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Cultural capital or relative risk aversion? Two mechanisms for educational inequality compared[1]

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Abstract

In this paper we empirically examined two explanatory mechanisms for educational inequality: cultural reproduction and relative risk aversion, using survey data taken from secondary school pupils in Amsterdam. Cultural reproduction theory seeks to explain class variations in schooling by cultural differences between social classes. Relative risk aversion theory argues that educational inequalities can be understood by between-class variation in the necessity of pursuing education at branching points in order to avoid downward mobility. We showed that class variations in early demonstrated ability are for a substantial part cultural: cultural capital – measured by parental involvement in highbrow culture – affected school performance at the primary and secondary level. However, relative risk aversion – operationalized by being concerned with downward mobility – strongly affects schooling ambitions, whereas cultural capital had no effect. Thus, we conclude that 'primary effects' of social origin on schooling outcomes are manifested through cultural capital and not through relative risk aversion (in addition to other potential sources of class variations such as genetics). Relative risk aversion, and not cultural capital, affects schooling ambitions, which is relevant for our understanding of secondary effects.

Keywords: Educational inequality; social stratification; the Netherlands; primary and secondary effects; rational choice; cultural reproduction

Introduction

In the past years there has been a growing attention for rational choice explanations of educational inequality. By focusing on the costs and benefits of educational decisions, and by arguing that cost and benefit evaluation varies across social classes, the rational choice perspective offers an alternative to the

still dominant cultural and norm-based theories on educational inequality, such as cultural reproduction theory of Bourdieu (1984; Bourdieu and Passeron 1990 [1977]).

One influential rational choice perspective on educational decision-making is the relative risk aversion mechanism (RRA) of Breen and Goldthorpe (1997; Goldthorpe 1996). Following up on Boudon (1974), Breen and Goldthorpe assume that children take their parents' social position as a reference for own aspirations. The relative risk aversion mechanism states that the most important goal in educational decision-making is to avoid downward mobility. A person will proceed in the educational career minimally as long as is necessary to realize this goal. Children from higher social origins will then stay in the educational system longer than their lower class counterparts with equal talents. This theoretical approach forms the basis of a substantial amount of new empirical research (see for example Becker 2003; Breen and Yaish 2006; Davies, Heinesen and Holm 2002; Need and De Jong 2000; Smyth 1999; Van de Werfhorst 2002; Van de Werfhorst and Andersen 2005).

Goldthorpe (1996) argues that RRA theory is much simpler than cultural and norm-based theories. It is simple in the sense that the main idea is that all participants in the educational systems have a similar goal, which is the avoidance of downward mobility. Moreover, RRA theory is better able to explain observed macro-level phenomena such as educational expansion of, in particular, the working classes and the decreased gender gap in schooling. However, it is difficult to determine whether RRA theory is, at the *individual* level, empirically more tenable than other theories that explain educational inequality. Empirical indicators of central theoretical concepts, in particular relative risk aversion, have not been employed thus far.

This paper employs empirical indicators of the concept of relative risk aversion of Breen and Goldthorpe. Moreover, as our data also contain widely used measures of cultural capital in empirical educational research (e.g. Crook 1997; De Graaf, De Graaf and Kraaykamp 2000; DiMaggio and Mohr 1985; Sullivan 2001), we are able to confront the two theories that have – with regard to the explanation of stable or slightly decreasing class inequalities in education – been put in strong opposition against each other (see Goldthorpe 1996). In this confrontation, it is relevant to distinguish between two types of outcomes: (i) educational performance and (ii) ambitions for the educational career. By distinguishing these two outcomes, we are able to relate cultural capital and relative risk aversion to Boudon's primary and secondary effects of social class on educational outcomes. Primary effects refer to educational inequalities in terms of early demonstrated academic ability (either through genetic, biological, economic or cultural factors – see Goldthorpe 1996). Secondary effects refer to educational inequalities that persist after controlling for class differences in ability, thus more strongly focusing on ambitions and choices of children of different social classes. The research question that we

aim to answer is: To what extent do the two mechanisms of cultural capital in the home environment and relative risk aversion explain educational performance and ambitions?

This research question will be tested using recent survey data gathered among secondary school students in Amsterdam, the Netherlands. Although limited in geographical coverage, the richness of this dataset for our present purposes comes from the empirical indicators of both mechanisms (relative risk aversion and cultural capital), reliable measures of demonstrated ability in primary school, social origin, and various educational outcomes, both in terms of achievements and of ambitions.

Cultural capital explanations of educational inequality

Bourdieu and Passion's cultural and social reproduction theory (1990[1977]) focuses on the unequal distribution of power resources (social, cultural and economical capital) between classes, transmitted over generations. They consider cultural capital as the most important form of capital for children in school. Like all forms of capital, cultural capital is inherited by children from their parents. In its most general form, cultural capital consists of familiarity with the dominant culture in society. This dominant culture, expressed in things such as cultural codes, modes of conduct, and use of language, affects one's 'habitus'; one's system of predispositions, including values and motivations. The dominant culture corresponds to the culture found in schools. Through their familiarity with the dominant culture, children of the middle classes perform better in school. Children of less advantaged social backgrounds, however, perform less well because they lack the resources that brings familiarity with the dominant culture, and because they reject the schooling system as a way to reach particular destinations in their own lives.[2]

Based on Bourdieu's work on the life styles of the economic and cultural fractions of the middle class (Bourdieu 1984), empirical researchers have operationalized cultural capital by looking at participation in high-brow culture in a successful way (Sullivan 2002). Most often cultural behaviour of parents is examined, although sometimes children's behaviour is observed as well (Aschaffenburg and Maas 1997; Sullivan 2001). As our primary concern is with explanatory mechanisms explaining social origin effects, and because the causality between children's cultural behaviour and school performance can be questioned, we focus on parental behaviour only. Part of the impact of parental cultural capital may run through children's cultural capital (Sullivan 2001; but see Aschaffenburg and Maas 1997). This means that we observe the 'total effect' of parental resources, but that is generally not considered problematic.

Quantitative empirical support for the hypothesis that cultural capital affects children's schooling, and that it intermediates the impact of parents'

education and occupation, has been found for many countries (e.g. Crook 1997 for Australia; De Graaf 1986, De Graaf, De Graaf and Kraaykamp 2000 for the Netherlands; Katsillis and Rubinson 1990 for Greece; Sullivan 2001 for Britain; Aschaffenburg and Maas 1997, DiMaggio and Mohr 1985, Dumais 2002, Kalmijn and Kraaykamp 1996, and Wong 1998 for the USA; see Sullivan 2002 for a more extensive overview). The types of outcomes that are studied vary, but most studies have focused on indicators of school performance or the attained educational level.

Relative risk aversion and educational inequality

According to the mechanism of relative risk aversion, the primary goal for each member of any social class is to avoid downward social mobility (Goldthorpe 1996, 2000: chapter 11; Breen and Goldthorpe 1997). Students will make choices in their education to ensure the realization of that goal and will tend to remain in school until that goal is achieved. In other words, people tend to strive for an educational level and social position that is at least equally as good as the position of their parents. Thus, the core of the argument is that all social classes are equally concerned with downward mobility. The fact that children from higher social origins take up higher levels of schooling more often (controlling for ability) is thus explained by the fact that they need more education to ensure class maintenance. In their educational decision-making families will weigh the costs and benefits of educational options versus leaving school, and leaving school early is a costly option for children of higher social origins, as they will not be able to meet their goal of class maintenance.

There are several implications that can be derived from this model, some of which have now been empirically tested. Children of lower social origins need to be more ambitious than children of higher social origins to continue schooling at, particularly higher, educational transitions. Also, children of lower social origins need a higher probability of success than children of higher social origins to decide to continue schooling at branching points. This has now been supported by empirical research (Breen and Yaish 2006). Another implication of the RRA model is that the difference in school continuation ratios is largest among the average students (Boudon 1998). Among the brightest group of students, children of all social classes will have a high likelihood to continue schooling. Also among the least talented, children from lower and higher social origins will face difficulties if they continue schooling. Among the average students, however, those from higher social origins will be much more likely to continue than those from less advantaged social origins.

Furthermore, according to Davies, Heinesen and Holm (2002) RRA theory assumes that the impact of parental education should be strongest on the transition that was the highest that the parents had achieved themselves. They

found support for this hypothesis. Using the same Danish data, Holm and Jaeger (2005) investigated whether the utility derived from educational choices increase up to the level of schooling that ensures class maintenance. They found clear support for this. Van de Werfhorst and Andersen (2005) argued that, if educational choices function to realize the primary goal of class maintenance, children would invest *more* in schooling if education has lost part of its labour market value relative to their parents' generation. Using American data, they only found support for this hypothesis with regard to the transition to postgraduate schooling; for lower transitions it appeared that children invest *less* if education has lost value across generations (corresponding to human capital theory). Van de Werfhorst (2005) has replicated this model for the Netherlands, and found more clearly support for RRA theory for lower transitions.

Need and De Jong (2000) tested implications of RRA theory by comparing Dutch students' current level of education to that of their parents, and by looking at ambitions for the further educational career. Their results revealed that, depending on the social origin, 68 to 95 per cent of the students said they wanted to reach a level of education at least as high as their parents.

Although it is relevant to test empirically the implications of the relative risk aversion mechanism, it is sometimes hard to tell whether other theories might not explain the observed phenomena equally well (cf. Hatcher 1998). The schooling ambitions that Need and De Jong (2000) studied to test RRA theory, for example, have elsewhere been used to operationalize students' 'habitus', a central concept of cultural capital theory (Dumais 2002). Therefore, our way of testing the RRA mechanism is not by testing its *implications*, but by directly *measuring* the concept of relative risk aversion. Such an approach is better able to confront the RRA mechanism with the alternative explanation offered by cultural reproduction theory, as empirical indicators of cultural capital have been widely validated. Holm and Jaeger (2005) were the first to contrast RRA theory with cultural reproduction theory, in which the latter is tested by allowing social classes to vary in the (non-monetary and non-class-based) utility derived from different educational choices. However, they have not employed empirical indicators of both concepts, which seems the most straightforward way of confronting two theories.

Primary and secondary effects: where do the two mechanisms come in?

According to Boudon (1974), class differentials in educational attainment come about through primary and secondary effects. Variations in cultural and intellectual upbringing result in differences in educational performances. More broadly, it is useful to see these primary effects comprise of all the influences of one's social origin (whether they are cultural, economic, genetic,

psychological or social) that form a child's ability to perform in school (Goldthorpe 1996).[3] In addition to these primary effects, youngsters will make choices and have ambitions in the educational system that are related to their social origin, independent of their ability. These effects are called secondary effects of social origin. Erikson et al. (2005) have shown that the secondary effects account for about a quarter of the social selection at A-levels in Britain. The magnitude of primary and secondary effects can be calculated in any stage of the educational career, as long as primary effects are seen as effects of origin on performance at a particular stage in education, whereas secondary effects refer to differential choices conditional on these performances. When studying students in the middle of their educational career with a cross-sectional survey, as we do, primary effects can be expected to be exerted mainly in terms of educational performance, whereas secondary effects will be mainly expressed in terms of future ambitions in schooling.[4]

It seems that the primary effect of social origin on children's *school performance* is more clearly linked to cultural capital than to relative risk aversion. Kalmijn and Kraaykamp (1996) summarize that the effect of cultural capital on schooling is exerted in three ways: (i) children of families with more cultural capital are better learners; (ii) they have been familiarized with abstract and intellectual issues, and (iii) they are approached by teachers more positively (e.g. in terms of time and dedication). These three mechanisms imply that the biggest effect of cultural capital is to be found with regard to school performance. Relative risk aversion, on the other hand, seems less evidently related to school performance. If children wish to avoid downward mobility, they do not automatically turn into better learners. They might put more effort into schooling, thereby improving their performance. However, given that one of our measures of school performance is a primary school standardized test score, it is questionable whether mobility concerns would affect effort at this stage.

Moreover, there is a causality problem in studying the relationship between mobility concerns and school performance using survey data gathered at one single point in time. Rather than it being the case that school performance is a *consequence* of mobility concerns, it may very well be the case that badly performing students get more concerned about class maintenance as a result of their performance. The latter would imply a *negative* rather than a positive correlation between relative risk aversion – operationalized as being concerned with class maintenance – and school performance. Obviously such a negative correlation indicates that there is no causal effect from mobility concerns on school performance, as one will not suddenly start to perform worse if one becomes more anxious about not falling down the social ladder.

The secondary effect of social origin on schooling outcomes is clearly linked to *ambitions*, as it consists of social variations in schooling decisions independent of ability. It seems that, if people are concerned with class maintenance,

this affects their ambitions in schooling and in work. If two students have the same achievements in primary school, and are enrolled in the same secondary school type, it is likely that they have different ambitions for their future educational career if they come from different backgrounds. However, the impact of mobility concerns on future schooling ambitions is purely additive to the impact of social origin. As RRA theory presumes that mobility concerns are invariant across social classes, they cannot explain away an effect of social origin on ambitions.

Cultural capital is less evidently associated to ambitions in schooling and work. The unconscious way in which cultural capital is manifested in children's 'habitus' may imply that secondary school pupils from culturally rich families have no clear ambitions yet. Cultural capital, according to Bourdieu (1986), is often not translated into marketable goods. The fact that children of cultural capital backgrounds eventually end up in higher levels of schooling than those with less cultural capital seems not so much based upon clearly outspoken ambitions to do well, but rather comes to students in a hidden way.

Hypotheses

1. Based on cultural reproduction theory it is expected that cultural capital is positively related to social origin (parents' education and social class);
2. Because everyone is equally concerned with realizing their primary goal of class maintenance, relative risk aversion (measured by concerns regarding social mobility) is not related to social origin (parents' education and social class);
3. Cultural capital positively affects school performance, and has no impact on ambitions;
4. Relative risk aversion positively affects ambitions and has no positive effect on school performance;
5. Cultural capital forms an explanation of social origin effects, and thus partly intermediates the impact of social origin on school performance;
6. Because relative risk aversion is unrelated to social origin (see hypothesis 2), it will not intermediate the effect of origin on schooling and work ambitions.

Data and Methods

Data

The hypotheses formulated above are tested empirically using a survey among N = 621 secondary school pupils of the third school year of five secondary schools in Amsterdam, the Netherlands (Van de Werfhorst 2004). The Dutch

secondary schooling system offers four tracks after primary school: VMBO-vocational track (preparatory for intermediate vocational school), VMBO general track (preparatory for intermediate vocational school), HAVO (preparatory for vocational college at tertiary level, comparable to the former British polytechnical colleges), and VWO (preparatory for university). The schools were selected based on geographical area and composition in terms of school types. One school offered all four secondary school types. Two schools only include pupils from the HAVO and VWO tracks. One school was an independent VMBO vocational school, and one school offered three tracks (all except VMBO vocational track). The distribution of pupils among educational levels is 39 per cent in VMBO, 33 per cent in HAVO, and 28 per cent VWO. The distribution in the total Amsterdam school population in the third grade in 2003–2004 was 56, 20 and 24 per cent, respectively (O+S, 2005), so we have a slight underrepresentation of VMBO students, and a slight over-representation of HAVO students.[5]

In total we could use 573 pupils for the analysis; of which a varying number is used depending on the dependent variable studied. The data were gathered in March 2004. Given that the third secondary school year is nominally entered at the age of 14, most of the respondents were 14 or 15 years old (85 per cent). The data were gathered in a written survey taken in the class with all present pupils. This way of data collection has the advantage that there is no selective non-response within classes with regard to school performance and interest in the topic.

Despite its limited geographical coverage, this dataset is very useful for our purposes because it is the first to include an empirical measurement of the theoretical concept of relative risk aversion in relation to social mobility. Although other research has been able to derive unique tests of RRA theory (Breen and Yaish 2006; Davies, Heinesen and Holm 2002; Holm and Jaeger 2005; Van de Werfhorst and Andersen 2005), measures of the concept of relative risk aversion itself have thus far not yet been employed. The dataset also includes widely used measures of parental cultural capital, parental social position (education and occupational social class), educational performance, and ambitions. This way, we can confront the two most dominant mechanisms available in present-day educational stratification research: cultural capital and relative risk aversion, and relate the two mechanisms to two types of outcomes: performance and ambitions.

Measurements

The concept of risk aversion has been studied empirically in other areas of research, but these applications are hardly useful for our purposes. For example, economists have studied the amount of money that people are willing to contribute to a lottery (e.g. Hartog, Ferrer-i-Carbonell and Jonker 2002), or

the extent to which people express their willingness to give up the present job with a fixed salary for a similar job with uncertain earnings (Barsky et al. 1997). Although such survey questions measure the variability in risk attitudes of subjects, which can be related to individual characteristics such as self-employment, sex, or wealth, it is less useful for our approach. The concept of *relative* risk aversion as developed by Breen and Goldthorpe implies *relativity* of risk aversion with respect to one's social origin. More specifically, because the RRA mechanism presupposes that people are principally concerned about downward mobility, we should try to measure these concerns directly. We should adhere as much as we can to people's attitudes towards the primary goal of class maintenance, and potentially towards the secondary goal of upward mobility as well (Goldthorpe 2000).

This is done by submitting our respondents to six Likert-type survey items about class maintenance and upward mobility, with five answer categories varying from 'this applies fully to me' to 'this does not apply at all to me'. These were: (1) 'I find it important to achieve a better job than my parents'; (2) 'I want to achieve a higher level of education than my parents'; (3) 'I find it important to earn as much as my parents later in my life'; (4) 'My parents would dislike it if I found a worse job than they have'; (5) 'I want to reach equally high as my parents on the social ladder'; (6) 'I am afraid to achieve a lower position than my parents later in life'. Our measure of *relative risk aversion* comprises of the mean across the proportional score on the six survey items (i.e. each ranging from 0 – 1 indicating one's relative position). This scale had a reliability of 0.77.[6]

Cultural capital is measured using information on parents' participation in highbrow cultural activities. Such an operationalization of cultural capital is very straightforward in educational stratification research (e.g. De Graaf 1986; Dumais 2002; Sullivan 2001; De Graaf, De Graaf and Kraaykamp 2000). It corresponds to the 'objectified state' of cultural capital (Bourdieu 1986). Parents' educational level, which we also include in our analysis, could be seen as a measure of 'institutionalized' cultural capital, although other mechanisms than cultural capital could explain an effect of parents' educational level as well. Therefore, we are reluctant to interpret effects of parents' educational level as supporting cultural reproduction theory.[7]

More specifically, we asked respondents about their parents' visits in the past year to museums, the theatre, a musical, and a classical concert or opera (answer categories less than once; 1-2 times, 3-4 times, 5-6 times, 7-8 times, more than 8 times); and about the number of hours per week that parents spend on reading Dutch literature, reading foreign literature, and reading newspapers and news magazines (answer categories less than 1 hour, 1-2 hours, 3-4 hours, 5-6 hours, more than six hours).[8] Each of these items was first transformed into proportional scores, indicating the relative position on a scale from 0–1. These proportional scores are similar to percentiled scores, but with

a range of 0–1 instead of 0–100. The mean value across the items was taken. This scale had a reliability of 0.78 (Cronbach's alpha).[9]

Social origin was measured in two ways: parents' educational level and parents' social class using the CASMIN class schema (Erikson and Goldthorpe 1992). We constructed one variable for both parents, in order to optimize the number of valid observations. Yet, both characteristics had a substantial number of missing values (around 20 per cent), unrelated to family structure. This is a common problem in written surveys among youngsters. Therefore we included a separate category for missing scores on these two variables.

Parental educational level was measured in three categories: up to lower secondary, upper secondary (giving access to tertiary education), and tertiary level. The highest level of either parent was taken as our measure for parental education. This dominance perspective (taking the highest of both) is not applicable to social class, given the fact that social classes are not strictly hierarchically structured. Therefore, *parental social class* was in first instance measured by information on the *father's* occupation. If this was missing, then the mother's occupation was taken. We distinguished the service class (classes I and II in the CASMIN schema); the routine non-manual workers (class III), the self-employed (class IV), and the working class (classes V, VI and VII).

Primary school performance is measured with the pupil's self-reported score on the nationally standardized 'CITO test' in the final year of primary school. This test result is an important source of information for choice of secondary school type in the highly stratified Dutch school system. The survey gave the option 'I don't know', but despite the three-year time lag between the survey and the test, self-reports were given by the large majority of pupils (76 per cent), and, in terms of correlations with secondary school type and in terms of overall distribution, in a highly reliable manner. The CITO test result is corresponded in two different ways to pupils; an absolute score (between 500 and 550) and a percentiled score. Most pupils gave the absolute score in our survey, but some gave the percentiled score instead. We transformed all responses into the percentiled scores of the absolute scores, and imputed the percentiled scores directly for those who responded the percentiled score. For the persons with no valid observation on the CITO test, another survey question was used to impute the CITO score. This survey question asked how well pupils performed in the final year of primary school, in comparison to other children in the class. The answer categories were 'I performed much worse than most other pupils'; 'I performed slightly worse than most other pupils'; 'I was an average pupil'; 'I performed a little better than most other pupils'; and 'I performed much better than most other pupils'.[10] Primary school performance is used as a dependent variable in estimating the impact of social origin, cultural capital and relative risk aversion on school performance; and as independent variable in our models on other dependent variables.

Secondary school type is another dependent variable of interest, and an independent variable in our models predicting ambitions. The secondary school type ranges from the Vocational track in preparatory vocational education ('VMBO-beroepsgerichte leerwegen'; score 1); the Theoretical track in preparatory vocational education ('VMBO-theoretische leerweg'; score 2); intermediate general education ('HAVO'; preparing for the vocational colleges, score 3), to university preparatory secondary education ('VWO'; score 4).

There are two ways in which we investigate ambitions for the future educational career. First we investigate the type of schooling that pupils want to follow after the present education (*ambitious next schooling intention*). An intention to quit school after the present programme is considered as not ambitious for all pupils. What is treated as an ambitious or an unambitious schooling intention depends on the current school type. Children enrolled in preparatory vocational school (VMBO) are considered as ambitious if they intend to follow any type of schooling after the present programme. For children currently enrolled in the intermediate general schooling (HAVO), a non-ambitious choice is if they intend to go to the secondary level Intermediate vocational school (MBO). Ambitious choices include going to a tertiary-level vocational college (HBO), and to the university preparatory track in secondary school (VWO). For pupils currently enrolled in the VWO track, unambitious choices include the intermediate vocational school (MBO), and vocational college (HBO), whereas university is treated as an ambitious option. The variable we constructed from this has two values, which contrast ambitious choices versus non-ambitious choices.

The second schooling ambition that we analyse is the aspired achieved schooling level at the age of 30. This variable as the answer categories Intermediate vocational school (MBO), Vocational college (HBO), University, and Yet unknown.

Results

Variation in cultural capital and relative risk aversion across social origin

The first type of analysis that we need to perform is to see whether parental cultural capital and the mobility concerns that compose our measure of relative risk aversion vary across social origin groups. In Figures Ia and Ib we see that cultural capital is positively associated to social origin. Children from highly educated families and from higher social class backgrounds report higher levels of cultural participation of their parents. These differences are significant, as can be seen in Tables I and II. This supports hypothesis 1.

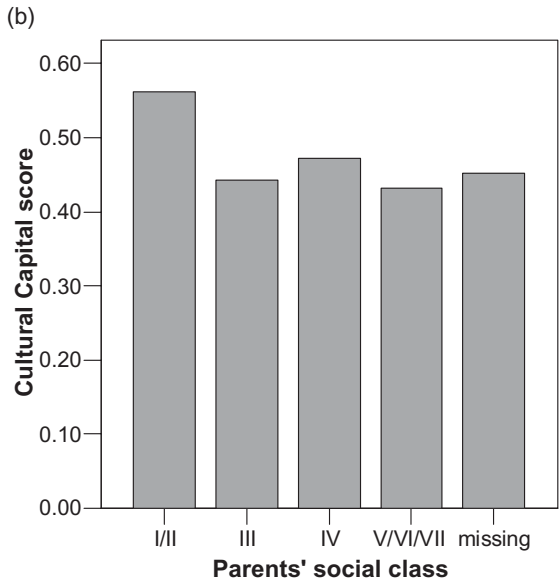With regard to relative risk aversion, we see that variation across origin groups is much smaller, if at all present. Indeed, Figures IIa and IIb show that

FIGURE I(a): *Cultural capital by parental educational level*

(a)
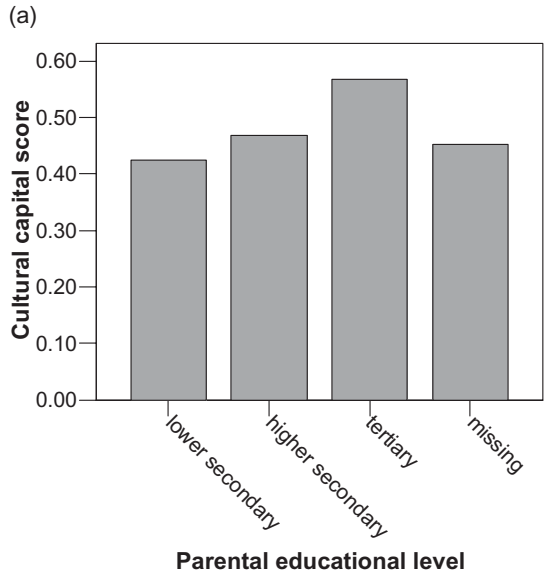
Source: *School Pupils' Survey, Amsterdam* (Van de Werfhorst 2004)

FIGURE I(b): *Cultural capital by parents' social class*

(b)

Source: *School Pupils' Survey, Amsterdam* (Van de Werfhorst 2004)

TABLE I: *T-tests for differences in parental cultural capital and relative risk aversion by parental education*

	Parental education			
	Lower secondary	Upper secondary	Tertiary	Missing
Parental education				
Lower secondary	–	1.966*	7.201**	0.954
Upper secondary	**0.346**	–	5.173**	0.924
Tertiary	**1.839**	**2.276***	–	6.032**
Missing	**0.243**	**0.593**	**1.579**	–

Source: *School Pupils' Survey, Amsterdam* (Van de Werfhorst 2004).
Notes: * p < 0.05, ** p < 0.01 (two-tailed).
Above diagonal: absolute T-value for difference in cultural capital.
Below diagonal (in bold): absolute T-value for difference in relative risk aversion.

TABLE II: *T-tests for differences in parental cultural capital and relative risk aversion by parental social class*

	Parents' social class				
	Working class	Self-employed	Routine non-manual	Service class	Missing
Parents' social class					
Working class	**–**	1.395	0.345	6.217**	0.076
Self-employed	**0.901**	–	1.021	3.543**	1.194
Routine Non-manual	**0.400**	**0.505**	–	5.088**	0.247
Service class	**2.134***	**0.726**	**1.449**	–	6.031**
Missing	**0.357**	**1.206**	**0.732**	**2.613***	**–**

Source: *School Pupils' Survey, Amsterdam* (Van de Werfhorst 2004).
Notes: * p < 0.05, ** p < 0.01 (two-tailed).
Above diagonal: absolute T-value for difference in cultural capital.
Below diagonal (in bold): absolute T-value for difference in relative risk aversion.

children from various social origins report similar concerns about class maintenance. Tables I and II also back up hypothesis 2 that there are no significant differences in mobility concerns amongst pupils form varies social origins. There are but a few significant t-values for the difference between classes, and these are much lower than with regard to social class. Clearly, children from all social backgrounds are more or less equally concerned with reaching and at least an equally high class as their parents. This is a confirmation of one of the core assumptions of RRA theory, and this is the first time that this assumption has been empirically tested.

Summarizing, we see that there are large social class differences in cultural capital, in that children from higher social milieux have higher levels of cultural capital. At the same time, class differences in relative risk aversion, measured by social mobility concerns, are largely absent, indicating that children of different origins are equally concerned with downward mobility. Thus,

FIGURE II(a): *Relative Risk Aversion by parental educational level*

(a)
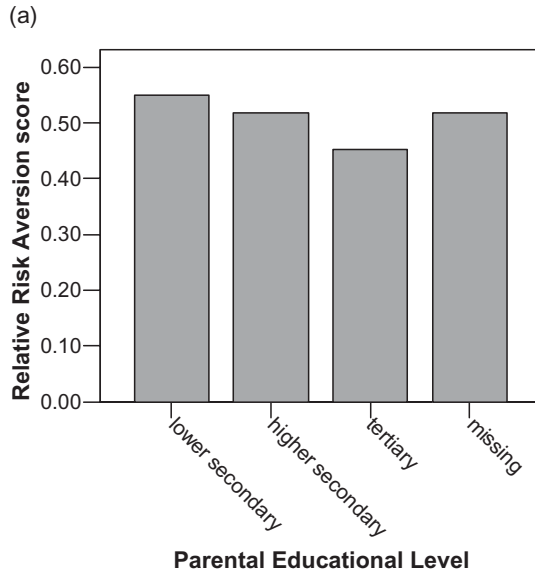
Source: *School Pupils' Survey, Amsterdam* (Van de Werfhorst 2004)

FIGURE II(b): *Relative Risk Aversion by parents' social class*

(b)
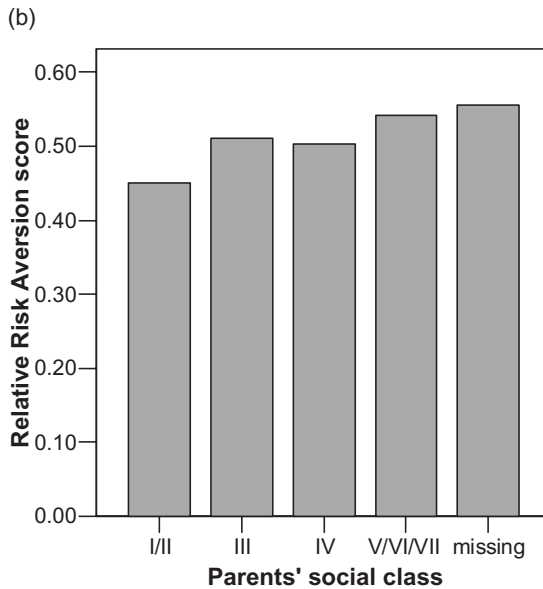
Source: *School Pupils' Survey, Amsterdam* (Van de Werfhorst 2004)

TABLE III: *The impact of social origin and explanatory mechanisms on school performance*

	Standardized primary school test CITO (OLS)		Secondary school type (Ordered logit model)		
	−1	−2	−3	−4	−5
	Model 1	Model 2	Model 1	Model 2	Model 3
Gender (male = 1, female = 0)	−3.33 [2.309]	−2.577 [2.308]	−0.593** [0.159]	−0.511** [0.167]	−0.496** [0.170]
Parents' educational level (relative to lower secondary)					
Upper secondary	4.972 [3.749]	4.326 [3.712]	0.198 [0.254]	−0.07 [0.264]	−0.077 [0.266]
Tertiary	18.943** [3.416]	15.986** [3.466]	1.551** [0.239]	1.043** [0.251]	0.898** [0.256]
Parents' education missing	8.898* [3.714]	8.513* [3.675]	0.569* [0.246]	0.395 [0.261]	0.404 [0.263]
Parents' social class (relative to service class I & II)					
Routine non-manual (III)	−5.305 [3.790]	−2.801 [3.807]	−0.36 [0.257]	−0.201 [0.271]	−0.035 [0.275]
Self-employed (IVabc)	−0.944 [4.166]	0.508 [4.139]	−0.435 [0.284]	−0.368 [0.298]	−0.271 [0.301]
Working class (V, VI, VII)	−9.731** [3.523]	−7.071* [3.553]	−0.801** [0.242]	−0.481 [0.251]	−0.342 [0.254]
Parents' class missing	−6.26 [3.304]	−3.153 [3.370]	−0.649** [0.221]	−0.437 [0.231]	−0.257 [0.239]
Parental Cultural Capital		20.825** [6.842]			1.730** [0.505]
Relative Risk Aversion		−11.189 [6.134]			−0.262 [0.445]
Standardized primary school test				0.041** [0.003]	0.039** [0.004]
Constant	44.405** [3.445]	39.311** [5.877]			
1st Threshold			−1.54	−0.13	0.536
2nd Threshold			−0.43	1.242	1.927
3rd Threshold			1.21	3.307	4.021
(pseudo) R-squared	0.11	0.14	0.08	0.18	0.18

Source: School Pupils' Survey, Amsterdam (Van de Werfhorst 2004).
Notes: * significant at 5%; ** significant at 1%. N = 556. Standard errors in brackets.

it is not the case that children from low educated backgrounds are more concerned about mobility than children of highly educated backgrounds. Mobility concerns are indeed relative to children's origin.

The impact of social origin and explanatory variables on school performance

After these descriptive findings, we turn to multivariate models predicting school performance and ambitions. The first two models of Table III show regression models predicting the (self-reported) primary school test score ('CITO test'). In model 1 only gender, parental education and parental

occupational class are included. The results of this model show that both parents' educational level and their occupational class position affects children's schooling. Children of parents with tertiary qualifications earned on average 18.9 percentile points more on the standardized school test than children of parents with maximally lower secondary schooling. With regard to social class it can be seen that working-class children score 9.7 points lower on the percentiled standardized test score than children of the service class. Note that these class differences are controlled for parental educational attainment. Gender has no significant effect on the primary school test score.

In model 2 the measurements for the two central explanatory mechanisms are added to the model. This model shows that parental cultural capital strongly affects primary school performance. Children who have become familiar with the dominant cultural codes in the home do much better in primary school than children who lack this cultural capital. The difference in the minimum and the maximum value of cultural capital is about 20.8 percentile points on the school test score, over and above the effects of parental class and education. Clearly cultural capital strongly affects primary school performance. Importantly, this effect persists after controlling for relative risk aversion, the competing explanatory mechanism.[11]

Furthermore, if the parameter estimates for parental class and education are compared between models 1 and 2, we see that part of the effect of social origin is intermediated by cultural capital. The reduction in the coefficient for parents qualified at the tertiary level versus lower secondary schooling is around 15.6 per cent, and the reduction in the effect of working-class versus service-class children is reduced by 27 per cent. So, as hypothesis 3 stated, cultural capital forms an explanation for the impact of social origin on school performance, and thus reduces its effects.

Model 2 also shows that our measure of relative risk aversion is not significantly related to primary school performance. This finding supports hypothesis 4. If we look at the magnitude of the coefficient and its standard error, the *negative* relationship borders significance. So a higher school performance is related to a lower level of concern with downward mobility (although not significantly).

Table III also shows the results of ordered logit regression models on secondary school type. Model 1 shows that parents' educational level affects secondary school type. The odds for being enrolled in a higher-ability track versus a lower-ability track is $e^{1.551} = 4.7$ times higher for children of parents with tertiary qualifications than for children with parents educated at the lower secondary level. This reduces to an odds ratio of 2.8 once we hold constant for primary school performance (model 2). With regard to social class we see that the odds for working-class children to be enrolled in a high-ability track relative to a low-ability track is less than half of the odds for service-class

children ($e^{-0.801} = 0.45$). However, this odds ratio turns insignificant if we control for primary school performance.

Model 3 includes measurements for the two explanatory mechanisms of cultural capital and relative risk aversion. This model shows that cultural capital has a significant and strongly positive effect on secondary school type. The odds increase with a factor 5.6 ($=e^{1.730}$) from extremely low to extremely high values of cultural capital, over and above the effect of primary school performance, parents' class and parents' education. Moreover, the impact of parents' education is severely reduced once we control for parental cultural capital. So cultural capital not only affects school type in its own right, it also forms a partial explanation for the impact of social origin on school type enrolment (hypothesis 5). Nevertheless, most of the effect of parents' education persists in model 3 relative to model 2.

Being concerned with downward mobility has no significant statistical association with secondary school type. Again, the coefficient is negative, implying that children in lower tracks are more concerned with downward mobility than children in higher tracks.

Summarizing the results on secondary school type enrolment, it should be noted that we observe a substantial secondary effect of parents' education on school type (i.e. the effect of parents' education controlled for primary school achievement in model 2). There is no secondary effect of social class on secondary school type. Furthermore, this secondary effect of social origin is modestly explained by parents' involvement in high status culture. Noteworthy is the fact that we do not observe a statistically significant impact of relative risk aversion on secondary school type. As said above, the causality between relative risk aversion on the one hand and school performance and school type on the other, could very well be reversed, with lower achievements leading to stronger concerns about downward mobility. That is the reason why, in a cross-sectional survey among youngsters, we should also look at future aspects of schooling (i.e. ambitions) to study the causal impact of mobility concerns on schooling outcomes. This is what is done in the following section.

The impact of social origin and explanatory variables on schooling ambitions

We study schooling ambitions in two ways: one short-term and one long-term. The short-term schooling ambition concerns the next educational programme that the students aspire to follow. Which programmes count as ambitious and which do not depends on the school type currently enrolled in. The results of the logit model predicting ambitious schooling intention are shown in Table IV.

Table IV shows that there is no significant impact of social origin nor gender on ambitious schooling intentions. In model 2 it appears that children enrolled in higher school types have, on average, *less* ambition as regards the next

educational programme. This is fully attributable to the fact that many children in the university-preparatory (VWO) track intend to go to the vocational college after their graduation.[12]

 Despite the non-significant effect of social origin on short-term schooling ambitions, model 3 of Table IV shows that relative risk aversion strongly affects the aspired level of continuing education. Thus, children who are more concerned with downward mobility more often indicate that they wish to follow an educational programme that may be regarded as ambitious given their current level of schooling. This effect is very strong and significant, with an odds of listing an ambitious schooling intention relative to a non-ambitious schooling intention (including drop-out) of 7.3 times higher for extremely high values of relative risk aversion than for extremely low values of relative risk aversion ($e^{1.992} = 7.3$).

TABLE IV: *The impact of social origin and explanatory mechanisms on ambition in next schooling programme*

	−1 Model 1	−2 Model 2	−3 Model 3
Gender (male = 1, female = 0)	−0.223 [0.268]	−0.405 [0.281]	−0.517 [0.288]
Parents' educational level *(relative to lower secondary)*			
Upper secondary	0.325 [0.519]	0.44 [0.536]	0.457 [0.540]
Tertiary	−0.573 [0.427]	−0.004 [0.464]	0.107 [0.469]
Parents' education missing	−0.284 [0.459]	0.08 [0.488]	0.075 [0.492]
Parents' social class *(relative to service class I & II)*			
Routine non-manual (III)	−0.053 [0.424]	−0.124 [0.437]	−0.188 [0.449]
Self-employed (IVabc)	0.585 [0.571]	0.42 [0.582]	0.338 [0.590]
Working class (V, VI, VII)	0.066 [0.431]	−0.055 [0.468]	−0.147 [0.481]
Parents' class missing	0.121 [0.390]	−0.018 [0.412]	−0.176 [0.425]
Standardized primary school test		0 [0.006]	0.001 [0.006]
Secondary school type		−0.631** [0.192]	−0.632** [0.195]
Parental Cultural Capital			0.14 [0.877]
Relative Risk Aversion			1.992* [0.781]
Constant	2.039** [0.438]	3.725** [0.669]	2.719** [0.853]
Pseudo R^2	0.023	0.067	0.084

Source: School Pupils' Survey, Amsterdam (van de Werfhorst 2004).
Notes: * significant at 5%; ** significant at 1% (two-tailed). N = 444. Standard errors in brackets.

Cultural capital does not have an effect on short-term schooling ambitions. Apparently familiarity with dominant cultural codes in society does not make people more explicitly ambitious.

The second way of studying schooling ambitions is by looking at long term aspirations. This is done by asking the respondents which level of education they want to have achieved when they have reached the age of 30. Table V shows the results of the multinomial logit models on this outcome variable. In the first model we see that children of highly educated parents relatively often wish to achieve tertiary education, and more often in university than in vocational college. They also relatively often state that they do not know yet which educational level they wish to have reached at the age of 30. Parents' social class does not affect schooling aspirations at the age of 30 independent of parents' education. Model 2 adds school performance indicators (primary school test and current school type), and this takes most of the effect of parents' education away. So, children of highly educated parents do often aspire high educational levels at the age of 30, but that is already expressed in current school type enrolment. Primary school test results have an independent effect on long-term schooling ambitions, in particular the ambition to reach to university.

In model 3 of Table V we add measurements of the two explanatory mechanisms to the model. This model shows that cultural capital has no effect on long-term schooling ambitions, as predicted in hypothesis 3. Relative risk aversion, however, strongly affects long-term schooling ambitions. The more concerned people are with reaching the same class position as their parents, the higher the aspired level of schooling at the age of 30.

Summarizing the results on short-term and long-term schooling ambitions, relative risk aversion seems to offer an important explanatory tool, whereas cultural capital has no effect. Given the fact that relative risk aversion and social class are unrelated (see Tables I and II) it is impossible that relative risk aversion reduces the direct effect of social class. This is indeed the case, which supports hypothesis 6.

Conclusions and discussion

In this paper we empirically examined two explanatory mechanisms for educational inequality: cultural reproduction and relative risk aversion. Cultural reproduction theory seeks to explain class variations in schooling by cultural differences between social classes. The dominant culture of society is the one that is taught in schools, and children who have become familiar with this dominant culture in their upbringing are better equipped to do well in school (Bourdieu and Passeron 1990[1977]). Relative risk aversion theory argues that even in the absence of cultural differences, educational outcomes of children of different social classes would vary (Breen and Goldthorpe 1997). Children of

TABLE V: *The impact of social origin and explanatory mechanisms on aspired educational level at the age of 30*

	Model 1 (Pseudo R2 = 0.045)			Model 2 (Pseudo R2 = 0.144)			Model 3 (Pseudo R2 = 0.176)		
	Vocational college (HBO)	University	Don't know	Vocational college (HBO)	University	Don't know	Vocational college (HBO)	University	Don't know
Gender (male = 1, female = 0)	0.012 [0.324]	−0.098 [0.339]	0.08 [0.352]	0.43 [0.365]	0.615 [0.404]	0.473 [0.396]	0.358 [0.369]	0.42 [0.412]	0.539 [0.399]
Parents' educational level (relative to lower secondary)									
Upper secondary	−0.356 [0.433]	−0.611 [0.482]	−0.173 [0.514]	−0.43 [0.463]	−0.998 [0.564]	−0.314 [0.541]	−0.39 [0.467]	−0.911 [0.575]	−0.336 [0.540]
Tertiary	1.408* [0.551]	1.846** [0.569]	1.635** [0.605]	0.65 [0.570]	0.267 [0.632]	0.759 [0.629]	0.785 [0.576]	0.545 [0.644]	0.664 [0.633]
Parents' education missing	−0.257 [0.463]	0.001 [0.494]	0.887 [0.506]	−0.652 [0.505]	−0.977 [0.585]	0.292 [0.549]	−0.662 [0.512]	−0.96 [0.595]	0.292 [0.550]
Parents' social class (relative to service class I & II)									
Routine non-manual (III)	0.119 [0.510]	−0.481 [0.546]	−0.232 [0.570]	0.21 [0.545]	−0.172 [0.620]	−0.212 [0.608]	0.096 [0.558]	−0.413 [0.640]	−0.113 [0.618]
Self-employed (IVabc)	−0.499 [0.498]	−1.062 [0.548]	−0.391 [0.540]	−0.465 [0.570]	−0.86 [0.655]	−0.29 [0.604]	−0.544 [0.577]	−1.068 [0.674]	−0.233 [0.609]
Working class (V, VI, VII)	−0.183 [0.450]	−0.551 [0.476]	−0.276 [0.497]	0.13 [0.484]	0.186 [0.556]	−0.047 [0.538]	−0.089 [0.497]	−0.124 [0.575]	0.01 [0.550]
Parents' class missing	0.973 [0.561]	0.452 [0.579]	0.722 [0.592]	1.238* [0.601]	1.164 [0.648]	0.904 [0.638]	0.979 [0.612]	0.739 [0.665]	1.027 [0.651]
Standardized primary school test				0.012 [0.008]	0.025** [0.009]	0.017* [0.009]	0.014 [0.008]	0.027** [0.009]	0.017 [0.009]
Secondary school type				1.042** [0.231]	1.943** [0.265]	0.993** [0.246]	1.103** [0.235]	2.050** [0.272]	0.961** [0.248]
Parental Cultural Capital							−0.716 [1.049]	−0.797 [1.188]	−0.144 [1.129]
Relative Risk Aversion							2.273* [1.066]	4.027** [1.176]	−0.718 [1.127]
Constant	1.234** [0.448]	1.049* [0.472]	0.195 [0.510]	−1.346* [0.657]	−4.755** [0.803]	−2.381** [0.732]	−2.268* [1.018]	−6.680** [1.198]	−1.98 [1.078]

Source: School Pupils' Survey, Amsterdam (Van de Werfhorst 2004).
Notes: * significant at 5%; ** significant at 1% (two-tailed). N = 537. Standard errors in brackets. reference category in dependent variable is: Intermediate vocational school (MBO).

all social classes want to avoid downward mobility, and persisting educational inequalities can be understood by between-class variation in the necessity of pursuing education at particular branching points, in order to avoid downward mobility. One important finding of the present study is that there is almost no variation across social classes and parents' education groups in children's concern with downward mobility.

In our comparison of the explanatory power of these two mechanisms, we connected the theories to primary and secondary effects of social origin on schooling outcomes (Boudon 1974). Primary effects refer to all kinds of class variations that account for class differences in ability, for example expressed in educational performance early in the educational career. We showed that such class variations are for a substantial part cultural: cultural capital – measured by parental involvement in highbrow culture – affected school performance at the primary and secondary schooling level.

Secondary effects refer to class variations in schooling outcomes over and above the primary differences in demonstrated ability. Thus, among children with similar ability levels, children of higher-class origins more often attain higher levels of schooling than children of lower social origins. When we have to rely on cross-sectional survey data among youth as is the case here, one way to study the impact of relative risk aversion is by looking at the future educational career: ambitions for further schooling. Although no direct effect of social origin on short-term and long-term schooling ambitions has been found, relative risk aversion strongly affected ambitions. Given the fact that relative risk aversion is unrelated to parental background (both in theory and in the data shown here), the impact of relative risk aversion can not reduce the direct effect of social origin. Rather, it forms an additive interesting explanatory mechanism of how people develop schooling ambitions. Because relative risk aversion affects ambitions and not school performance, then, it is unlikely that relative risk aversion is helpful in the understanding of the primary effects of social origin on educational outcomes. However, given the fact that cultural capital has no effect on ambitions, it is unlikely that cultural capital theory will be very helpful to explain secondary effects. Relative risk aversion is potentially very relevant for our understanding of differential educational choices given performance levels. However, to see its full effects on behavioural outcomes (rather than on ambitions alone), it is necessary to employ a longitudinal research design. Using prospective educational cohort studies, for example, social mobility concerns (i.e. relative risk aversion) at time t can be expected to affect later schooling choices. This way we avoid the problem encountered in the present cross-sectional data, where the causality between relative risk aversion and schooling outcomes can be questioned.

Recently Nash (2003, 2006) has argued that relative risk aversion theory too strongly focuses on the secondary effects, while the secondary effects make up only a minority of the total origin effect on schooling. The balance between

primary and secondary effects forms the unfortunate basis of Nash's attack on relative risk aversion theory. Although relative risk aversion theory makes no claims as to the weights of primary and secondary effects, Goldthorpe argues that, '[. . .] it is on the secondary rather than primary effects that attention must centre if the question of change, or rather absence of change, in class differentials under conditions of educational expansion is to be effectively addressed' (Goldthorpe 1996: 491). With educational reform and expansion, class differences in early demonstrated ability are likely to have been reduced and have enlarged the educational options of children from lower origin groups. This has led to a decrease in class inequalities in educational transition probabilities in a number of countries, but there are still secondary effects prevalent in many empirical studies (Breen and Jonsson 2005).

Our analysis supports this reasoning. Cultural reproduction theory provides an important explanation for class inequalities in early demonstrated ability. However, when it comes to explaining future ambitions conditional on ability, thereby laying down the basis for potential secondary effects in the future educational career, cultural reproduction theory provides no useful mechanism. Aspirations higher levels of schooling are more clearly formed through concerns with mobility, which forms the core mechanism of relative risk aversion theory.

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Notes

2. Cultural reproduction theory's concern with the refutation of the educational system of working-class children is in fact the main reason for Goldthorpe (1996) to argue that this theory is unable to explain educational expansion. Expansion is partly achieved through increased educational participation of working-class children. Although we do not measure this refutation directly, our measure of cultural capital (or cultural resources) is widely known to capture familiarity with the dominant culture of society (Sullivan 2002).

3. It should be noted that this broad definition of primary effects that we borrowed from Goldthorpe (1996) differs from the original definition of Boudon. In his original texts, Boudon referred to primary effects as the effects of origin on school outcomes that are *not* mediated by cultural background. A more useful view sees primary effects as being those effects that contribute to learning capacities, for example demonstrated in ability tests.

4. It is not unlikely that primary effects are sometimes endogenous with respect to secondary effects. People may put more effort into schooling (leading to better grades) when they wish to attend a higher level of schooling in the future.

5. For regression and correlational analysis, the use of weights will not change the results. Therefore we use unweighted data.

6. Factor analysis did not reveal a two-dimensional structure in which the items

concerning class maintenance were separated from the items concerning upward mobility. Reliability with six items is much higher than with the four class maintenance items (0.77 versus 0.65).

7. The third form of cultural capital that Bourdieu distinguishes, the 'embodied state' reflecting one's habitus, it very difficult, if not impossible, to use in empirical research (see Sullivan 2002 for a discussion on this).

8. Recent research suggests that the reliability in variables about the parents (reported by the children) was very similar to the reliability in respondents' own behaviour. The conclusion of that study was that parents' cultural consumption can in fact be accurately measured among their children (De Vries 2006).

9. Recent discussions suggest that parental reading has a larger impact on children's schooling than parents' participation in highbrow culture outside the home, and that both should be analysed separately (De Graaf, De Graaf and Kraaykamp 2000; Sullivan 2001). We checked whether that

was also the case with our data, but we found the strongest effect of cultural capital measured in the way we do here. This way we optimize the explanatory power of cultural capital theory, thereby improving the confrontation with relative risk aversion theory.

10. We checked whether the effects of CITO score in our analysis below is biased by using this imputation. This was done by including an interaction term between the cito score and a dummy whether it was imputed. In this interaction model, the main effect of the cito score on secondary school type (referring to the non-imputed group) was not significantly different from the point estimate of the main effect of CITO in a model without this interaction (i.e. the full group including the imputed values).

11. We also estimated a model without relative risk aversion. This model showed a coefficient of cultural capital of 22.6, only modestly different for the coefficient in model 2.

12. Analysis available on request.

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