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Joanie CAYOUE-REMBLIÈRE* and Léonard MOULIN

How Inequalities in Academic Performance Evolve in Lower Secondary School in France: A Longitudinal Follow-up of Students

In France, school is compulsory until age 16, and all students follow the same curriculum from primary through lower secondary school. Yet national and international surveys reveal wide gaps in school achievement across social backgrounds, which educational policies have tried to address. Are they succeeding? Using survey data from the French Ministry of Education, the authors measure students' academic performance at the beginning and end of lower secondary school, demonstrating that social inequalities are reinforced throughout students' school careers.

The work of Bourdieu and Passeron (1964, 1970) represented a 'Copernican revolution' (Dandurand and Ollivier, 1987) in the sociological approach to the educational institution. For sociologists of reproduction, the education system can be understood as a framework in which social inequalities are both reproduced and legitimized by the institution. Analysing a state of the system in which social inequalities often take the form of a 'continuous elimination', their arguments focus on this question without looking at how inequalities in academic performance evolve over time. These authors describe the school as a place where initial differences can be either 'standardized' or accentuated. From the first pages of *The Inheritors*, the authors contrast the supposedly standardizing influence of school with the persistence of 'differences in attitude and ability' (Bourdieu and Passeron, 1979, p. 8). In 'L'École conservatrice en France' [Educational conservatism in France], Bourdieu evokes the 'compensatory action of schooling for disciplines that are taught directly and controlled completely by the school' (Bourdieu, 1966, p. 335) while criticizing an inegalitarian 'pedagogy of awakening' (p. 336) that relies on students' initial cultural capital to stimulate their natural gifts.

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The question remains unanswered: does schooling narrow or widen the differences between working-class children and those of the middle and upper classes?

Since these early studies, the French educational system has experienced two major upheavals, with the introduction of universal access to secondary education (1954–1968) and a unified educational curriculum (hereafter called ‘comprehensive’ schooling) for all students up to the end of Year 9⁽¹⁾ (1985–1995) (Caille, 2014). These transformations have given rise to the now crucial issue of inequalities in academic performance between students in the same grade level, in a system where inequalities of access have been reduced. While the proactive policies linked to these two upheavals opened selective educational tracks to larger sections of the population, they had no influence on the inequalities in attainment which served to justify ‘early’ track orientation (Poullaouec and Lemêtre, 2009; Blanchard and Cayouille-Remblière, 2016, pp. 11–25).

Indeed, many studies have demonstrated their ambiguous and paradoxical effects, pointing up widening performance gaps between schools (Trancart, 1998; Merle, 2000), difficulties in managing students (Prost, 1985; Douat, 2012), or the persistence of teaching practices that perpetuate the academic divide (Bautier and Rochex, 1997; Bonnery, 2007; Garcia, 2013). Although they draw upon different theoretical traditions, these studies all agree that the apparent standardization of school pathways conceals not only large differentials in academic attainment (Baudelot and Establet, 2009) and exam success rates but also a non-negligible fraction of students who drop out of school (Millet and Thin, 2005) or are placed in ‘dead-end’ educational tracks (Palheta, 2011) and who see themselves as ‘outcasts’ of the system.

Without comparable longitudinal measures of academic performance, these studies say little or nothing about how differences in school performance evolve as students move up through school. While it is difficult to assert that differentials in academic performance linked to social origin, gender, and migration history remain ‘stable over time’, as Boudon suggested (1979, p. 161), it is no easier to show how they vary.

This article seeks to analyse these variations in academic performance over time, focusing on the lower secondary school (*collège*), the last link in the French ‘comprehensive’ (i.e. non-selective) schooling system. Contrary to the cognitivist approach (Grisay, 1997; Ben Ali and Vourc’h, 2015), we are not interested here in skills, but rather in academic performance, i.e. the difference between what students know at a given moment and what the educational institution expects them to know, as evidenced in their exam results. We therefore consider students’ success or failure solely from the

(1) In France, children begin primary school in the year of their sixth birthday. There are five primary grade levels and four lower secondary levels. Year 6 thus corresponds to the first lower secondary level (*collège*) and Year 9 to the last.

institution's viewpoint. While recognizing the contribution of studies that approach academic performance at the classroom level (Broccolichi, 1994; Cayouette-Remblière, 2013), our focus here is on performance as measured by national standards.

In the current sociological literature, three student characteristics are identified as the main determinants of academic success: social origin, gender, and migration history. For each distinguishing factor, three scenarios can be envisaged. First, under the 'parallel evolution' scenario, as Boudon evoked, the education system is powerless to narrow the differences in academic success linked to these characteristics; they are simply transposed over time. Second, under the 'convergent evolution' scenario, lower secondary school reduces academic inequalities between different student categories. Even if the *collège* accepts those who leave primary school with unequal academic skills linked to their social origin, gender, or migration history, it can offer 'standardizing' teaching programmes that narrow the differentials observed in Year 6, while not eliminating inequalities altogether. Third, under the 'divergent evolution' scenario, these inequalities increase as the students advance through *collège*.

Under the 'comprehensive' education system, 84% of the students who entered Year 6 in 2007 continued to Year 9 and sat a general secondary examination (*brevet des collèges*) 4 or 5 years later.⁽²⁾ Our study focuses on this cohort. If they all remain in the system, we want to determine whether they follow parallel, convergent, or divergent paths in academic performance, and to examine the role of the school environment (proxied by the type of school attended and the size of the urban unit it serves) as explanatory factors of these outcomes.

I. Measures of academic performance over time in the scientific literature

Certain French studies on the school careers of immigrant children or on the effects of private- or public-sector schooling have measured academic performance. A first series of scholars opted for 'school-career indicators', such as repetition rates and track orientation, as indirect measures of academic success or failure. For example, Vallet (1996) studied the school careers of immigrant children, and Tavan (2004) assessed the differentials between public and private schools. While these indicators may have been meaningful for students attending school in the 1990s, the situation is different today. Not only does repeating a year conceal realities that differ across individuals and grade levels (Cayouette-Remblière and de Saint-Pol, 2013), but not

(2) Almost 8% of students repeat a year (Year 6, 7, or 8) before sitting the *brevet des collèges*. We calculate the figures in this article using weighted 2007 panel data.

repeating a year also reflects different situations: teachers now tend to avoid holding back students in difficulty who are already a year behind or those for whom repeating a year will serve no purpose. As for track orientation, it combines factors linked to the students' academic performance, their 'capabilities' as judged by the teaching staff, their attitude to school work, their social and family situation, the school's orientation policies, and the aspirations and ambitions of the students and/or their families (André, 2012; Cayouille-Remblière, 2014; Chauvel, 2015). Because these school-career indicators are dichotomous (repeat year / no repeat year), they cannot fully reveal the diverse range of outcomes among students with poor academic results (who repeated a year in all cases) and among those with good results (who did not repeat but who progressed at different rates).

Other studies compare different measures of performance. Since 1989, as part of its longitudinal follow-up programme, the Evaluation, Forecasting, and Performance Department (Direction de l'évaluation, de la prospective et de la performance [DEPP]) at the French Ministry of Education has entered in its database the results, for each child, of standardized diagnostic tests in French and mathematics taken each September by all students starting Year 6 to determine their level of attainment at the end of primary school. These assessments provide a useful gauge of students' skills and knowledge in relation to what the institution expects. The tests can be used both to quantify academic differences between students and to measure 'the gap, which may be large, between what is taught and what should be taught' in primary school (IGEN-IGAENR, 2009, p. 10).⁽³⁾ These assessments are among the few comparative measures of school attainment not influenced by the social and educational environment.

In 1995, the DEPP database was expanded to include the continuous assessment scores of students taking the *brevet*, i.e. the mean classroom grades obtained for each discipline in Year 9. Some authors have used these new data to quantify changes in academic performance over time. Comparing changes in scores between the Year 6 test and the continuous assessment for the *brevet*, Cebolla-Boado (2008) found that the children of immigrants make better progress in *collège* than those of native-born French people. To analyse the progression of children of immigrants, Brinbaum and Kieffer (2009) compared two separate models (Year 6 tests and the continuous assessment for the *brevet*) to explain the impact of family characteristics (parents' occupations and countries of birth). They conclude that the effect of these characteristics is stable across the two models, i.e. the performance differential by social origin and migration history does not evolve over the years at *collège*.

(3) They differ in this respect from cognitive assessments developed by psychologists of cognition or development whose aim is to study skills 'per se' (Rocher, 2015), independently of the school curriculum in a given year (Ben Ali and Vourc'h, 2015).

Yet the continuous assessment grades obtained for the *brevet* are strongly influenced by the school environment (Bressoux and Pansu, 2003; Merle, 2007). In practical terms, they shed light on how the student's level of attainment is perceived or how track orientation is negotiated at the end of Year 9, but they cannot be compared with the Year 6 tests, which are largely uninfluenced by this environment.

Let us illustrate this, since the 2007 panel data includes the results of the *brevet* continuous assessment as well as the *brevet* examinations taken at the end of Year 9 and corrected externally (Table 1; Appendix Figure A.1). In the continuous assessment, students attending compensatory education schools (*établissements d'éducation prioritaire*) obtained on average a score of 50/100 in mathematics versus 56/100 for students in other schools.⁽⁴⁾ Of course, the teachers in these schools are aware of their students' lower educational attainment, but they make up for the deficit by adapting their teaching and grading practices to the local context. Analysis of the *brevet* examination results soon reveals that a single continuous assessment grade may conceal different levels of academic performance. In mathematics, students in compensatory education schools obtain 35/100 on average versus 49/100 in non-compensatory education schools. In the former, the continuous assessment results are 1.42 times higher than the examination results, while in the latter they are 1.15 times higher. Continuous assessment grades are thus strongly influenced by the social and educational environment, with grades in compensatory education schools being artificially higher than those of other schools. For this reason, it is practically impossible to study changes over time by comparing continuous assessment results with those of the standardized tests.

Table 1. The various measures of academic performance in *collège* in the 2007 panel

Type of school	Mathematics			French		
	Year 6	Year 9		Year 6	Year 9	
	Standardized tests	Continuous assessment	<i>Brevet</i> exams	Standardized tests	Continuous assessment	<i>Brevet</i> exams
Compensatory education	60	50	35	50	53	47
Non-compensatory education	69	56	49	60	58	55

Interpretation: In mathematics, students in compensatory education schools obtain an average score of 60/100 in the Year 6 standardized tests, 50/100 for the continuous assessment in Year 9, and 35/100 in the *brevet* examinations.
Coverage: All students whose Year 6 test scores, *brevet* grades, and family characteristics are known ($N = 21,448$).
Source: 2007 panel of secondary school students and 2008 family survey, MEN-DEPP.

(4) To facilitate comparison, all performance measures are expressed as points out of 100.

To avoid this grading bias (that they themselves point out), Duru-Bellat and Mingat (1988) studied the progress of students in 17 *collèges* in the Dijon academic region (Académie de Dijon) by comparing the results of exams taken by all students at the end of Year 7 with the scores obtained in the ‘general knowledge tests taken at the end of primary school’ (p. 213). While ‘of imperfect quality’, this comparison nonetheless concerns ‘identical exams’ (p. 213). They showed that children with a father in a higher-level occupation progressed faster in *collège* than did the other students. This article follows in the footsteps of these earlier analyses.

II. Data

The 2007 panel is the first to record the grades obtained in both the national *brevet des collèges* examination and the Year 6 tests. Both performance measures are produced by the education system and are uninfluenced by the diversity of social and school environments and of grading practices. However, they are different. The Year 6 tests are a component of the ‘diagnostic evaluations’ introduced in 1989 to ‘detect students’ difficulties accurately from the start of the school year and, wherever possible, provide a rapid response’ (Troseille and Rocher, 2015). While the students know the test scores do not count for their overall grades, a study of their eagerness to take them revealed that they are only slightly less eager than they would be for a graded test and that this eagerness has only a ‘modest’ effect on performance (Keskaik and Rocher, 2015). The students’ first experience of a formal examination, the *brevet* exams are end-of-year assessments that take place over 2 days. In 2011 and 2012, the three *brevet* exams (in French, mathematics, and history–geography) counted for just 37.5% of the final *brevet* grade (with the rest determined by continuous assessment),⁽⁵⁾ but their stated purpose was to ‘assess the knowledge and skills acquired at the end of *collège*’. The comparison between these two performance measures forms part of the *collège* ‘dashboard’ for monitoring schools at the *département* (department) level and deducing each school’s degree of success or failure in improving their students’ academic outcomes (MENESR, 2005).

Any attempt at quantification is a simplification that should not be taken at face value; the phenomenon is distinct from its measure (Desrosières, 2013). A student’s academic value cannot be entirely captured by these performance measures for two reasons. First, the exams do not measure cognitive skills per se, but reflect those required by the education system. Second, academic value is also determined by local factors.⁽⁶⁾ Nevertheless, now that these two measures

(5) The method used to grade the *brevet* was changed in 2014 and again in 2017.

(6) Continuous assessment grades are more informative about track orientation decisions, for example (Duru-Bellat and Mingat, 1988; Cayouille-Remblière, 2014).

are available in the panels, students' academic progress in French and mathematics from the start of Year 6 to the end of Year 9 can be studied for the first time in quantitative terms.⁽⁷⁾

The 2007 panel comprises a random sample of 1/22 of all students entering Year 6 or a special-needs general and vocational class (*section d'enseignement général et professionnel adapté* [SEGPA]), thus providing a representative sample of a student cohort. It includes detailed information on the social and migration characteristics of the students' families recorded via a survey conducted in 2008,⁽⁸⁾ data on the students' school career, and from several purpose-built surveys. Database limitations obliged us to exclude the sample of students whose *collège* did not enter the Year 6 test scores and those who did not answer the 2008 family survey. We used the weighting calculated by DEPP to take account of these exclusions.

To study changes in performance over time, we considered only students who took the general *brevet* exams 4 or 5 years after entering Year 6 (and for whom a grade in the French and mathematics exam was entered). We thus exclude 16% of Year 6 entrants who were moved into specialized programmes or into dissimulated 'dead-end' tracks at a young age. Among this group, one-third took a technological *brevet*, one-fifth entered a SEGPA class, one-tenth entered a CAP (*certificat d'aptitude professionnelle*) vocational track, and a few entered specialized learning centres or 'second chance' schools. The remaining one-fifth were 'lost to observation' in national data.

The probability of not sitting the general series *brevet* 4 or 5 years after entering Year 6 is closely linked to the student's social and academic characteristics (Appendix Table A.1). Of the students in the first quintile of the Year 6 test grades, 41% did not sit the exam versus 4% among those in the fifth quintile and likewise one-quarter of children from working-class families.

III. Changes in academic performance over time

At the aggregate level, the change in academic performance between Year 6 and Year 9 varies by subject. In French, the mean score falls only slightly (from 59/100 to 54/100), and the standard deviation decreases from 12.5 to 11.5. In mathematics, not only does the mean score fall more sharply (from 68/100 to 47/100), but the standard deviation also increases (from 11.4 to 15.3). Contrary to what is observed for French, performance in mathematics becomes increasingly discriminative, confirming that a large

(7) These are the two subjects represented in both cases. They are also the subjects to which students devote the most classroom hours during their *collège* career.

(8) Since all the sociodemographic information used in this article is based on this survey, changes over time (for example, in mother's employment status) cannot be captured between the start of observation in Year 6 and the end of Year 9.

Box. An original measure of the parents' occupations

Because many students have dual-earner parents, we created a nine-category parents' occupations variable that functions, with one exception, by iteration (Figure 1). The categories were first listed in order of their proximity to the education system, as measured by the students' mean Year 6 test score. While we separated out the teaching professions (all levels)⁽¹⁾ and grouped some occupations together, the scale follows the same order as the socio-educational synergy index constructed by Le Donné and Rocher (2010). Students were then ranked in the higher of their parents' two categories or, where applicable, in the category of their only reported parent. Consequently, while 'teacher' includes all children whose mother or father is a teacher, the 'skilled worker' category only includes those for whom neither parent is a teacher, in a higher-level or intermediate occupation, or self-employed. As farmers are few and their unions have an atypical structure, a separate category was created for all children whose father is a farmer.⁽²⁾

Figure 1. Construction of the parents' occupations variable

Father's occupation	Mother's occupation								
	Teacher (all levels)	Higher-level occupation or business owner*	Intermediate occupation**	Self-employed	Clerical/sales worker	Skilled manual worker	Unskilled manual worker	Economically inactive or NR***	Farmer
Teacher (all levels)	Teacher (all levels) (8%)								
Higher-level occupation or business owner*	Higher-level occupation (21%)								
Intermediate occupation**	Intermediate occupation** (21%)								
Self-employed	Self-employed (8%)								
Clerical/sales worker	Clerical/sales worker (28%)								
Skilled manual worker	Skilled manual worker (7%)								
Unskilled manual worker	Unskilled manual worker (3%)								
Economically inactive or NR***	Economically inactive or NR*** (1%)								
Farmer	Farmer (2%)								

* Excluding teachers. ** Excluding primary school teachers. *** Non-response.

Note: In 0.6% of cases, this question was not answered by both parents.

Coverage: All students whose Year 6 test scores, *brevet* grades, and family characteristics are known (N = 21,448).

Source: 2007 panel of secondary school students and 2008 family survey, MEN-DEPP; weighted data.

(1) In the INSEE socio-occupational categories, teachers are spread across several groups by teaching level (primary, secondary, etc.). Teachers' children achieve better Year 6 test scores, on average, than children in other categories, and teachers differ from other highly educated parents in that their free time coincides with that of their school-age children (Letrait and Salane, 2015). We therefore placed them in a separate category.

(2) In practice, the mother is also a farmer in 30% of cases. Only four students have a mother who is a farmer but a father who is not.

share of students fall behind in mathematics during their years in *collège* (Appendix Figure A.2). In the Year 6 mathematics tests, 15% of students obtain a score of less than 50/100; the proportion is 55% at the end of Year 9. A score lower than 25/100 is rare in the Year 6 tests (0.6%) but concerns 18% of students in Year 9.⁽⁹⁾

French and mathematics are disciplines in which performance over time diverges at *collège* level. In mathematics, an ‘elitist’ subject requiring cumulative knowledge acquisition (Broccolichi, 1994; Baudelot and Establet, 2009), a substantial share of students are progressively left behind, but much less so in French.

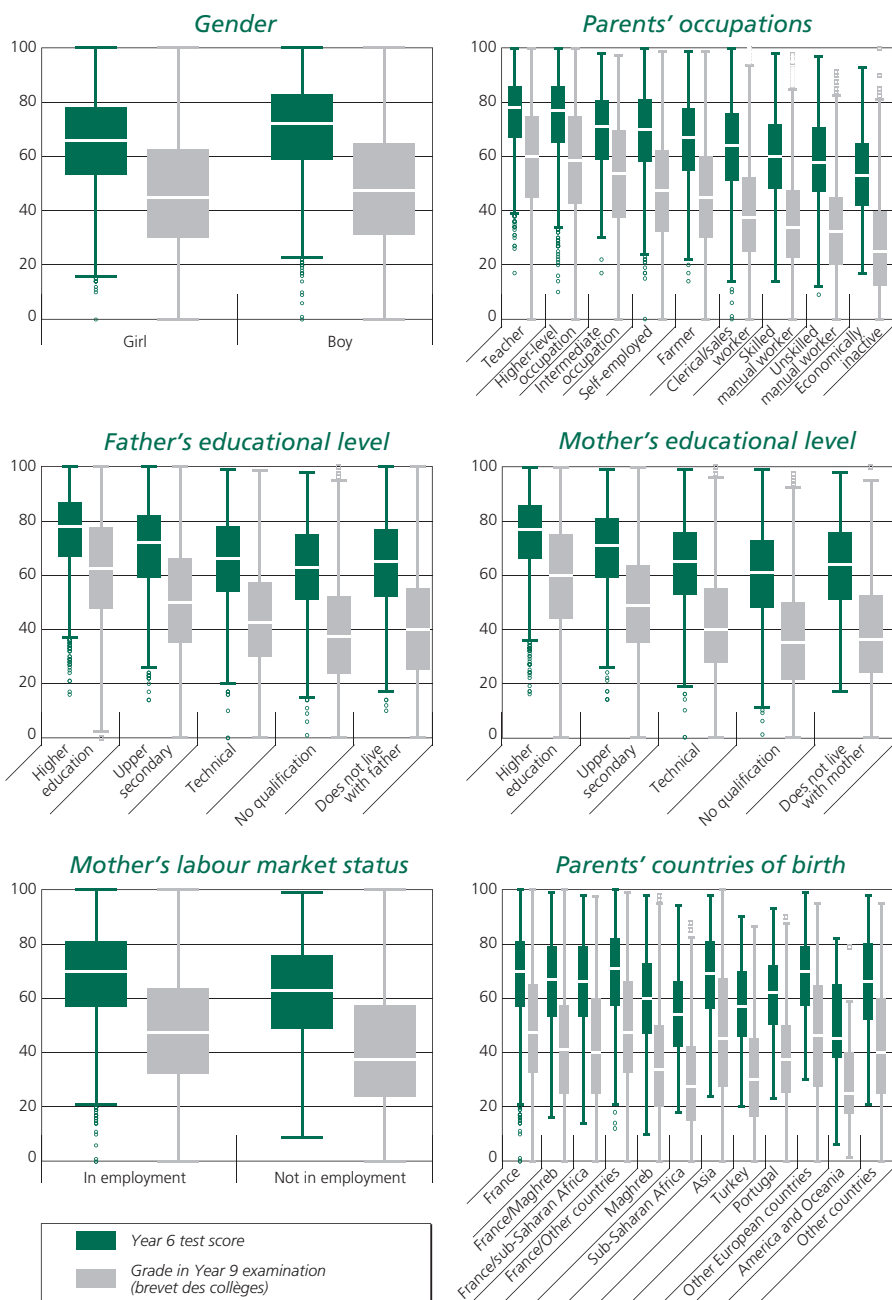
To study performance over time by social origin, gender, and migration history, we calculated the difference between the Year 6 test score and the Year 9 *brevet* grade for each student and subject. We observe that the mean changes (–20 points in mathematics and –5 points in French) vary across sociodemographic characteristics.

In mathematics (Figure 2), the differences by parents’ occupations and educational levels are clear. Not only do children with parents in the ‘teacher’ and ‘higher-level occupation’ and/or ‘higher education’ categories (Box) obtain higher test scores in Year 6, but their performance also falls much less sharply over time than that of working-class children. Likewise, migration history affects both Year 6 test scores and subsequent academic performance, which are poorer in both cases for children of foreign-born parents, excepting those born in Europe or Asia. Gender, on the other hand, is becoming less inegalitarian: the advantage of boys over girls in the Year 6 tests is narrowing.

In French (Figure 3), the raw data reveal an advantage at the start of Year 6 for students in the ‘teacher’ and ‘higher-level occupation’ categories, for girls, and for children with French-born parents, but the differences appear to stabilize at *collège* (or even narrow for the ‘parents’ countries of birth’ variable).

(9) Continuous assessment grades conceal this problem most markedly as poor performance in mathematics is often camouflaged by adapting grading practices to the local context, especially in classes or schools where overall achievement is low (Broccolichi et al., 2010).

Figure 2. Distribution of mathematics scores in Year 6 and Year 9

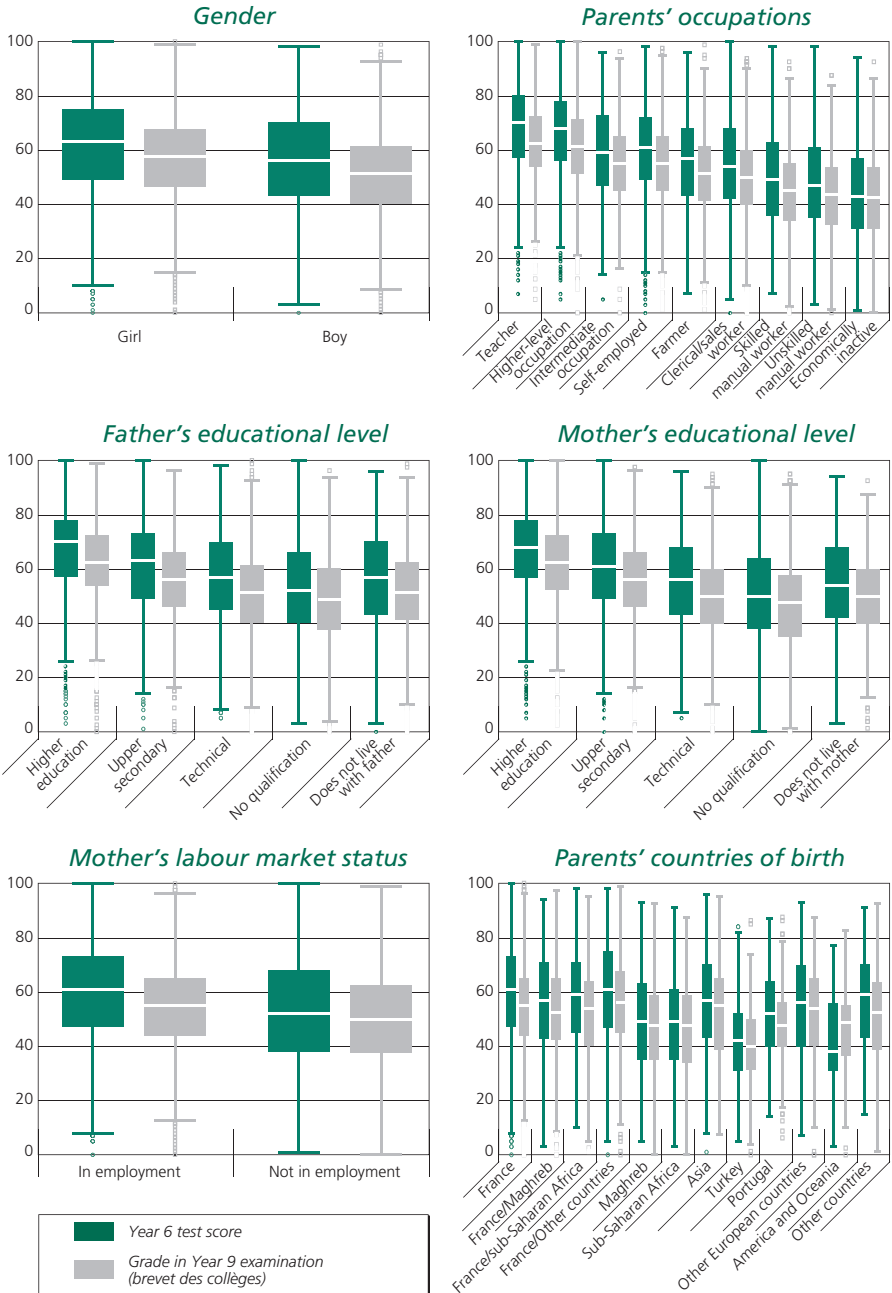


Interpretation: For each sub-population, the rectangle corresponds to the second and third quartiles. The median score is represented by the central line. The bars indicate the highest and lowest scores, ignoring the outliers (0.5%), which are represented by circles.

Coverage: All students whose Year 6 test scores, *brevet* grades, and family characteristics are known (N = 21,448).

Source: 2007 panel of secondary school students and 2008 family survey, MEN-DEPP.

Figure 3. Distribution of scores in French in Year 6 and Year 9



Interpretation: For each sub-population, the rectangle corresponds to the second and third quartiles. The median score is represented by the central line. The bars indicate the highest and lowest scores, ignoring the outliers (0.5%), which are represented by circles.

Coverage: All students whose Year 6 test scores, *brevet* grades, and family characteristics are known (N = 21,448).

Source: 2007 panel of secondary school students and 2008 family survey, MEN-DEPP.

IV. Testing the three scenarios

As gender, social origin, and migration history are embedded in social reality, they must be considered separately to test the three scenarios. We therefore ran three separate linear regressions by subject (Tables 2 and 3) and added the variables one by one.

Because students do not all have the same amplitudes of potential change in performance in Year 6, we controlled by quintiles of Year 6 test scores. We also chose not to centre and reduce the Year 6 and Year 9 scores because these distribution differences form part of the analysis. The increase in the standard deviations of the mathematics scores is itself a product of the education system—it is what needs explaining, not what needs to be neutralized.

1. Changes in performance by social origin

To proxy the effect of social origin, we can use the ‘parents’ occupations’ variables, the parents’ educational levels⁽¹⁰⁾ (which includes a category to take account of children not living with their father/mother), and the mother’s labour market status (13% of mothers are not in employment). In Model 1, we first include our measure of the parents’ occupations. While of variable intensity, the ‘divergent evolution’ scenario emerges for both mathematics and French. In mathematics, students in the ‘unskilled worker’ category lose 12 points with respect to children of the ‘teacher’ category, after controlling for initial level and gender, having already started out with 17 fewer points (on a 100-point scale) in Year 6. In French, they lose a further 8 points with respect to the children of teachers, having started Year 6 with 20 fewer points. Compared to the children of teachers, those in all other categories (apart from two) experience a greater drop in performance, which increases down the social scale.

Regressions by quintiles of Year 6 test scores (Appendix Tables A.4 and A.5) also show that the decline in performance of working-class students concerns not merely those with a low Year 6 score but also children of manual workers, clerical workers, or inactive parents who performed well in the Year 6 tests. Clearly, working-class children have a particularly difficult time in *collège*; not only are more of them excluded from the general track before the end of Year 9, but the performance of those who remain follows a more negative path than that of middle- and upper-class children, whatever their initial test scores.

Let us look more closely at the two exceptions. First, no significant difference is observed between the ‘higher-level occupations’ and ‘teacher’ categories of students in the two subjects examined. From Year 6 to Year 9, both groups enjoy a good relative position. Second, in mathematics, the children in the

(10) Consistent with their other social characteristics, respondents who did not answer questions on educational level were grouped with ‘no qualifications’ (this situation concerns 3% of fathers and 4% of mothers).

‘farmer’ category are not significantly different from those in the ‘teacher’ category. Their pattern of performance is radically different from that of the other categories with comparable Year 6 test scores: in terms of raw values, it is this category whose performance declines least.

In Model 2, we include the variables of parents’ educational level and mother’s labour market status. While correlated with the parents’ occupations, the educational level and family situation have a specific effect on performance over time in the two subjects. First, the more highly educated the parents, the more positive the students’ performance in *collège* over time. Second, having a lone parent⁽¹¹⁾ is associated with poorer *collège* performance over time. The mother’s labour market status has no specific effect on performance over time, although students with inactive mothers have lower Year 6 test scores. Introducing these variables into the model halves the effect of the parents’ occupations.

Introducing educational level produces a counter-intuitive result for the ‘farmer’ category. When these new variables are introduced into the models explaining performance over time in mathematics, the coefficient changes in a surprising manner. Only the children in the ‘farmer’ category perform better over time than those of the ‘teacher’ category. The better performance over time of children in the ‘farmer’ category observed in the raw data for mathematics is all the more specific given that their parents rarely have a higher-education qualification.⁽¹²⁾

2. Girls derive more benefit from their years at *collège*

In Year 6, girls have higher scores than boys in French but lower scores in mathematics. Between Year 6 and Year 9, they lose less ground than boys in both subjects, widening the gap in French and catching up in mathematics.⁽¹³⁾

The study of performance over time thus provides an explanation for the advantage of girls at the end of Year 9 (that is built up over time) and the near gender equality in mathematics (resulting from a progressive worsening of boys’ performance through *collège*), previously noted by Baudelot and Establet (1992).

3. Divergence between children of immigrants and those with French-born parents

There is an abundant literature on the academic careers of immigrants’ children in France. Seminal studies have shown that the educational disadvantage of children of immigrants relative to those with French-born parents is linked

(11) This is estimated via the question ‘Who does the student live with?’, to which the families could answer: with both parents; with their mother/father alone; with their mother/father and his/her partner (who is counted as the mother/father in the data). In the sample of students, 20% lived with their mother only and 3% with their father only.

(12) There are 511 children whose father is a farmer in the database (unweighted numbers), so this finding is not linked to the random variations associated with undersized samples.

(13) The gender differential applies for all social categories but tends to increase down the social scale. It is particularly marked among the working classes.

Table 2. Effect of socioeconomic variables on progress in mathematics between Year 6 and Year 9

Variables	Model 1	Model 2	Model 3	Model 4
Quintiles in Year 6				
Quintile 1	8.966***	9.936***	10.10***	10.52***
Quintile 2	2.406***	2.878***	2.934***	3.056***
Quintile 3	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Quintile 4	-0.809*	-1.237***	-1.262***	-1.419***
Quintile 5	1.261***	0.195	0.139	0.0394
Gender				
Boy	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Girl	2.474***	2.460***	2.450***	2.334***
Parents' occupations				
Teacher	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Higher-level occupation	-0.777	-0.156	-0.207	-0.443
Intermediate occupation	-6.236***	-3.046***	-3.079***	-3.137***
Self-employed	-6.639***	-1.975**	-1.967**	-2.655***
Farmer	-0.488	2.759***	2.626**	0.965
Clerical/sales worker	-9.784***	-4.172***	-4.086***	-4.050***
Skilled manual worker	-10.98***	-4.619***	-4.511***	-4.641***
Unskilled manual worker	-11.88***	-4.733***	-4.456***	-4.536***
Economically inactive	-12.70***	-5.067***	-4.879***	-4.802***
Father's educational level				
Higher education		<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Upper secondary		-2.383***	-2.463***	-2.428***
Technical		-3.949***	-4.209***	-4.399***
No qualification		-5.398***	-5.424***	-5.218***
Does not live with father		-6.036***	-6.174***	-5.550***
Mother's educational level				
Higher education		<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Upper secondary		-2.317***	-2.305***	-2.216***
Technical		-4.103***	-4.180***	-4.060***
No qualification		-5.992***	-5.782***	-5.412***
Does not live with mother		-6.446***	-6.502***	-5.952***
Mother's labour market status				
In employment		<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Not in employment		0.079	0.191	0.285
Parents' countries of birth				
France			<i>Ref.</i>	<i>Ref.</i>
France/Maghreb			-2.809***	-1.762**
France/sub-Saharan Africa			-3.059***	-2.016*
France/other countries			0.242	0.715
Maghreb			-1.802**	0.103
Sub-Saharan Africa			-3.804***	-0.808
Asia			2.272	4.363***
Turkey			-1.774	-0.134
Portugal			0.88	2.055
Other European countries			-2.782	-2.072
America and Oceania			-2.421	-0.295
Other countries			-1.654	-0.395

Table 2 (cont'd). Effect of socioeconomic variables on progress in mathematics between Year 6 and Year 9

Variables	Model 1	Model 2	Model 3	Model 4
Type of school				
Public, non-compensatory				<i>Ref.</i>
Private				4.705***
Public RAR ^(a)				-1.135*
Public RRS ^(b)				-2.212***
Private/public mobility				-1.944*
Public/private mobility				-0.00682
Mobility within compensatory education				-2.559***
Locality served by the school				
< 5,000 inhabitants				1.415***
5,000 to 49,999 inhabitants				<i>Ref.</i>
50,000 to 199,999 inhabitants				-1.131**
≥ 200,000 inhabitants				-0.729*
Paris region				-3.446***
Change of school locality				-1.827***
Constant	-18.05***	-15.09***	-14.78***	-15.04***
<p>(a) <i>Réseaux ambition réussite</i>: high-priority compensatory education school. (b) <i>Réseaux de réussite scolaire</i>: other compensatory education school. <i>Interpretation</i>: For girls, the average change in mathematics scores between Year 6 and Year 9 is 2.474 points more positive than for boys (Model 1). <i>Statistical significance</i>: * $p < .05$, ** $p < .01$, *** $p < .001$. <i>Coverage</i>: All students whose test scores in Year 6, <i>brevet</i> grades, and family characteristics are known ($N = 21,448$). <i>Source</i>: 2007 panel of secondary school students and 2008 family survey, MEN-DEPP.</p>				

to their more frequent working-class social origins. Rather than considering that the problem of immigrant children is due to cultural differences between France and their parents' countries of birth, these studies have highlighted the socioeconomic factors behind this difference (Vallet, 1996; Brinbaum and Kieffer, 2009).

More recently, comparing differences in standardized test scores between children of immigrants and of French-born parents at three moments in their school career, and making a clearer distinction between countries of origin, Ichou concluded that 'children of immigrants perform better, on average' during the period between Year 1 and Year 6, but the trend is then reversed: 'between Year 6 and Year 9, the difference (raw and, above all, net)⁽¹⁴⁾ between children of French-born parents and of immigrants widens again, with the former outperforming the latter' (Ichou, 2015, p. 38).

In Model 3, we introduce a 12-category variable for the parents' countries of birth. Like Ichou (2013), we give priority to precision over parsimony, considering that the 'statistical risk' of obtaining non-significant results is of

(14) The net difference is that observed after controlling for the students' social and demographic characteristics.

Table 3. Effect of socioeconomic variables on progress in French between Year 6 and Year 9

Variables	Model 1	Model 2	Model 3	Model 4
Quintiles in Year 6				
Quintile 1	13.70***	14.12***	14.11***	14.24***
Quintile 2	4.437***	4.694***	4.694***	4.739***
Quintile 3	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Quintile 4	-4.689***	-4.941***	-4.957***	-5.000***
Quintile 5	-9.911***	-10.47***	-10.49***	-10.49***
Gender				
Boy	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Girl	3.486***	3.690***	3.706***	3.705***
Parents' occupations				
Teacher	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Higher-level occupation	-0.457	-0.111	-0.113	-0.493
Intermediate occupation	-3.510***	-1.672***	-1.662***	-1.759***
Self-employed	-5.100***	-2.396***	-2.463***	-2.768***
Farmer	-3.301***	-1.279*	-1.251*	-1.560**
Clerical/sales worker	-5.771***	-2.619***	-2.634***	-2.680***
Skilled manual worker	-7.896***	-4.456***	-4.555***	-4.571***
Unskilled manual worker	-8.156***	-4.656***	-4.779***	-4.748***
Economically inactive	-7.456***	-4.192***	-4.198***	-4.233***
Father's educational level				
Higher education		<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Upper secondary		-1.075***	-1.098***	-0.988**
Technical		-2.324***	-2.309***	-2.189***
No qualification		-2.105***	-2.221***	-2.057***
Does not live with father		-2.147***	-2.093***	-1.818***
Mother's educational level				
Higher education		<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Upper secondary		-1.126***	-1.122***	-1.009***
Technical		-3.297***	-3.268***	-3.084***
No qualification		-3.351***	-3.429***	-3.208***
Does not live with mother		-3.206***	-3.162***	-2.797***
Mother's labour market status				
In employment		<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Not in employment		0.462	0.424	0.382
Parents' countries of birth				
France			<i>Ref.</i>	<i>Ref.</i>
France/Maghreb			-0.117	-0.119
France/sub-Saharan Africa			-0.924	-0.964
France/other countries			0.939*	0.929*
Maghreb			0.935	0.948
Sub-Saharan Africa			-0.491	-0.468
Asia			3.018***	2.764**
Turkey			-0.365	-0.322
Portugal			1.096	1.053
Other European countries			-0.342	-0.269
America and Oceania			3.622	3.536
Other countries			-1.416	-1.445

Table 3 (cont'd). Effect of socioeconomic variables on progress in French between Year 6 and Year 9

Variables	Model 1	Model 2	Model 3	Model 4
Type of school				
Public, non-compensatory				<i>Ref.</i>
Private				2.850***
Public RAR ^(a)				0.77
Public RRS ^(b)				0.222
Private/public mobility				-0.0132
Public/private mobility				0.351
Mobility within compensatory education				-0.383
Locality served by the school				
< 5,000 inhabitants				-0.218
5,000 to 49,999 inhabitants				<i>Ref.</i>
50,000 to 199,999 inhabitants				-0.292
≤ 200,000 inhabitants				0.0259
Paris region				0.0243
Change of school locality				-0.971*
Constant	-3.767***	-2.450***	-2.496***	-3.079***
(a) <i>Réseaux ambition réussite</i> : high-priority compensatory education school. (b) <i>Réseaux de réussite scolaire</i> : other compensatory education school. Statistical significance : * $p < .05$, ** $p < .01$, *** $p < .001$. Interpretation : For girls, the average change in French scores between Year 6 and Year 9 is 3.486 points more positive than for boys (Model 1). Coverage : All students whose test scores in Year 6, <i>brevet</i> grades, and family characteristics are known ($N = 21,448$). Source : 2007 panel of secondary school students and 2008 family survey, MEN-DEPP.				

lesser importance than the 'sociological risk' of ignoring the diversity of educational trajectories among children of immigrants.

We distinguish four types of effects of parents' countries of birth on performance over time. First, in mathematics, children whose parents were both born in the Maghreb or sub-Saharan Africa perform less well than those with French-born parents. Children of Maghrebi parents have a mean mathematics score of 60/100 in the Year 6 test and 37/100 in Year 9, a significant difference compared to the children of French-born parents (whose scores fall from 68/100 to 48/100). This is partly explained by their working-class background, although the 'parents' countries of birth' also has an effect after controlling for this variable (Model 3).⁽¹⁵⁾ In French, while children with two Maghrebi or sub-Saharan African parents perform less well in the Year 6 test than those with French-born parents (48/100 and 49/100 vs. 60/100, respectively), the difference remains stable throughout the *collège* years, after controlling for social origin.

(15) Children with one parent born in France and the other in the Maghreb or sub-Saharan Africa obtain Year 6 mathematics test scores similar to those of children with French-born parents, but they perform less well over time.

Children of Asian-born parents perform better at school, as noted by Ichou (2013). In mathematics, the performance over time of children with Asian-born parents does not differ significantly from that of children with French-born parents, but in French it is significantly better (+3 points on average).

For the other groups of immigrants' children, no significant difference compared to children of French-born parents is observed after controlling for social origin, perhaps because the sample size is too small, or the categories such as 'other European countries' or 'other countries' are heterogeneous, or because the performance of immigrants' children over time parallels that of children with no identified migration history.

Last, as shown by Ichou (2013), boys with Turkish-born parents perform most poorly, obtaining just 30/100 in mathematics in Year 9 versus 50/100 for sons of French-born parents. Their scores are low in Year 6 (60/100 for sons of Turkish-born parents versus 71/100 for sons of French-born parents), but their performance over time is even more negative than that of all other groups.⁽¹⁶⁾

Here again, the variables are strongly interlinked: 94% of the children of farmers have French-born parents versus 55% of children in the 'unskilled worker' category. For children of parents born in the Maghreb, the probability of belonging to the 'unskilled worker' category is 16% versus 2% when the parents are French-born.

One might expect the introduction of this variable to reduce the effect of the parents' occupations, as was the case for educational level, family situation, and labour market status, but the two effects co-exist and do not cancel each other out. Whether children of immigrants or not, working-class children perform less well over time than middle- and upper-class children. And the mathematics performance of students with parents born in the Maghreb or sub-Saharan Africa, whether working-class or not, decreases over time at *collège*.

These initial analyses show that social differences are magnified at *college*, but to an extent that differs by subject and by type of characteristics considered. First, despite already unequal Year 6 test scores, and more so in mathematics than in French, the differences between children with parents who are teachers or in higher-level occupations widen in *collège* with respect to the others (excepting the children of farmers). Second, the gender differences observed at the start of *collège* tend to narrow in mathematics but widen in French, to the disadvantage of boys. Last, once social origin has been taken into account, the parents' country of origin has no significant effect on performance over time in French; only certain migrant categories (Maghreb, sub-Saharan Africa for both sexes, and Turkey for boys) have significant and negative effects on performance over time in mathematics.

(16) The weaker performance over time of boys with Turkish-born parents compared to girls of the same category is brought to light by the regression models with interaction variables taking account of the student's gender (results not shown here).

V. Are these differentials in performance over time linked to the school environment?

Two main types of explanation for inequalities in academic performance are found in the literature. Some argue that the unequal distance between family socialization and academic requirements may explain the lower performance of working-class children (Lahire, 1995; Thin, 1998), boys (Baudelot and Establet, 1992; Depoilly, 2014), and the children of immigrants (Ichou, 2018). Others focus on differences in the educational environment, such as school effects, class effects, and teacher effects (Cousin, 1993; Duru-Bellat and Mingat, 1997; Felouzis, 2003; Cusset, 2011). Studies of student trajectories after the second educational upheaval tend to argue that segregation has increased and represents an ever stronger explanatory factor of inequality (Broccolichi, 1995). Our data enable us to test in part the hypothesis whereby certain differentials in performance over time are attributable to differences in the educational environment, notably the characteristics of the school attended and the size of the locality it serves.

1. Multiple effects of school type on performance over time

In Model 4, we first include a variable specifying the type of school and any moves to a new type of school during the *collège* years. For students with no change of school type, private and public *collèges* are distinguished and, among that latter, *collèges* that belong to the Réseau Ambition Réussite (RAR) high-priority compensatory education network, on the one hand, and other compensatory education schools (RRS), on the other.⁽¹⁷⁾ These large categories each encompass a diversity of situations, be it in the private sector (Tavan, 2004; DEPP, 2014), in compensatory education schools, or in the other school types (Kherroubi and Rochex, 2002).

Around 8% of students move to a different type of school during their *collège* years. For Dupuy (2017), staying in the same school is associated with better performance, and students who move to a different school often do so through obligation (particularly students with difficulties) rather than choice. To analyse these changes, we classified them by the direction and type of mobility (public to private; private to public; mobility between compensatory education schools).

While no significant difference between compensatory education and non-compensatory education *collèges* in the public sector is observed in the regression models for French, the RRS and RAR *collèges* stand out significantly and negatively for mathematics (Table 2). Grades in this subject decrease more strongly in the RRS than the RAR schools; despite having fewer students of

(17) In 2006, compensatory education schools were divided into two categories: schools with the most severe disadvantages (RAR) and those not included in the main target category (RRS). The RAR were renamed Éclair in 2011, then REP+ in 2015; the RRS became REP in 2015.

working-class or immigrant origin, or with a low Year 6 test score (Appendix Table A.2.), RRS schools also have fewer resources.⁽¹⁸⁾

Students who stay in private school from Year 6 to Year 9 perform better over time than those in public non-compensatory education schools in both French (+3 points) and mathematics (+5 points).

These effects cannot meaningfully be interpreted as ‘school type effects’ (Cousin, 1993), i.e. effects specific to these schools’ educational practices and policies. At least three effects are combined in the processes at play: the social composition of the schools, the characteristics of the families, and the differential selectivity of the public and private sectors. To begin with, in their measures of attainment, Ben Ali and Vrouc’h (2015) noted that the net sector effect tends to weaken when the mean social status of the students in the school is taken into account. Moreover, Ben Ayed (1998) showed that working-class families with children in private schools already have specific characteristics (familiarity with the education system, small amounts of capital, etc.) which distinguish them from those with children in public schools. He also found that the characteristics of populations leaving the private sector are different from those who remain there, a result that reflects the strong selectivity of private schools over the students’ school career. Comparing the population structure of students who stay in the private sector with those who leave it between Year 6 and Year 9 confirms this social selectivity;⁽¹⁹⁾ in practice, private-to-public mobility is associated, in mathematics, with more negative performance over time, all other things being equal.

2. Students attending schools outside large urban areas perform better over time in mathematics

The size of the locality is also a component of the school environment. While this factor has no effect on performance over time in French, students spending all their *collège* years in the Paris region perform significantly less well in mathematics than students attending schools in towns of 5,000 to 50,000 inhabitants, after controlling for social characteristics. Conversely, the performance of students attending schools in municipalities of less than 5,000 inhabitants evolves more positively.

The work of Broccolichi, Ben Ayed, and Trancart (2010) showed that the greater the difference between schools within a department of France (i.e. the stronger the educational segregation), the poorer the performance of these

(18) As the 2007 panel assigned extra weighting to students entering the RAR *collèges*, this finding is not influenced by the small number of RAR students at the national level.

(19) The categories that distinguish the social structures of these two subpopulations (those who stay in the private sector from Year 6 to Year 9 versus those who leave) at the 5% level are as follows: those who stay are more often girls and the children of people in higher-level occupations and farmers; while those who leave are more often boys, the children of clerical/sales workers or unskilled manual workers, and those who more often have parents born in sub-Saharan Africa or one or two born in the Maghreb.

departments relative to the benchmark level based on the students' social profile. The Paris region's departments have the highest levels of segregation and are most concerned by this 'underperformance', as measured by Year 6 test scores. Conversely, students in the least segregated departments (also the least urbanized) 'overperform' in relation to the benchmark level. Our analyses confirm these results by showing that differences in mathematics widen between Year 6 and Year 9.

The two disciplines studied are unequally sensitive to the school environment: performance over time is affected by locality size, public/private sector, and compensatory education status for mathematics, but only by retention in the private sector for French.

3. The effect of the school environment on performance over time

Let us return to our initial question: since enrolment in private schools and compensatory education schools varies by social origin and migration history, do the differences between schools explain the diverse patterns of performance over time presented here?

Regarding social origin, the coefficients are remarkably similar between the models with school environment variables and those without. The estimated effect of school environment thus exists alongside the differences linked to social origin but does little to explain them. The finding that children of the 'skilled manual worker' category perform less well over time than those in the 'teacher' category is not linked to the type of school or to the size of the school's locality. Yet fewer children in this group remain in private schools, and more attend an RRS school (Appendix Table A.3); they are more often concerned by an accumulation of these other disadvantageous characteristics.

A notable exception is that of children in the 'farmers' and 'self-employed' categories, who are over-represented in private *collèges* and in rural areas and small towns. More markedly in mathematics than in French, the coefficients associated with their performance over time decrease between Models 3 and 4, which suggests that remaining in a private school and attending a school located far from the most segregated zones explain their advantage.

Boys and girls do not differ in terms of the characteristics of the schools they attend, except that boys more frequently leave private education. They are unequally sensitive to these characteristics, however. Regressions run after adding interaction effects for gender show that the positive effect of remaining in the private sector concerns boys only. But it is not the school environment that explains these gender differences; the coefficients remain stable across the different models.

Conversely, the identified effects of migration history on mathematics are largely cancelled out when the type of school is taken into account. The disadvantage in this subject of children whose parents were born in the Maghreb

or in sub-Saharan Africa is explained by the fact that they more frequently attend public schools, compensatory education schools in particular, than children with French-born parents, and that these schools are more often in the Paris region.⁽²⁰⁾ The weaker academic performance in *collège* of the children of immigrants observed by Ichou (2015) is almost totally explained by their social origin, on the one hand, and by their less favourable school environment, on the other. After controlling for the fact that they more frequently live in the Paris region and often attend RRS and RAR schools, the performance over time of children with Asian-born parents is significantly better than that of children with French-born parents, in both mathematics and French.

Conclusion

In a context where a very large fraction of each age cohort in France is educated in a comprehensive lower secondary school with near-universal access to Year 9, we analysed changes in academic performance over the 4 or 5 years separating the entry into Year 6 and the general *brevet des collèges* examination at the end of Year 9, among students who enrol to take it for the first time. We have shown that differences are magnified at *collège*, but to an extent that differs by subject and by the students' social characteristics.

These changes appear to be strongly influenced by social origin. The performance of working-class children, whose Year 6 test scores were already lower than those of middle- and upper-class children, falls more markedly over time. This is even the case for those with good Year 6 test scores, despite 1 in 4 working-class children not sitting the general *brevet des collèges* examination 4 or 5 years after entering Year 6. The school environment does not explain these differences in performance over time. This confirms the scenario of diverging performance by social class; the differences linked to the students' social origin grow wider between Year 6 and Year 9.

These differences are also linked to gender, with girls maintaining a steadier performance than boys in both French and mathematics. As girls already had better Year 6 test scores in French than boys, but poorer scores in mathematics, changes in performance linked to gender are divergent in French and convergent in mathematics.

Migration history, which explains a large share of the variability of results in Year 6, does not seem to affect academic performance over time other than via differentials in the school environment. While children with parents born in the Maghreb or in sub-Saharan Africa make less progress in mathematics than children with French-born parents, even after controlling for social origin, these inequalities are explained by the fact that they more frequently attend

(20) This is the case for 32% of children with at least one foreign-born parent versus 11% of children with two French-born parents.

compensatory education schools and/or schools in the Paris region, and less frequently remain in the private sector.

As already shown by Duru-Bellat and Mingat (1988), mathematics is a more inegalitarian subject than French at the *collège* level. Social origin and the school environment have a stronger effect on performance in mathematics over time. This shows that reliance on components of legitimate culture is not the only means whereby the school reproduces inequalities; by building upon social skills unequally transmitted via the family (capacity to defer gratification, to exercise self-control, etc.) and not taught (Vincent, 1980; Cayouette-Remblière, 2016), the *collège* widens inequalities, including in subjects directly taught and overseen by the school.

To conclude, it is useful to examine how this evidence of diverging performance over time across different social origins adds a new perspective to recent findings on the link between inequalities in academic performance and in track orientation (Broccolichi, 2010; Broccolichi and Sinthon, 2011). For many years, these two types of inequality were considered independent of each other, as suggested by the theory of primary and secondary effects.⁽²¹⁾ Broccolichi (1994) revisits this dichotomy by showing that if inequalities of progress do indeed exist, then inequalities of performance and track orientation cannot be viewed separately. Given that track orientation is always based on anticipated future risk of failure, if these inequalities in progress are anticipated, they explain why, for a similar performance level at the end of Year 9, future failure risks are judged differently by students and teachers. Viewed from this angle, inequalities in track orientation are no longer the consequence of 'excessive caution' or a 'lack of ambition'; instead, they are another manifestation of inequalities in performance. Showing, as we have done, that inequalities in academic performance by social origin increase as students move up through *collège* validates this interpretation and points up the need to focus public policy on reducing inequalities of achievement rather than on programmes seeking to stimulate the academic ambitions of working-class children.

(21) The supposed 'primary effects' are inequalities in academic performance, while the 'secondary effects' are inequalities in track orientation for an equivalent performance level (Boudon, 1979).



APPENDIX

Table A.1. Probability of not sitting the general *brevet* 4 or 5 years after entering Year 6

Characteristics	%
Parents' occupations	
Teacher	6
Higher-level occupation	7
Intermediate occupation	10
Self-employed	16
Farmer	15
Clerical/sales worker	19
Skilled manual worker	25
Unskilled manual worker	28
Economically inactive	37
Gender	
Girls	12
Boys	19
Year 6 test score quintiles	
Quintile 1	41
Quintile 2	18
Quintile 3	10
Quintile 4	6
Quintile 5	4
Mean	16
<p>Note: The quintiles were calculated for the students in scope. Coverage: All students whose Year 6 test scores are known and whose families responded to the family survey; weighted data. Source: 2007 panel of secondary school students and 2008 family survey, MEN-DEPP.</p>	

Table A.2. Differences in student characteristics by type of school

Characteristics	Students who stayed in the same school			
	Private	Non-compensatory public	RRS ^(a)	RAR ^(b)
Working class (%)	22	40	61	79
At least 1 foreign-born parent (%)	16	18	39	58
Mean Year 6 test score in mathematics (out of 100)	72	68	61	54
Mean Year 6 test score in French (out of 100)	63	59	52	49
<p>(a) <i>Réseaux ambition réussite</i>: high-priority compensatory education school. (b) <i>Réseaux de réussite scolaire</i>: other compensatory education school. Note: The working-class categories comprise students whose parents are in the 'skilled worker', 'unskilled worker', and 'economically inactive' categories for the 'parents' occupations' variable. Coverage: All students whose test scores in Year 6, <i>brevet</i> grades, and family characteristics are known ($N = 21,448$). Source: 2007 panel of secondary school students and 2008 family survey, MEN-DEPP.</p>				

Table A.3. Distribution of students in different types of schools by the parents' occupations and countries of birth

Variables	Private	Non-compensatory public	RRS ^(a)	RAR ^(b)	Moved to a different type of school
Parents' occupations					
Teacher	21	67	0.6	5	7
Higher-level occupation	32	57	0.3	3	7
Intermediate occupation	19	65	1	8	8
Self-employed	24	59	1	7	8
Farmer	28	65	0.7	3	3
Clerical/sales worker	12	65	3	12	8
Skilled manual worker	9	60	6	17	8
Unskilled manual worker	6	55	8	21	10
Economically inactive	5	52	14	18	11
Gender					
Girl	19	62	2	9	8
Boy	19	62	2	9	8
Parents' countries of birth					
France	20	64	1	7	8
Maghreb	7	46	12	24	10
Sub-Saharan Africa	6	36	13	32	13
Asia	19	43	8	25	5
France/Maghreb	16	55	4	15	10
France/sub-Saharan Africa	17	55	4	13	10
Other situations	18	61	4	11	7
<p>(a) <i>Réseaux ambition réussite</i>: high-priority compensatory education school. (b) <i>Réseaux de réussite scolaire</i>: other compensatory education school. Coverage: All students whose test scores in Year 6, <i>brevet</i> grades, and family characteristics are known ($N = 21,448$). Source: 2007 panel of secondary school students and 2008 family survey, MEN-DEPP.</p>					

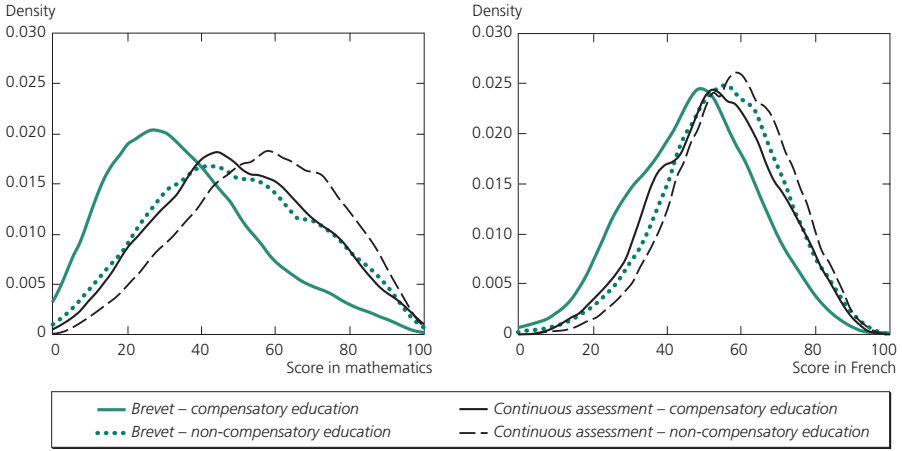
Table A.4. Effect of socioeconomic variables on performance in mathematics between Year 6 and Year 9 (by Year 6 test score quintile)

Variables	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Gender					
Boy	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Girl	1.756***	2.067***	3.248***	3.020***	2.184***
Parents' occupations					
Teacher	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Higher-level occupation	-2.352	0.9	-2.409*	1.218	-1.399
Intermediate occupation	-6.716***	-6.032***	-6.788***	-5.137***	-5.784***
Self-employed	-6.244***	-5.214***	-6.287***	-7.389***	-7.755***
Farmer	-1.974	3.138	-1.593	-0.95	-0.65
Clerical/sales worker	-8.547***	-8.222***	-10.85***	-10.59***	-10.72***
Skilled manual worker	-8.996***	-11.13***	-12.29***	-12.91***	-8.912***
Unskilled manual worker	-9.854***	-12.30***	-13.55***	-11.15***	-13.91***
Economically inactive	-12.37***	-13.69***	-10.49**	-14.96*	-8.122
Constant	-9.245***	-16.39***	-17.59***	-19.55***	-16.37***
<p><i>Interpretation:</i> Between Year 6 and Year 9, the performance over time of girls in the first quintile of the Year 6 test score distribution is 1.756 points above the average for boys in the same quintile.</p> <p><i>Coverage:</i> All students whose test scores in Year 6, <i>brevet</i> grades and family characteristics are known ($N = 21,448$).</p> <p><i>Statistical significance:</i> * $p < .05$, ** $p < .01$, *** $p < .001$.</p> <p><i>Source:</i> 2007 panel of secondary school students and 2008 family survey, MEN-DEPP.</p>					

Table A.5. Effect of socioeconomic variables on performance in French between Year 6 and Year 9 (by Year 6 test score quintile)

Variables	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Gender					
Boy	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Girl	4.012***	3.492***	3.411***	3.089***	3.364***
Parents' occupations					
Teacher	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Higher-level occupation	-0.590	0.058	-1.024	-0.378	-0.406
Intermediate occupation	-3.572**	-3.000**	-4.856***	-3.667***	-2.767***
Self-employed	-6.069***	-4.368***	-5.859***	-4.867***	-4.645***
Farmer	-4.506**	-3.486*	-3.550**	-3.966**	-1.489
Clerical/sales worker	-6.485***	-5.322***	-6.548***	-5.945***	-4.745***
Skilled manual worker	-8.703***	-7.638***	-8.160***	-8.516***	-6.010***
Unskilled manual worker	-8.414***	-8.392***	-11.50***	-5.998***	-4.252**
Economically inactive	-7.881***	-6.536**	-10.15***	-6.624*	-5.743
Constant	10.25***	0.246	-2.877***	-8.193***	-14.12***
<p><i>Interpretation:</i> Between Year 6 and Year 9, the performance over time of girls in the first quintile of the Year 6 test score distribution is 4.012 points above the average for boys in the same quintile.</p> <p><i>Coverage:</i> All students whose test scores in Year 6, <i>brevet</i> grades, and family characteristics are known ($N = 21,448$).</p> <p><i>Statistical significance:</i> * $p < .05$, ** $p < .01$, *** $p < .001$.</p> <p><i>Source:</i> 2007 panel of secondary school students and 2008 family survey, MEN-DEPP.</p>					

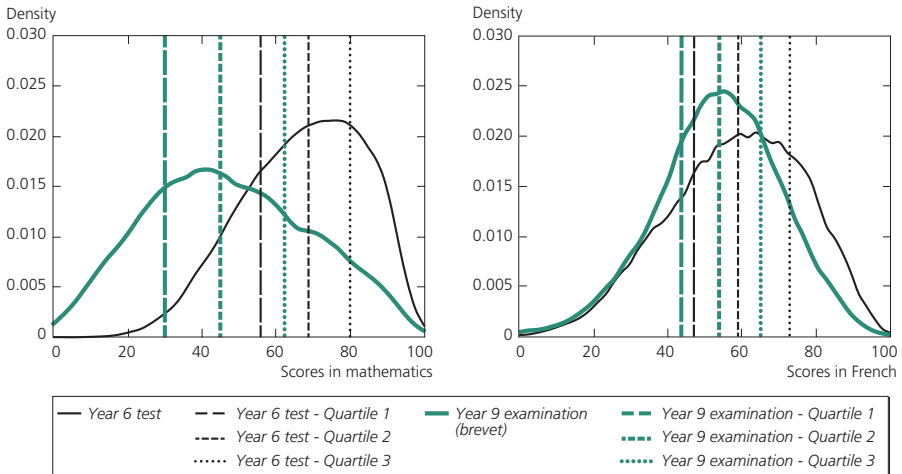
Figure A.1. Distribution, by subject, of continuous assessment and *brevet* grades in compensatory education and non-compensatory education schools



Coverage: All students whose Year 6 test scores, *brevet* grades, and family characteristics are known ($N = 21,448$).

Source: 2007 panel of secondary school students and 2008 family survey, MEN-DEPP.

Figure A.2. Distribution of Year 6 test scores and Year 9 *brevet* grades by subject



Coverage: All students whose Year 6 test scores, *brevet* grades, and family characteristics are known ($N = 21,448$).

Source: 2007 panel of secondary school students and 2008 family survey, MEN-DEPP.

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Joanie CAYOUILLE-REMBLIÈRE, Léonard MOULIN • HOW INEQUALITIES IN ACADEMIC PERFORMANCE EVOLVE IN LOWER SECONDARY SCHOOL IN FRANCE: A LONGITUDINAL FOLLOW-UP OF STUDENTS

By focusing separately on social inequalities in academic success and in track orientation, the sociology of education in France tends to overlook inequalities in performance over time. Yet these inequalities are forged throughout the school career. Drawing on a representative sample of students entering the first year of lower secondary school in 2007, this article examines the social inequalities in performance in French and mathematics that develop between the first and last years of lower secondary. We show that differences by social class, gender, and parents' countries of birth widen during the years in lower secondary school, to the disadvantage of working-class students, boys, and children with parents born in the Maghreb and sub-Saharan Africa. We study the role of the school environment and show that the decline in performance of children with parents from the Maghreb or sub-Saharan Africa can be explained by their over-representation in compensatory education schools, their less frequent retention in the private sector, and their concentration in the Paris region. We find that the school environment does little to explain the widening of the gap between social classes and between boys and girls.

Joanie CAYOUILLE-REMBLIÈRE, Léonard MOULIN • COMMENT ÉVOLUENT LES INÉGALITÉS DE PERFORMANCES SCOLAIRES AU COLLÈGE? UN SUIVI LONGITUDINAL DES ÉLÈVES ENTRE LA 6^e ET LA 3^e

La focalisation de la sociologie de l'éducation sur les inégalités sociales de réussite d'une part, et d'orientation d'autre part, tend à laisser dans l'ombre les inégalités d'évolution des performances scolaires en France. Or, c'est au fil des trajectoires que se construisent ces inégalités. En s'appuyant sur un échantillon représentatif des entrants en 6^e en 2007, cet article s'intéresse aux inégalités sociales d'évolution des performances en français et en mathématiques de la 6^e à la 3^e. Il montre d'abord que les écarts en fonction de la classe sociale, du sexe et du pays de naissance des parents se creusent pendant les années de collège, au détriment des élèves de classes populaires, des garçons, et des enfants dont les parents sont nés au Maghreb ou en Afrique subsaharienne. Il étudie ensuite le rôle des conditions de scolarisation, démontrant que les évolutions négatives des performances scolaires des élèves dont les parents sont nés au Maghreb ou en Afrique subsaharienne s'expliquent par leur plus forte fréquentation des collèges de l'éducation prioritaire, leur moindre maintien dans les établissements du secteur privé ainsi que leur concentration dans l'agglomération parisienne. Dans le même temps, ces conditions de scolarisation n'expliquent guère l'accroissement des écarts entre classes sociales et sexes.

Joanie CAYOUILLE-REMBLIÈRE, Léonard MOULIN • ¿CÓMO EVOLUCIONAN LAS DESIGUALDADES EN EL RENDIMIENTO ESCOLAR DURANTE LOS AÑOS DEL COLEGIO? UN SEGUIMIENTO LONGITUDINAL DE LOS ALUMNOS DESDE EL GRADO SEXTO AL TERCERO

En Francia, la focalización de la sociología de la educación en las desigualdades sociales que afectan el éxito escolar por un lado y la orientación por el otro, oculta las desigualdades que se observan en la evolución de los resultados escolares. Sin embargo, es a través de las trayectorias que se construyen dichas desigualdades. Sobre la base de una muestra representativa de los alumnos ingresados en 6^o curso en 2007, este artículo se centra en los resultados obtenidos en francés y en matemáticas desde el grado 6^o al 3^o. En primer lugar, se muestra que las diferencias en función de la clase social, el sexo y el país de nacimiento de los padres aumentan durante los años de enseñanza secundaria, en detrimento de los alumnos de las clases populares, de los niños, y niños y niñas cuyos padres nacieron en el Magreb o en África subsahariana. Luego, se estudia el papel de las condiciones de escolarización: la evolución negativa del rendimiento escolar de los alumnos cuyos padres nacieron en el Magreb o en África subsahariana se explica por su mayor asistencia a los colegios llamados de educación prioritaria, su menor permanencia en los colegios del sector privado y su concentración en la aglomeración parisina. Estas mismas condiciones de escolarización no explican el aumento de las diferencias según la clase social y el género.

Keywords: lower secondary school, social classes, educational inequalities, academic careers, performance measures, compensatory education, France

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