-demographic characteristics) or model 3 (introduction of the academic performance at the end of middle school) would indicate that the differences initially observed between the tracks result in fact from the differences between students in the different tracks. A reduction in the coefficient in model 4 would indicate that differences in academic performance at the end of high school contribute to the differences observed between tracks. A reduction in the coefficient in model 5 indicates, conversely, that the effect of the baccalaureate corresponds to a mechanism of path dependence. The results of this last model also allow us to estimate the effect of the track itself on the baccalaureate, for given final qualification. This last model is therefore the closest point of comparison with the literature on return on qualifications.

The approach to assess the contribution of the secondary education tracks to gender inequalities at the start of working life (Section 4) follows the same logic, but the first model estimate the total association between gender (controlling for social background, parents' country of origin and urban unit of the secondary school on starting secondary education) and the two variables of outcome, and we introduce separately the education stream and the baccalaureate specialty or series. We then sequentially add the explanatory variables to observe the effect of their inclusion on the gender variable coefficient: the academic performance at the end of middle school is added to model 2, then the stream (general, technological or vocational) chosen in secondary education in model 3, the specific track of the baccalaureate obtained in model 4, the performance at the end of secondary education in model 5 and finally the qualification achieved in higher education (model 6).

2.3. First Descriptive Elements on the Characteristics of Baccalaureate Holders and First Jobs by Track

The socio-demographic profiles and academic performance of the baccalaureate holders differ considerably by baccalaureate stream and track (Table 1). The proportion of pupils who have at least one parent with a higher education qualification varies between 5% among holders

3. Doctorate is not in the scope of the EVA survey, which stops before doctorate holders enter the labour market.

Table 1 – **Characteristics of baccalaureate holders**

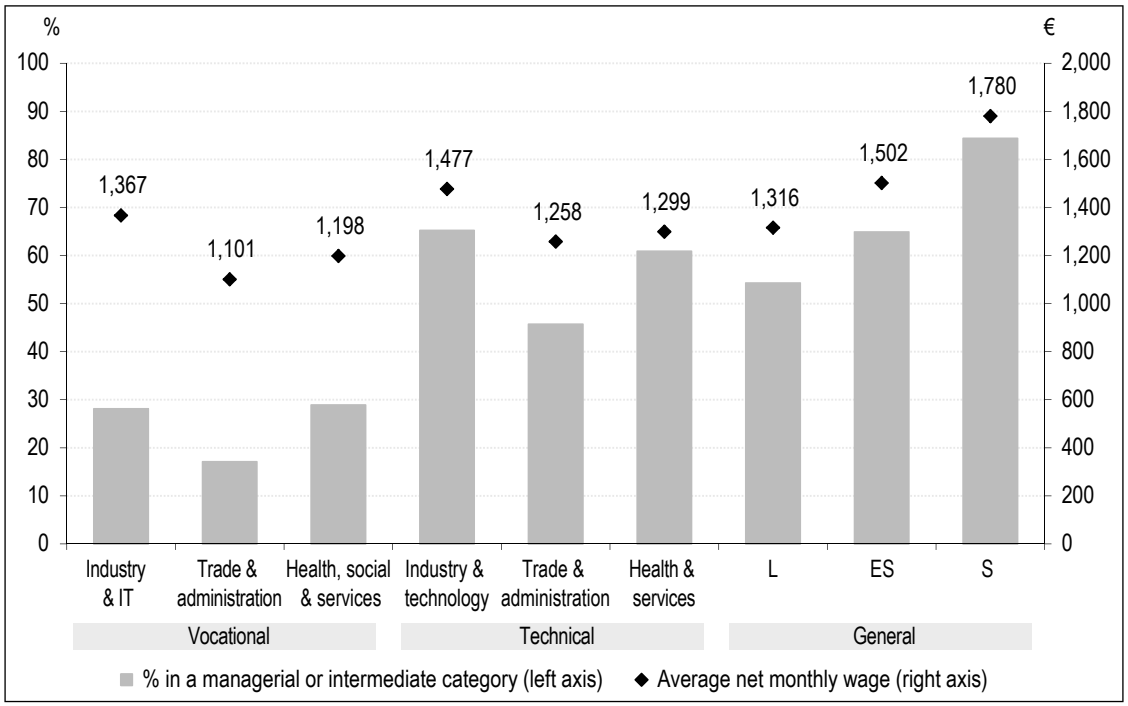
	One parent with higher education qualification		One parent in a managerial position		Both parents born abroad		Starting secondary education in a small town		Girls		Average grade (/20) at the end of middle school	Number of obs.
	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*		
Voc. Industry & IT	12.7	42	4.5	15	4.5	15	48.6	161	8.8	29	9.6	331
Voc. Trade & administration	5.3	11	2.4	5	12.4	26	43.1	90	80.4	168	9.1	209
Voc. Health, social & services	9.6	18	5.3	10	10.1	19	41.0	77	55.9	105	9.5	188
Tech. Industry & technology	24.5	122	12.4	62	5.4	27	40.0	199	12.2	61	11.1	498
Tech. Trade & administration	18.5	135	10.8	79	10.8	79	41.7	304	68.2	497	10.9	729
Tech. Health & services	18.3	39	8.9	19	5.6	12	38.0	81	89.2	190	10.8	213
General L	38.8	198	24.1	123	4.3	22	36.1	184	86.3	440	12.4	510
General ES	36.0	331	23.2	213	6.1	56	36.9	339	71.5	657	12.6	919
General S	52.2	780	34.6	516	3.8	57	34.4	513	47.6	710	14.0	1,493
Total	32.9	1,676	20.5	1,042	6.1	313	38.3	1,948	56.1	2,857	12.1	5,090

Notes: *N* corresponds to the number of people in the study sample.
Reading Note: 12.7% of holders of vocational "manufacturing & IT" baccalaureates (*N*=331) have at least one parent with a higher education qualification.
Sources and coverage: Panel 1995-EVA. Baccalaureate holders having reported a job in the EVA survey.

of vocational "trade and administration" baccalaureate and 52% among holders of general S baccalaureate. Girls are underrepresented in the industrial tracks (barely 9% of vocational baccalaureate holders and 12% of technological baccalaureate holders) and overrepresented in the "trade and administration" tracks (68% in the technological stream and 80% in the vocational stream), in the "health and services" track of the technological stream (89%) and in the L track of the general stream (86%). Finally, the average of the marks in French and maths at the end of middle school is between 9 and 10 among holders of vocational baccalaureates, while it is 14 for holders of S baccalaureate.

The category of the job at the start of the professional career varies considerably between baccalaureate streams: 74% of general baccalaureate holders are in a managerial or intermediate

Figure I – **Access to a managerial or intermediate job and average net wage at start of career by baccalaureate track**



Reading Note: Among holders of vocational "Industry & IT" baccalaureates at the start of their career, 28.1% reported a job in a managerial or intermediate category and an average monthly wage of 1,367 euros.
Sources and coverage: Panel 1995-EVA. Baccalaureate holders having reported a job in the EVA survey.

category compared with just 50% of technological baccalaureate holders and 24% of vocational baccalaureate holders, and these proportions vary also by track within each baccalaureate stream (Figure I). The same goes for the average monthly wage at career start. However, the hierarchy between the vocational, technological and general streams is less clear-cut than for access to managerial or intermediate professions; here, it is the track specialty that makes the difference.

3. The Effect of the Baccalaureate on Employment at Career Start

In relation to access to a managerial or intermediate profession at career start, the differences between the tracks within each baccalaureate stream are particularly marked (Table 2). For example, holders of vocational "trade and administration" and "health, social and services" baccalaureates are 10 and 8 percentage points (p.p.), respectively, less likely to access these professions than holders of vocational baccalaureates from the industrial tracks used as reference, while holders of technological "trade and administration" baccalaureates are 9 p.p. more likely to achieve these jobs. However, this advantage is 37 p.p. for holders of technological baccalaureates from industrial tracks and 29 p.p. for holders of baccalaureates from health and social tracks. Among those who take the general stream, those who achieve a qualification in the S series have the greatest chance of achieving this status: +55 p.p., while the effect of the L series is "only" +32 p.p. and +39 p.p. for the ES series.

The effects of socio-demographic and especially academic characteristics contribute to a significant proportion of the differences observed between the tracks (models 2 and 3). For example, for the S series of the general baccalaureate, the introduction of socio-demographic and performance variables at the end of middle school (age 14) reduces the size of the relationship by almost a quarter (model 1 *vs.* model 3).

Table 2 – **Probability of having a managerial or intermediate position at the start of working life (linear regressions)**

	Total association	+Socio-demographic variables	+Performance at end of middle school	+ Bac. honours	+ Higher education degree	
	(1)	(2)	(3)	(4)	(5) No controls	(5bis)* + Controls
Baccalaureate (*ref.*: Vocational Industry & IT)						
Voc. Trade & administration	-0.10 ***	-0.08 **	-0.07 *	-0.07 *	-0.09 **	-0.10 ***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Voc. Health, social & services	-0.08 **	-0.07 *	-0.06	-0.07 *	-0.06 *	-0.07 *
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Tech. Industry and technology	0.37 ***	0.34 ***	0.31 ***	0.34 ***	0.14 ***	0.13 ***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Tech. Trade & administration	0.09 ***	0.08 ***	0.07 **	0.10 ***	-0.05 *	-0.06 **
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Tech. Health & services	0.29 ***	0.29 ***	0.28 ***	0.31 ***	0.12 ***	0.10 ***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
General L	0.32 ***	0.29 ***	0.25 ***	0.29 ***	0.01	-0.01
	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
General ES	0.39 ***	0.35 ***	0.31 ***	0.36 ***	0.06 *	0.04
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
General S	0.55 ***	0.49 ***	0.42 ***	0.47 ***	0.15 ***	0.12 ***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Constant	0.28 ***	0.38 ***	0.21 ***	0.25 ***	0.26 ***	0.64 *
	(0.02)	(0.03)	(0.04)	(0.04)	(0.04)	(0.36)
Number of observations	5,090	5,090	5,090	5,090	5,090	5,090
R^2	0.181	0.201	0.205	0.215	0.316	0.328

* An analysis of variance inflation factors (VIF) shows that the collinearity between the year in which the job is reported and age is high. This concerns only these two control variables, and increases their standard errors. However, it does not affect the variance inflation factors of our variable of interest, i.e. the baccalaureate streams.

Note: Robust standard errors shown in brackets. Significance thresholds: 10% (*), 5% (**), 1% (***).

Reading Note: With no other control variable (model 1), holders of vocational "trade & administration" baccalaureates are 10 p.p. less likely to exercise a managerial, intellectual or intermediate profession at the start of their working life than holders of vocational "manufacturing & IT" baccalaureates, who represent the reference category.

Sources and coverage: Panel 1995-EVA. Baccalaureate holders having reported a job in the EVA survey.

A significant number of the best employment opportunities offered to S series baccalaureate holders are therefore the result of advantageous characteristics that they have even before starting high school. Conversely, the introduction of the grade honours obtained at the baccalaureate increases the estimated advantage of general baccalaureate holders by several percentage points (model 4). This can be explained by the fact that, where performance at the end of middle school is the same, pupils who take the general stream are less likely to obtain the honours at baccalaureate than those taking the vocational or technological streams. In cases of identical performance at the end of middle school and the same honours at baccalaureate, the opportunities from the general stream are therefore even better than those estimated with model 3 (suppressor role of baccalaureate honours).

Above all, it is the qualification gained in higher education that explains the greatest probability of baccalaureate holders accessing managerial or intermediate professions, as shown by the reduction in the coefficients when this variable is introduced (model 5 and 5bis, i.e. without and with controls for age, year of the job reported in the EVA survey, and labour market potential experience – cf. Section 2). In particular, the advantage for those who take the S, ES and L series of the general stream is almost entirely explained when the highest qualification obtained in higher education is taken into account (model 5 or 5bis).

Supplementary analyses (available from the authors on request) show that the field of study in higher education seems to make only a marginal difference, and primarily for holders of technological baccalaureates, while the inclusion of the characteristics of the job held does not change the estimated effects of the baccalaureate tracks. Once all the explanatory variables have been introduced, a S series baccalaureate (or a technological baccalaureate with an industrial track) provides an advantage of 10 p.p. relative to a vocational baccalaureate in an inductral track when it comes to accessing a managerial or intermediate profession. There is therefore an effect specific to the education tracks chosen at high school that persists when taking into consideration the differences in academic performance and qualification obtained in higher education.

Table A2-1 in the Appendix 2 shows the complete results of the estimation of access to a managerial or intermediate profession at career start. In relation to social background, only the parents' level of education and having started secondary school in the Paris region have a systematic impact (model 5). The results regarding the effects of academic performance show that a better average grade on leaving middle school increases the probability of having a managerial or intermediate profession at career start (model 3). However, this is entirely driven by better baccalaureate results and greater success in higher education and the average grade at the end of middle school has no longer any effect once the entire academic path has been taken into account (model 5 or 5bis).

The results on monthly wages at career start (Table 3) confirm the very considerable advantage of the industrial tracks of the vocational and technological baccalaureates. For example, holders of vocational baccalaureates from the industrial tracks have an average net monthly wage significantly higher than that of other vocational baccalaureate holders, higher than that of technological baccalaureate holders from the "trade and administration" and "health and services" tracks and of holders of general L series baccalaureates (model 1).

The S track is again in a favourable position: +27% compared to holders of vocational baccalaureates from the industrial tracks, still used as reference. This advantage can be explained by the students characteristics prior to the choice of track and the qualifications obtained in higher education. Contrary to what we saw in terms of access to a managerial or intermediate profession, the wages of baccalaureates holders of some vocational and technological tracks are, for given higher education qualifications, substantially similar to that of general baccalaureates holders. However, this relates to wages at career start, a variable that is likely to change significantly depending on the type of job held.

Among the other variables, the socio-professional category of the reference person has a statistically significant effect on average wage, contrary to what was seen for the probability of a job in a managerial or intermediate category (Table A2-2 in Appendix 2, model 2). However, this effect almost disappears once the rest of the academic path is taken into account, in contrast to what we see for the parents' level of education and high school attendance in the Paris region: here, some of the effects remain once all the variables have been introduced (model 5 and 5bis). Academic performance at the end of middle school has a statistically significant effect on wages at career start (model 3) but this effect disappears too once the qualification in higher education is

Table 3 – **Net monthly wage (in logarithm) at start of working life (linear regressions)**

	Total association	+Socio-demographic variables	+Performance at end of middle school	+ Bac. honours	+ Higher education degree	
	(1)	(2)	(3)	(4)	(5) No controls	(5bis)* + Controls
Baccalaureate (*ref.*: Vocational Industry & IT)						
Voc. Trade & administration	-0.23 ***	-0.15 ***	-0.14 ***	-0.14 ***	-0.16 ***	-0.17 ***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Voc. Health, social & services	-0.13 ***	-0.08 **	-0.07 **	-0.08 **	-0.08 ***	-0.09 ***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Tech. Industry and technology	0.08 ***	0.06 **	0.03	0.05 **	-0.05 **	-0.06 **
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Tech. Trade & administration	-0.11 ***	-0.06 **	-0.08 ***	-0.04	-0.12 ***	-0.13 ***
	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
Tech. Health & services	-0.06* *	0.02	0.01	0.04	-0.06 *	-0.07 **
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
General L	-0.07 ***	-0.02	-0.07 **	-0.02	-0.17 ***	-0.18 ***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
General ES	0.06 ***	0.10 ***	0.04 *	0.10 ***	-0.06 **	-0.07 ***
	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
General S	0.24 ***	0.22 ***	0.14 ***	0.20 ***	0.01	-0.01
	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Constant	7.19 ***	7.30 ***	7.10 ***	7.14 ***	7.15 ***	7.44 ***
	(0.02)	(0.03)	(0.04)	(0.04)	(0.04)	(0.32)
Number of observations	4,781	4,781	4,781	4,781	4,781	4,781
R^2	0.137	0.181	0.190	0.212	0.276	0.283

Notes: Standard error shown in brackets. Significance thresholds: 10% (*), 5% (**), 1% (***).
Reading Note: With no other control variable (model 1) and taking into consideration the logarithmic form of the model, holders of general scientific baccalaureates have a wage exp(0.24)=27% higher than holders of vocational "industry & IT" baccalaureates, who represent the reference category.
Sources and coverage: Panel 1995-EVA. Baccalaureate holders having reported a job in the EVA survey.

accounted for: this implies that, with the same baccalaureate track, a better performance at the end of middle school leads to a higher qualification in higher education and impacts wage level only through this mechanism. The baccalaureate grade honours also influences the wage level, but only where the higher education qualification is the same (model 5).

4. Gender Inequalities at Career Start and the Mediating Role of the Baccalaureate Track

Girls are overrepresented in the "trade and administration" and L series tracks (cf. Table 1), which are less favourable in terms of integration into the labour market. However, they are also more often holders of a general baccalaureate (63%) than boys (50%). The proportion of higher education graduates is higher among girls than boys (78% compared with 71%) while they are receiving half as many qualifications from the *Grandes écoles* (8% compared with 16%). Not only do girls and boys tend to take different tracks at high school, but even where they obtain their baccalaureate in the same track, they do not always go on to gain the same higher education qualifications. These complex differences in trajectories at high school and in higher education are shown in Figure A1-I in Appendix 1.

The results relating to integration into the labour market show that women have net monthly wages that are 13% lower than those of men, while the differences in terms of access to managerial or intermediate categories are not statistically significant (Table 4, model 1).

Whether in relation to the probability of a managerial or intermediate position or wages, the mediation analyses show that the disadvantage suffered by women becomes considerably larger when the academic performance at end of middle school variable is taken into account. This shows that girls' better academic performances, on average, partially compensate for the disadvantages they face (suppressor role, cf. Section 2).

Where performance at the end of middle school is the same, women are 6 p.p. less likely to have a job in a managerial or intermediate category than men, and their average wage is 16% less

Table 4 – **Inequalities between men and women at start of working life and mediating role of the baccalaureate (linear regressions)**

	Total association	+Performance at end of middle school	+Baccalaureate stream	+Baccalaureate track	+Baccalaureate honours	+Higher education degree
	(1)	(2)	(3)	(4)	(5)	(6)
Managerial/intermediate professions						
Women (*ref.*: men)	-0.02	-0.06 ***	-0.08 ***	-0.03 *	-0.02	-0.04 ***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	5,090	5,090	5,090	5,090	5,090	5,090
R^2	0.077	0.141	0.181	0.205	0.215	0.328
Net monthly wage (log.)						
Women (*ref.*: men)	-0.14 ***	-0.17 ***	-0.17 ***	-0.12 ***	-0.12 ***	-0.11 ***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	4,781	4,781	4,781	4,781	4,781	4,781
R^2	0.103	0.158	0.166	0.190	0.212	0.283

Notes: All models control for social background, urban unit division on starting secondary education and parents' country of origin. Standard errors shown in brackets. Significance thresholds: 10% (*), 5% (**), 1% (***).
Reading Note: Women are 2 p.p. less likely to have a managerial position or exercise an intellectual profession or intermediate profession at the start of their working life than men (model 1, upper part of the table). The net monthly wage for women represents only exp(-0.14)=87% of that of men (model 1, lower part of the table).
Sources and coverage: Panel 1995-EVA. Baccalaureate holders having reported a job in the EVA survey.

than that of men. This gap is even more marked when we consider only managerial positions (Table A2-3 in Appendix 2): with identical performance at the end of middle school, women are 11 p.p. less likely to have a managerial position at the start of their career. Given that 23% of baccalaureate holders in our sample start their careers in this category, this difference is particularly significant.

The stream of baccalaureate obtained (vocational, technological and general) plays a similarly suppressor role (model 3): girls are more likely to hold a general baccalaureate than boys, which masks some of the gender inequalities on entering working life. These results therefore highlight how crucial it is to take into account the characteristics prior the choice of track and the course of secondary education so as not to underestimate the gender inequalities that are "concealed" by girls' better academic performance.

Conversely, the track at high school explains some of the gaps observed, which reduce when this variable is included (model 4). This mediating role is particularly significant when it comes to access to managerial and intermediate category, where the gap is reduced by almost two-thirds when we introduce this variable (from -8 p.p. to -3 p.p. between models 3 and 4). In terms of wage differences, the inclusion of the baccalaureate track also reduces the gender gap by almost 30%. This implies that women more often gain qualifications in tracks that are less favourable for integration into the labour market. In particular, they are overrepresented in the "trade and administration" tracks, within both the vocational baccalaureate (80% of baccalaureate holders in this track) and the technological baccalaureate (68%). Conversely, they are particularly underrepresented in industrial tracks, within both the vocational baccalaureate (9%) and the technological baccalaureate (12%). Within the general stream, girls are overrepresented in the least favourable track (86% of holders of L baccalaureate).

In contrast, the differences in qualification level in higher education contribute to gender inequalities (model 6) but only in terms of access to managerial or intermediate category, where the inclusion of this variable again increases the gender gap, suggesting that fewer women access these categories despite their better academic trajectory in higher education than men. Additional analyses (available from the authors on request) show that the differences in working time are the biggest contributor to the wage gaps seen.

* *
*

This article has explored the impact of the track taken in high school on baccalaureate holders' early careers. In contrast to the majority of French studies on this subject, we have assessed the extent of the differences in paths by baccalaureate track for all baccalaureate holders, whether they continued their studies or not, taking into consideration their social and academic characteristics before making educational choices.

The results firstly highlight the advantages of holders of general baccalaureates over holders of vocational, and to a lesser extent, technological baccalaureates. In all the models, the links, of varying strengths, between the various baccalaureates and higher education appear to be a determining factor in explaining the differences in returns between the baccalaureate tracks, which confirms the importance of the path dependence mechanism in the education system (Kerckhoff, 1993). However, some of the advantages of holders of general baccalaureates, and in particular those who take the S track, remain once the advantages of their social background, good academic performance and highest qualification obtained in higher education are taken into account. This enduring effect of the general baccalaureate, which is far from negligible, could confirm the hypothesis based on the signalling theory (Spence, 1974), according to which the vocational pathway is afforded a lesser value on the labour market as would be the sign of having struggled at school. This track hierarchy on the labour market also seems to have been internalised by pupils and their parents across all social groups, who expect a general baccalaureate to provide for better labour-market integration, even without a higher education qualification (Barone *et al.*, 2021). The enduring effect of the baccalaureate track, even among higher education graduates, can also be interpreted in the light of research showing the role of academic paths on employment opportunities where people ultimately gain an equivalent final qualification (Béduwé *et al.*, 2009; Dauty & Lemistre, 2010; Ménard, 2020).

Our results also highlight the heterogeneity of employment opportunities at career start between baccalaureate tracks, which, in some cases, shakes up the hierarchy between the vocational, technological and general streams. For example, a technological "trade and administration" baccalaureate is associated with a lower average wage at career start than a vocational industrial baccalaureate. These results echo those of Arrighi & Sulzer (2012) who had already used Céreq data to highlight the very low labour-market value of secondary education specialty from the administrative tertiary sector, which can be explained by the fact that this sector now recruits graduates of short higher education courses (Arrighi & Sulzer, 2012).

In terms of professional inequalities between men and women, the results firstly indicate that these inequalities already exist when people begin their careers, and therefore before childbirth and conjugal unions, echoing former studies or the recent conclusions of a study conducted in Switzerland (Combet & Oesch, 2019). The mediation analysis also allowed us to identify a complex dynamic between academic skills and qualification levels that tend to partially conceal gender inequalities, while the track of the baccalaureate obtained tends to explain them. Girls' academic performance on leaving middle school are better, and they are more likely to obtain a baccalaureate in the general stream, which contributes to concealing the gender inequalities at the start of their working life. However, the overrepresentation of girls in the secondary education tracks that are less favourable on the labour market, such as the vocational "trade and administration" tracks and the L track in the general baccalaureate, help to explain the gender inequalities at the start of working life. Academic segregation in secondary education therefore contributes to employment inequalities between men and women.

Despite this, some of these gender inequalities cannot be explained by differences in academic trajectories, which suggests that these inequalities are also formed via other mechanisms. In particular, it has been shown that, over the first ten years of a person's professional career, the weight of educational segregation on wage inequality reduces but gender wage gaps increase due to professional segregation, which cannot be explained solely by differences in pathways (Couppié *et al.*, 2012). As the level of educational segregation (between tracks) seems to fall over time (Couppié & Épiphane, 2018), it therefore seems important to develop research into the mechanisms specific to the labour market that are contributing to gender wage gaps. Despite everything, educational segregation remains a fundamental factor in understanding the emergence of gender inequalities at the time at which people enter the labour market and it is still necessary to continue researching the mechanisms behind gendered educational choices and their consequences on professional trajectories.

In general, our results highlight the importance of taking into consideration the characteristics of the students grouped into each track so as to compare their employment opportunities. For example, for a prestigious track such as the S track, the estimated advantage in accessing a job in managerial or intermediate category is reduced by almost a quarter when the characteristics prior to the choice of track are taken into account, while the advantage in terms of salary falls by 40%. The positive effect of the S track on employment opportunities therefore partly reflects the selection of better pupils in

this track. Globally, the inclusion of students' characteristics prior to the choice of track tends to reduce early career differences between baccalaureate holders.

These results highlight the importance of educational decisions made during secondary education for professional careers in the French context. They also question the relevance of certain tracks of vocational education, for which the opportunities on the labour market seem to be very limited, in particular the "trade and administration" tracks, which contribute to professional inequalities between men and women. The high school reforms over the last few years have, however, may change the employment opportunities offered by the various qualifications. In particular, the reform of the general stream from 2019, which replaced the grouping into tracks with a choice of specialty, could change the hierarchies and the scope of differences in employment opportunities within the general stream. It will therefore be interesting to replicate the analyses carried out in this article with more recent data, once these are available.

To conclude, three limits to the present study that must be highlighted. Using socio-demographic characteristics and school performance prior to educational choice, we were able to account for a substantial part of the differences between students grouped in streams. However, we cannot exclude the possibility that other individual characteristics may play a role in the track effects identified – such as motivation, or whether the choice of track was more or less constrained, or non-cognitive skills – and bias the links between secondary education tracks and employment opportunities assessed here. A more rigorous control of the selection effects would require to develop a quasi-experimental analysis, which seems difficult to implement with the data available. Furthermore, the categorisation of the tracks and specialisms used in this research, while more detailed than in the majority of studies into this issue, is based on clustering tracks that are similar, yet still different. A more granular categorisation, without track grouping, and inclusion of the specialty and options chosen in secondary education would, in all likelihood, shed light on the notable differences in labour-market integration within each category. However, an analysis of this kind would require exhaustive data at national level, which are not currently available. Finally, our results relate only to employment opportunities in the short-term. It is possible that the differences reduce, remain or increase over time; these changes could be analysed using data on the course of the professional career in the medium term, such as the Céreq's 'Generation after 10 years' surveys. □

BIBLIOGRAPHY

Arrighi, J.-J. & Sulzer, E. (2012). S'insérer à la sortie de l'enseignement secondaire : de fortes inégalités entre filières. *Céreq Bref* N° 303.
https://www.cereq.fr/sites/default/files/2018-09/9e1324ffcde6a1c71e0490d0b115926f.pdf

Arrow, K. (1973). Higher education as a filter. *Journal of Public Economics*, 2(3), 193–216. https://doi.org/10.1016/0047-2727(73)90013-3

Barone, C., Barg, K. & Ichou, M. (2021). Relative risk aversion models: How plausible are their assumptions? *Rationality and Society,* 33(2), 143–175. https://doi.org/10.1177/1043463121994087

Baudelot, C. & Establet, R. (1992). *Allez les filles !* Paris : Le Seuil.

Baudelot, C. & Glaude, M. (1989). Les diplômes se dévaluent-ils en se multipliant ? *Économie et Statistique*, 225, 3–16. https://doi.org/10.3406/estat.1989.5360

Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. National Bureau of Economic Research, distributed by Columbia University Press.

Béduwé, C., Fourcade, B. & Giret, J.-F. (2009). De l'influence du parcours de formation sur l'insertion : le cas des diplômés scientifiques. *Formation emploi*, 106, 5–22. https://doi.org/10.4000/formationemploi.1886

Birkelund, J. F., Karlson, K. B. & Reimer, D. (2021). Upper secondary school tracking, labour market outcomes and intergenerational inequality in Denmark. *Longitudinal and Life Course Studies*, 12(3), 279–298. https://doi.org/10.1332/175795921X16124376408552

Bouchet-Valat, M. (2015). Plus diplômées, moins célibataires. L'inversion de l'hypergamie féminine au fil des cohortes en France. *Population*, 70(4), 705–730. https://doi.org/10.3917/popu.1504.0705

Bourdieu, P. & Passeron, J.-C. (1964). *Les héritiers : les étudiants et la culture*. Paris : Minuit.

Bourdieu, P. & Passeron, J.-C. (1970). *La reproduction*. Paris : Minuit.

Brunello, G. & Checchi, D. (2007). Does school tracking affect equality of opportunity? New international evidence. *Economic Policy*, 22(52), 782–861. https://doi.org/10.1111/j.1468-0327.2007.00189.x

Caille, J.-P., Lemaire, S. & Vrolant, M.-C. (2002). Filles et garçons face à l'orientation. Ministère de l'éducation nationale, *Note d'information* N° 2.12. https://dataesr.fr/NI/ni0212.pdf

Chabanon, L. & Steinmetz, C. (2018). Écarts de performance des élèves selon le sexe : que nous apprennent les évaluations de la DEPP ? *Éducation & formations* N° 96. https://doi.org/10.48464/halshs-01824495

Combet, B. & Oesch, D. (2019). The Gender Wage Gap Opens Long before Motherhood. Panel Evidence on Early Careers in Switzerland. *European Sociological Review*, 35(3), 332–345. https://doi.org/10.1093/esr/jcz009

Couppié, T., Dupray, A. & Moullet, S. (2014). Education-based occupational segregation and the gender wage gap: Evidence from France. *International Journal of Manpower*, 35(3), 368–391. https://doi.org/10.1108/IJM-09-2012-0143

Couppié, T., Dupray, A. & Moullet, S. (2012). Ségrégation professionnelle et salaires en début de carrière : regard sur quelques professions. *Formation emploi,* 118, 37–59. https://doi.org/10.4000/formationemploi.3587

Couppié, T. & Épiphane, D. (2018). La relation genre-insertion a-t-elle évolué en 20 ans ? In: T. Couppié, A. Dupray, D. Épiphane & V. Mora (coord.), *20 ans d'insertion professionnelle des jeunes : entre permanences et évolutions. Céreq Essentiels* N °1, 141–149. https://www.cereq.fr/sites/default/files/2018-09/79fcb4c2860c31466a45ccdeae6d7f8c.pdf

Couppié, T. & Épiphane, D. (2006). La ségrégation des hommes et des femmes dans les métiers : entre héritage scolaire et construction sur le marché du travail. *Formation emploi*, 93, 11–27. https://doi.org/10.4000/formationemploi.2204

Dauty, F. & Lemistre, P. (2010). Diversité des parcours éducatifs : quel impact sur le chômage et les salaires ? *Formation emploi,* 111, 5–18. https://doi.org/10.4000/formationemploi.3070

di Paola, V., Méhaut, P. & Moullet, S. (2018). Entrée dans la vie active et débuts de carrière : Entre effets conjoncturels et évolution des normes d'emploi. *Revue française de socio-économie*, 20(1), 235–258. https://doi.org/10.3917/rfse.020.0235

di Paola, V. & Moullet, S. (2018). Le déclassement : un phénomène enraciné. In: T. Couppié, A. Dupray, D. Épiphane, V. Mora (coord.), *20 ans d'insertion professionnelle des jeunes : entre permanences et évolutions*. *Céreq Essentiels* N° 1, 79–84.

DiPrete, T. A. & Buchmann, C. (2013). *The Rise of Women: The Growing Gender Gap in Education and What It Means for American Schools*. New York: Russell Sage Foundation.

Doazan, Y. & Eckert, H. (2014). Les jeunes et leurs diplômes. Le déclassement à l'aune de la valeur des titres scolaires. *Éducation et sociétés*, 34(2), 121–134. https://doi.org/10.3917/es.034.0121

Duru-Bellat, M. & Kieffer, A. (2008). Du baccalauréat à l'enseignement supérieur en France : déplacement et recomposition des inégalités. *Population*, 63(1), 123–157. https://doi.org/10.3917/popu.801.0123

Felouzis, G., Charmillot, S. & Fouquet-Chauprade, B. (2011). Les inégalités scolaires en Suisse et leurs déclinaisons cantonales : l'apport de l'enquête Pisa 2003. *Swiss Journal of Sociology*, 37(1), 33–55. http://doi.org/10.22019/SC-2017-00001

Gamoran, A. (2010). Tracking and inequality : New directions for research and practice. In: M. W. Apple, S. J. Ball, & L. A. Gandin (Eds.), *The Routledge International Handbook of the Sociology of Education*. Ch.19. London: Taylor & Francis Group. https://doi.org/10.4324/9780203863701

Hanushek, E. A. & Wößmann, L. (2006). Does Educational Tracking Affect Performance and Inequality? Differences- in-Differences Evidence Across Countries. *The Economic Journal*, 116(510), C63–C76. https://doi.org/10.1111/j.1468-0297.2006.01076.x

Holm, A., Jæger, M. M., Karlson, K. B. & Reimer, D. (2013). Incomplete equalization: The effect of tracking in secondary education on educational inequality. *Social Science Research*, 42(6), 1431–1442. https://doi.org/10.1016/j.ssresearch.2013.06.001

Ichou, M. & Vallet, L.-A. (2013). Academic Achievement, Tracking Decisions, and Their Relative Contribution to Educational Inequalities. In: M. Jackson (Ed.), *Determined to succeed? Performance versus choice in educational attainment*, Ch.5. Stanford: Stanford University Press. https://doi.org/10.2307/j.ctvqsdrjr

Kerckhoff, A. C. (1993). *Diverging pathways: Social structure and career deflections*. New York: Cambridge University Press.

Lafontaine, D. (2017). La différenciation dans les systèmes éducatifs : pourquoi, comment, avec quels effets ? *Contribution dans le cadre de la conférence de consensus sur la différenciation pédagogique du Cnesco et de l'Ifé/ENS de Lyon*. https://www.cnesco.fr/wp-content/uploads/2017/04/lafontaine_publi.pdf

Le Rhun, B. & Monso, O. (2015). De l'utilité d'obtenir son diplôme pour s'insérer : l'exemple des brevets de technicien supérieur. *Économie et Statistique*, 478, 35–56.
https://www.insee.fr/fr/statistiques/1303221?sommaire=1303240

Lemistre, P. (2003). Dévalorisation des diplômes et accès au premier emploi. *Revue d'économie politique*, 113(1), 37–58. https://doi.org/10.3917/redp.131.0037

Lemistre, P. & Ménard, B. (2019). Analysis of the trajectories of Science graduates: Applying Bourdieu and Sen. *British Journal of Sociology of Education*, 40(7), 953–969.
https://doi.org/10.1080/01425692.2019.1640595

Lemistre, P. & Merlin, F. (2018). Influence du parcours d'études sur l'insertion des sortants de l'université. In: J. Calmand & P. Lemistre (coord.), *Effet du parcours à diplôme donné sur l'insertion professionnelle*. *Céreq échanges* N° 11. pp. 53–65.
https://www.cereq.fr/effet-du-parcours-diplome-donne-sur-linsertion-professionnelle

Ménard, B. (2020). L'insertion professionnelle en Master dépend-elle du niveau scolaire atteint au baccalauréat ? Ministère de l'Enseignement supérieur, de la Recherche et de l'Innovation, *Notes d'information du SIES* N° 20.18.
https://www.enseignementsup-recherche.gouv.fr/sites/default/files/imported_files/documents/NI_2020-18_Insertion_diplomes_master_1362219.pdf

Meng, X. & Meurs, D. (2001). Différences de structure des emplois et écart salarial entre hommes et femmes en France. *Économie & prévision*, 148(2), 113–126. https://doi.org/10.3917/ecop.148.0113

Meurs, D. & Ponthieux, S. (2006). L'écart des salaires entre les femmes et les hommes peut-il encore baisser ? *Économie et Statistique*, 398-399, 99–129. https://www.insee.fr/fr/statistiques/1376350?sommaire=1376355

Meurs, D. & Pora, P. (2019). Égalité professionnelle entre les femmes et les hommes en France : une lente convergence freinée par les maternités. *Economie et Statistique / Economics and Statistics*, 510-511-512, 109–130. https://doi.org/10.24187/ecostat.2019.510t.1990

Mood, C. (2010). Logistic Regression: Why We Cannot Do What We Think We Can Do, and What We Can Do About It. *European Sociological Review*, 26(1), 67–82. https://doi.org/10.1093/esr/jcp006

OECD (2012). *Closing the Gender Gap*. Paris: Éditions OCDE.

Olympio, N. & di Paola, V. (2018). Quels espaces d'opportunités offrent les systèmes éducatifs ? *Formation emploi*, 141(1), 233–254. https://doi.org/10.4000/formationemploi.5388

Pailhé, A. & Solaz, A. (2006). Vie professionnelle et vie familiale : la charge de la conciliation repose essentiellement sur les femmes. *Population et Sociétés* N° 426.
https://www.ined.fr/fr/publications/editions/population_et_societes/vie_professionnelle_et_naissance/

Rözer, J. J. & Bol, T. (2019). Labour Market Effects of General and Vocational Education over the Life-Cycle and across Time: Accounting for Age, Period, and Cohort Effects. *European Sociological Review*, 35(5), 701–717. https://doi.org/10.1093/esr/jcz031

Sattinger, M. (1993). Assignment Models of the Distribution of Earnings. *Journal of Economic Literature*, 31(2), 831–880. www.jstor.org/stable/2728516

Smyth, E. & Steinmetz, S. (2008). Field of Study and Gender Segregation in European Labour Markets. *International Journal of Comparative Sociology*, 49(4-5), 257–281. https://doi.org/10.1177/0020715208093077

Spence, A. M. (1974). *Market signaling: Informational transfer in hiring and related screening processes*. Cambridge: Harvard University Press.

Thurow, L. C. (1975). *Generating Inequality: Mechanisms of Distribution in the U.S. Economy.* New York: Basic books.

Vouillot, F. (2010). L'orientation, le butoir de la mixité. *Revue française de pédagogie,* 171, 59–67.
https://doi.org/10.4000/rfp.1900

Wasmer, E. (2006). General versus Specific Skills in Labor Markets with Search Frictions and Firing Costs. *American Economic Review*, 96(3), 811–831. https://www.jstor.org/stable/30034073

APPENDIX 1

DESCRIPTIVE STATISTICS

Table A1-1 – **Variables used in the analysis**

Dependent variables: first job reported in the EVA survey		
Job in a managerial or intermediate category (%)		60.1
Net monthly wage (€)	Mean	1,484.7
	Standard error	550.3
	% missing	6.0
Independent variables		
Baccalaureate obtained (%)	Vocational – Industry & IT	6.5
	Vocational – Trade & administration	4.1
	Vocational – Health, social & services	3.7
	Technological – Industry & technology	9.8
	Technological – Trade & administration	14.3
	Technological – Health & services	4.2
	General L	10.0
	General ES	18.1
	General S	29.3
Gender (%)	Male	43.9
	Female	56.1
Parents' level of education (%)	Unqualified & lower secondary education	15.6
	Upper secondary education	32.0
	Baccalaureate	19.5
	Higher education qualification	32.9
Parents' socio-professional category (household reference person) (%)	Managerial and intellectual professions	20.5
	Intermediate professions	22.5
	White-collar workers	15.0
	Craftspeople, traders	8.8
	Farmers	3.3
	Blue-collar workers	29.3
	Unemployed	0.6
Urban unit of the school on starting secondary education (%)	Village or small town	38.3
	Medium-sized town	26.8
	Large town or city, excluding Paris	21.6
	Paris region	13.3
Parents' country of origin (%)	At least one parent born in France	93.9
	Parents born abroad	6.1
Average grades/20 (in French and Maths) in the continuous French certificate of education	Mean	12.1
	Standard error	2.5
Baccalaureate honours (%)	Pass	64.5
	Fair	26.6
	Good or very good	8.9
Highest qualification achieved in higher education (%)	Unqualified	24.9
	2 years of higher education (DEUG/BTS/DUT)	22.1
	Bachelor's	27.5
	4/5 years at university	13.9
	Grande école qualification	11.6

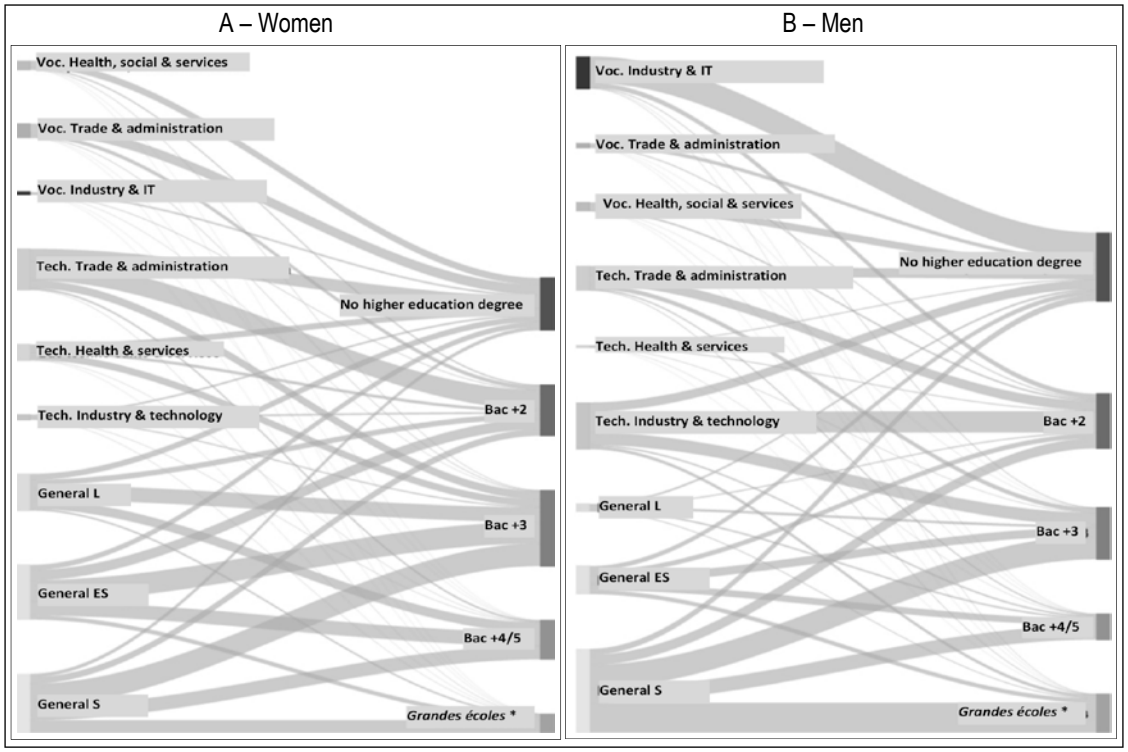
➔

Table A1-1 – (*contd.*)

Independent variables		
Field of studies for highest qualification achieved in higher education (%)	Unqualified	24.9
	Arts, literature and language	2.9
	Human and social sciences	3.6
	Law and political science	2.3
	Trade, administration and economics	8.9
	Basic and life sciences	3.7
	Engineering and production	12.5
	Sport	0.7
	Health and social issues	7.1
	Services	10.1
	Non-specific field of study	23.3
Age at first job reported in EVA	Mean	25.0
	Standard error	1.5
Number of years since leaving the education system	Mean	2.4
	Standard error	1.0
Year first job reported in EVA (%)	2005	1.1
	2006	5.2
	2007	10.2
	2008	15.4
	2009	33.7
	2010	18.7
	2011	9.1
	2012	6.7
Type of employer in first job reported (%)	Private company, association, craftsman	74.9
	Public company	4.2
	Civil service	12.7
	Local and regional authority, public hospital	8.2
Type of contract in first job reported (%)	Fixed-term contract, contractor	25.0
	Permanent or civil-service contract	68.0
	Temporary contract	4.7
	Subsidized employment	1.6
	Intern	0.4
	Own business or family carer	0.3
Working time in first job reported (%)	Full-time	89.3
	80% or more	4.1
	50% to 80%	5.3
	Less than 50%	1.2
Observations		5,090

Sources: Panel 1995-EVA. Baccalaureate holders having reported a job in the EVA survey.

Figure A1-I – **Number of people in the baccalaureate tracks and highest degree achieved in higher education**



* Prestigious higher education institutions.
Source: Panel 1995-EVA. .

APPENDIX 2

COMPLETE RESULTS OF LINEAR REGRESSIONS

Table A2-1 – **Probability of having a job in a managerial or intermediate position at start of working life**

		Total association	+Socio-demographic variables	+Performance at end of middle school	+ Bac. honours	+ Higher education degree	
		(1)	(2)	(3)	(4)	(5) No controls	(5bis) + Controls
Baccalaureate obtained	Vocational – Industry & IT (*ref.*)						
	Voc. Trade & administration	-0.10*** (0.04)	-0.08** (0.04)	-0.07* (0.04)	-0.07* (0.04)	-0.09** (0.04)	-0.10*** (0.04)
	Voc. Health, social & services	-0.08** (0.04)	-0.07* (0.04)	-0.06 (0.04)	-0.07* (0.04)	-0.06* (0.04)	-0.07* (0.04)
	Tech. Industry & technology	0.37*** (0.03)	0.34*** (0.03)	0.31*** (0.03)	0.34*** (0.03)	0.14*** (0.03)	0.13*** (0.03)
	Tech. Trade & administration	0.09*** (0.03)	0.08*** (0.03)	0.07** (0.03)	0.10*** (0.03)	-0.05* (0.03)	-0.06** (0.03)
	Tech. Health & services	0.29*** (0.04)	0.29*** (0.04)	0.28*** (0.04)	0.31*** (0.04)	0.12*** (0.04)	0.10*** (0.04)
	General L	0.32*** (0.03)	0.29*** (0.04)	0.25*** (0.04)	0.29*** (0.04)	0.01 (0.04)	-0.01 (0.04)
	General ES	0.39*** (0.03)	0.35*** (0.03)	0.31*** (0.03)	0.36*** (0.03)	0.06* (0.03)	0.04 (0.03)
	General S	0.55*** (0.03)	0.49*** (0.03)	0.42*** (0.03)	0.47*** (0.03)	0.15*** (0.03)	0.12*** (0.03)
Gender	Male (*ref.*)						
	Female		-0.01 (0.01)	-0.03* (0.01)	-0.02 (0.01)	-0.03** (0.01)	-0.04*** (0.01)
Parents' level of education	Higher education degree (*ref.*)						
	Baccalaureate		-0.07*** (0.02)	-0.07*** (0.02)	-0.06*** (0.02)	-0.04** (0.02)	-0.04** (0.02)
	Upper secondary		-0.11*** (0.02)	-0.11*** (0.02)	-0.10*** (0.02)	-0.07*** (0.02)	-0.06*** (0.02)
	None or lower secondary		-0.15*** (0.02)	-0.15*** (0.02)	-0.14*** (0.02)	-0.09*** (0.02)	-0.09*** (0.02)
Household reference person's socio-professional category	Managerial and intellectual professions (*ref.*)						
	Intermediate professions		0.01 (0.02)	0.01 (0.02)	0.02 (0.02)	0.02 (0.02)	0.03 (0.02)
	White-collar workers		-0.00 (0.02)	-0.00 (0.02)	0.01 (0.02)	0.03 (0.02)	0.04* (0.02)
	Craftspeople and traders		0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.02)	0.04* (0.02)
	Farmers		0.06* (0.04)	0.06 (0.04)	0.07** (0.04)	0.05 (0.03)	0.06** (0.03)
	Blue-collar workers		-0.02 (0.02)	-0.02 (0.02)	-0.01 (0.02)	0.01 (0.02)	0.02 (0.02)
	Unemployed		-0.01 (0.08)	-0.00 (0.08)	-0.00 (0.08)	0.03 (0.07)	0.04 (0.07)
Urban unit on starting secondary education	< 20 000 inhabitants		-0.00 (0.02)	-0.01 (0.02)	-0.01 (0.02)	0.00 (0.01)	0.00 (0.01)
	20 000 to 200 000 inhabitants (*ref.*)						
	200 000+ inhabitants (excluding Paris)		-0.01 (0.02)	-0.00 (0.02)	-0.00 (0.02)	0.00 (0.02)	0.00 (0.02)
	Paris		0.09*** (0.02)	0.10*** (0.02)	0.10*** (0.02)	0.07*** (0.02)	0.06*** (0.02)
Parents' country of birth	At least one parent born in France (*ref.*)						
	Both parents born abroad		0.06** (0.03)	0.07** (0.03)	0.07** (0.03)	0.04 (0.03)	0.04 (0.03)
Grade in French and maths (/20) in the continuous French certificate of education				0.02*** (0.00)	0.01* (0.00)	-0.00 (0.00)	0.00 (0.00)
Baccalaureate honours	Pass (*ref.*)						
	Fair				0.09*** (0.01)	0.02 (0.01)	0.02 (0.01)
	Good or very good				0.16*** (0.02)	0.07*** (0.02)	0.06*** (0.02)
Highest qualification achieved in higher education	No qualification (*ref.*)						
	Bac+2 (DEUG/BTS/DUT)					0.23*** (0.02)	0.19*** (0.02)
	Bachelors'					0.47*** (0.02)	0.39*** (0.02)
	Bac+4/5 in university					0.50*** (0.02)	0.41*** (0.03)
	Grandes écoles					0.53*** (0.02)	0.44*** (0.03)
Age at which employment is reported							-0.02 (0.02)
Number of years since leaving the education system							-0.03*** (0.01)
Year in which employment is reported	2005 (*ref.*)						
	2006						0.07 (0.05)
	2007						0.22*** (0.06)
	2008						0.27*** (0.07)
	2009						0.35*** (0.08)
	2010						0.35*** (0.09)
	2011						0.39*** (0.11)
	2012						0.46*** (0.13)
Constant		0.28*** (0.02)	0.38*** (0.03)	0.21*** (0.04)	0.25*** (0.04)	0.26*** (0.04)	0.64* (0.36)
Observations		5,090	5,090	5,090	5,090	5,090	5,090
R^2		0.181	0.201	0.205	0.215	0.316	0.328

Notes: Standard errors shown in brackets.
Sources: Panel 1995-EVA. Baccalaureate holders having reported a job in the EVA survey.

Table A2-2 – **Net monthly wage (in logarithnm) at start of working life**

		Total association	+Socio-demographic variables	+Performance at end of middle school	+ Bac. honours	+ Higher education degree	
		(1)	(2)	(3)	(4)	(5) No controls	(5bis) + Controls
Baccalaureate obtained	Vocational – Industry & IT (*ref.*)						
	Voc. Trade & administration	-0.23*** (0.03)	-0.15*** (0.03)	-0.14*** (0.03)	-0.14*** (0.03)	-0.16*** (0.03)	-0.17*** (0.03)
	Voc. Health, social & services	-0.13*** (0.03)	-0.08** (0.03)	-0.07** (0.03)	-0.08** (0.03)	-0.08*** (0.03)	-0.09*** (0.03)
	Tech. Industry & technology	0.08*** (0.03)	0.06** (0.03)	0.03 (0.03)	0.05** (0.03)	-0.05** (0.03)	-0.06** (0.03)
	Tech. Trade & administration	-0.11*** (0.02)	-0.06** (0.03)	-0.08*** (0.03)	-0.04 (0.02)	-0.12*** (0.02)	-0.13*** (0.02)
	Tech. Health & services	-0.06* (0.03)	0.02 (0.03)	0.01 (0.03)	0.04 (0.03)	-0.06* (0.03)	-0.07** (0.03)
	General L	-0.07*** (0.03)	-0.02 (0.03)	-0.07** (0.03)	-0.02 (0.03)	-0.17*** (0.03)	-0.18*** (0.03)
	General ES	0.06*** (0.02)	0.10*** (0.02)	0.04* (0.03)	0.10*** (0.03)	-0.06** (0.03)	-0.07*** (0.03)
	General S	0.24*** (0.02)	0.22*** (0.02)	0.14*** (0.03)	0.20*** (0.03)	0.01 (0.03)	-0.01 (0.03)
Gender	Male (*ref.*)						
	Female		-0.11*** (0.01)	-0.12*** (0.01)	-0.12*** (0.01)	-0.11*** (0.01)	-0.11*** (0.01)
Parents' level of education	Higher education degree (*ref.*)						
	Baccalaureate		-0.05*** (0.02)	-0.05*** (0.02)	-0.05*** (0.02)	-0.03* (0.01)	-0.03** (0.01)
	Upper secondary		-0.07*** (0.02)	-0.07*** (0.02)	-0.06*** (0.02)	-0.03* (0.01)	-0.03* (0.01)
	None or lower secondary		-0.10*** (0.02)	-0.09*** (0.02)	-0.08*** (0.02)	-0.05*** (0.02)	-0.05*** (0.02)
Household reference person's socio-professional category	Managerial and intellectual professions (*ref.*)						
	Intermediate professions		-0.05*** (0.02)	-0.05*** (0.02)	-0.03** (0.02)	-0.02 (0.02)	-0.02 (0.02)
	White-collar workers		-0.04* (0.02)	-0.04* (0.02)	-0.03 (0.02)	-0.00 (0.02)	0.00 (0.02)
	Craftspeople and traders		-0.03 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.01 (0.02)
	Farmers		-0.00 (0.03)	-0.01 (0.03)	0.00 (0.03)	-0.01 (0.03)	-0.01 (0.03)
	Blue-collar workers		-0.04** (0.02)	-0.04** (0.02)	-0.03 (0.02)	-0.02 (0.02)	-0.01 (0.02)
	Unemployed		-0.14** (0.07)	-0.14** (0.07)	-0.14** (0.07)	-0.12* (0.06)	-0.11* (0.06)
Urban unit on starting secondary education	< 20 000 inhabitants		-0.02 (0.01)	-0.02* (0.01)	-0.02* (0.01)	-0.01 (0.01)	-0.01 (0.01)
	20 000 to 200 000 inhabitants (*ref.*)						
	200 000+ inhabitants (excluding Paris		0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
	Paris		0.10*** (0.02)	0.11*** (0.02)	0.11*** (0.02)	0.08*** (0.02)	0.08*** (0.02)
Parents' country of birth	At least one parent born in France (*ref.*)						
	Both parents born abroad		0.00 (0.02)	0.01 (0.02)	0.02 (0.02)	-0.00 (0.02)	-0.01 (0.02)
Grade in French and maths (/20) in the continuous French certificate of education				0.02*** (0.00)	0.01* (0.00)	-0.00 (0.00)	0.00 (0.00)
Baccalaureate honours	Pass (*ref.*)						
	Fair				0.10*** (0.01)	0.05*** (0.01)	0.05*** (0.01)
	Good or very good				0.19*** (0.02)	0.11*** (0.02)	0.10*** (0.02)
Highest qualification achieved in higher education	No qualification (*ref.*)						
	Bac+2 (DEUG/BTS/DUT)					0.13*** (0.02)	0.10*** (0.02)
	Bachelors'					0.22*** (0.02)	0.17*** (0.02)
	Bac+4/5 in university					0.31*** (0.02)	0.25*** (0.02)
	Grandes écoles					0.41*** (0.02)	0.36*** (0.02)
Age at which employment is reported							0.02 (0.01)
Number of years since leaving the education system							-0.01* (0.01)
Year in which employment is reported	2005 (*ref.*)						
	2006						0.10* (0.05)
	2007						0.17*** (0.06)
	2008						0.22*** (0.06)
	2009						0.28*** (0.08)
	2010						0.28*** (0.09)
	2011						0.29*** (0.10)
	2012						0.34*** (0.11)
Constant		7.19*** (0.02)	7.30*** (0.03)	7.10*** (0.04)	7.14*** (0.04)	7.15*** (0.04)	7.44*** (0.32)
Observations		4,781	4,781	4,781	4,781	4,781	4,781
R^2		0.137	0.181	0.190	0.212	0.276	0.283

Notes: Standard errors shown in brackets.
Sources: Panel 1995-EVA. Baccalaureate holders having reported a job in the EVA survey.

Table A2-3 – **Gender inequalities in access to a managerial position at start of working life and the mediating role of the baccalaureate**

	Total association	+Performance at end of middle school	+Baccalaureate stream	+Baccalaureate track	+Baccalaureate honours	+Higher education degree
		(2)	(3)	(4)	(5)	(6)
Women (*ref.*: Men)	-0.07***	-0.11***	-0.12***	-0.10***	-0.09***	-0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	5,090	5,090	5,090	5,090	5,090	5,090
R^2	0.117	0.197	0.213	0.231	0.262	0.436

Notes: All models control for social background, urban unit division on starting secondary education and parents' country of origin. Standard errors shown in brackets.
Sources: Panel 1995-EVA. Baccalaureate holders having reported a job in the EVA survey.