

Supplementary Appendices

SA. Imputation Model and Diagnostics

We use multiple imputation via chained equations to complete missing values on our independent variables and create 20 imputation data sets. For the continuous variables, we use predictive mean matching (pmm, knn=5) to create imputations. For the ordinal variables we use ordinal logistic regression and for nominal variables we use either logistic or multi-nominal logistic regression. The imputation model includes all variables from our main analysis including the dependent variables. Additionally, we include further information on teacher advice (seventh grade), a mathematics test score (ninth grade), achievement motivation (seventh and ninth grade), parents' social network (ninth grade), parents' income (from registers 2004), and parents' social class (seventh grade). Table A1 shows counts for all variables with their respective imputation models.

Table A1: Imputation Model

Model	Variable	Complete	Incomplete	Imputed	Percentage Imputed	Total
Main Variables						
pmm	Parents' Knowledge	12,382	4,964	4,964	28.6%	17,346
pmm	Cito Test	16,520	826	826	4.8%	17,346
pmm	Number of Children	14,628	2,718	2,718	15.7%	17,346
pmm	Parents' Aspirations	11,960	5,386	5,386	31.1%	17,346
pmm	Books at home	11,231	6,115	6,115	35.3%	17,346
pmm	Parents' Involvement	12,382	4,964	4,964	28.6%	17,346
pmm	Intergenerational Closure	12,136	5,210	5,210	30.0%	17,346
ologit	Parents' Education	14,628	2,718	2,718	15.7%	17,346
mlogit	Migration Background	17,327	19	19	0.1%	17,346
mlogit	Parents' Social Class	14,569	2,777	2,777	16.0%	17,346
logit	Upward Transition	13,544	3,802	3,802	21.9%	17,346
logit	Downward Transition	10,944	6,402	6,402	36.9%	17,346
Auxiliary Variables						
pmm	Dutch Test	8,706	8,640	8,640	49.8%	17,346
pmm	Teacher Track Advice	16,501	845	845	4.9%	17,346

pmm	Mathematics Test	7,772	9,574	9,574	55.2%	17,346
pmm	Achievement Motivation Seventh Grade	16,369	977	977	5.6%	17,346
pmm	Achievement Motivation Ninth Grade	7,970	9,376	9,376	54.1%	17,346
pmm	Social Network	10,071	7,275	7,275	41.9%	17,346
pmm	Parents' Income	12,546	4,800	4,800	27.7%	17,346
mlogit	Parents' Soc. Class	14,569	2,777	2,777	16.0%	17,346

Source: VOCL 1993 + SSD register data.

Included Complete Variables: Gender, Track Year 3, Birth year, Tertiary Degree

Model: Multiple Imputation via Chained Equations, 20 Imputations

Table A1 also shows the percentage of imputed cases for each variable. All missing values were imputed by the model. The share of imputed cases ranges from 0.1 percent for migration background to 49.8 percent for Dutch test scores among the variables that are used in the main analysis. The share of imputed values is around 30 percent for the five mechanism variables. This is a consequence of non-response: about 30 percent of parents did not answer the questionnaire in 9th grade. Given that we have a good set of auxiliary variables from wave 1 it is still reasonable to impute these data even if the entire wave is missing for some parents (Young & Johnson, 2015).

Table A2 presents descriptive statistics for all variables for the imputed sample, the original data (with missing values) and a sample using list-wise deletion. We can see that the means for the imputation sample are quite close to the means in the original data with missing values while the means using list-wise deletion are farther off. This is an indication that multiple imputation resembles the original data better than using list-wise deletion.

Table A2: Comparison of Variable Means between Original Data, Sample using List-wise Deletion and the Imputed Data Set

	Multiple Imputation		List-wise Deletion (w/o Dutch test)		Original Data	
	Mean	N	Mean	N	Mean	N
Female (ref=male)	0.49	17,346	0.50	9,330	0.49	17,346
Parents' Education						
Lower Sec. or less	0.31	17,346	0.25	9,330	0.29	14,628
Upper Secondary	0.46	17,346	0.48	9,330	0.46	14,628
Tertiary	0.24	17,346	0.27	9,330	0.25	14,628

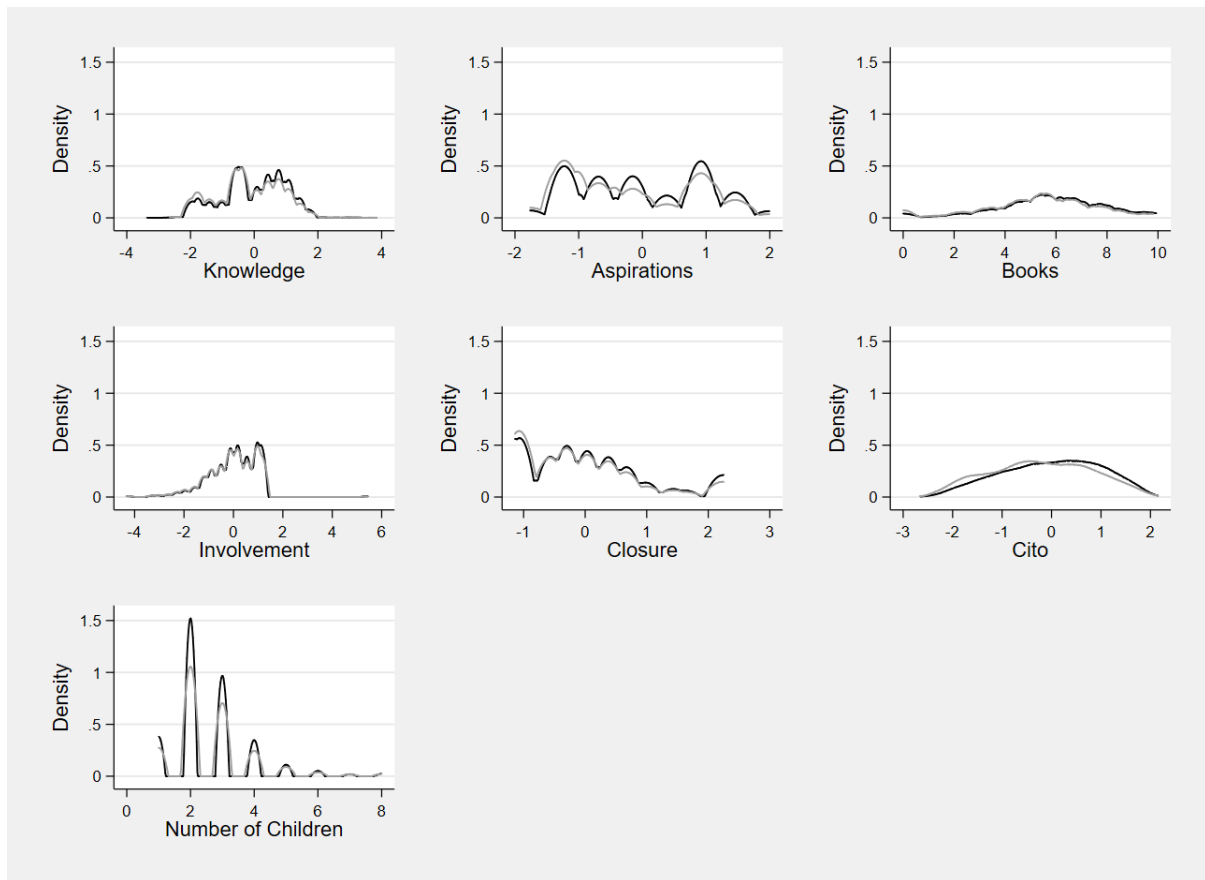
Migration Background						
None	0.87	17,346	0.91	9,330	0.87	17,327
Morocco	0.01	17,346	0.01	9,330	0.01	17,327
Suriname/Antilles	0.02	17,346	0.01	9,330	0.02	17,327
Turkey	0.02	17,346	0.01	9,330	0.02	17,327
Other	0.07	17,346	0.06	9,330	0.07	17,327
Number of Children	2.60	17,346	2.62	9,330	2.60	14,628
Cito Test (z-score)	-0.01	17,346	0.14	9,330	0.00	16,520
Parents' Knowledge (z-score)	-0.05	17,346	0.09	9,330	0.00	12,382
Parents' Aspirations (z-score)	-0.05	17,346	0.03	9,330	0.00	11,960
Books at Home (logged)	5.58	17,346	5.79	9,330	5.73	11,231
Parents' Involvement (z-score)	-0.02	17,346	0.02	9,330	0.00	12,382
Intergenerational Closure (z-score)	-0.03	17,346	0.04	9,330	0.00	12,136
Tertiary Degree						
None	0.67	17,346	0.63	9,330	0.67	17,346
Voc. College	0.20	17,346	0.23	9,330	0.20	17,346
University	0.13	17,346	0.14	9,330	0.13	17,346
Upward Transition	0.08	13,544	0.08	7,110	0.08	13,544
Downward Transition	0.27	17,021	0.22	9,229	0.27	17,021

Source: VOCL 1993 + SSD register data.

We carry out additional tests suggested by Abayomi et al. (2008) to diagnose our imputation model. Kolmogorov-Smirnov (KS) tests between the observed and the imputed data indicate whether the distributions of these two samples differ significantly. If this is the case, further tests should be carried out. The KS is significant for all our continuous variables besides the number of children, indicating that additional tests are necessary. Therefore, we inspect density plots of imputed and observed data to look for substantial differences in the distributions.

Figure A1 shows the density distributions for the observed (black) and imputed (grey) samples. The two distributions are very similar for all variables. The largest differences can be seen for aspirations, however, also here the distribution is not strongly different for imputed than for observed cases.

Figure A1: Observed and Imputed Density Distributions for all Continuous Variables



Source: VOCL 1993 + SSD register data, own calculations.

Note: Black lines indicate the observed sample, grey lines indicate the imputed data. The figures show the distributions for the first imputed data set (m1) of the 20 imputation data sets. Distributions are very similar for the 19 other imputation data sets.

Table A3 shows the frequency tables for the two categorical variables parents' education and migration background. We see that the imputed sample contains more lowly educated parents and more parents with migration history than in the observed data. These differences can be explained by the fact that parents with lower education and migration history less often fill in the parents questionnaire. These patterns represent actual patterns in the data and the imputation through students data still leads to an accurate distributions of values.

Table A3: Means for Imputed versus Observed Samples for Categorical Variables

	Observed	Imputed	Complete
Parents' Education			
Primary or lower secondary	0.29	0.40	0.31
Upper secondary	0.46	0.42	0.46
Tertiary	0.25	0.18	0.24
N	14,628	2,718	17,346
Migration Background			
Netherlands	0.874	0.63	0.87
Morocco	0.01	0.00	0.01
Suriname/Antilles	0.02	0.05	0.02
Turkey	0.02	0.05	0.02
Other	0.07	0.26	0.07
N	17,327	19	17,346

Source: VOCL 1993 + SSD register data, own calculations.

Sample means for the first imputation are displayed.

SB. The Knowledge Measure – Overview of Items

Parental knowledge was assessed with 24 items that all ask the same type of question: “Which type of further education can be accessed with a certain educational diploma?” All of these items were presented in one grid similar to the one displayed in Table B1.

In total, the grid allows for 24 yes/no-answers as for each of the four diplomas in the leftmost column, six possible pathways can be chosen (*mbo*, *hbo*, *mavo*, *havo*, *vwo*, *university*). Alternatively, it was also possible to answer with “don’t know”. To obtain our knowledge measure we summed up the correct answers in the 24 cells.

Table B1: Translation of Question and Answer Scheme for Knowledge Measure

“For parents it is often difficult to have an overview of which possibilities there are for further education of their children. The following question deals with this issue. For each row, the question is to which further education a student can be admitted with a certain diploma. There is more than one correct answer possible. Please mark each degree to which you think a certain diploma gives access. If you don’t know the answer, please mark number 9”

	mbo	hbo	mavo	havo	vwo	University	Don’t know
With a LBO/VBO diploma you can go to...							9
With a MAVO diploma you can go to...							9
With a HAVO diploma you can go to...							9
With a VWO diploma you can go to...							9

SC. Full Tables for Logistic Regression Models

Table C1: Complete Coefficient Table for the Logistic Regression Models for the Four Dependent Variables

	Upward Transition				Downward Transition				Havo/vwo in 11 th Grade				Tertiary Degree			
	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4
Parents' Education (ref = Primary or less)																
Upper Secondary	0.40*** (0.09)	0.35*** (0.09)	0.26** (0.09)	0.24** (0.09)	-0.32*** (0.03)	-0.26*** (0.03)	-0.22*** (0.03)	-0.19*** (0.03)	0.35*** (0.05)	0.32*** (0.05)	0.29*** (0.06)	0.27*** (0.06)	0.43*** (0.03)	0.37*** (0.04)	0.34*** (0.04)	0.31*** (0.04)
Tertiary	1.05*** (0.15)	0.97*** (0.16)	0.73*** (0.15)	0.71*** (0.16)	-0.79*** (0.07)	-0.69*** (0.07)	-0.57*** (0.06)	-0.53*** (0.06)	0.88*** (0.09)	0.83*** (0.10)	0.73*** (0.10)	0.70*** (0.11)	0.99*** (0.07)	0.89*** (0.07)	0.79*** (0.09)	0.75*** (0.08)
Knowledge (z-score)		0.12* (0.05)		0.05 (0.05)		-0.14*** (0.02)		-0.07*** (0.01)		0.09 (0.05)		0.06 (0.05)		0.15*** (0.02)		0.10*** (0.02)
Parental Aspirations (z-score)			0.20*** (0.04)	0.19*** (0.04)		-0.36*** (0.04)	-0.35*** (0.04)				0.13** (0.05)	0.13** (0.04)			0.30*** (0.04)	0.29*** (0.04)
Books at home (logged base 2)			0.12*** (0.02)	0.12*** (0.02)		-0.02* (0.01)	-0.01 (0.01)				0.05** (0.02)	0.05** (0.02)			0.03** (0.01)	0.02* (0.01)
Parental involvement (z-score)			0.00 (0.04)	0.00 (0.04)		0.01 (0.01)	0.01 (0.01)				-0.00 (0.04)	-0.01 (0.04)			0.01 (0.02)	0.01 (0.02)
Intergenerational Closure (z-score)			0.05 (0.03)	0.05 (0.03)		-0.10*** (0.01)	-0.10*** (0.01)				-0.00 (0.03)	-0.00 (0.03)			0.05** (0.02)	0.05* (0.02)
Track 9 th Grade																
MAVO	2.77*** (0.13)	2.73*** (0.13)	2.64*** (0.13)	2.63*** (0.13)	-0.81*** (0.08)	-0.77*** (0.07)	-0.63*** (0.06)	-0.62*** (0.06)	5.16*** (0.33)	5.13*** (0.33)	5.08*** (0.33)	5.07*** (0.34)	1.27*** (0.13)	1.22*** (0.12)	1.13*** (0.12)	1.12*** (0.11)
HAVO	1.72*** (0.21)	1.68*** (0.20)	1.53*** (0.21)	1.52*** (0.21)	-0.55*** (0.04)	-0.50*** (0.04)	-0.33*** (0.04)	-0.31*** (0.04)	8.46*** (0.34)	8.43*** (0.34)	8.37*** (0.34)	8.36*** (0.34)	2.13*** (0.07)	2.07*** (0.07)	1.97*** (0.07)	1.94*** (0.07)
VWO					0.54*** (0.11)	0.58*** (0.11)	0.84*** (0.12)	0.85*** (0.12)	9.74*** (0.36)	9.71*** (0.36)	9.61*** (0.36)	9.60*** (0.36)	3.10*** (0.13)	3.05*** (0.12)	2.88*** (0.12)	2.86*** (0.12)
Cito Test (z-score)	0.58*** (0.04)	0.57*** (0.04)	0.55*** (0.04)	0.54*** (0.04)	-0.52*** (0.09)	-0.49*** (0.09)	-0.42*** (0.08)	-0.42*** (0.08)	0.68*** (0.05)	0.66*** (0.05)	0.65*** (0.05)	0.65*** (0.05)	0.42*** (0.04)	0.40*** (0.04)	0.36*** (0.04)	0.36*** (0.04)
Female (ref = Male)	-0.10 (0.08)	-0.11 (0.08)	-0.09 (0.08)	-0.09 (0.08)	-0.30*** (0.03)	-0.29*** (0.03)	-0.29*** (0.03)	-0.28*** (0.03)	0.18* (0.07)	0.18* (0.07)	0.20** (0.07)	0.20** (0.07)	0.20*** (0.04)	0.19*** (0.04)	0.21*** (0.04)	0.20*** (0.04)
Migration Background (ref = None)																
Morocco	0.37 (0.29)	0.34 (0.28)	0.64* (0.30)	0.62* (0.30)	-0.96*** (0.08)	-0.92*** (0.08)	-0.79*** (0.08)	-0.76*** (0.07)	0.42 (0.24)	0.39 (0.24)	0.50* (0.25)	0.48 (0.25)	0.49** (0.17)	0.45** (0.17)	0.44* (0.18)	0.40* (0.17)
Suriname/Antilles	0.11 (0.24)	0.13 (0.24)	0.17 (0.24)	0.18 (0.24)	-0.32*** (0.06)	-0.34*** (0.06)	-0.26*** (0.07)	-0.27*** (0.07)	-0.17 (0.19)	-0.16 (0.18)	-0.17 (0.19)	-0.16 (0.19)	0.12 (0.14)	0.15 (0.14)	0.09 (0.14)	0.11 (0.14)
Turkey	0.94*** (0.26)	0.94*** (0.26)	1.14*** (0.26)	1.14*** (0.26)	-0.74*** (0.04)	-0.73*** (0.04)	-0.51*** (0.05)	-0.50*** (0.05)	0.46** (0.15)	0.46** (0.15)	0.51*** (0.15)	0.50** (0.16)	0.38** (0.14)	0.37** (0.14)	0.29* (0.14)	0.28* (0.14)
Other	0.50*** (0.09)	0.51*** (0.09)	0.49*** (0.09)	0.49*** (0.09)	-0.06 (0.04)	-0.07 (0.04)	-0.03 (0.05)	-0.04 (0.05)	0.61*** (0.08)	0.62*** (0.08)	0.60*** (0.08)	0.60*** (0.08)	-0.02 (0.08)	-0.00 (0.09)	-0.05 (0.09)	-0.04 (0.09)
Children in Household	-0.11*** (0.03)	-0.12*** (0.03)	-0.13*** (0.03)	-0.13*** (0.03)	0.06*** (0.01)	0.06*** (0.01)	0.05*** (0.01)	0.06*** (0.01)	-0.09*** (0.02)	-0.09*** (0.02)	-0.10*** (0.02)	-0.10*** (0.02)	-0.01 (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Constant	-4.76***	-4.68***	-5.19***	-5.15***	-0.53***	-0.64***	-0.71***	-0.78***	-7.37***	-7.31***	-7.53***	-7.49***				

(0.30) (0.31) (0.33) (0.35) (0.17) (0.18) (0.20) (0.20) (0.43) (0.44) (0.44) (0.45)

Constant Cut 1													2.73***	2.62***	2.70***	2.62***
													(0.35)	(0.35)	(0.36)	(0.35)
Constant Cut 2													4.53***	4.43***	4.52***	4.44***
													(0.24)	(0.24)	(0.25)	(0.24)
Observations	13544	13544	13544	13544	17021	17021	17021	17021	17021	17021	17021	17021	17346	17346	17346	17346
Pseudo R^2	0.18	0.18	0.19	0.19	0.07	0.07	0.09	0.09	0.69	0.69	0.69	0.69	0.25	0.25	0.26	0.26

Source: VOCL 1993 cohort + SSD register data, own calculations. Coefficients are log odds. Standard errors in parentheses. Significance: * p<0.05, ** p<0.01, *** p<0.001.

Table C2: Complete Coefficient Tables for the KHB-Models displaying Direct, Indirect and Total Effect of Parents' Education

	Models without Controls for other Mechanisms (Models 1 and 2 in Table 2)				Models with Controls for other Mechanisms (Models 3 and 4 in Table 2)			
	Upward Transition	Downward Transition	Track 11 th Grade	Tertiary Degree	Upward Transition	Downward Transition	Track 11 th Grade	Tertiary Degree
Total Effect (Reduced Model)								
Upper Sec. Parental Education	0.41*** (0.08)	-0.32*** (0.04)	0.36*** (0.06)	0.44*** (0.03)	0.26** (0.09)	-0.22*** (0.03)	0.29*** (0.06)	0.35*** (0.04)
Higher Parental Education	1.06*** (0.14)	-0.79*** (0.07)	0.89*** (0.08)	1.00*** (0.06)	0.74*** (0.14)	-0.57*** (0.06)	0.73*** (0.10)	0.80*** (0.08)
Direct Effect (Full Model)								
Upper Sec. Parental Education	0.35*** (0.09)	-0.26*** (0.03)	0.32*** (0.05)	0.37*** (0.04)	0.24** (0.09)	-0.19*** (0.03)	0.27*** (0.06)	0.31*** (0.04)
Higher Parental Education	0.97*** (0.16)	-0.69*** (0.07)	0.83*** (0.10)	0.89*** (0.07)	0.71*** (0.16)	-0.53*** (0.06)	0.70*** (0.11)	0.75*** (0.08)
Indirect Effect (Mediation)								
Upper Sec. Parental Education	0.06* (0.03)	-0.07*** (0.02)	0.04 (0.03)	0.07*** (0.02)	0.02 (0.02)	-0.03** (0.01)	0.02 (0.02)	0.04** (0.01)
Higher Parental Education	0.09* (0.04)	-0.10*** (0.02)	0.06 (0.04)	0.11*** (0.02)	0.03 (0.03)	-0.04** (0.01)	0.03 (0.02)	0.05** (0.01)
Mediation Percentage								
Upper Sec. Parental Education	13.9*	20.2***	11.5	16.1***	6.9	12.4**	7.0	10.8**
Higher Parental Education	8.6*	12.7***	7.1	10.9***	3.7	6.5**	3.9	6.4**

Source: VOCL 1993 cohort + SSD register data, own calculations. Coefficients are log odds. Standard errors in parentheses. Significance: * p<0.05, ** p<0.01, *** p<0.001.

SD. Analyses of Upward and Downward Transitions separate by Track

Table D1.1: Robustness Check with Upward Transitions Separate by Track in Ninth Grade

	All upward transitions together				Upward from Vbo				Upward from Mavo				Upward from Havo			
	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4
Parents' Education																
Upper Secondary	0.40*** (0.09)	0.35*** (0.09)	0.26** (0.09)	0.24** (0.09)	0.45 (0.39)	0.26 (0.36)	0.31 (0.43)	0.19 (0.41)	0.32*** (0.08)	0.27*** (0.08)	0.18* (0.08)	0.17* (0.08)	0.27 (0.30)	0.26 (0.32)	0.16 (0.32)	0.17 (0.34)
Tertiary	1.05*** (0.15)	0.97*** (0.16)	0.73*** (0.15)	0.71*** (0.16)	1.73*** (0.36)	1.43*** (0.35)	1.43** (0.47)	1.26** (0.46)	0.88*** (0.16)	0.79*** (0.17)	0.58*** (0.15)	0.55*** (0.16)	1.09*** (0.32)	1.07** (0.34)	0.75* (0.35)	0.76* (0.37)
Knowledge (z-score)		0.12* (0.05)		0.05 (0.05)		0.36* (0.16)		0.31 (0.17)		0.12** (0.05)		0.06 (0.05)		0.04 (0.11)		-0.03 (0.11)
Parental Aspirations (z-score)			0.20** (0.04)	0.19*** (0.04)			0.14 (0.15)	0.09 (0.15)			0.19*** (0.04)	0.18*** (0.04)			0.34** (0.10)	0.34** (0.11)
Books at home (logged base 2)			0.12*** (0.02)	0.12*** (0.02)			0.11 (0.10)	0.08 (0.10)			0.11*** (0.02)	0.11*** (0.02)			0.11** (0.04)	0.12** (0.04)
Parental involvement (z-score)			0.00 (0.04)	0.00 (0.04)			-0.08 (0.16)	-0.08 (0.17)			0.00 (0.05)	0.00 (0.06)			-0.04 (0.08)	-0.04 (0.08)
Intergenerational Closure (z-score)			0.05 (0.03)	0.05 (0.03)			0.13 (0.17)	0.10 (0.17)			0.03 (0.04)	0.03 (0.04)			0.02 (0.08)	0.02 (0.08)
Constant	-4.76*** (0.30)	-4.68*** (0.31)	-5.19*** (0.33)	-5.15*** (0.35)	-5.24*** (0.29)	-4.97*** (0.31)	-5.60*** (0.44)	-5.30*** (0.46)	-1.92*** (0.26)	-1.87*** (0.26)	-2.40*** (0.30)	-2.37*** (0.31)	-2.47*** (0.63)	-2.46*** (0.65)	-3.10*** (0.58)	-3.11*** (0.61)
Observations	13,544	13,544	13,544	13,544	5,990	5,990	5,990	5,990	5,084	5,084	5,084	5,084	2,470	2,470	2,470	2,470
Pseudo R ²	0.18	0.18	0.19	0.19	0.10	0.11	0.11	0.12	0.04	0.04	0.05	0.05	0.07	0.07	0.08	0.08

Source: VOCL 1993 cohort, own calculations. Coefficients are log odds. Standard errors in parentheses. Significance: * p<0.05, ** p<0.01, *** p<0.001. Models also control for Female, Cito score, Children in Household. The four models of all transitions together also control for track placement. We do not control for ethnicity here due to empty cells in some of the tracks.

Table D1.2: Frequency of Upward Transitions by Track

	Yes	No	Percentage yes
All upward transitions together	1010	12534	7.5
Upward from vbo	37	5953	0.6
Upward from mavo	745	4339	14.1
Upward from havo	228	2242	8.9

Table D2.1: Robustness Check with Downward Transitions Separate by Track in Ninth Grade

	All Downward Transitions together				Downward from Vbo				Downward from Mavo			
	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4
Parents' Education												
Upper Secondary	-0.32*** (0.03)	-0.26*** (0.03)	-0.22*** (0.03)	-0.19*** (0.03)	-0.38*** (0.05)	-0.30*** (0.05)	-0.29*** (0.05)	-0.25*** (0.05)	-0.38*** (0.07)	-0.28*** (0.06)	-0.25*** (0.06)	-0.20** (0.06)
Tertiary	-0.79*** (0.07)	-0.69*** (0.07)	-0.57*** (0.06)	-0.53*** (0.06)	-0.70*** (0.10)	-0.57*** (0.09)	-0.51*** (0.08)	-0.45*** (0.08)	-0.61*** (0.12)	-0.41*** (0.10)	-0.35*** (0.09)	-0.27** (0.08)
Knowledge (z-score)		-0.14*** (0.02)		-0.07*** (0.01)		-0.15*** (0.02)		-0.09*** (0.02)		-0.26*** (0.04)		-0.16*** (0.03)
Parental Aspirations (z-score)			-0.36*** (0.04)	-0.35*** (0.04)			-0.28*** (0.03)	-0.26*** (0.03)			-0.50*** (0.08)	-0.46*** (0.08)
Books at home (logged base 2)			-0.02* (0.01)	-0.01 (0.01)			-0.02 (0.01)	-0.01 (0.01)			-0.01 (0.01)	-0.00 (0.02)
Parental involvement (z-score)			0.01 (0.01)	0.01 (0.01)			0.01 (0.02)	0.02 (0.02)			-0.02 (0.03)	-0.02 (0.03)
Intergenerational Closure (z-score)			-0.10*** (0.01)	-0.10*** (0.01)			-0.08*** (0.02)	-0.08*** (0.02)			-0.18*** (0.03)	-0.18*** (0.03)
Constant	-0.32*** (0.03)	-0.26*** (0.03)	-0.22*** (0.03)	-0.19*** (0.03)	-0.16 (0.11)	-0.29* (0.12)	-0.28* (0.13)	-0.37** (0.13)	-1.53*** (0.22)	-1.66*** (0.24)	-1.60*** (0.21)	-1.72*** (0.23)
Observations	17021	17021	17021	17021	6077	6077	6077	6077	5,157	5,157	5,157	5,157
Pseudo R ²	0.07	0.07	0.09	0.09	0.04	0.04	0.05	0.05	0.03	0.04	0.06	0.06

	Downward from Havo				Downward from Vwo			
	M1	M2	M3	M4	M1	M2	M3	M4
Parents' Education								
Upper Secondary	-0.31*** (0.09)	-0.30** (0.09)	-0.28** (0.09)	-0.28** (0.10)	-0.01 (0.12)	0.02 (0.12)	0.12 (0.12)	0.13 (0.13)
Tertiary	-0.85*** (0.10)	-0.84*** (0.10)	-0.79*** (0.11)	-0.80*** (0.12)	-0.66*** (0.11)	-0.62*** (0.11)	-0.30* (0.13)	-0.29* (0.13)
Knowledge (z-score)		-0.01 (0.06)		0.01 (0.06)		-0.08 (0.05)		-0.02 (0.05)
Parental Aspirations (z-score)			-0.27*** (0.07)	-0.27*** (0.06)			-0.60*** (0.08)	-0.60*** (0.08)
Books at home (logged base 2)			0.02 (0.03)	0.02 (0.02)			-0.05 (0.03)	-0.05 (0.03)
Parental involvement (z-score)			0.06 (0.05)	0.06 (0.05)			-0.02 (0.05)	-0.02 (0.05)
Intergenerational Closure (z-score)			-0.09 (0.05)	-0.09 (0.06)			-0.03 (0.04)	-0.03 (0.04)
Constant	-1.21*** (0.21)	-1.22*** (0.22)	-1.33*** (0.21)	-1.32*** (0.22)	0.47 (0.25)	0.45 (0.25)	0.89* (0.36)	0.88* (0.36)
Observations	2,561	2,561	2,561	2,561	3,226	3,226	3,226	3,226
Pseudo R ²	0.07	0.07	0.07	0.07	0.12	0.12	0.15	0.15

Source: VOCL 1993 cohort, own calculations. Coefficients are log odds. Standard errors in parentheses. Significance: * p<0.05, ** p<0.01, *** p<0.001.. Models also control for Female, Cito score, Children in Household and Ethnicity. The four models of all transitions together also

Table D2.2: Frequency of Downward Transitions by Track

	Yes	No	Percentage yes
All downward transitions together	2014	8930	0.27
Downward from vbo	2577	3500	0.42
Downward from mavo	841	4316	16.0
Downward from havo	363	2198	14.1
Downward from vwo	810	2416	24.9

SE. Moderation Effect of Parents' Knowledge on the Effect of Students' Performance

In this robustness check, we investigate whether there is an interaction effect between parents' knowledge and the measures of demonstrated ability, Cito test and Dutch test scores. The question that is at the heart of this check is whether parents' knowledge only increases the odds of achieving higher educational levels for those with high abilities. Looking at Table E1, this seems not to be the case. Only one of the eight interaction effects is significant and the effect sizes of the interactions are very small. The association between parents' knowledge and the four educational outcomes exists independent of levels of demonstrated ability.

Table E1: Interaction Effects between Parents' Knowledge and Ability Measures

	Upward Transition		Downward Transition		Track 11 th Grade		Tertiary Degree	
	M1	M2	M1	M2	M1	M2	M1	M2
Parents' Education								
Upper Secondary	0.35*** (0.09)	0.24** (0.09)	-0.26*** (0.03)	-0.20*** (0.03)	0.32*** (0.06)	0.27*** (0.06)	0.37*** (0.04)	0.30*** (0.04)
Tertiary	0.97*** (0.16)	0.71*** (0.16)	-0.68*** (0.07)	-0.53*** (0.06)	0.82*** (0.10)	0.70*** (0.12)	0.89*** (0.07)	0.74*** (0.08)
Knowledge (z-score)	0.12* (0.05)	0.05 (0.05)	-0.14*** (0.03)	-0.08*** (0.03)	0.10* (0.05)	0.07 (0.04)	0.17*** (0.02)	0.12*** (0.02)
Cito Test (z-score)	0.57*** (0.04)	0.54*** (0.04)	-0.50*** (0.09)	-0.43*** (0.08)	0.67*** (0.05)	0.66*** (0.05)	0.41*** (0.04)	0.36*** (0.04)
Knowledge x Cito test	-0.01 (0.05)	-0.004 (0.05)	-0.02 (0.02)	-0.03 (0.02)	-0.05 (0.05)	-0.04 (0.05)	-0.06* (0.02)	-0.04 (0.02)
Parents' Aspirations (z-score)		0.19*** (0.04)		-0.35*** (0.04)		0.13** (0.04)		0.29*** (0.04)
Books at Home (logged base 2)		0.12*** (0.02)		-0.01 (0.01)		0.05** (0.02)		0.02* (0.01)
Parents' Involvement (z-score)		0.002 (0.05)		0.01 (0.01)		-0.01 (0.04)		0.01 (0.02)
Intergen. Closure (z-score)		0.05 (0.03)		-0.10*** (0.01)		-0.003 (0.03)		0.05* (0.02)
Constant	-4.68*** (0.31)	-5.15*** (0.35)	-0.64*** (0.18)	-0.77*** (0.20)	-7.29*** (0.43)	-7.47*** (0.45)		
Constant Cut 1							2.60*** (0.36)	2.60*** (0.36)
Constant Cut 2							4.40*** (0.25)	4.42*** (0.24)
N	13,544	13,544	17,021	17,021	17,021	17,021	17,346	17,346

Source: VOCL 1993 + SSD Register Data, own calculations. Coefficients are log odds. Standard errors in parentheses. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Models also contain controls for gender, migration background, number of children and track in 9th grade.

SF. Additional Analyses with Two Measures specific Measures of Knowledge of High and Low Tracks

In this test we investigate if there are differences in which kind of knowledge is relevant for final educational attainment. We hypothesize that it is not the overall amount of knowledge about the educational system that matters but the specific knowledge on immanent transitions. To test this idea, we separate the knowledge variable into *knowledge about lower tracks (vbo/mavo)* and *knowledge about higher tracks (havo/vwo)*. Subsequently, we test which kind of knowledge matters for students of which track. For students from higher tracks *havo* and *vwo*, knowledge on lower track transitions should not matter for final educational attainment. For students in lower tracks both kinds of knowledge should matter for final educational attainment as these students need to move upward through higher tracks to reach higher education. Table F1 shows the results for lower and higher track students.

As expected, for lower track students, both types of knowledge are positively associated with obtaining a tertiary degree. Knowledge on all transitions is needed to make the long route from a lower secondary school track, that is not pre-academic, to a tertiary degree. For the students who are already in a higher track, only higher track knowledge matters. For them it is irrelevant how transitions look like in the lower tracks as they do not have to pass them on the way towards obtaining a tertiary degree. This test shows that there is some dimensionality in the measure of parents' knowledge that might be worth studying further in future research.

Table F1: Influence of Separate Knowledge Measures about Low and High Tracks (DV = tertiary degree)

	<i>vbo/mavo</i> in 9 th grade	<i>havo/vwo</i> in 9 th grade
Parents' Education		
Upper Secondary	0.36*** (0.06)	0.21** (0.08)
Tertiary	0.80*** (0.07)	0.64*** (0.14)
Knowledge Low Tracks (z-score)	0.08* (0.04)	-0.01 (0.02)
Knowledge High Tracks (z-score)	0.10** (0.04)	0.06* (0.03)
Parents' Aspirations (z-score)	0.29*** (0.05)	0.25*** (0.04)
Books at home (logged base 2)	0.01 (0.01)	0.03* (0.02)
Parents' involvement (z-score)	-0.01 (0.03)	0.03 (0.03)
Intergenerational Closure (z-score)	0.03 (0.04)	0.07* (0.03)
Constant Cut 1	2.54*** (0.36)	0.69 (0.40)
Constant Cut 2	4.74*** (0.25)	2.34*** (0.31)
N	11,518	5,828
Pseudo R ²	0.13	0.07

Source: VOCL 1993, own calculations.

Coefficients are log odds; Standard errors in parentheses.

Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Models also control for gender, migration background, number of children, track in 9th grade, and cito test

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