



# **VERKLARENDE                      MECHANISMEN VOOR SOCIALE KEUZEVERSCHILLEN BIJ DE OVERGANG VAN DE TWEEDE NAAR DE DERDE GRAAD SECUNDAIR ONDERWIJS**

**Ilse Laurijssen & Ignace Glorieux**



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# Voorwoord

Dit rapport is een tweede rapport naar sociale verschillen in onderwijskeuzes. In het vorige rapport maakten we een grondige beschrijving en eerste analyse van de mate waarin sociale verschillen zich blijken voor te doen in de onderwijskeuze die de leerlingen van de LiSO-steekproef maken na de tweede graad secundair onderwijs. In dit rapport bouwen we daarop verder, en gaan na welke mechanismen die sociale keuzeverschillen kunnen verklaren.

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# Beleidssamenvatting

Sociale ongelijkheid in het onderwijs is reeds veelvuldig gedocumenteerd. Leerlingen uit sterkere sociale milieus hebben betere kansen om een hoger (uiteindelijk) diploma te behalen. Aan de basis van die sociale ongelijkheid kunnen verschillen liggen in enerzijds hoe goed leerlingen het doen in het onderwijs en anderzijds de keuzes die zij, of hun ouders, maken. Deze twee componenten in de productie van ongelijke onderwijskansen – onderwijsprestaties en onderwijskeuzes – werden reeds van elkaar onderscheiden door de Franse socioloog Boudon (1974). In onderzoek naar sociale ongelijkheid in het Vlaamse onderwijssysteem is tot dusver reeds veel aandacht gegaan naar prestatieverschillen maar minder belicht hoe sociale verschillen in onderwijskeuzes tot stand komen. Dat laatste is een van de onderzoeksthema's binnen de LiSO-onderzoekslijn van het Steunpunt SONO. Gebruik makend van LiSO-gegevens onderzochten we in een vorig rapport (Laurijssen & Glorieux 2019) in welke mate sprake is van verschillen in de studiekeuzes die leerlingen maken in de overgang van de tweede naar de derde graad van het secundair onderwijs naargelang hun studieprestaties en sociale achtergrond. In voorliggend rapport gaan we verder op die gemaakte onderwijskeuzes en hoe ze verband houden met sociale achtergrond, en toetsen we in het bijzonder de rol van verschillende verklaringsmechanismen.

De LiSO-instrumenten en bevestigingen leverden een veelheid op aan informatie over potentieel relevante factoren voor verschillen in onderwijskeuzes: ouders werden bevestigd over de gezinscontext, leerkrachten werden bevestigd over hun opinies in het algemeen maar eveneens over elk van hun leerlingen, en leerlingen werd een brede waaier aan vragen voorgelegd over ondermeer hun schoolgerelateerde percepties en meer individuele attitudes. In de bevestiging die in mei 2017 werd afgenomen bij de leerlingen van het vierde jaar secundair onderwijs van het LiSO-onderzoek, voegden we specifieke vragen toe om de mechanismen die sociale achtergrond in verband brengen met onderwijskeuzes zo volledig mogelijk in kaart te brengen. Daarvoor werkten we bijkomende vragen uit geïnspireerd op in de literatuur gebruikte en voor onderwijskeuzes relevant gebleken concepten zoals *relative risk aversion* (Breen & Goldthorpe 1997; Van De Werfhorst & Hofstede 2007), maar ook individuele risico attitude en *time discounting* voorkeur (bv. Hartlaub en Schneider 2012; Breen, van de Werfhorst & Jæger 2014), houding ten aanzien van onderwijs (Spruyt e.a. 2016), tijdsperspectief (Breen e.a. 2014;

Spruyt e.a. 2016), en toekomstverwachtingen (in bijzonder sociale demotie, cf. Pelleriaux 2001, Laurijssen & Spruyt 2015, Spruyt, Kavadias & Van Droogenbroeck 2015).

De onderwijskeuze die we beschouwen is de keuze die vervolgens (nadien!) wordt gemaakt in de overgang van de tweede naar de derde graad. We operationaliseren het type keuze die leerlingen maken aan de hand van de onderwijsvorm en het aantal uren wiskunde in de studierichting die leerlingen in het vijfde leerjaar aanvatten, in vergelijking met de uitgangspositie in het vierde leerjaar. Die relatieve benadering van studiekeuze is relevant, omdat, door vroegere keuzes, niet alle opties nog even haalbaar zijn voor alle leerlingen. Mede doordat we de studiekeuze beschouwen later in de schoolloopbaan, nadat reeds meerdere keuzemomenten plaatsvonden, wordt op dat ogenblik bovendien nog weinig ambitieus gekozen in de zin van het opnemen van bijvoorbeeld extra uren wiskunde of opstromen van onderwijsvorm. Voor de meeste leerlingen wordt de transitie vooral gekenmerkt door “stabiliteit” omdat ze naar de typische vervolgrichting doorstromen of een studierichting kiezen in dezelfde onderwijsvorm en met evenveel uren wiskunde. De “keuze” die vooral gemaakt wordt is tussen het “op niveau” blijven, en afzakken. De onderwijskeuze die we bijgevolg analyseren in dit rapport, heeft meer te maken met (het vermijden van) afzakken, waarbij eerder iets wordt opgegeven dan dat er iets wordt bijgenomen. Heel concreet maken we de vergelijking tussen de leerlingen die in het vijfde leerjaar een studierichting volgen in dezelfde onderwijsvorm en met minstens evenveel uren wiskunde als de typisch gekozen vervolgrichting (gegeven de studierichting in het vierde leerjaar) enerzijds en de leerlingen die afstromen van onderwijsvorm of een studierichting in dezelfde onderwijsvorm volgen maar met minder uren wiskunde dan de referentie standaard vervolgrichting anderzijds. Om de resultaten eenvoudig te kunnen voorstellen, en ze gemakkelijker te vergelijken ook met resultaten van internationale studies, benoemen we evenwel de eerder stabiele onderwijskeuze voor een gelijkwaardige studierichting soms wel als ambitieus.

In het rapport brengen we die onderwijskeuze in verband met de onderwijsverwachtingen van verschillende actoren. Onderwijsverwachtingen hebben een centrale rol in modellen van statusverwerving, en blijken sterke voorspellers van de onderwijskeuze die leerlingen maken in de overgang naar de derde graad (gecontroleerd voor hun uitgangspositie en onderwijsprestaties van het vierde leerjaar). De onderwijskeuze zoals we die operationaliseerden (relatieve maat) is sterk gerelateerd aan de onderwijsverwachtingen (absolute maat) van elk van de betrokken actoren, hoewel de impact van deze telkens ook een

beetje anders blijkt. Leerlingen kiezen vaker een gelijkwaardige studierichting indien hun leerkrachten hoge onderwijsverwachtingen van hen hebben. Die verwachtingen verklaren evenwel niet volledig het SES-effect (hogere SES-leerlingen maken die keuze vaker), dat doen de verwachtingen van ouders en leerlingen over de onderwijspositie die de leerlingen zullen behalen wel. De verwachtingen van ouders zijn eveneens belangrijk, daarbij lijkt in het bijzonder wat ouders verwachten over de eindpositie van hun kinderen het belangrijkste (hun verwachting met betrekking tot hoger onderwijs, niet voor secundair onderwijs); bovendien is het in bijzonder de verwachting dat hun kind universitair onderwijs zal volgen die het verschil maakt (en niet zozeer hoger onderwijs meer algemeen). Hoge verwachtingen van leerlingen zelf tenslotte, voorspellen eveneens een meer ambitieuze onderwijskeuze, maar in dat geval zijn niet enkel hun verwachtingen voor hoger onderwijs van belang, maar eveneens hun verwachtingen op iets kortere termijn (met name aan het einde van het secundair onderwijs).

Vervolgens toetsen we in het rapport de bijdrage van een groot aantal factoren die de onderwijskeuze van leerlingen in de transitie van de tweede naar de derde graad kunnen verklaren. Opnieuw controleren we voor onderwijsprestaties en uitgangspositie, om te focussen op het keuze-element in die transitie (cf. primaire versus secundaire onderwijseffecten van sociale achtergrond).

De eerste belangrijke bevinding is dat kenmerken van het thuismilieu zoals cultureel kapitaal, sociaal kapitaal en stimulerend thuisclimaat (naast SES) geen impact hebben op de onderwijskeuze en evenmin helpen verklaren waarom hogere SES leerlingen vaker de hogere studiekeuze maken. Deze bevinding blijkt robuust in de bijkomende analyses van de rol van ouderlijke betrokkenheid bij de schoolloopbaan en van verschillende types ouder-school contacten (extra gegevens die werden gemeten in een latere survey). Dat deze “klassieke” indicatoren van het thuismilieu geen effect hebben is opvallend, omdat deze kenmerken vaak als erg belangrijk worden beschouwd voor onderwijsverwerving. Maar ook andere auteurs die specifiek onderwijskeuzes onder de loep namen, rapporteren gelijkaardige resultaten (bv. Boone & Van Houtte 2014 voor de transitie naar secundair onderwijs in Vlaanderen). Het lijkt er eerder op, zoals ook Van de Werfhorst en Hofstede (2007) concludeerden, en wordt bevestigd in onze analyses van de toetsprestaties van leerlingen voor wiskunde, dat “cultureel kapitaal” – of toch zoals die klassiek gemeten wordt op basis van participatie aan high-brow cultuur – wel belangrijk is voor onderwijsverwerving, maar dan enkel voor de

onderwijsprestaties en niet van belang is om het proces van onderwijskeuze (onafhankelijk van prestaties) te begrijpen.

De verwachtingen van leerkrachten zijn wel een van de meer belangrijke factoren die onderwijskeuze beïnvloeden (enkel voorafgegaan door de onderwijsprestaties van leerlingen en invloedrijker dan hun academisch zelfconcept). Bovendien zijn de verwachtingen van leerkrachten een van de weinige elementen die een – weliswaar beperkt (namelijk 24,6%) – deel van de SES-verschillen in onderwijskeuze kunnen verklaren. Er zijn meerdere manieren denkbaar waarop de verwachtingen van leerkrachten de beslissing van leerlingen gaan sturen. Mogelijk zijn leerkrachten bijzonder goed geplaatst om het potentieel van leerlingen goed te kunnen inschatten (en dan wordt het louter een betere maat van onderwijsprestatie), maar ook mogelijk is dat de opvatting van leerkrachten over het academisch potentieel van leerlingen zichzelf gaat realiseren, ofwel omdat die overtuigingen – veelal onbewust – hun gedrag en interacties met leerlingen beïnvloeden (cf. het Pygmalion effect, Rosenthal & Jacobson 1968), of omdat hun overtuigingen meer expliciet zo gecommuniceerd worden naar leerlingen (en hun ouders) door middel van studieadvies of mogelijk zelfs concrete studiekeuze aanbevelingen.

De derde reeks bevindingen heeft betrekking op de rol van houdingen en opvattingen van leerlingen. Op basis van onze analyse blijken meerdere attitudes mee te verklaren waarom sommige leerlingen ambitieuzer zijn in hun studiekeuze dan anderen. Om te beginnen is er de *relative risk aversion* maat die het grootste effect heeft van alle opgenomen attitudes: leerlingen met een hogere relatieve risicoaversie kiezen vaker een evenwaardige studierichting. Deze maat is ontworpen om het relatieve risicoaversie mechanisme dat centraal staat in de *rational action* benadering van onderwijskeuze te vatten. Het gaat daarbij om het idee dat leerlingen vanuit het motief van statusbehoud handelen en daarom het nut van een hoger onderwijsniveau vermindert voor hen naarmate ze het niveau bereikt hebben dat nodig is om de status van hun ouders te kunnen bereiken. Meer concreet, wordt het gemeten als de ambitie van leerlingen om het even goed (of beter) te doen als hun ouders. We maken gebruik van een schaal van Van de Werfhorst en Hofstede (2007) en onze bevinding komt overeen met hun bevinding dat relatieve risicoaversie de onderwijsverwachtingen van leerlingen in de hoogte duwt. Bijkomend vinden we, net als die auteurs, dat relatieve risicoaversie niet gerelateerd is aan onderwijsprestaties.

Relatieve risicoaversie lijkt bijgevolg belangrijk om het proces van onderwijskeuze te begrijpen. Alleen blijkt, zowel in onze modellen als in de resultaten die gerapporteerd worden in Van de Werfhorst en Hofstede (2007) dat het niet kan verklaren (in statistische zin) waarom



hogere SES leerlingen ambitieuzere studiekeuzes maken. Het is zelfs zo dat de effectparameter van SES toeneemt bij opname van relatieve risicoaversie in het model (negatieve mediatie). Dit komt doordat lagere SES leerlingen gemiddeld hoger blijken te scoren op de relatieve risicoaversie maat. Van de Werfhorst en Hofstede (2007) daarentegen benadrukken dat relatieve risicoaversie iets is voor alle leerlingen, ongeacht de sociale klasse. En omdat het relatieve posities betreft waarnaar deze maat peilt – relatief ten opzichte van de posities van hun ouders, wat zich in duidelijk verschillende absolute posities vertaalt naargelang sociale klasse – beschouwen ze relatieve risicoaversie desondanks als een belangrijk mechanisme om sociale verschillen in studiekeuze te begrijpen. Op die manier geïnterpreteerd, lijkt de relatieve risicoaversie maat eerder een alternatieve formulering van de lange termijn verwachtingen van leerlingen.

Tenslotte bespreken we de indicatoren die wel (een deel) van het SES-effect in onderwijskeuze kunnen verklaren. We vermeldden reeds de verwachtingen van leerkrachten. Deze hebben niet alleen een beduidend effect op de daaropvolgende onderwijskeuze, maar hangen ook samen met SES (gecontroleerd voor de onderwijsprestaties). Daardoor dragen de verwachtingen van leerkrachten ook bij aan de reproductie van ongelijkheid (25% mediatie van het SES-effect). Dit roept de vraag op vanwaar de verwachtingen van leerkrachten lager zijn voor leerlingen met een lagere SES-achtergrond. Enerzijds nemen leerkrachten wellicht bepaalde indicaties over de gezinscontext van leerlingen die relevant kunnen zijn (zoals de steun die leerlingen van thuis krijgen) mee in hun verwachtingen van toekomstige onderwijsprestaties, maar onderzoek laat tevens zien dat leerkrachten zich ook laten leiden door stereotypen en daardoor het academisch potentieel van lagere SES leerlingen systematisch onderschatten en dat van leerlingen met een sociaal sterkere achtergrond overschatten (Lorenz et al. 2016).

Daarnaast, van alle factoren die we meenamen in de analyse, zijn er slechts 2 die helpen verklaren waarom hogere SES leerlingen hoger mikken bij onderwijskeuzes, namelijk 2 attitudes van leerlingen: hun opvatting over het nut van onderwijs en het tijdsperspectief dat ze hanteren. Hogere SES leerlingen waarderen onderwijs meer voor haar intrinsieke waarde (wat het bijdraagt aan persoonlijke ontwikkeling en zelfverwezenlijking) en naarmate leerlingen de intrinsieke waarde van onderwijs hoger inschatten blijkt hun onderwijskeuze hoger (al verdwijnt dit effect wel bij controle voor het academisch zelfconcept). Hogere SES leerlingen hebben eveneens een hogere *time discounting* voorkeur, wat gemeten wordt op basis van hun keuze voor een job met eerst een lager loon en op langere termijn een hoog loon (en niet een

job met onmiddellijk een matig loon). En naarmate leerlingen een hogere *time discounting* voorkeur hebben, vergroot de kans op de hogere onderwijskeuze. Deze twee houdingen bevatten duidelijk elementen die centraal staan in een meer klassieke culturele benadering van onderwijsongelijkheid (hoewel de tweede houding werd geïntroduceerd geïnspireerd vanuit het *rational action* perspectief op onderwijskeuze): zelfrealisatie vormt immers een centrale waarde in het onderwijs, net zoals een onmiddellijke behoeftebevrediging kunnen uitstellen voor een latere beloning een typische middenklasse opvoedingswaarde is, en beide elementen maken het zich inzetten voor school aangenamer en evidenter.

Samenvattend lijken verschillende mechanismen een rol te spelen voor onderwijsprestaties dan wel voor onderwijskeuzes. Van de Werfhorst en Hofstede (2007) concludeerden op basis van hun resultaten dat een cultureel kapitaal perspectief, hoewel relevant voor onderwijsprestaties, niet relevant blijkt om onderwijskeuze te begrijpen, maar waarvoor anderzijds wel het relatieve risicoaversie mechanisme van rational action theorie van belang is. Onze bevindingen zijn gelijkaardig aan die van hen: klassieke indicatoren van het thuismilieu hebben geen effect op onderwijskeuze gecontroleerd voor onderwijsprestaties, maar wel op onderwijsprestaties zelf, aan de andere kant beïnvloedt relatieve risicoaversie wel onderwijskeuze, maar niet de onderwijsprestaties.

Bijkomend vinden we echter ook dat andere houdingen dan relatieve risicoaversie onderwijskeuze helpen verklaren, en in het bijzonder ook een deel van de sociale verschillen in onderwijskeuze kunnen verklaren. De enige factoren die bijdragen tot de verklaring van de hogere onderwijskeuze van hogere SES leerlingen zijn, naast de verwachtingen van leerkrachten, de percepties van leerlingen over de intrinsieke waarde van onderwijs en hun tijdsvoorkeuren (lange termijn eerder dan korte termijn) – beide houdingen die duidelijk verband houden met centrale thema's van een meer culturele verklaring voor onderwijsverschillen. In die zin lijkt ons niet alleen een rational action theoretisch perspectief maar ook een cultureel perspectief relevant, niet enkel voor onderwijsprestaties, maar eveneens voor onderwijskeuzes – alleen gaat het dan niet zozeer om specifieke culturele participatie patronen (cf. strikte meting van cultureel kapitaal), wel om de waarden die door ouders worden doorgegeven aan hun kinderen en hoe deze de aspiraties van leerlingen (en hun ouders) vormen.

## **Staying on track in higher secondary education? Mechanisms for inequality in educational choice compared.**

### **Abstract**

This paper analyses the mechanisms that contribute to differences in educational choice at the transition from the second to the third cycle of secondary education in Flanders, a highly tracked educational system. The track chosen in the fifth grade, besides being quite predictable from the track position in the fourth grade and school performance, is also affected by social class, ethnic background and gender. Using data gathered from pupils, their parents and their teachers, this study tests a broad range of factors put forward by different theoretical perspectives and research on social class differentials in educational choice. Although ambitious educational choice is linked strongly to high educational expectations of parents, classic cultural indicators of the parental home do not prove to be relevant for educational choice, rather it is via educational performance that educational attainment is affected by them. Relative risk aversion, from the rational action theory for educational choice, on the other hand, does affect educational choice strongly, but it does not explain the SES effect. The attitudes that do have some potential to explain SES differentials in educational choice, are related to pupils' opinions on the utility of education and their time perspective, which act as could be expected from cultural explanations for educational inequality.

### **Introduction**

Social inequalities in educational attainment can be attributed to social differentials in both educational achievement and the educational choices that pupils, or their parents, make, net of educational performance. These two components in the production of educational inequality – educational performance and education choice – were already mentioned by the French sociologist Boudon (1974) who referred to them as the primary and the secondary effects of social stratification on educational attainment. For him, the secondary effects of stratification – the educational attainment differentials after removing the primary effects - are at least as important as their primary effects, because of the cumulative, often irreversible, effects they have on educational careers, which led him to focus on the elements of choice and branching points in the educational system. In many educational systems, choice indeed is an important determinant of educational attainment, in particular when in the context of early tracking,

children and their parents must choose between tracks that lead to different educational degrees (Jacob & Tieben 2009; Van de Werfhorst & Mijs 2010).

In this paper, we study educational inequality in Flanders, which has a highly tracked educational system, with a focus on the mechanisms that explain educational choice differentials. We analyse educational choice, not at the start of secondary education – the stage at which also tracking and selection into different tracks starts – but in the transition from the second to the third cycle of secondary education – the final stage at which the most part of tracking into the levels of academic, technical or vocational education has already taken place, but also considerations regarding higher education may become more stringent. Fewer studies explicitly analyse educational choice at later transitions in secondary education than those that focus on initial track choice. But as results for Germany and the Netherlands (Jacob & Tieben 2009; Buchholz et al. 2016; Henniges, Traini & Kleinert 2019) also make clear, looking at the later stages is needed to understand how opportunities for mobility between tracks often strengthen the initial advantages of socially privileged groups.

Strength of our study are: a) the use of a relative definition of educational choice that compares the curricular track that pupils choose relative to the track position they are already in, b) the use of a large-scale and very rich panel dataset on pupils educational careers, which allows us to analyse educational choice controlled for educational performance, and to c) relate educational choice to a broad range of indicators concerning pupils' home background, school related performance and their own beliefs and attitudes toward the future, 3) which were measured before the actual transition was made (prospective design).

### **Sociological perspectives on educational choice differentials**

To understand the mechanisms of educational inequality, the dominant perspectives in sociological literature are related to cultural reproduction theory on the one hand and the more recently formulated rational action theory alternatives on the other hand. From cultural reproduction theory (Bourdieu & Passeron 1977), the concept of *cultural capital* has been central to the explanation of social class differences in educational attainment. Cultural resources are more readily available in higher social classes, and are closely related to the kinds of knowledge, behaviour and attitudes that are most highly valued by teachers and in education more general. In sociology of education cultural capital has often been equated to high status cultural participation (highbrow culture; e.g. Jæger 2009, Van de Werfhorst & Hofstede 2007),

although some studies also use a different conceptualisation (e.g. Boone & Van Houtte 2013 approach cultural capital centred on parents' knowledge of the educational system), as the concept of cultural capital and its use for understanding educational inequality implies much more, as some authors argue (e.g. Reay 2004; "tool kit models" Calarco 2014; "sense of entitlement" and strategic knowledge of education, Lareau 2015).

Related to the notion of cultural capital is the notion of social capital. Membership of social networks adds to social capital which, as well as other resources, enable to maintain favourable social positions (Bourdieu 1986) and can provide parents with information relevant to making well-informed educational choices (Coleman 1988). A Flemish study (Seghers, Boone & Van Avermaet 2019a) confirmed that middle class parents are more actively seeking information and are involved much earlier in the decision-making process for the school and track choice in the transition from primary to secondary education. Using the same data, the study by Boone & Van Houtte (2013) compares the role of cultural capital (knowledge of educational system and stereotypical opinions on educational tracks) with the role of social capital (parental relations and parental-school relations) for the actual track choice in the transition from primary to secondary education, and although these have some effects on educational choice (net of performance), they do not explain any of the class differentials that were found. Pupils' perceptions of their decision however were permeated by societal beliefs about educational routes associated with the track options available (future prospects for higher education and a good job), and were often limited to the options deemed acceptable by their parents, such that the authors suggest the further exploration of stratified thinking of parents about what they see as acceptable educational alternatives.

In contrast to the cultural explanation for educational inequality and more recently, a rational action theory perspective on educational choice emerged, which focusses explicitly on educational decision making beyond educational performance differences. The explanatory model for social differentials in educational choice that is cited most often in this literature, was developed by Breen and Goldthorpe (1997) and assumes that individuals make their educational decisions based on three elements: expected utility of a particular educational investment; expected costs (mainly material, but other authors do extend this to social and cultural factors); and risk of failure (probabilities of success). Pupils or students with a low socioeconomic background are more vulnerable at each of these three elements compared to more privileged peers. One central argument to explain social differences in decisions has been

termed *relative risk aversion* by which is meant that individuals avoid downward social mobility because they aim at maintaining their family's social position (status maintenance). The mechanism of relative risk aversion implies that lower social class children aim less high because at some point, when they have reached a position similar to their parents – a threshold that they reach earlier than higher class children – continuing to a higher educational level is not necessary to avoid downward social mobility.

Several studies have applied this rational action perspective for explaining educational decision making, often focused on the role of indicators for the probability of success (Barone et al. 2018, Bernardi & Cebolla-Boado 2014; Daniel & Watermann 2018; Holm, Hjorth-Trolle & Jæger 2019; Tolsma, Need & De Jong 2010), others focus more explicitly on the relative risk aversion mechanism (Gabay-Egozi, Shavit & Yaish 2010, Holm & Jæger 2008, Jæger & Holm 2012, Stocké 2007, Van de Werfhorst & Hofstede 2007, Zimmerman 2019). Still others have focused on alternative concepts derived from the framework of rational choice theory (e.g. *preferences* such as *individual risk aversion* and *time discounting*, in Hartlaub & Schneider 2012; Breen, Van de Werfhorst & Jæger 2014; Brodaty, Gary-Bobo & Prieto 2014; Checci, Fiorio & Leonardi 2014).

Despite the high productivity of studies using the rational action theory in analysing educational decisions, very few of them also take into consideration other possible interpretations or other perspectives. The same findings indeed often can be fit into both a perspective that focusses on the correspondence with the culture in schools as well as one that focuses on strategic motives concerned with the maintenance of class position. To our knowledge only one study explicitly includes both measurements from the rational action perspective, as well as from the cultural perspective in their analysis of educational inequality. A Dutch study by Van de Werfhorst and Hofstede (2007) compares the contribution of cultural capital (highbrow measurement) and relative risk aversion (of the rational action perspective) for schooling ambitions. The study finds that the relative risk aversion mechanism seems to be a powerful predictor of further schooling ambitions (both measured relatively and absolutely and controlled for educational performance), although it does not take away the effect of SES. On the other hand, cultural capital does not affect educational choice, but is not so much that it does not matter for educational inequality, rather it seems mostly important for educational performance, but not educational choice net of performance. Interestingly, from these findings,

the authors conclude that different mechanisms are at work for the primary and the secondary effects of social class on educational attainment.

In addition, a recent study (Zimmerman 2019) evaluated the role of elements of the rational choice perspective as well as social influence mechanisms (cf. Wisconsin model of status attainment) in educational aspirations of German pupils and concludes that both rational choice factors (i.e. costs, perceived probability of success and the motive of status maintenance) and social influences (i.e. parents' expectations and friends' aspirations) explain aspirations and the secondary effects of class (differentials controlled for performance differences).

In our study, we analyse educational choice – controlled for educational performance – and include elements from all these perspectives, from classic indicators for cultural and social capital, opinions of parents about education, to elements proposed by rational action theory related to relative risk aversion but also individual risk aversion and time discounting preference. We add to these, expectations of “significant others” (cf. Wisconsin model; Bozick et al. 2010, Gregory & Huang 2013) i.e. teachers and parents, as well as a number of pupils' attitudes that are related to their view of education, to their time perspective, and of their (future) position in society.

We include two kinds of expectations held by teachers. The first is the expectation of the class teachers about the successful school career of the pupil. In a way, we can see this as just a more accurate assessment of the pupils' educational performance and motivation. But in their judgment class teachers' might as well be influenced by non-academic elements including queues related to social background (cultural perspective) which next might translate into teachers' behaviour and finally realise themselves (cf. the Pygmalion effect, Rosenthal & Jacobson 1968). The second is subject teachers' opinion of the opportunities in education for children with weak social background, if teachers hold lower expectations for vulnerable groups that might explain some part of differential educational choice.

Pupils' view on education refers to how pupils see *education as an investment* in their personal future, on the one hand for their future position (*instrumental utility of education*), on the other hand in terms of self-realisation (*intrinsic utility of education*). These were constructed from reasons that pupils think that going to school is useful (Spruyt et al. 2016). These views on education correspond to, amongst others, teachers' opinions on education (cultural perspective

on education) and are stronger in higher educational tracks, but mostly due to daily experiences at school, and associated differently to cultural capital – pupils with more cultural capital are more inclined to see education as a means of self-realization and self-accomplishment, but have a slightly lower score on the instrumental value (Spruyt et al. 2016).

We capture pupils' expectations of their (future) social position by feelings of relative deprivation, measured as a sense of futility regarding good outcomes for people “like us”, which have been linked to educational tracks (Pelleriaux 2001, Spruyt, Kavadias & Van Droogenbroeck 2015), as well as to behaviour at odds of what is expected in school (Van Houtte 2016), and as status attainment in the transition from school to work (Laurijssen & Spruyt 2015). In addition we add a more general question about how open pupils think their future still is.

We include the time discounting question (Breen, Van de Werfhorst & Jæger 2014) which makes pupils choose between jobs with short term average earnings versus low short term but higher earnings on the long term. Although this question is introduced from a rational action perspective, its link with social class is quite easily framed from the cultural perspective, cf. the shorter horizon for lower class pupils linked to a stronger focus of what Bourdieu called economic necessity). To complement this question, we add the time perspective of pupils more in general (do they plan for their future or are they just living in the present) to the list of explanatory mechanisms. Pupils who already anticipate their future, are also the ones who value education both for its instrumental and intrinsic utility and see school less as an obligation (Spruyt et al. 2016).

## **Data and methods**

For this study, we use data that were collected as part of the LiSO project (Dutch abbreviation for Trajectories in Secondary Education), which is a panel study following a cohort of pupils from the start until the end (6 grades) of secondary education in Flanders. In September 2013 these pupils were in their first grade of the first cycle of secondary education. In addition, also included are pupils who at a subsequent moment join the grade which is assessed, because of changing schools or repeating a year. For this study, the research group consists of the pupils that were surveyed in the school year 2016-2017 and who then were in the fourth grade (end of the second cycle) of secondary education (this group includes the pupils from the initial cohort without delay and pupils who joined the group later). This group consists of 6.585 pupils



from 601 instruction class groups from 56 schools. In total, the pupils are distributed over 45 different curricular tracks (which we measure at the level of the administrative groups as defined by the Department of Education). When combining the school and curricular tracks, the total pool of pupils is distributed over 365 different educational groups (which we include as second level groups in our models, see further).

Most studies on educational inequality use cross-sectional data, linking questions about attitudes and motives to understand the mechanisms either to (retrospective) educational programme or curricular track choices or changes that already have been made in the educational trajectory, or to expectations about future educational decisions or educational aspirations. Because of the reversed time ordering and because aspirations do not necessarily turn out into reality, with these approaches, the causality of the processes of educational choice is not strictly reconstructed. A better way is by using a prospective design, in which attitudes and opinions are surveyed before a specific transition is made, and linking these to the educational choice that is made afterwards.

For our study, we use a prospective cohort study. Pupils who were in the last year of the second cycle (fourth grade) were surveyed about their opinions and attitudes. In addition, their teachers were also surveyed both in general as well as with specific questions about each of their pupils. Next, we link these to the actual choice that the pupils make in the transition to the next year (third cycle / fifth grade). In addition, we can rely on data collected from the parents who were surveyed when the pupils were in their first year of secondary school (or in the year that the pupils entered the research pool, e.g. by changing schools).

*Dependent variable: educational choice*

To know the educational choice that pupils make in the transition after the fourth grade, information about their educational position in the next school year was retrieved from contacting the schools that the pupils attended at the time of survey during the next school year, combined with lookups into administrative data on school registrations provided by the Department of Education. For 99,0% of the original group of pupils of the fourth grade, the subsequent educational position could be traced this way (66 pupils could not be found in the educational register). For our analyses of educational choice, in addition, we will leave out the pupils (15,6%) who at the end of the fourth year did not get the so-called A-attest which allows

them to continue in the course track of their choice (other kinds of attestations either require the pupil to repeat a year or exclude them from specific course track options).

To characterise the educational choice that pupils make in the transition from the fourth to the fifth grade, we compare their educational programme i.e. curricular track from their fourth grade origin (45) with that from their destination in the fifth grade (155). The different curricular tracks are organised into track levels (ASO for academic, KSO for artistic, TSO for technical and BSO for vocational education) and study domains describing the main subject orientations, but there exist no strict predefined trajectories connecting specific curricular tracks of the fourth grade with a specific track in the fifth grade. Purely statistically, we defined the most common destination track given the origin track as the standard track choice. In all 45 cases the standard track choice is a destination track in the same track level and subject domain as the track of origin. Clearly, for the majority of pupils (66,6%) the curricular tracks that are chosen are just the typical track that is chosen by peers of their previous curricular track.

We use the track level and hours of mathematics in this typical track as the yardstick to define the type of educational choice that pupils make: either they continue in a curricular track in the same track level and with the same number of hours of mathematics (or more, although this occurs less often) as in the typical continuation track (79,4%), or they move “downwards”, in which we include those that change track level (6,8%, in the direction of academic over artistic, technical to vocational) as well as those that choose a curricular track in the same track level but with fewer hours of mathematics (13,8%). The second category, demotion of track level or of level of mathematics, is not of much relevance for pupils in the BSO-track, as they barely move out to a different track level nor is the number of hours of mathematics defined as they do not get mathematics as a separate course. For the analyses of educational choice, we will leave out these pupils from the BSO-track (19,4%). The first category refers to the more ambitious option taken considering the previous educational position, however, this “ambitious educational choice” of choosing a curricular track in the same track level and keeping up the hours of mathematics probably is better characterized as “staying on track” while pupils switching to less demanding curricular tracks are probably giving up on some future higher education opportunities.

### *Independent variables*

As background variables, we include gender (47,3% girls), migration background (77,2% Belgian, 11,5% speaking another language at home than Dutch, which is the instruction language), and a composite measure for socio-economic status of the family (SES).

Our measure for *SES* is a standardised score resulting from a nominal response model analysis (Chalmers 2012) using parents' reports of both parents' educational levels, working situations and occupational classes, and family income category, as well as administrative data about educational deprivation: educational level mother, school allowance, home language, and educational deprivation of the neighbourhood (more details in: Laurijssen & Glorieux 2019).

For *migration background*, we include the generation of migration (based on the parents' reports on the country of birth of the pupil, of each of the parents, and of all the grandparents). When assigning to the not-Belgian categories, we include an extra check for the previous generation, e.g. for someone to be considered a second-generation migrant, s/he needs to be born in Belgium, but at least one of the parents and one of the grandparents outside of Belgium. Because data are missing for those whose parents did not fill out the survey (9,3% - we add them to the reference category of Belgians), in addition, we control for the usage of Dutch as home language as indicator for a migrant background which is available from the administrative data.

In addition, we control for pupils who have moved between communes between the two years of observation (2,0%) because that increases the probability that they also changed schools and so perhaps also curricular track.

*Educational performance* was measured by competence tests for mathematics and a reading test which were scored using Item Response Theory (method explained in Dockx et al. 2017). In the models for educational choice, the reading test however did not have any substantial effect once also the mathematics test scores were included (correlation .637), so for the final analyses reported here only the mathematics scores are kept. To these tests we add, based on the age of the pupil, whether the pupil is older than the age group s/he is in at school, which suggests that year repetition has occurred in the previous educational trajectory (27,1%).

All other explanatory variables were questions administered to either pupils, parents or teachers, in which they had to choose one option out of many, or, more often, had to rate

multiple statements on a Likert scale from which we constructed sum scales. We standardised each of the resulting numerical explanatory variables (not the categorical or dummy variables). Using the same scale for these allows for a better comparison of the effect size of different explanatory variables.

*Overview of explanatory variables included in the analyses*

See also the Appendix for formulation of the questions and items.

- Home leisure (high brow)
- Home leisure (computer / internet)
- Stimulating home climate
- Social capital
- Parents' evaluation of good school results
- Parents' evaluation of higher education
- Class teachers' expectations
- Teachers' expectation of disadvantaged pupils
- Academic self-concept, and mathematical self-concept
- Fixed mindset
- Risk aversion
- Utility of education: instrumental and intrinsic
- Relative deprivation
- Openness of future
- Relative risk aversion
- Time perspective future
- Time discounting preference

For the analyses, we mean imputed missing values; missing values on the skill tests were imputed with the curricular track means. Where the number of missing values were considerable, we included additional controls for imputed values (in particular for: missing parent questionnaire information, missing teacher survey information; although the effect parameters are never statistically significant).

## *Method*

We use multilevel analyses to analyse the educational choice that pupils make in the transition from the second to the third cycle, with the pupils as level one units but nested – cross-classified – into schools and the curricular tracks of origin as second level units. Using schools as grouping level is standard practice, and addresses the issue of within-school correlated residuals. The reason we include the curricular tracks of origin as grouping levels, is to control for the fact that our measurement of educational choice probably is not independent from the curricular track of origin, as for different tracks the range of probable continuation options can vary. The two groupings, schools and tracks, are not nested; we treat them as cross-classified which means that we define pupils as being members of schools as well as, but independently, of the curricular tracks. Because the type of educational choice is binary, we use multilevel logistic regression models.<sup>123</sup> Reported parameters are logit effect parameters. We estimate first, models with the background characteristics, second, we add the indicators for educational performance, and finally, we add the opinions and attitudes as explanatory mechanisms.

Because effect parameters of different logistic models can not be simply compared (as these depend on the error variance of the model which depends on the predictors in the model), to evaluate how much effects are reduced (or explained) by adding additional explanatory

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<sup>1</sup> Estimation with the Linear mixed effects models (lme4) package in R-project (Bates et al. 2015).

<sup>2</sup> The logistic variant complicates the classic interpretation of variance components in multilevel models (we illustrate this in the discussion of the first models). Model fit can be compared between models by looking at the log likelihood, and the AIC or BIC measures that incorporate the model complexity.

<sup>3</sup> We also include in the reports a measure of explained variance ( $R^2$ ) which was only recently developed for generalized mixed-effect models, i.e. the marginal coefficient of determination or Pseudo-R-squared which represents the variance explained by the fixed effects (Nakagawa & Schielzeth 2013). Estimation with the Multi-model inference (MuMIn) package in R-project (Bartoń 2019).

variables, we also estimated the amount of mediation of SES-effects by using the method of Karlson, Holm & Breen (2012).

## Results

### 1. Differentials in educational choice

In Models 1 through 5 in Table 1 we see how background characteristics are related to staying on track in the transition from the second to the third cycle in secondary education. Clearly, and both uncontrolled as well as in a combined model, do pupils from higher SES background more often stay on track than pupils from more disadvantaged socio-economic families. For migration background, very few differences are found: not the generation of migration matters, but we do find, contra-intuitively, that pupils whose language at home is different from the instruction language in school, i.e. Dutch, tend to stay on track more often. Thirdly, gender matters, and it is girls who more often than boys change educational programme downwards. We also included having moved to a different commune between the second and third cycle as a control variable, as it could be related to changing educational programmes, but it never reaches statistical significance in the models.

In Model 6, we add controls for educational performance. In particular, the scores of pupils on the standardized mathematics test administered in the second cycle<sup>4</sup>, affect the subsequent educational choice strongly, which is also clear from the rise in the  $R^2$  from 1,8% to 8,8%, as could be expected.<sup>5</sup>

More interesting is whether educational performance explains background differences in educational choice. From comparing effect parameters of Models 5 and 6 it appears that ethnic background effects are not due to differences in educational performance. SES and gender

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<sup>4</sup> In addition, a reading test was administered at the end of the second cycle. These reading test scores however do not add to the models explaining educational choice, once also the mathematics scores are included, so we leave them out of the models.

<sup>5</sup> This can also be seen in the change in the variance components of the multilevel model. The L2 variance components increase when comparing Model 6 to Model 5 (in particular at the school level), which seems counterintuitive, but this is because in a logistic multilevel model the variance for the L1 variance is fixed at 1. An increasing L2 variance due to adding only L1 variables merely indicates that a smaller proportion of the total variance left unexplained by the model is situated at L1.

effects can be attributed to performance differences for some part, but certainly not entirely (65% of the SES effect and 39% of gender is explained by the performance indicators – mediation effects estimated by estimation the unbiased parameters following Karlson, Holm & Breen 2012). Even after controlling for educational performance, significant differences remain – staying on track is more likely for high SES pupils, second generation pupils, pupils using a different language at home, and boys.

Table 1 Effect of background characteristics on educational choice (N=4.389)

	Transition from 2 <sup>nd</sup> to 3 <sup>rd</sup> cycle: Staying on track							
	1	2	3	4	5	6	7	8
SES	.160**				.229***	.172**		.174**
Migration generation								
- 1 <sup>st</sup> generation		-.288			-.155	.027		.025
- 2 <sup>nd</sup> generation		.144			.328	.384*		.380*
- 3 <sup>rd</sup> generation		.117			.117	.157		.155
Foreign language		.466*			.664**	.697**		.706**
Gender: F			-.453***		-.457***	-.296**		-.289**
Moved				.321	.471	.568		.549
Math test score						1.029***		1.057***
Age delay						.173		.151
Educational track level								
- KSO							-.654	-.267
- TSO							.939	1.439*
Hours mathematics							-.739**	-1.223***
Constant	2.747***	2.694***	2.918***	2.735***	2.847***	2.886***	5.131***	6.777***
St.dev. Schools	0.759	0.767	0.756	0.772	0.747	0.790	0.765	0.779
St.dev. Tracks	1.446	1.397	1.375	1.405	1.434	2.035	0.976	1.18
Adjusted R <sup>2</sup>	0.004	0.003	0.009	0.000	0.018	0.088	0.162	0.218
Observations	4,389	4,389	4,389	4,389	4,389	4,389	4,389	4,389
Log Likelihood	-1,743	-1,744	-1,736	-1,747	-1,724	-1,655	-1,739	-1,642
Akaike Inf. Crit.	3,494	3,502	3,480	3,502	3,468	3,334	3,490	3,315
Bayesian Inf. Crit.	3,519	3,546	3,506	3,527	3,532	3,410	3,528	3,410

Notes: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Number of obs: 4.389 Pupils; 55 Schools; 31 Curricular track groups.

In Models 7 and 8 we add indicators related to the curricular tracks (level 2 variables in the multilevel model), i.e. the track level and the number of hours of mathematics. Compared to the models with only individual (level 1) characteristics, the amount of variance explained clearly is much higher (16,2% versus 1,8%). It is also clear from the variance components that the track characteristics can explain a large part of the variance in educational choice over



curricular tracks (see the large reduction in the standard deviation between models with and without L2 characteristics).

However, the effects of the curricular track characteristics are affected by the individual characteristics (Model 8 versus Model 7), e.g. making the TSO-track effect more positive (substantively this makes sense, as it implies that students with the same mathematics performance, will make more ambitious educational choice if they are in TSO – in practice however, students with the highest mathematics performance, are in ASO rather than TSO). This adds to the issue that our operationalisation of the educational choice that pupils make is not independent of the curricular track of origin, as most likely not all the tracks offer the same range of possibilities in the same way (which is one of the main reasons for including the curricular track as one of the L2 grouping variables in the multilevel analyses in the first place). For these two reasons, we will not include the curricular track characteristics in our next statistical models. Leaving them out, does not invalidate our findings. We see that including these characteristics does not change any of the effects of the background characteristics (Model 8 versus Model 6). This illustrates that by including the curricular tracks as a higher level in the multilevel analyses differences in educational choice by curricular track groups are adequately accounted for.

## 2. Educational choice: linked to expectations of parents, teachers and pupils

Now that is confirmed that pupils from higher SES background are more likely to stay on track in the transition from the second to the third cycle than pupils from more disadvantaged socioeconomic backgrounds, we turn to the link with parents' expectations regarding the educational careers of their children. In addition, we also look at pupils' own expectations stated in the second cycle and their teachers' evaluation of their educational performance and probability of future educational success. Linking the educational choice as we operationalised it to the expectations of parents, teachers and the pupils themselves, also adds to confirm our characterisation and interpretation of their educational transition in terms of ambitious educational choice (at least staying on track is found to be associated with higher expectations than the alternative of downward mobility). The fact that expectations predict relative educational choice (controlled for educational position) in the transition to the last stage of secondary education, is also important for its implication that expectations about future educational attainment do vary not only between but also within curricular tracks in a highly tracked educational system (Van den Broeck, Demanet & Van Houtte 2018 found this variation to be higher in the lower track levels).

SES differences in educational choice are clearly linked to expectations held by parents regarding their children's educational future (different options were rated in terms of their probability – see the Appendix). Both their expectations about the kind of diploma in secondary education as well as the kind of education after secondary education matter: pupils whose parents indicated to expect their child to graduate from secondary education (Model 1 in Table 2) in the academic track (ASO) are more likely to stay on track; pupils whose parents expect them to go to university are also more likely to choose a relatively ambitious track (Model 2).

Table 2 Effect of expectations of parents, teachers and pupils on educational choice – separate effects (N=4.389)

	Transition from 2 <sup>nd</sup> to 3 <sup>rd</sup> cycle: Staying on track					
	1	2	3	4	5	6
SES	.164**	.122	.163**	.149*	.092	.117
Migration generation						
- 1 <sup>st</sup> generation	-.072	-.321	.054	-.183	-.323	-.208
- 2 <sup>nd</sup> generation	.343*	.206	.427*	.305	.200	.277
- 3 <sup>rd</sup> generation	.151	.123	.235	.164	.091	.105
Foreign language	.662**	.574*	.646**	.695**	.537*	.675**
Gender: F	-.277**	-.307**	-.460***	-.296**	-.337***	-.336***
Math test score	1.023***	.992***	.899***	1.031***	.981***	.997***
Age delay	.237	.236	.257	.240	.220	.178
Expectations SE					of pupils	
- no diploma	.031				.047	
- DBSO	.107				.180	
- ASO	.151*				.651***	
- BSO	-.115				-.478***	
- KSO	-.146*				-.105	
- TSO	-.053				-.032	
- BuSO	.134				.060	
Expectations HE		of parents			of pupils	
- work		-.133			-.269***	
- short specialisation		-.002			-.175*	
- hogeschool		-.131			-.199***	
- university		.334***			.428***	
Teachers' expectations of performance			.548***			
Pupils' perception of parents' expectations						
- work						.720
- 7th specialisation						-1.024*
- HBO5						.712
- hogeschool						-.034
- university						.923***
Constant	2.690***	2.818***	2.911***	2.300**	3.398***	2.852***
Adjusted R <sup>2</sup>	0.104	0.107	0.105	0.202	0.138	0.121
Log Likelihood	-1,644	-1,637	-1,610	-1,597	-1,600	-1,621
Akaike Inf. Crit.	3,329	3,308	3,249	3,235	3,234	3,278
Bayesian Inf. Crit.	3,456	3,416	3,338	3,362	3,343	3,393

Notes: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Number of obs: 4.389 Pupils; 55 Schools; 31 Curricular track groups.

All models controlled for missing values on the respective expectation variables.

Expectations for SE and HE on a scale from 1-5; pupils' perception of parents' expectations dummy coded (reference category: don't know).

Many of these expectations are correlated (e.g. a high expectation for ASO often implies a low expectation for BSO), which hampers the simultaneous estimation of their effects. For this reason, we identified from the separate items which option is rated most highly, and score these on a linear scale (for secondary education from no diploma – buso – dbso – bso – tso – kso – to aso; for higher education from working – specialisation – hogeschool – to university). Results are in Table 3 below. From this it seems that parents' expectations for higher education tell us most about parents' ambitions for their children's educational careers. In any case, including parents' expectations for higher education renders the SES effect in the model for educational choice to statistical insignificance (cf. Model 2 in Table 2 above); in addition it seems that the major difference is whether parents expect their children to go to university (not higher education in general) or not. Combined, parents' expectations for secondary and higher education, explain 52,8% of the SES effect which is no longer statistically significant (Model 1 in Table 3 below).

Similar conclusions can be drawn when considering the expectations that pupils themselves formulated (Models 4 and 5 in Table 2 above). We see the same effects of the same kinds of expectations for secondary and higher education (i.e.: ASO positive, BSO negative, university positive), and including the higher educational expectations is enough to explain the SES effect (Model 5 in Table 2 above). With the simplified indicators for educational expectations (Model 3 in Table 3 below), it seems that not only pupils' higher education expectations matter, but that their expectations for secondary education – in addition – matter as well. In total, pupils' expectations explain 75,1% of the SES-effect.

Teachers' expectations of pupils' educational achievement and future success, are also related to the educational choice that pupils make, but does not explain the SES differential in educational choice completely (24,6% mediation).

Finally, also when we look at the perceptions of pupils of their parents' expectations for higher education (this was measured after they have made the transition to the third cycle; in this case options were not rated, but the most likely option had to be selected), again high expectations for going to university appear to be a strong corollary of making more ambitious educational choices (Model 6 in Table 2 above, Model 4 in Table 3 below – 54,5% mediation of the SES-effect) (reference category = don't know).

Table 3 Effect of expectations of parents, teachers and pupils on educational choice –effects combined (N=4.389)

	Transition from 2 <sup>nd</sup> to 3 <sup>rd</sup> cycle: Staying on track				
	1	2	3	4	5
SES	.106	.163**	.111	.117	.045
Migration generation					
- 1 <sup>st</sup> generation	-.197	.054	-.180	-.208	-.406
- 2 <sup>nd</sup> generation	.267	.427*	.244	.277	.167
- 3 <sup>rd</sup> generation	.130	.235	.201	.105	.204
Foreign language	.601*	.646**	.636*	.675**	.558*
Gender: F	-.298**	-.460***	-.390***	-.336***	-.547***
Math test score	.999***	.899***	.997***	.997***	.845***
Age delay	.201	.257	.195	.178	.271
Expectations parents SE	.067				.045
Expectations parents HE	.342***				.215**
Teachers' expectations of performance		.548***			.487***
Expectations pupils SE			.666***		.594***
Expectation pupils HE			.638***		.474***
Pupils' perception of parents' expectations					
- work				.720	1.016
- 7th specialisation				-1.024*	-.703
- HBO5				.712	.970
- hogeschool				-.034	-.113
- university				.923***	.567**
Constant	3.017***	2.911***	3.277***	2.852***	3.319***
Mediation of SES-effect	0.528	0.246	0.751	0.545	0.927
Adjusted R <sup>2</sup>	0.101	0.105	0.160	0.121	0.184
Log Likelihood	-1,642	-1,610	-1,599	-1,621	-1,541
Akaike Inf. Crit.	3,316	3,249	3,230	3,278	3,138
Bayesian Inf. Crit.	3,418	3,338	3,332	3,393	3,317

Notes: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Number of obs: 4.389 Pupils; 55 Schools; 31 Curricular track groups.

All models controlled for missing values on the respective expectation variables

Explanatory variables standardised or dummy coded.

Putting all these expectations together (Model 5 in Table 3 above), each of the expectations (with one exception all were measured before the transition is made) contributes to explaining the educational choices that are made: even when controlled for the other effects, high expectations of parents, high expectations of teachers, high expectations of pupils and their perceptions of high expectations held by their parents, are all linked to pupils choosing more ambitious in the transition from the second to the third cycle of secondary education

(controlled for educational performance and position<sup>6</sup>). Together, these expectations explain 92,7% of the SES\_effect. These results confirm results from the literature (e.g. Gregory & Huang 2013) about the predictive power of expectancies about educational attainment held by significant others (parents, teachers) and by pupils themselves for their future educational position.

Pupils expectations for both secondary as well as higher education have the strongest effect parameters. A small reduction in these can be noticed when controlling for the expectations of parents and teachers, which is consistent with the finding for Germany that even in a highly tracked educational system, pupils' educational expectations are still influenced by their parents (and friends; Roth 2017). However, in addition, the expectations of teachers are a particular strong factor predicting subsequent educational choice, followed by finally, parents' expectations for higher education, even when controlled for pupils' own expectations.

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<sup>6</sup> The multilevel model with the schools and the curricular track as grouping variables (cross-classified), adequately controls for the effects of educational position on the level of ambitious educational choice. Adding characteristics of the curricular track to the models, such as the track level or the number of hours of mathematics in the programme, indeed, also in these models, does not alter the effects substantively (cf. Models in Table 10 in Appendix).

### 3. Mechanisms explaining educational choice

So far we have established that higher SES pupils, in making the transition from the second to the third cycle in secondary education, are more likely to opt for the more ambitious curricular track (relative to their educational position in the second cycle) or, more accurately, refrain more often from choosing or trickling down to a curricular track with fewer hours of mathematics or in a lower track level. In two ways do we assure to adequately measure social background differentials in educational choice in this transition. First, our measurement of the educational choice is defined relative to pupils' initial position, i.e. the curricular track in the second cycle. This way, we are effectively assessing only the realistic options that are left given the position (for many positions simply assessing whether the – absolute – highest possible track is chosen, probably does not make any sense). In addition, the SES effect remains statistically significant after controlling for educational performance. This effect refers to what is called the secondary effect of social background, i.e. the effect of SES on the choices that pupils make independent of potential educational performance differences. The next step is trying to find the mechanisms that help explain why higher SES pupils in this transition are more likely to choose more ambitiously.

The LiSO instruments and surveys offer a lot of information on potentially relevant factors for differentials in educational choice: parents were asked about the family context, teachers were surveyed about their perceptions in general and of their pupils individually, and pupils were administered a range of questions including school related perceptions and more individual attitudes (many of the latter were specifically included to test the mechanisms of educational choice).

In Table 4 we organise the relevant indicators as related to the home context (parents), the school context (by teachers and pupils), and the pupils' perceptions and attitudes.

Table 4 Results multilevel analyses for mechanisms in ambitious educational choice (N= 4.389)

	Transition from 2 <sup>nd</sup> to 3 <sup>rd</sup> cycle: Staying on track					
	1	2	3	4	5	6
SES	.229***	.172**	.176**	.174**	.228***	.227**
Migration generation						
- 1 <sup>st</sup> generation	-.155	.027	.005	-.149	-.141	-.226
- 2 <sup>nd</sup> generation	.328	.384*	.352*	.439*	.280	.366*
- 3 <sup>rd</sup> generation	.117	.157	.155	.255	.122	.215
Foreign language	.664**	.697**	.683**	.651*	.643**	.612*
Gender: F	-.457***	-.296**	-.308**	-.340**	-.206*	-.241*
Math test score		1.029***	1.034***	.521***	1.015***	.515***
Age delay		.173	.165	.259	.117	.204
Home leisure HB			.022			.013
Home leisure LB			-.004			-.011
Stimulating home climate			-.040			-.022
Social capital			.054			.069
Parents' evaluation of good school results			.035			.025
Parents' evaluation of higher education			.059			.035
Class teachers' expectations				.380***		.392***
Teachers' expectation disadvantaged				-.056		-.061
Math self-concept				.755***		.762***
Academic self-concept				.097		.080
Fixed mindset					.042	.047
Risk aversion					.022	.002
Instrumental utility of education					.022	.031
Intrinsic utility of education					.166**	.083
Relative deprivation					-.100	.015
Openness of future					-.067	-.037
Relative risk aversion					.243***	.208***
Time perspective future					-.093	-.134*
Time discounting preference					.129**	.142**
Constant	2.847***	2.886***	2.894***	3.126***	2.935***	3.149***
Mediation of SES-effect	-	(ref.)	-0.031	0.421	-0.191	0.297
Adjusted R <sup>2</sup>	0.018	0.088	0.089	0.140	0.106	0.149
Log Likelihood	-1,724	-1,655	-1,653	-1,515	-1,628	-1,495
Akaike Inf. Crit.	3,468	3,334	3,345	3,068	3,299	3,063
Bayesian Inf. Crit.	3,532	3,410	3,473	3,189	3,440	3,293

Notes: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Number of obs: 4.389 Pupils; 55 Schools; 31 Curricular track groups.

All models controlled for moving to a different commune.

Explanatory variables standardized or dummy coded.

Missing values replaced with mean values (test results mean-adjusted within educational group), with additional controls: Models 3, 6 controlled for missing parent data; Models 4, 6 controlled for missing data from class teacher and subject teacher; Models 4, 5, 6 controlled for missing values in the pupils' questionnaire data.



Model 3 includes characteristics of the home context as provided by the parents, from leisure participation and stimulating home climate to social capital and parents' attitudes on education. Surprisingly, these characteristics and the model do not help to explain why some pupils choose differently from others: the explained variance by the model is not higher, the variables have no statistically significant impact, and the SES effect remains unchanged (no mediation – proportion explained: -3,1%). This is surprising, as many of these characteristics have been identified in theories and research as being relevant in explaining better school outcomes for higher SES pupils and students (see also extended analyses in the next section), here it seems that these are not so important for educational choice (see also later analyses for educational performance).

Model 4 focuses on school related factors: teachers' expectations and pupils' academic self-concept. This model has good predictive power ( $R^2$  increases from 8,9% to 14,0%). Pupils whose teachers assess them as being more able and likely to have a successful educational career, are more likely to demonstrate a more ambitious choice in the transition to the third cycle. The (averaged) ideas of pupils' teachers about the educational success probabilities for children from disadvantaged backgrounds make no difference. Also, pupils' perception of their educational performance (controlled for their actual performance) matters, not so much regarding their general academic self-concept, but strongly regarding their self-concept about their mathematical performance: pupils who think more highly of their mathematical performance, are more likely to proceed in a programme keeping up with their mathematics level (net of actual performance in mathematics). The variables in this model manage to explain about half of the effect of educational performance. In addition, although the SES effect seems hardly affected by them when we – naively – compare with the parameters in Model 2, mediation analysis (adjusted for bias due to residual variance) reveals that 42.1% of the SES-effect is explained by the school related factors in Model 4.

Finally, Model 5 includes individual opinions and attitudes. This model has an  $R^2$  a little bit more modest (10,6%, in between 8,8% and 14,0%), and only three out of nine variables appear to have statistically significant effects. A more ambitious educational choice is more likely among pupils who value education for intrinsic reasons more highly, with higher time discounting preferences (prioritise long-term earnings), and with higher relative risk aversion (wanting to do better than their parents). In general, this model, however, does not explain the more ambitious educational choices among higher SES pupils, quite the opposite: the SES-

effect is enlarged if controlled for pupils' attitudes, also mediation is negative with -19,1% of the SES-effect explained (but see the next section for a more detailed break down).

In Model 6 we combine all the factors of the previous models. Two main changes in the size of effects occur when comparing to the separate models. First the effect of intrinsic utility of education is reduced and no longer statistically significant. This is due to the control for the academic self-concept, to which it is strongly associated: pupils who value education for its intrinsic utility also score higher on the academic self-concept (even when controlled for actual performance) which in turn affects educational choice positively.

The second change that occurs in the combined Model 6 is that the effect parameter for pupils' time perspective becomes stronger and statistically significant. Again, this is because of its strong connection with academic self-concept (which in this case acts as suppressor effect). Pupils who are concerned about their future rather than just focussed on the present also have a higher academic self-concept which in turn affects educational choice positively. Controlling for the academic self-concept then makes clear that a focus on the future independent of perceptions of performance, affects educational choice negatively, which substantively seems at odds with the positive effect of the time discounting preference.

Pupils who are already more concerned with their future (time perspective) do have a higher evaluation of both the instrumental as well as intrinsic utility of education, and have higher values on the scale of relative risk aversion and academic self-concept, but their time perspective is not related to the time discounting preference (correlation of -.003). It seems that time perspective does not adequately measure what was intended (thinking in the longer term), and seems to be captured more adequately by the time discounting preference measure.

From these models, we conclude that quite some factors affect who chooses more ambitiously in the transition from the second to the third cycle, in particular factors related to school performance and some individual attitudes. But by using these models with multiple variables, the SES effect was not always reduced, in fact only for the model with the school related factors some part of the SES-effect can be attributed to these factors, and in the case of the individual attitudes model the SES-effect even increased (negative mediation). In the next Table 5 we split up the models in order to know which factors specifically have this impact on the SES-effect.

Table 5 Results multilevel analyses for mechanisms in ambitious educational choice – more detailed (N= 4.389)

	Transition from 2 <sup>nd</sup> to 3 <sup>rd</sup> cycle: Staying on track										
	1	2	3	4	5	6	7	8	9	10	11
SES	.229***	.172**	.176**	.166**	.179**	.171**	.164**	.164**	.265***	.157*	.227**
Migration generation											
- 1 <sup>st</sup> generation	-.155	.027	.005	.072	-.210	.001	-.067	.009	-.098	-.015	-.226
- 2 <sup>nd</sup> generation	.328	.384*	.352*	.437*	.403*	.385*	.346*	.379*	.321	.352*	.366*
- 3 <sup>rd</sup> generation	.117	.157	.155	.241	.206	.151	.163	.157	.131	.129	.215
Foreign language	.664**	.697**	.683**	.642**	.693**	.681**	.659**	.678**	.673**	.683**	.612*
Gender: F	-.457***	-.296**	-.308**	-.470***	-.225*	-.278**	-.305**	-.296**	-.237*	-.234*	-.241*
Math test score		1.029***	1.034***	.899***	.567***	1.039***	1.033***	1.038***	1.039***	1.021***	.515***
Age delay		.173	.165	.258	.207	.173	.156	.177	.132	.145	.204
Home leisure HB			.022								.013
Home leisure LB			-.004								-.011
Stimulating home climate			-.040								-.022
Social capital			.054								.069
Parents' evaluation of good school results			.035								.025
Parents' evaluation of higher education			.059								.035
Class teachers' expectations				.553***							.392***
Teachers' expectation disadvantaged				-.044							-.061
Math self-concept					.787***						.762***
Academic self-concept					.192**						.080
Fixed mindset						.040					.047
Risk aversion						.045					.002
Instrumental utility of education							.086				.031
Intrinsic utility of education							.146**				.083
Relative deprivation								-.073			.015
Openness of future								-.084			-.037
Relative risk aversion									.246***		.208***
Time perspective future										-.016	-.134*
Time discounting preference										.165***	.142**
Constant	2.847***	2.886***	2.894***	3.006***	3.043***	2.861***	2.905***	2.873***	2.895***	2.851***	3.149***
Mediation of SES-effect	-	(ref.)	-0.031	0.245	0.350	-0.001	0.040	0.090	-0.600	0.146	0.297
Adjusted R <sup>2</sup>	0.018	0.088	0.089	0.105	0.134	0.089	0.093	0.091	0.095	0.094	0.149
Log Likelihood	-1,724	-1,655	-1,653	-1,608	-1,535	-1,653	-1,646	-1,651	-1,642	-1,648	-1,495
Akaike Inf, Crit,	3,468	3,334	3,345	3,247	3,099	3,336	3,321	3,332	3,312	3,326	3,063
Bayesian Inf, Crit,	3,532	3,410	3,473	3,349	3,195	3,431	3,417	3,428	3,402	3,422	3,293

Notes: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Number of obs: 4.389 Pupils; 55 Schools; 31 Curricular track groups.

All models controlled for moving to a different commune.

Explanatory variables standardized or dummy coded.

Missing values replaced with mean values (test results mean-adjusted within educational group), with additional controls: Models 3, 11 controlled for missing parent data; Models 4, 11 controlled for missing data from class teacher and subject teacher; Model 5 through 11 controlled for missing values in the pupils' questionnaire data

From Table 5 above, we conclude that the factors that are most important in explaining different educational choices are not necessarily the factors that explain SES differentials in educational choice. First, guided by the amount of variance explained in a model (LL, or  $R^2$ ), indicators for pupils' academic self-concept (Model 5) are particularly important, followed by the assessment by their teachers of their educational achievement potential (Model 4). Characteristics of the home environment and attitudes of parents (Model 3), again, do not matter much for educational choice independent of school performance. Most of the individual attitudes are moderately important (in particular Models 7, 9, 10).

Second, the remaining effect size for SES is somewhat different between the models: in some models the SES-effect is reduced but in others it is larger after than before adding additional variables. It is striking that the parental home environment and parents' opinions with regard to education (Model 3) do not reduce the SES-effect (but, shown previously, the parents' expectations did); pupils' mindset and risk self-perceptions (Model 6) also do not explain any of the SES-effect (no mediation effect). Controlling for relative risk aversion (Model 9) strongly increases the effect size of SES instead of lowering it (negative mediation: -60%), since lower SES pupils demonstrate having higher relative risk aversion which in turn is related to higher odds of staying on track. The only factors contributing to the explanation of more ambitious educational choice of higher SES-pupils are teachers' expectations (24,5% mediation), pupils' academic self-concept (35%), their time discounting preferences (14,6% mediation), and – of marginal importance (mediation < 10%) – their perceptions of the utility of education (in particular its intrinsic utility) and of the future (Models 4, 5, 7, 8 and 10).

Apart from the different impact on social background effects and the two changes in effects when combining all predictors that we already discussed above, the effects of the explanatory mechanisms themselves are not any very different when considering them in these separate models or together.

#### 4. Absence of impact of parental home characteristics for educational choice

In the section on mechanisms explaining educational choice in the transition from the second to the third cycle, the parental home indicators did not have any significant effects. This is remarkable, as many of these refer to concepts that are often put forward in explanations for the higher educational achievement of higher SES children; cultural capital, social capital, parental stimulation and strategic sense of education. On the other hand, this finding is compatible with the conclusion in Van de Werfhorst and Hofstede (2007) that cultural capital does not matter for differential educational choice, only for educational performance.

We put the conclusion that parental home indicators do not explain (beyond SES) educational choice to a further test, by a) comparing with models in which the controls for educational performance are left out, and b) analysing in addition whether different kinds of parental home involvement and parent-teacher interactions are linked to educational choice. The latter were surveyed among the LiSO-participants in the next year, so the time ordering is no longer consistent, but if we assume that the nature of parental home involvement and parent-teacher interactions does not change much over time, it might be interesting to look at its association with educational choice. From a cultural perspective, a higher parental involvement (in particular regarding academic socialisation) and good parent-teacher interactions are deemed important by teachers and probably most easily established in middle-class families. Research on the transition to secondary education in Flanders also found class-related differences in parent-teacher interactions to be important in the process of educational decision making (Seghers, Boone & Van Avermaet 2019b).

Regarding the first evaluation, the parental home indicators clearly do not affect educational choice, even when leaving out the educational performance indicators (Model 1 versus 2 in Table 6 below).

Regarding the second evaluation, neither different kinds of home involvement, nor of home-school contact types (See Appendix for how these were measured) are very important in explaining differential educational choice. The only variable that has a statistically significant effect both in Models 3 and 4 is the control for missing values – what this means is that the pupils who did not answer these questions made less ambitious choices, very likely because these choices made them change programmes and in particular schools which effectively pushed them out of the sample for the survey the next year. In addition, there is a negative

effect of home-school contact because of problems, in the model without controls for educational performance (Model 3). Those pupils with parents that have more contact with their teachers do not make more but less ambitious choices, but this is because the higher frequency of contact is due to problems which in turn appear to have affected their educational performance, or reverse, might be the consequence of lower educational performance (indeed, parents are less likely to initiate contact with teachers if educational performance is high, Barg 2019).

Table 6 Effects of parental home indicators on educational choice tested further (N=4.389)

	Transition from 2 <sup>nd</sup> to 3 <sup>rd</sup> cycle: Staying on track			
	1	2	3	4
SES	.242***	.176**	.258***	.192**
Migration generation				
- 1 <sup>st</sup> generation	-.200	.005	-.186	-.005
- 2 <sup>nd</sup> generation	.298	.352*	.326	.381*
- 3 <sup>rd</sup> generation	.104	.155	.127	.165
Foreign language	.643**	.683**	.685**	.701**
Gender: F	-.483***	-.308**	-.473***	-.299**
Math test score		1.034***		1.006***
Age delay		.165		.186
Home leisure HB	.057	.022		
Home leisure LB	.021	-.004		
Stimulating home climate	-.052	-.040		
Social capital	.011	.054		
Parents' evaluation of good school results	.054	.035		
Parents' evaluation of higher education	.049	.059		
Missings on parents' questionnaire data	.072	.114		
No parents' questionnaire	.084	.070		
home involvement: home based			-.082	-.022
home involvement: academic socialisation			-.015	-.016
home involvement: school based			-.019	-.020
home contact school: problems			-.139**	-.074
home contact school: interest			-.068	-.091
Missings on home involvement			-.531***	-.465**
Constant	2.863***	2.894***	2.959***	2.963***
Adjusted R <sup>2</sup>	0.020	0.089	0.028	0.090
Log Likelihood	-1,721	-1,653	-1,711	-1,647
Akaike Inf. Crit.	3,479	3,345	3,453	3,330
Bayesian Inf. Crit.	3,594	3,473	3,555	3,445

All models controlled for having moved commune.

Models 1 and 2 controlled for missing data from parents' questionnaire (shown in Table).

Models 3 and 4 controlled for missing data from pupils' third cycle questionnaire (shown in Table).

So, these additional tests only confirm the conclusion that indeed for educational choice, the traditional indicators of the parental home (cultural capital, social capital, evaluation of education, home involvement) are not a driving force to explain educational choice.

## 5. Comparison of models for educational choice for educational track levels ASO and TSO

Because different track levels are composed very differently in terms of social background characteristics – compared to the TSO track, pupils in the ASO track in the fourth grade on average are of higher SES (0.44 versus -0.18) and relatively fewer pupils have a migration background (9% versus 23%) or do not speak Dutch at home (7% versus 12%), more girls are present (56% versus 38%) – and educational performance (0.64 versus -0.18), we estimate explanatory models separately for the pupils who in the fourth grade are in ASO and TSO (we do not analyse the group of KSO pupils separately because of lower numbers).

First, with regard to social background characteristics, in TSO the SES-effect is absent while the ethnic background effects are statistically significant (but only one) in TSO and not in ASO (Table 7). Gender is important in both ASO and TSO, but stronger in TSO, and in addition, disappears in ASO after controlling for educational performance but not in TSO where girls more than boys opt for a less demanding track.

Next, with regard to the mechanisms that explain educational choice, the same things matter both in ASO and TSO: teachers' expectations, pupils' relative risk aversion, and their time perspective. Other things are somewhat different: academic self-concept is very important in ASO (specifically for mathematics), but not in TSO; time discounting preferences are relevant only in ASO, not in TSO; engagement in low brow leisure activities has opposite effects: negative in ASO, positive in TSO, and finally, in TSO the individual risk aversion has a significant negative effect on making an ambitious educational choice.

In global the results that we found in the full sample are replicated for the ASO group; for the TSO group some differences do stand out – with SES and (perceived) school performance being less relevant for educational decision making on the one hand, but without school being not important as teachers' expectations still are one of the most important elements. In both groups pupils' relative risk aversion and their time perspective are among the most relevant individual attitudes.



Table 7 Results multilevel analyses for educational choice for educational tracks ASO and TSO

	Transition from 2 <sup>nd</sup> to 3 <sup>rd</sup> cycle: Staying on track					
	ASO (N=2.630)			TSO (N=1.721)		
	1	2	3	1	2	3
SES	.311***	.212**	.312***	-.077	-.088	-.019
Migration generation						
- 1nd gen	-.182	.029	.058	.023	.237	-.449
- 2nd gen	.188	.228	.208	.859*	.952*	.811
- 3nd gen	.079	.157	.143	-.087	-.111	.167
Foreign language	.480	.478	.387	.722	.779	.813
Gender: F	-.377***	-.155	-.047	-.703**	-.661**	-.805**
Math test score		1.318***	.688***		.693***	.516**
Age delay		-.035	-.197		.115	.164
Home leisure HB			-.015			.153
Home leisure LB			-.134*			.231*
Stimulating home climate			-.076			.032
Social capital			.037			.119
Parents' evaluation of good school results			.037			-.025
Parents' evaluation of higher education			.004			.142
Class teachers' expectations			.427***			.524***
Teachers' expectation disadvantaged			-.042			-.120
Math self-concept			1.093***			.142
Academic self-concept			-.068			.277
Fixed mindset			-.003			.127
Risk aversion			.058			-.241*
Instrumental utility of education			.080			.015
Intrinsic utility of education			.065			.195
Relative deprivation			-.014			.066
Openness of future			-.054			-.091
Relative risk aversion			.258***			.273*
Time perspective future			-.129*			-.240*
Time discounting preference			.212***			-.007
Constant	1.847***	1.056	1.372	4.114***	4.301***	4.875***
Adjusted R <sup>2</sup>	0.023	0.129	0.258	0.037	0.060	0.117
Log Likelihood	-1,204	-1,131	-967	-460	-451	-415
Akaike Inf. Crit.	2,428	2,285	2,005	940	926	903
Bayesian Inf. Crit.	2,487	2,356	2,217	994	991	1,099

Notes: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

ASO: Number of obs: 2.630, Groups: Schools: 34; Curricular tracks: 8

TSO: Number of obs: 1.721, Groups: Schools: 43; Curricular tracks: 21.

Number of observations does not add up to total because pupils in KSO are left out of these analyses (N=38).

All models controlled for moving to a different commune.

Explanatory variables standardized or dummy coded.

Missing values replaced with mean values (test results mean-adjusted within educational group), with additional controls: Models 3, 11 controlled for missing parent data; Models 4, 11 controlled for missing data from class teacher and subject teacher; Model 5 through 11 controlled for missing values in the pupils' questionnaire data.

Some differences between the track level groups might have to do with differential effects according to social background or the consequences of the educational choice that they make, e.g. we find a negative effect of individual risk aversion for the TSO group but not the ASO group, which could have to do with the argument made by Hartlaub and Schneider (2012). These authors study the intentions for further education of students attending the most demanding, academically orientated secondary school type in Germany. They argue that children from upper social classes have no choice but to opt for the academically most demanding educational courses, they are structurally compelled to do so, as the authors call it (because of relative risk aversion / status maintenance). In contrast, working class children do have to make an active decision and, thus, individual risk aversion (next to relative risk aversion) comes into play for these students. Indeed, they find that relative risk aversion is important, but also that individual risk aversion does not matter for the educational plans of higher SES students, only for the working-class students who are more likely to choose an applied rather than a purely academic university degree course if they are more risk-averse. Applied to the Flemish case, for pupils in TSO, the specific choice in TSO might matter more, as some curricular tracks are meant to prepare for higher education but others are not. In that sense, for pupils in ASO, their choice for the curricular track in the final cycle of secondary education is not as consequential: if they stay in the ASO track level, the option of going to university remains open.

## 6. Comparison of models for educational achievement, performance, and choice

Finally, we also test the effect of the mechanisms that we included for the analyses of educational choice net of educational performance, on educational performance itself, the other component in the process of (differential) educational attainment, as well as on the educational position in the fourth grade, before making the transition to the last cycle of secondary education, which is also shaped by previous educational performance and decision making.

For these analyses, the causal order is however less clear-cut than in our analyses of educational choice, in particular with regard to pupils' attitudes which were measured at about the same time that the educational performance was assessed as well as the educational position (i.e. track level) that we analyse. However, our main concern here is in comparing the effects for achievement, attainment and educational choice, more specifically to see whether similar or rather very different mechanisms seem at work for these different components of educational achievement.

First, for educational performance, we use a multilevel model predicting pupils' score on the mathematics test, with a design similar as for educational choice, i.e. with schools and curricular tracks as level 2 groups. Different from the educational choice analyses, we do not need to restrict our sample in terms of educational track level or end of the school year attestation, only pupils who did not complete the mathematics test are excluded (N=6.280). We exclude the variables on academic self-concept and teachers' expectations, as these probably are largely based on pupils' educational performance rather than being mere predictors.

We estimate three types of models, first with background characteristics, second we add the parental home indicators, and third we test the individual attitudes. Finally, we add all these predictors in one model, in addition we also report the effect of track level (level 2 characteristic), which, as in the case of educational choice does not alter the effects reported in the previous models. Contrary to the findings for educational choice, characteristics of the parental home do have measurable effects on pupils' mathematics score (although of the different indicators only cultural capital appears to affect educational performance in the expected direction) (Table 8).

Also many of the individual attitudes are related to the mathematics score, but with relative risk aversion as a notable exception. The strongest relationships are with relative deprivation and the time discounting preferences: better educational performance is found among those

pupils with a preference for higher but later earnings, and those who have a less fatalistic perception of their social position due to the social group they belong to. Of course, again, we need to stress that for these attitudes, the direction of causality is not clear-cut.

For educational track level, we use a multinomial model to predict the track level that pupils are in in their fourth grade. In this case, we do not need to exclude any pupils from our analyses (N=6.585). Controlled for educational performance, pupils are not equally distributed over the four track levels, as we can see by the large effects for social background characteristics (ASO being the reference level for the analysis; Table 9). Also in this case, both characteristics from the parental home as well as individual attitudes contribute to describe who is in which track level. The odds for pupils of belonging to the lower track levels are reduced if they are growing up in a stimulating home climate, and if their parents find it important for their children to get a higher education degree (the latter effect being very strong).

With regard to the individual attitudes, the attitudes that predict a higher educational choice (i.e. relative risk aversion, time discounting preference, time perspective focused on the present, and intrinsic utility of education), are consistently related to higher odds of being in the ASO track level relative to TSO and (with the sole exception for intrinsic utility of education) even more relative to BSO. In addition, strong feelings of relative deprivation (which do not predict educational choice, but are associated with lower educational performance) are associated with a higher probability of pupils being in TSO and even more so in BSO.

Again, and in particular for the individual attitudes which were measured at the same time as the mathematics skills and the educational position, the causality of these analyses of educational performance and track level is less clear than it is for our analyses of educational choice. In particular, for feelings of relative deprivation, other research has already produced a number of indications for the fact that these feelings might at least partly reflect pupils' awareness of the social status of their own educational position (Spruyt . Kavadias & F. Van Droogenbroeck 2015; Van Houtte 2016) which would reverse the explanation for the association we find with educational performance and educational track level (but not with educational choice). This could also be the case for the other attitudes. The possibility of reverse causality is also the reason why we do not include the academic self-concept nor the expectations of teachers in these models.

Table 8 Results multilevel analyses for educational performance (N=6.280)

	Score on standardized mathematics test in the fourth grade				
	1	2	3	4	5
SES	.059***	.069***	.049***	.058***	.057***
Migration generation					
- 1nd gen	-.146***	-.174***	-.146***	-.173***	-.172***
- 2nd gen	-.073**	-.090***	-.074**	-.089***	-.088***
- 3nd gen	-.080*	-.089**	-.076*	-.084*	-.084*
Foreign language	-.038	-.040	-.048	-.052	-.053
Gender: F	-.172***	-.193***	-.168***	-.189***	-.191***
Age delay	-.133***	-.129***	-.130***	-.127***	-.127***
Home leisure HB		.045***		.043***	.043***
Home leisure LB		.022**		.021**	.021**
Stimulating home climate		-.026**		-.027**	-.027**
Social capital		-.051***		-.051***	-.051***
Parents' evaluation of good school results		-.008		-.011	-.011
Parents' evaluation of higher education		.012		.016	.016
Track level					
- KSO					-.526*
- TSO					-.690***
- BSO					-1.728***
Fixed mindset			.005	.006	.006
Risk aversion			-.021**	-.018*	-.018*
Instrumental utility of education			-.021*	-.020*	-.021*
Intrinsic utility of education			.032***	.032***	.032***
Relative deprivation			-.042***	-.044***	-.044***
Openness of future			.032***	.031***	.031***
Relative risk aversion			-.001	-.003	-.003
Time perspective future			-.021**	-.022**	-.022**
Time discounting preference			.050***	.050***	.049***
Constant	-.251*	-.231*	-.236*	-.217*	.675***
Adjusted R2	0.024	0.031	0.035	0.042	0.544
Log Likelihood	-5,602	-5,586	-5,584	-5,568	-5,536
Akaike Inf. Crit.	11,226	11,211	11,210	11,193	11,136
Bayesian Inf. Crit.	11,301	11,339	11,352	11,389	11,351

Number of obs.: 6.280 Pupils; 56 Schools; 45 Curricular tracks groups

Table 9 Multinomial logit regression results for educational position

	Educational track level in the fourth grade (reference category = ASO)											
	KSO	TSO	BSO	KSO	TSO	BSO	KSO	TSO	BSO	KSO	TSO	BSO
SES	.211	-.549***	-1.232***	.246	-.499***	-1.216***	.133	-.547***	-1.280***	.195	-.491***	-1.245***
Migration generation												
- 1nd gen	-.305	-.904***	-1.101***	-.209	-.541**	-.564*	-.270	-.880***	-.936***	-.201	-.529*	-.458
- 2nd gen	-1.516	-.842***	-1.194***	-1.340	-.480***	-.601**	-1.475	-.788***	-1.085***	-1.276	-.442**	-.548**
- 3nd gen	-.390	-.093	-.246	-.360	.004	-.109	-.315	-.052	-.137	-.309	.045	-.022
Foreign language	.400	-.365*	-.743***	.625	-.187	-.442*	.581	-.304*	-.639***	.809	-.145	-.365
Gender: F	.493	-1.311***	-1.759***	.155	-1.264***	-1.740***	.332	-1.385***	-1.829***	.007	-1.345***	-1.818***
Math test score	-1.484***	-1.713***	-3.707***	-1.588***	-1.676***	-3.670***	-1.448***	-1.665***	-3.638***	-1.536***	-1.621***	-3.595***
Age delay	.959*	.933**	1.155***	1.048**	.741***	1.042***	.979*	.929**	1.141***	1.063**	.744***	1.035***
Home leisure HB				.527**	-.014	.108				.520**	-.013	.104
Home leisure LB				-.055	.062	.021				-.076	.059	.011
Stimulating home climate				-.162	-.140***	-.187**				-.163	-.137**	-.174**
Social capital				-.109	-.005	-.029				-.111	.007	-.022
Parents' evaluation of good school results				.101	.072	-.009				.139	.079*	.015
Parents' evaluation of higher education				-.421*	-.413***	-.668***				-.420*	-.413***	-.657***
Fixed mindset							-.455**	-.139***	-.097	-.460**	-.141***	-.100
Risk aversion							-.046	-.035	-.052	-.025	-.046	-.060
Instrumental utility of education							.044	.091*	.047	.063	.117**	.081
Intrinsic utility of education							-.215	-.193***	-.047	-.231	-.206***	-.057
Relative deprivation							.048	.131**	.343***	.046	.108**	.320***
Openness of future							.343*	.214***	.239***	.353*	.203***	.231***
Relative risk aversion							-.409*	-.121**	-.365***	-.355	-.095*	-.304***
Time perspective future							.351*	.123**	.162**	.350*	.139**	.185**
Time discounting preference							-.048	-.134***	-.192***	-.064	-.151***	-.208***
Constant	-4.305***	.687***	-1.368***	-4.264***	.475***	-1.704***	-4.474***	.679***	-1.460***	-4.441***	.469***	-1.771***
McFadden R2	0.389			0.408			0.403			0.420		
Nagelkerke R2	0.565			0.582			0.578			0.593		
Akaike Inf. Crit.	8,669			8,455			8,531			8,335		

Number of observations: 6.585, by educational track level: ASO 3.125; KSO 44; TSO 2.140; BSO 1.276

## Conclusions and discussion

In this paper we analysed educational choice in a highly tracked educational system, for the transition to the last stage of secondary education. The educational position at that point, however, is already to a large extent determined, by a combination of previous educational performance and choices. Fewer studies explicitly analyse educational choice at later transitions in secondary education; most focus on initial track choice. Of course, this can complicate the analysis (not the least because of the high diversity in educational trajectories, when considering all possible kinds of upward and downward moves). It also affects the interpretation of findings (e.g. Dauber, Alexander and Entwisle 1996 who conclude that the role of non-cognitive factors at the end of middle school placements in the US is obscured if their role at a previous stage is not considered).

In our study, where we focus on the educational choice in the last stage of secondary education, our estimate of choice differentials will be conservative, as previous educational performances as well as decisions have shaped to a large extent the options that are left to pupils. In our analysis of the educational track level that pupils are in before making the transition to the last cycle, we do indeed find that it is strongly linked with educational performance, but also previous choices will have had an impact (cf. the choice element in the transition from primary to secondary education in Flanders, in Boone & Van Houtte 2013).

We operationalised the kind of educational choice that is made in the transition from the second to the third cycle based on the educational track level and the number of hours of mathematics in the curricular track that is chosen, relative to the educational position that pupils are in. Defining educational choice as relative is important, as, due to tracking, not all options are as available for all. In addition, because the choice that we consider is for the last stage of secondary education, and quite some tracking has already taken place, most of the choices that are made can hardly be called ambitious choices in the sense of e.g. taking on more mathematics, or going to a more academic track level. That kind of “upward” mobility is rather rare (at this stage) in the Flemish educational system. For most of the pupils, the transition that is made rather could be characterised more as “stability”, by going to the standard continuing track or continuing to a curricular track in the same track level with the same amount of mathematics. The only “choice” that is really made, is between this “staying on track”, versus “downward” mobility. So the educational choice that we analysed in this paper probably is more about (avoiding) the downward move, as this means giving up on something (also from

the viewpoint of higher education opportunities), although, for the ease of interpretation, we sometimes call the ones that continue on track, as choosing more ambitiously.

First in this paper, we related the educational choice to expectations of different actors, which clearly confirms the idea that the educational choice as we operationalised it (relative measure), is related to high expectations for future educational attainment (absolute measures). From these analyses, it is clear that expectancies of all actors involved matter for the decision that is being made in the transition to the third cycle of secondary education (net of actual educational position and performance). These findings align with previous results on the predictive and possible promotive power of expectancies of teachers, parents and pupils for their future educational position (Gregory & Huang 2013). We do find some variations in the effects of the expectancies – each actor’s expectations affect the educational decision in a somewhat different way. Pupils stay on track more if their teachers have high expectations. Teachers’ expectancies explain part of the SES-effect (24,6%), but the SES effect (pupils from higher SES stay on track more) is explained completely only when taking into account the expectations of parents or pupils’ themselves. Parents’ expectations are important, but it seems that only the future end point (higher education, not secondary education) is important; in addition, in particular the expectation that their child will go to university is what matters most (not higher education as such) in pupils staying on track. And finally, also pupils’ own expectations matter, not only their expectations for higher education, but also their expectations for the shorter term (the end of secondary education).

Next, we turned to the analysis of a high number of factors which further can explain the educational choice that pupils make in the transition to the third cycle. Again, we control for educational performance, to assess the choice element in this transition in its purest form.

The first finding is that characteristics of the parental background such as cultural capital and social capital, do not affect educational choice (controlled for SES) and do not help to explain why higher SES pupils are more likely to stay on track. This finding proved to be robust in the extra analyses of the role of parental involvement and parent-school interactions (which however were only measured later). The absence of any effect of the “classic” parental home indicators is striking, as these characteristics are often deemed very important for educational attainment. However, other authors focusing on educational choice, had similar findings (Boone & Van Houtte 2014; Van de Werfhorst & Hofstede 2007). Rather, as was also concluded by Van de Werfhorst and Hofstede (2007), and confirmed in our analyses of pupils’



scores on a standardized mathematics test, it seems that “cultural capital” – at least as classically measured by high-brow culture participation – is important for educational attainment by affecting educational performance, but not for understanding the process of educational choice (net of educational performance).

Next, teachers’ expectations are one of the more important factors affecting educational choice (only next to pupils’ academic performance and more important than their academic self-concept). In addition, teachers’ expectations are one of the few elements that account for a part (i.e. 25%) of SES differentials in educational choice. There are multiple ways in which these can enter into pupils’ decision: perhaps teachers are particularly well placed to assess pupils’ potential (and then it is just a better measure of educational performance), but it can also be the case that teachers’ beliefs about pupils’ academic potential are realised, either because these beliefs are, mostly unconsciously, transferred into their behaviour and interactions with these pupils (cf. the Pygmalion effect, Rosenthal & Jacobson 1968), or because these beliefs are, more explicitly, communicated to pupils (or their parents) by means of more explicit study guidance or even more formalised curricular track choice recommendations. The strong effects of expectations of “significant others” for future educational positions, make Gregory and Huang (2013) conclude that positive expectations can be promotive for low SES-pupils. The problem however is that teachers’ expectations, on average, are biased: they underestimate the academic potential of lower SES-pupils and hold higher expectations for higher SES-pupils than can be expected from their respective educational performance. Teachers probably take elements from the family context into consideration when assessing pupils’ potential, and even though some of these could be predictive of future success (e.g. support from home), their acting on stereotypes about social class (Lorenz 2016), converts their expectancies to being part of the process of reproduction of social inequality.

The third finding is about the role of pupils’ attitudes. According to our analyses, several attitudes help explain why some pupils choose more or less ambitiously than others. First, there is the relative risk aversion measure which proved to have the largest effect of all the attitudes: pupils with higher relative risk aversion stay on track more. The measure was designed to tap into the relative risk aversion mechanism that is central to the rational action theory approach of educational choice, i.e. status maintenance and the idea that for pupils’ the utility of taking a higher level educational step diminishes when they have reached the level necessary to achieve the same status as their parents. Specifically, it was measured as the ambition of pupils

to do as well as (or better than) their parents. We use a scale borrowed from Van de Werfhorst and Hofstede (2007) and our finding matches theirs that relative risk aversion affects pupils' educational expectations positively. In addition, we find, as did these authors, that relative risk aversion is not related to their educational performance.

Relative risk aversion thus seems important in understanding the process of educational choice. However, both in our models and in the results reported by Van de Werfhorst and Hofstede (2007), it does not explain (in a statistical sense) that higher SES pupils choose more ambitiously. Rather, including it in the model, increases the effect parameter of SES. This is because lower SES pupils on average score higher on the relative risk aversion measure. Van de Werfhorst and Hofstede (2007) however, stress the fact that relative risk aversion is something that is universal for all pupils, independent of social class. And because it implies relative status positions that are aimed for – relative to their parents' positions, which would translate to different absolute positions by social class – they still consider it to be an important mechanism to understand differential educational choice. Interpreted that way, the relative risk measurement is rather a different kind of formulation of pupils' long term expectations. Perhaps the measure did not capture the component of avoiding social demotion enough; perhaps a formulation of the relative risk aversion mechanism which could try to grasp some kind of threshold in the aspired position or that would focus more on the fear of not attaining parents' position, could help explain SES differentials in educational choice better. In our analyses, also individual risk aversion seemed to matter for the educational choice of pupils in TSO, perhaps because for them the access to higher education is more clearly at stake (however, for TSO the effect of SES is not statistically significant).

Finally, we turn to the indicators which do explain (some of) the SES effect for educational choice. We already discussed the teachers' expectations. Next to these, of all the factors included only two help to explain why higher SES pupils more often stay on track while lower SES pupils refrain less from moving downward, i.e. two attitudes of pupils: about the utility of education and their time perspective. Higher SES pupils value education more for its intrinsic utility, and pupils who value the intrinsic quality of education more also stay on track more (but this effect disappears after control for academic self-concept). Higher SES pupils also have a higher time discounting preference (prefer the larger salary in the long term), which in turn affects educational choice positively. These two attitudes (although the time discounting preference was introduced inspired by the rational action theory for educational choice), clearly

resonate with issues that are central to a more classic cultural approach to educational inequality: self-realisation is a central value in education, and being able to defer immediate gratification in favour of later rewards is typically reinforced by middle class parents in children's upbringing – elements that facilitate the enjoyment and investment of effort for school work.

Summarizing, different mechanisms indeed seem at play for educational performance and educational choice. Van de Werfhorst and Hofstede (2007) concluded based on their findings that cultural capital, while relevant for performance, does not seem relevant for understanding educational choice, for which the relative risk aversion mechanism of rational action theory is of particular importance. Our findings are quite similar to theirs: classic indicators of the home environment have no effect for educational choice (net of performance), but do affect educational performance, and relative risk aversion does affect educational choice and not educational performance.

In addition however, we found that attitudes other than relative risk aversion help to explain educational choice, and in particular also explain part of SES differentials in educational choice. The only factors contributing to the explanation of more ambitious educational choice of higher SES-pupils are, next to teachers' expectations, pupils' perceptions of the intrinsic utility of education, and their time discounting preferences - attitudes that are clearly linked to central themes of a cultural explanation of educational inequality. In this sense, we think that not only a rational theory perspective but also a cultural perspective is relevant, not only for educational performance, but also for educational choice, not in particular because of specific cultural participation patterns (i.e. strict measurement of cultural capital), but rather because of the values that are transmitted between generations and how these shape the aspirations of pupils (and their parents).

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## Appendix 1

Table 10 Effect of expectations of parents, teachers and pupils on educational choice –effects combined, including educational position characteristics (N=4.389)

	Transition from 2 <sup>nd</sup> to 3 <sup>rd</sup> cycle: Staying on track				
	1	2	3	4	5
SES	.104	.165**	.110	.117	.044
Migration generation					
- 1 <sup>st</sup> generation	-.210	.047	-.205	-.218	-.433
- 2 <sup>nd</sup> generation	.257	.419*	.231	.270	.153
- 3 <sup>rd</sup> generation	.120	.231	.193	.101	.201
Foreign language	.602*	.655**	.644**	.684**	.569*
Gender: F	-.290**	-.454***	-.391***	-.331**	-.549***
Math test score	1.024***	.927***	1.010***	1.020***	.861***
Age delay	.187	.239	.180	.158	.253
Expectations parents SE	.073				.048
Expectations parents HE	.356***				.225**
Teachers' expectations of performance		.546***			.482***
Expectations pupils SE			.712***		.643***
Expectation pupils HE			.642***		.474***
Pupils' perception of parents' expectations					
- work				.650	.919
- 7th specialisation				-1.134*	-.798
- HBO5				.710	.980
- hogeschool				-.034	-.112
- university				.932***	.572**
Educational track					
- KSO	-.218	-.240	.200	-.026	.438
- TSO	1.735**	1.456*	2.779***	1.845**	3.025***
Hours of mathematics	-1.299***	-1.248***	-1.480***	-1.333***	-1.550***
Constant	6.986***	6.902***	7.178***	6.880***	7.320***
Adjusted R <sup>2</sup>	0.235	0.246	0.265	0.242	0.298
Log Likelihood	-1,629	-1,598	-1,582	-1,607	-1,524
Akaike Inf. Crit.	3,295	3,231	3,201	3,257	3,109
Bayesian Inf. Crit.	3,416	3,339	3,323	3,391	3,307