

## **Appendices:**

# **The Unnoticed Influence of Peers on Educational Preferences**

April, 2019

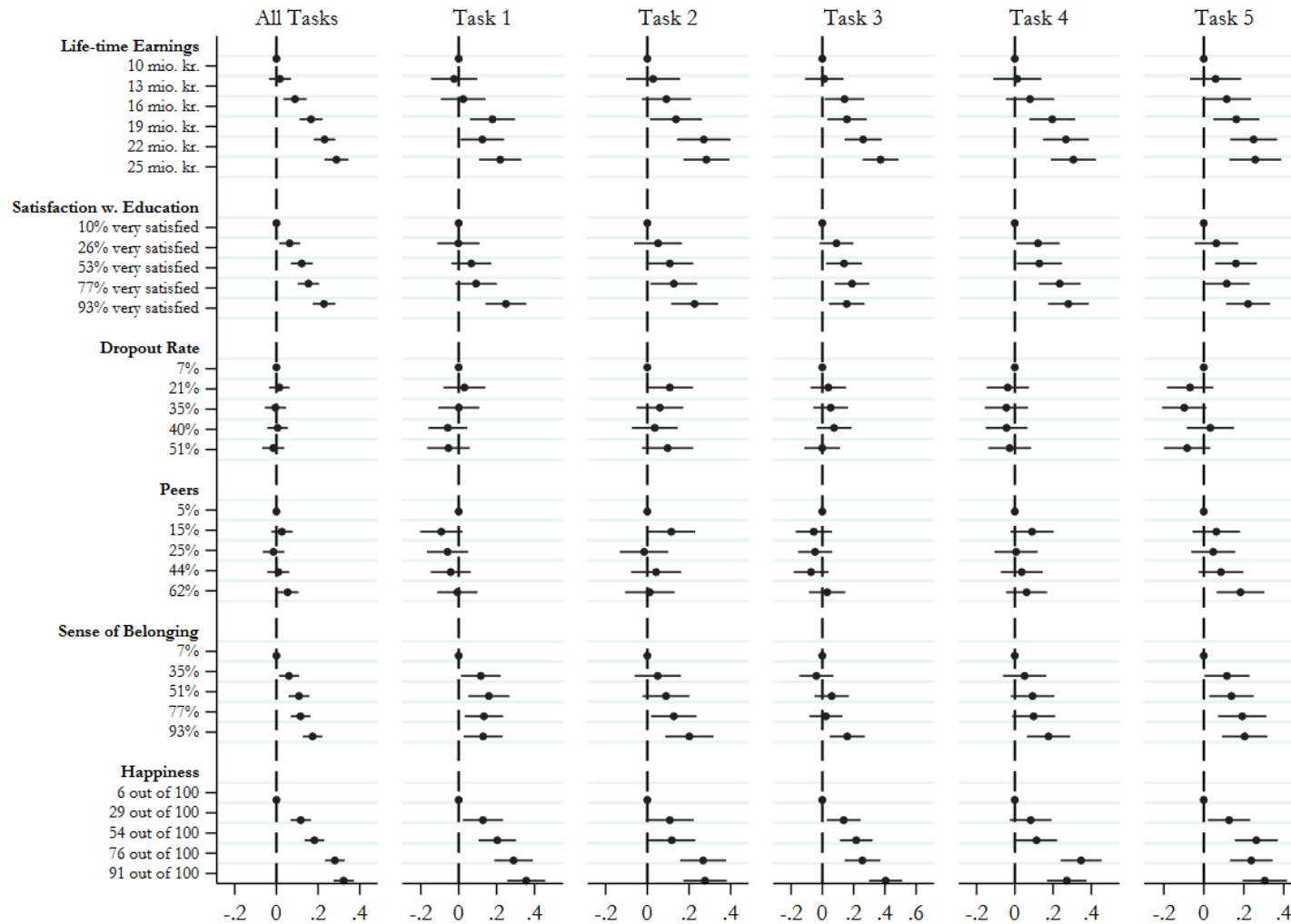
This online supporting information for the paper “The Unnoticed Influence of Peers on Educational Preferences” contains four appendices:

## **Content:**

Appendix A: Conjoint Diagnostics (Study 3) .....	2
Appendix B: Example of how the Conjoint Experiment Looked to the Students (Study 3) .....	10
Appendix C: Full Conjoint Models (Study 3) .....	11
Appendix D: Conjoint Interactions (Study 3) .....	19
Appendix E: Joint and Conditional Proportions in the List Experiment (Study 4) .....	23

## Appendix A: Conjoint Diagnostics (Study 3)

Figure A.1: Carryover Effects - Vejen



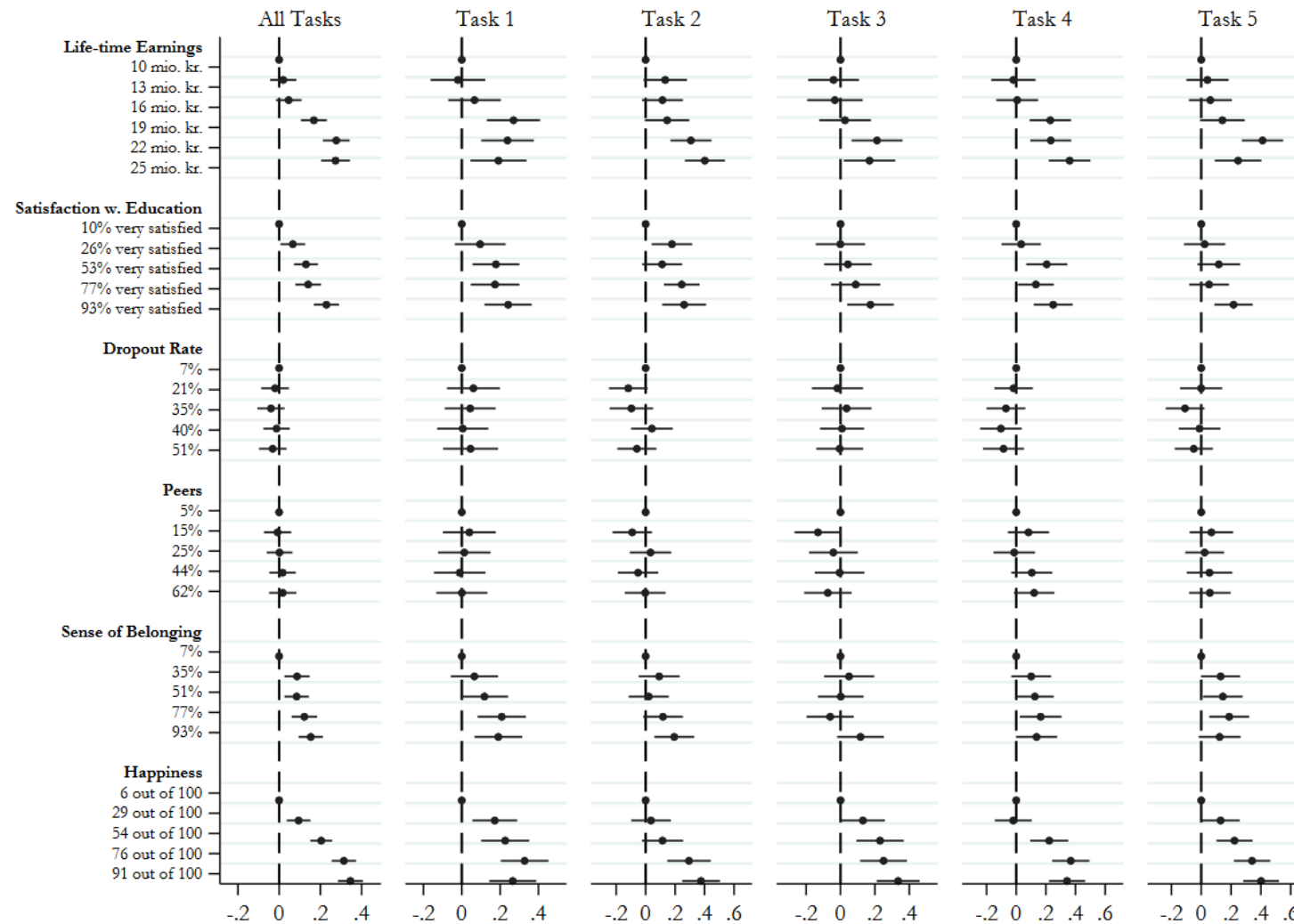
Note: The figure shows the effect of educational attributes on the probability of choosing a given education – conditional on the specific choice task number in the conjoint experiment. OLS regressions with standard errors clustered at the individual level. Bars represent the 95% confidence intervals. Points without bars shows the reference level within each attribute, e.g. 7% in the attribute “Sense of belonging”.

**Table A.1: Joint Significance Test of Interaction Terms – Carryover Effects Vejen**

<b>Attribute</b>	<b>Prob&gt;F</b>
Life-time earnings	0.68
Satisfaction w. education	0.61
Dropout rate	0.22
Peers	0.13
Sense of belonging	0.66
Happiness	0.23

Note: Joint F-tests of interaction terms in 6 different OLS regressions – one for each attribute. The dependent variable is the choice of education. The independent variables are the attribute level dummies, dummies for the different task numbers and the two variables' interactions. The F-tests test the joint significance of the interaction terms. The null hypothesis is that the AMCEs for the attributes are identical across the tasks.

Figure A.2: Carryover Effects – Aarhus



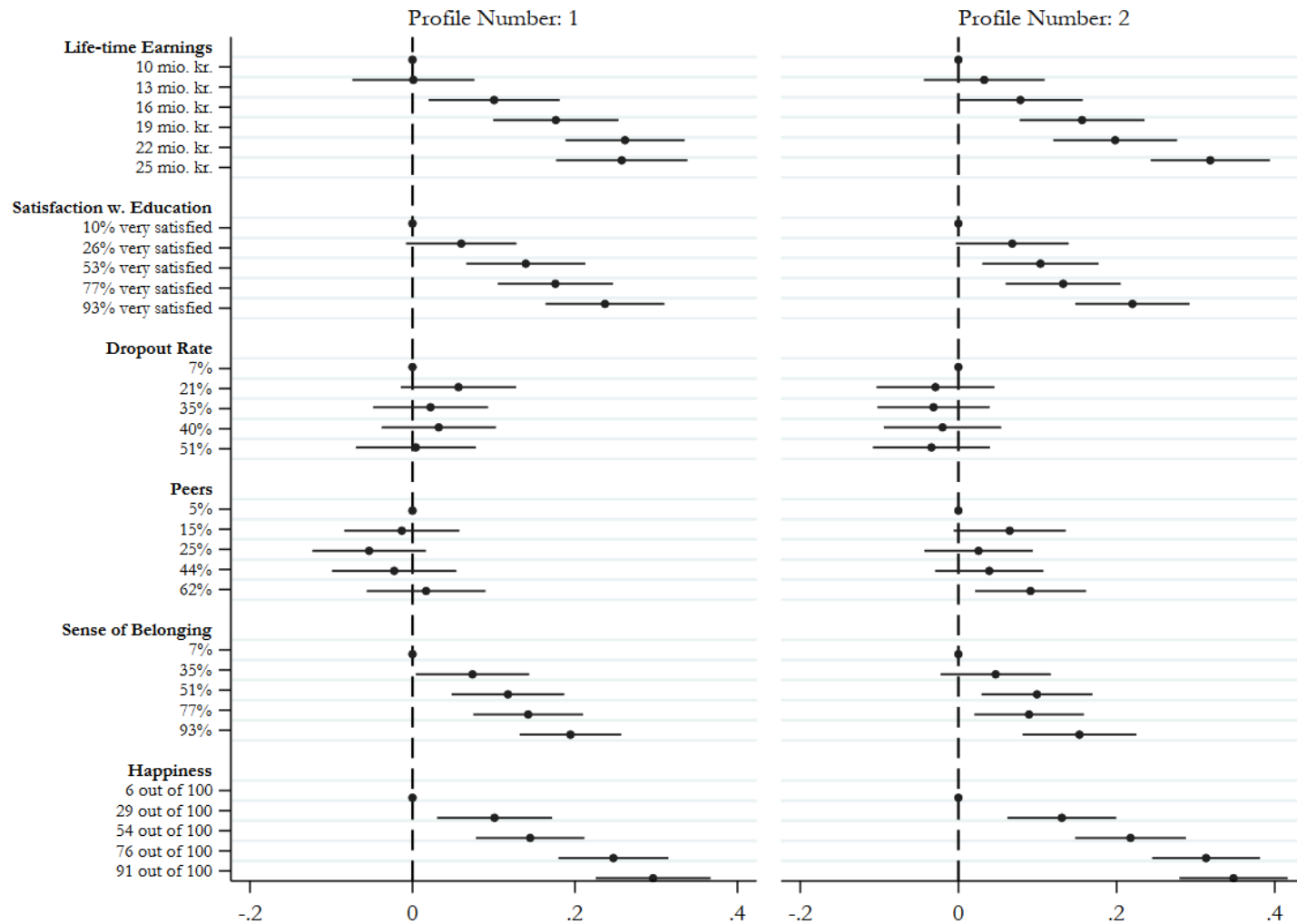
Note: The figure shows the effect of educational attributes on the probability of choosing a given education – conditional on the specific choice task number in the conjoint experiment. OLS regressions with standard errors clustered at the individual level. Bars represent the 95% confidence intervals. Points without bars shows the reference level within each attribute, e.g. 7% in the attribute “Sense of belonging”.

**Table A.2: Joint Significance Test of Interaction Terms – Carryover Effects Aarhus**

<b>Attribute</b>	<b>Prob&gt;F</b>
Life-time earnings	0.02
Satisfaction w. education	0.46
Dropout rate	0.53
Peers	0.52
Sense of belonging	0.29
Happiness	0.12

Note: Joint F-tests of interaction terms in 6 different OLS regressions – one for each attribute. The dependent variable is the choice of education. The independent variables are the attribute level dummies, dummies for the different task numbers and the two variables' interactions. The F-tests test the joint significance of the interaction terms. The null hypothesis is that the AMCEs for the attributes are identical across the tasks.

Figure A.3: Profile Order Effects – Vejen



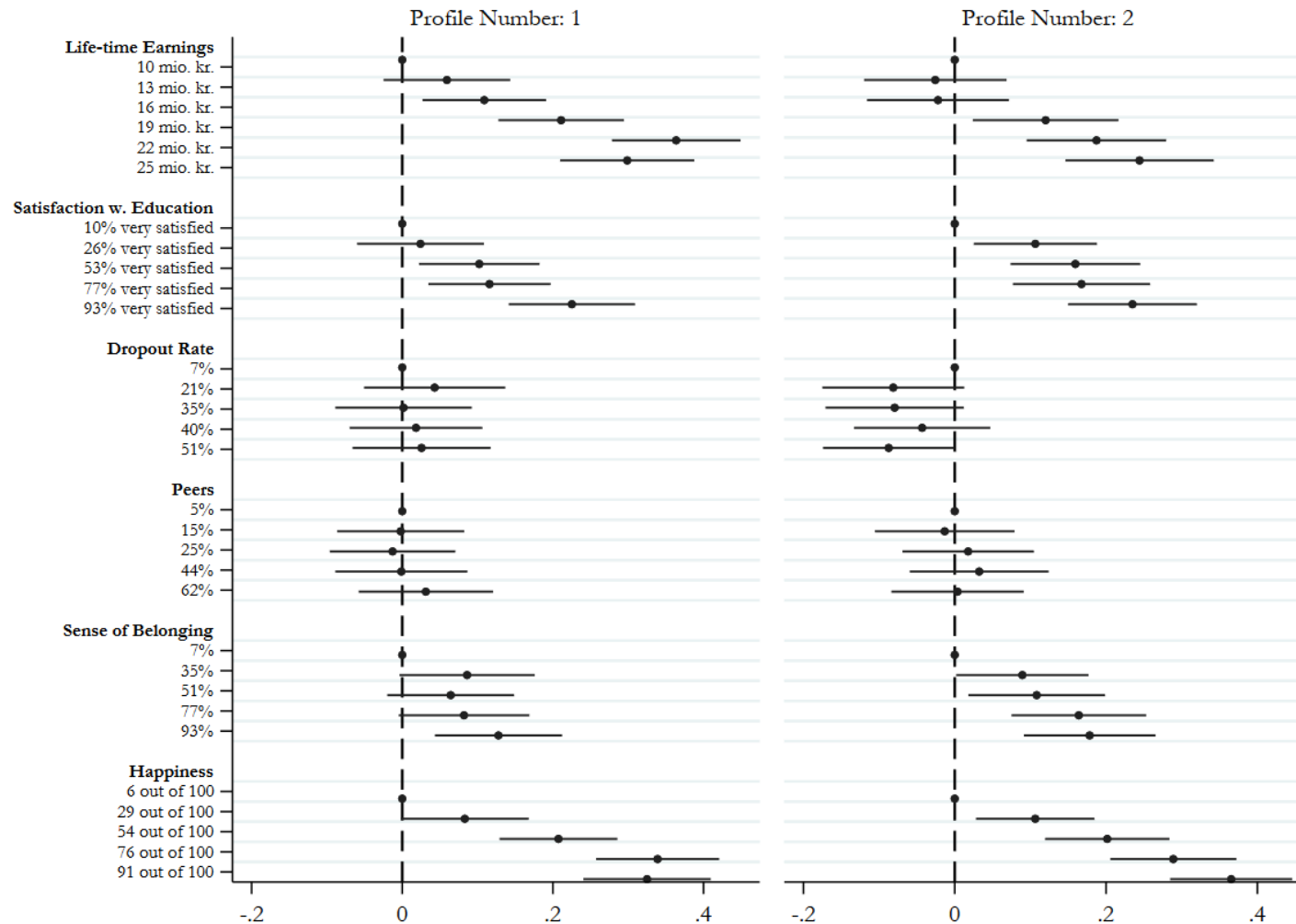
Note: The figure shows the effect of educational attributes on the probability of choosing a given education – conditional on the profile number (Education 1 or 2) in the conjoint experiment. OLS regressions with standard errors clustered at the individual level. Bars represent the 95% confidence intervals. Points without bars shows the reference level within each attribute, e.g. 7% in the attribute “Sense of belonging”.

**Table A.3: Joint Significance Test of Interaction Terms – Profile Order Vejen**

<b>Attribute</b>	<b>Prob&gt;F</b>
Life-time earnings	0.25
Satisfaction w. education	0.85
Dropout rate	0.62
Peers	0.39
Sense of belonging	0.85
Happiness	0.60

Note: Joint F-tests of interaction terms in 6 different OLS regressions – one for each attribute. The dependent variable is the choice of education. The independent variables are the attribute level dummies, dummies for the two profiles and the two variables' interactions. The F-tests test the joint significance of the interaction terms. The null hypothesis is that the AMCEs for the attributes are identical across the profile order.

Figure A.4: Profile Order Effects – Aarhus



Note: The figure shows the effect of educational attributes on the probability of choosing a given education – conditional on the profile number (Education 1 or 2) in the conjoint experiment. OLS regressions with standard errors clustered at the individual level. Bars represent the 95% confidence intervals. Points without bars shows the reference level within each attribute, e.g. 7% in the attribute “Sense of belonging”.




**Table A.4: Joint Significance Test of Interaction Terms – Profile Order Aarhus**

<b>Attribute</b>	<b>Prob&gt;F</b>
Life-time earnings	0.10
Satisfaction w. education	0.60
Dropout rate	0.31
Peers	0.82
Sense of belonging	0.66
Happiness	0.58

Note: Joint F-tests of interaction terms in 6 different OLS regressions – one for each attribute. The dependent variable is the choice of education. The independent variables are the attribute level dummies, dummies for the two profiles and the two variables' interactions. The F-tests test the joint significance of the interaction terms. The null hypothesis is that the AMCEs for the attributes are identical across the profile order.

## Appendix B: Example of how the Conjoint Experiment Looked to the Students (Study 3)

 <b>SCHOOL OF BUSINESS AND SOCIAL SCIENCES</b> <b>AARHUS UNIVERSITY</b>		
Her er nogle oplysninger om to uddannelser (1 og 2):		
	<b>Uddannelse 1</b>	<b>Uddannelse 2</b>
Hvad tjener folk over et helt liv, hvis de har taget denne uddannelse?	16 mio. kr.	16 mio. kr.
Hvor mange, der har fået under 4 i karaktergennemsnit i folkeskolen, falder fra?	7%	7%
Hvor mange føler, de passer ind på uddannelsen?	51%	35%
Hvor lykkelige bliver folk, der har taget denne uddannelse, på en skala fra 0 (slet ikke lykkelige) til 100 (meget lykkelige)?	6 ud af 100	76 ud af 100
Så mange af dine klassekammerater har valgt uddannelsen	44%	44%
De studerendes tilfredshed med uddannelsen	26% meget tilfredse	77% meget tilfredse

## Appendix C: Full Conjoint Models (Study 3)

Table C.1: Regression Results from Figure 2 – Choice of Education. Conjoint Results from Vejen

	(1) Lifetime Income	(2) Satisfaction w. Education	(3) Drop-out Rate	(4) Peers	(5) Feeling of Belongingness	(6) Happiness
DKK 10 mil.	0.000 (.)					
DKK 13 mil.	0.017 (0.027)					
DKK 16 mil.	0.089** (0.029)					
DKK 19 mil.	0.166** (0.028)					
DKK 22 mil.	0.231** (0.026)					
DKK 25 mil.	0.288** (0.029)					
10% very satisfied		0.000 (.)				
26% very satisfied		0.063* (0.025)				
53% very satisfied		0.122** (0.027)				
77% very satisfied		0.154** (0.026)				
93% very satisfied		0.228** (0.028)				
7%			0.000 (.)			
21%			0.014 (0.025)			
35%			-0.005 (0.026)			
40%			0.006 (0.025)			

51%			-0.015 (0.027)			
5%				0.000 (.)		
15%				0.026 (0.026)		
25%				-0.014 (0.026)		
44%				0.009 (0.027)		
62%				0.054* (0.027)		
7%					0.000 (.)	
35%					0.060* (0.024)	
51%					0.108** (0.025)	
77%					0.116** (0.024)	
93%					0.174** (0.024)	
6 out of 100						0.000 (.)
29 out of 100						0.117** (0.025)
54 out of 100						0.182** (0.024)
76 out of 100						0.281** (0.024)
91 out of 100						0.323** (0.025)
Constant	0.363** (0.018)	0.386** (0.017)	0.500** (0.017)	0.486** (0.017)	0.409** (0.015)	0.317** (0.015)
Observations	3832	3832	3832	3832	3832	3832
R <sup>2</sup>	0.045	0.025	0.000	0.002	0.014	0.053

OLS models with choice variable (1/0) as dependent variable and randomised information as independent variable. Clustered standard errors in parentheses.  
<sup>+</sup>  $p < .1$ , \*  $p < .05$ , \*\*  $p < .01$ .

**Table C.2: Regression Results from Figure 2 – Fit of Education. Conjoint Results from Vejen**

	(1) Lifetime Income	(2) Satisfaction w. Education	(3) Drop-out Rate	(4) Peers	(5) Feeling of Belongingness	(6) Happiness
DKK 10 mil.	0.000 (.)					
DKK 13 mil.	0.304+ (0.172)					
DKK 16 mil.	0.561** (0.192)					
DKK 19 mil.	1.172** (0.178)					
DKK 22 mil.	1.556** (0.178)					
DKK 25 mil.	1.843** (0.185)					
10% very satisfied		0.000 (.)				
26% very satisfied		0.400* (0.158)				
53% very satisfied		0.757** (0.159)				
77% very satisfied		0.983** (0.165)				
93% very satisfied		1.305** (0.165)				
7%			0.000 (.)			
21%			0.186 (0.161)			
35%			0.028 (0.165)			
40%			0.102 (0.150)			
51%			0.140 (0.175)			
5%				0.000 (.)		
15%				0.176 (0.160)		
25%				0.155		

44%				(0.159) 0.177		
62%				(0.158) 0.438**		
7%				(0.162)	0.000	
35%					(.) 0.125	
51%					(0.161) 0.535**	
77%					(0.153) 0.558**	
93%					(0.147) 0.677**	
6 out of 100					(0.154)	0.000
29 out of 100						(.) 0.622**
54 out of 100						(0.160) 0.872**
76 out of 100						(0.154) 1.540**
91 out of 100						(0.146) 1.736**
Constant	-0.929** (0.121)	-0.690** (0.104)	-0.093 (0.107)	-0.185+ (0.100)	-0.378** (0.093)	-0.973** (0.100)
Observations	3438	3438	3438	3438	3438	3438
R <sup>2</sup>	0.052	0.024	0.001	0.002	0.008	0.046

OLS models with fit of education as dependent variable and randomised information as independent variable. Clustered standard errors in parentheses. +  $p < .1$ , \*  $p < .05$ , \*\*  $p < .01$ .

Table C.3. Regression Results from Figure 2 – Choice of Education. Conjoint Results from Aarhus

	(1) Lifetime Income	(2) Satisfaction w. Education	(3) Drop-out Rate	(4) Peers	(5) Feeling of Belongingness	(6) Happiness
DKK 10 mil.	0.000 (.)					
DKK 13 mil.	0.020 (0.032)					
DKK 16 mil.	0.046 (0.032)					
DKK 19 mil.	0.168** (0.032)					
DKK 22 mil.	0.277** (0.033)					
DKK 25 mil.	0.274** (0.036)					
10% very satisfied		0.000 (.)				
26% very satisfied		0.066* (0.030)				
53% very satisfied		0.130** (0.030)				
77% very satisfied		0.141** (0.032)				
93% very satisfied		0.229** (0.031)				
7%			0.000 (.)			
21%			-0.020 (0.034)			
35%			-0.039 (0.034)			
40%			-0.012 (0.032)			
51%			-0.031 (0.034)			
5%				0.000 (.)		
15%				-0.008 (0.034)		

25%				0.002 (0.032)		
44%				0.017 (0.033)		
62%				0.018 (0.034)		
7%					0.000 (.)	
35%					0.087** (0.031)	
51%					0.085** (0.030)	
77%					0.122** (0.031)	
93%					0.154** (0.030)	
6 out of 100						0.000 (.)
29 out of 100						0.094** (0.029)
54 out of 100						0.204** (0.027)
76 out of 100						0.314** (0.030)
91 out of 100						0.346** (0.031)
Constant	0.371** (0.022)	0.385** (0.019)	0.521** (0.022)	0.494** (0.022)	0.410** (0.019)	0.307** (0.019)
Observations	2638	2638	2638	2638	2638	2638
R <sup>2</sup>	0.053	0.024	0.001	0.000	0.011	0.069

OLS models with choice variable (1/0) as dependent variable and randomised information as independent variable. Clustered standard errors in parentheses.

+  $p < .1$ , \*  $p < .05$ , \*\*  $p < .01$ .



**Table C.4: Regression Results from Figure 2 – Fit of Education. Conjoint Results from Aarhus**

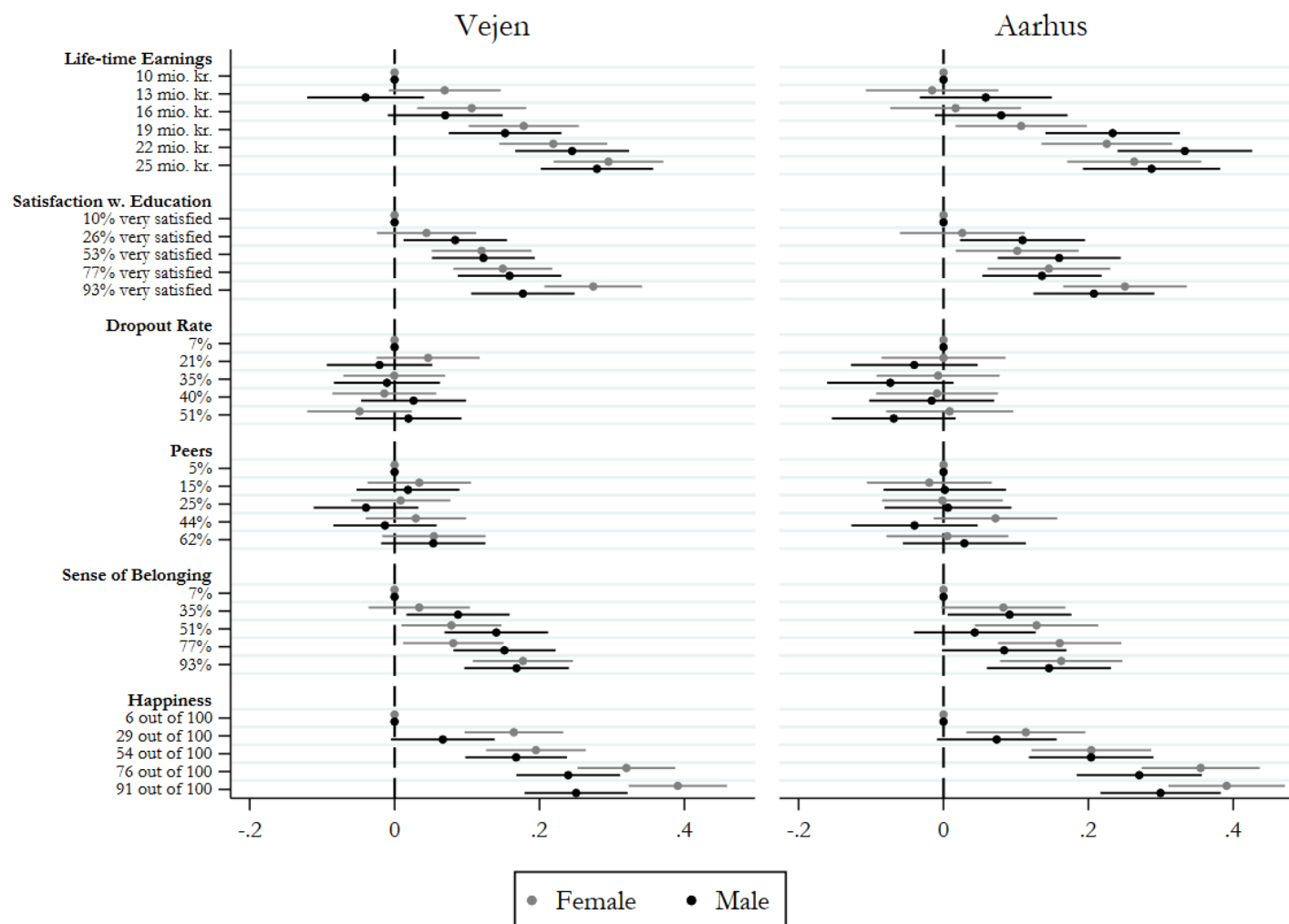
	(1) Lifetime Income	(2) Satisfaction w. Education	(3) Drop-out Rate	(4) Peers	(5) Feeling of Belongingness	(6) Happiness
DKK 10 mil.	0.000 (.)					
DKK 13 mil.	0.391* (0.169)					
DKK 16 mil.	0.558** (0.178)					
DKK 19 mil.	1.234** (0.194)					
DKK 22 mil.	1.772** (0.204)					
DKK 25 mil.	1.835** (0.209)					
10% very satisfied		0.000 (.)				
26% very satisfied		0.249 (0.167)				
53% very satisfied		0.668** (0.177)				
77% very satisfied		0.911** (0.194)				
93% very satisfied		1.594** (0.195)				
7%			0.000 (.)			
21%			-0.281 (0.207)			
35%			0.126 (0.211)			
40%			-0.228 (0.186)			
51%			-0.255 (0.209)			
5%				0.000 (.)		
15%				0.127 (0.192)		
25%				0.126		

44%				(0.170)		
				0.191		
62%				(0.184)		
				0.189		
				(0.200)		
7%					0.000	
					(.)	
35%					0.319	
					(0.197)	
51%					0.543**	
					(0.186)	
77%					0.783**	
					(0.196)	
93%					1.122**	
					(0.188)	
6 out of 100						0.000
						(.)
29 out of 100						0.341+
						(0.176)
54 out of 100						1.270**
						(0.159)
76 out of 100						1.845**
						(0.175)
91 out of 100						2.134**
						(0.195)
<b>Constant</b>	-0.956**	-0.698**	0.126	-0.128	-0.557**	-1.126**
	(0.122)	(0.120)	(0.135)	(0.119)	(0.125)	(0.113)
<b>Observations</b>	2502	2502	2502	2502	2502	2502
<b>R<sup>2</sup></b>	0.056	0.036	0.003	0.001	0.017	0.081

OLS models with fit of education as dependent variable and randomised information as independent variable. Clustered standard errors in parentheses. +  $p < .1$ , \*  $p < .05$ , \*\*  $p < .01$ .

## Appendix D: Conjoint Interactions (Study 3)

Figure D.1: Gender



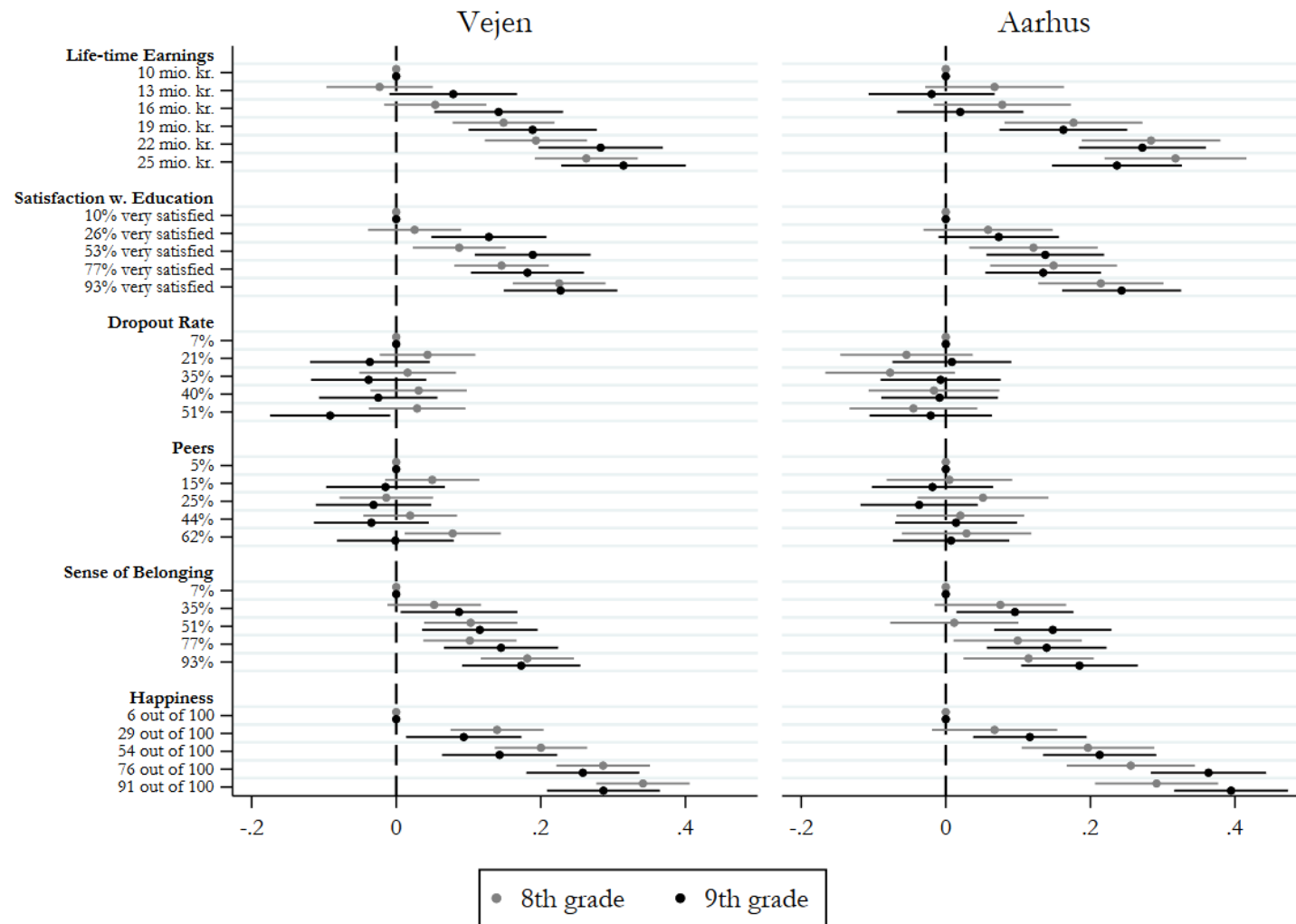
Note: The figure shows the effect of educational attributes on the probability of choosing a given education – conditional on the gender of the student. OLS regressions with standard errors clustered at the individual level. Bars represent the 95% confidence intervals. Points without bars shows the reference level within each attribute, e.g. 7% in the attribute “Sense of belonging”.

**Table D.1: Joint significance tests of Interaction of Gender and Educational Choice**

<b>Attribute</b>	<b>Prob&gt;F Vejen</b>	<b>Prob&gt;F Aarhus</b>
Life-time earnings	0.23	0.32
Satisfaction w. education	0.12	0.25
Dropout rate	0.10	0.67
Peers	0.83	0.11
Sense of belonging	0.37	0.43
Happiness	0.04	0.45

Note: Joint F-tests of interaction terms in 6 different OLS regressions – one for each attribute. The dependent variable is the choice of education. The independent variables are the attribute level dummies, a dummy for gender and the two variables' interactions. The F-tests test the joint significance of the interaction terms. The null hypothesis is that the AMCEs for the attributes are identical across gender.

Figure D.2: Grade Level



Note: The figure shows the effect of educational attributes on the probability of choosing a given education – conditional on the grade level of the student. OLS regressions with standard errors clustered at the individual level. Bars represent the 95% confidence intervals. Points without bars shows the reference level within each attribute, e.g. 7% in the attribute “Sense of belonging”.

**Table D.2: Joint significance tests of Interaction of Grade Level and Educational Choice**

<b>Attribute</b>	<b>Prob&gt;F Vejen</b>	<b>Prob&gt;F Aarhus</b>
Life-time earnings	0.65	0.37
Satisfaction w. education	0.96	0.14
Dropout rate	0.73	0.23
Peers	0.61	0.58
Sense of belonging	0.19	0.84
Happiness	0.33	0.76

Note: Joint F-tests of interaction terms in 6 different OLS regressions – one for each attribute. The dependent variable is the choice of education. The independent variables are the attribute level dummies, a dummy for the grade level and the two variables' interactions. The F-tests test the joint significance of the interaction terms. The null hypothesis is that the AMCEs for the attributes are identical across the grade levels.

## Appendix E: Joint and Conditional Proportions in the List Experiment (Study 4)

		Number of things done						
		0	1	2	3	4	5	Sum
1	Treatment	0,105	0,433	0,263	0,111	0,064	0,023	1
2	Treatment "at least"	1,000	0,895	0,462	0,199	0,088	0,023	
3	Control	0,122	0,331	0,285	0,192	0,070	0,000	1
4	Control "at least"	1,000	0,878	0,547	0,262	0,070	0,000	
2-4	Joint	0,000	0,017	-0,085	-0,063	0,018	0,023	<b>-0,089</b>
2-4	Conditional	0,000	0,039	-0,321	-0,565	0,279	n/a	

Note: n = 172 for the control group and n = 171 for the treatment group

This test of behavioral assumptions in the list experiment is inspired by Blair and Imai (2012) and Glynn (2013). Row 1 and 3 are the proportions stating each “number of things done” in the experiment for the treatment and control group respectively. Therefore, their sum equals 1. Rows 2 and 4 denote the proportions of the students at least stating the number of things done in the column headline (0-5) for the treatment and control groups respectively.

Row number 5 and 6 can be used as a test of the behavioral assumptions (honest responses) in the list experiment. Row number 5, “Joint”, presents the difference between row 2 and 4 and can be interpreted as estimates of joint proportions that dislike the number of treatment list items indicated by the column label and also dislike the sensitive item (see proof in Glynn (2013, Appendix C)). The sum of this row reconstructs the difference-in-means estimate from Table 5 in the article. The proportions in this row must be between zero and one. We have two negative entries in column 2 and 3, but a one-sided test of proportions cannot reject this to be due to chance at the five percent level – even without making the Bonferroni adjusted test suggested by Blair and Imai (2012).

The sixth “Conditional” row divides the fifth row by row 1 and can be interpreted as the conditional probability of disliking the sensitive item conditional on disliking the number of treatment list items indicated by the column labels. The row 6 estimates can also be interpreted as respondent-level

probabilistic measures of the sensitive item (Glynn 2013, p.166). These estimates are not greater than 1, and therefore do not violate the assumptions.