Online Appendix:

How Early Adolescent Skills and Preferences Shape Economics Education Choices

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1 Background

Women have historically been underrepresented both in Economics and Science, Technology, Engineering and Math (STEM) fields, and the participation gender gap has remained fairly steady (Patnaik et al., 2020; Levenstein, 2020; Holman et al., 2018; Ginther and Kahn, 2004; Kahn, 1993). In economics in particular, the gender gap has remained most pronounced at more senior positions (Lundberg and Stearns, 2019).[1]

The gender gap can be traced back to course choices in high school: recent studies from Denmark (Joensen and Nielsen, 2016), the Netherlands (Buser et al., 2014), and Switzerland (Buser et al., 2017) show that boys are more likely

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[1]Figure 5 shows the gender differences in economics college majors in Sweden.

to self-select into math-intensive education.[2]

A growing literature has documented the important labor market consequences of high school STEM choices (Altonji, 1995; Levine and Zimmerman, 1995; Rose and Betts, 2004; Joensen and Nielsen, 2009; Altonji et al., 2012; Taylor, 2014; Cortes et al., 2015; Goodman, 2019; Dahl et al., 2022) and college major choices (Berger, 1988; Paglin and Rufolo, 1990; Altonji, 1993; Grogger and Eide, 1995; Arcidiacono, 2004; Christiansen et al., 2007; Beffy et al., 2012; Gemici and Wiswall, 2014; Altonji et al., 2014; Kinsler and Pavan, 2015; Kirkebøen et al., 2016; Hastings et al., 2013; Altmejd, 2018; Sloane et al., 2019,0; Aucejo and James, 2021), but it is still not well understood what these college major premiums embody.[3] Altonji et al. (2012) strongly advocate the importance of analyzing high school and college choices jointly to get at the importance of timing of specific investments for later labor market outcomes. A few recent papers jointly analyze the importance of high school investments for college outcomes (Joensen and Nielsen, 2016; Belzil and Poinas, 2018; De Groote et al., 2018; Card and Payne, 2021), math and verbal skills for the transition from high school to college (Delaney and Devereux, 2020; Aucejo and James, 2021), mechanical ability for college enrollment (Prada and Urzúa, 2017), and the joint importance of multidimensional ability sorting and complementarities in high school and college investments (Humphries et al., 2019). Given the large consequences for future wages and labor market outcomes it is vital to identify when and why women opt out of math, science, and economics classes and programs.

Recent literature documents a consistent, albeit small female advantage in reading scores (Hyde, 1981; Hyde and Linn, 1988; Lietz, 2006; Petersen, 2018; Chuan et al., 2022), which tends to be larger and more stable than the male advantage in mathematics (Linn and Hyde, 1989; Ma, 2008; Lindberg et al., 2010). This is summarized in Cappon (2011) who points out that this female advantage is already present in primary school across many countries.[4]

Breda and Napp (2019) argue that most of the gender gap in *math* can be attributed to girls' relative advantage in *reading*: girls who perform well in math tend to perform even better in reading, which, combined with socialization influences and their preferences, can explain why girls choose to pursue less math-intensive careers. Overall, there is considerable evidence for this comparative advantage mechanism (Kirkebøen et al., 2016; Delaney and Devereux, 2021).[5]

[2]Figure 6 shows the gender gaps in 9th grade through college specialization choices. Figures 8 and 9 show that the gaps in high school graduation and track choices have decreased over time in Sweden.

[3]Altonji et al. (2016) provide a recent and comprehensive literature review.

[4]More broadly, there seems to be a persistent "female advantage" in scholastic achievement across all subjects (incl. mathematics) if we look at grades assigned by teachers (Voyer and Voyer, 2014). This effect seems the strongest in middle school and high school, and in language courses. In Western countries, boys tend to underperform girls and fail to attain basic skill proficiency at higher rates than girls (OECD, 2015). As a result, more girls than boys graduate high school and complete higher education (OECD, 2016).

[5]Figure 15 shows that we observe a similar pattern of gender differences in language and

Together with the fact that verbal skills are more important in explaining university enrollment than math skills (Aucejo and James, 2021), the gender gap in verbal skills could explain why disproportionately fewer women, conditional on university enrollment, choose to pursue math-intensive programs (Card and Payne, 2021). We also find that the early revealed preference for languages for women partly explains the observed gender differences in economics majors, while differences in high school STEM choices explain most of the gender gap in STEM college majors.

A second important factor in explaining why so few women choose to specialize in economics/STEM are preferences: In general, women report more negative attitudes towards math (Else-Quest et al., 2010). Additionally, women have been generally shown to opt out of highly competitive environments (Niederle and Vesterlund, 2010), which many math-intensive programs are (Buser et al., 2014).

Third, there are substantial gender differences in beliefs that contribute to educational sorting. Coffman et al. (2020) show that people tend to have higher self-confidence in gender-congruent domains, i.e. women would have higher self-confidence in reading as opposed to mathematics. In contemporaneous and complementary work, Exley and Kessler (2022) find evidence consistent with ours that there is a gender gap in self-evaluations in the math domain but not in the language domain. They study behavioral mechanisms, while we connect these gaps in self-evaluations to later consequential education choices.

Closely related to both math attitudes and self-perceptions, Ma (1999) and Zhang et al. (2019) show in meta-analyses that math anxiety is a strong and significant predictor of math performance (especially grades and researcher-made assessments as opposed to standardized tests), yet the effect is not moderated by gender. The evidence on the importance of math anxiety primarily focuses on math test performance, but our paper adds to the growing literature in economics pointing to the primary importance of education choices rather than performance on tests (Delaney and Devereux, 2019).

More broadly, cultural beliefs as proxied by implicit stereotypes are strong and robust predictors of both math and science achievement gaps in boys and girls: countries with higher implicit stereotyping record higher sex differences in achievement (Nosek et al., 2009). Stereotyping teachers could also decrease girls' math performance on standardized tests as well as their self-confidence, resulting in girls self-selecting into less demanding schools (Carlana, 2019). Likewise, stereotyping parents could pass these views onto their children, resulting in lower math test scores for girls (Dossi et al., 2021a), albeit this effect is only prevalent for white affluent families (Dossi et al., 2021b). Similarly, Cotton et al. (2020) only observe a significant gender gap in math test scores in the wealthiest of the three school districts in their field experiment.[6]

While most meta-analyses find a robust, small to moderate negative effect

math test scores in the UProg and ETF72 data.

[6]Figure 15 shows that we do not observe a gender gap in math test scores in grades 3-8, but boys perform better on the national math test in 9th grade in the Swedish ETF72 data.

of stereotype threat on female performance on tests of mathematical ability (Shewach et al., 2019; Appel and Weber, 2021; Doyle and Voyer, 2016; Flore and Wicherts, 2015; Picho et al., 2013; Nguyen and Ryan, 2008), many included studies suffer from possible covariate confounds by controlling for past math ability that in itself can be affected by stereotype threat, which, as pointed out by Stoet and Geary (2012), may bias the results.

It is likely that *beliefs* developed relatively early in life are the underlying cause for the negative effect of stereotypes, as men and women tend to assess themselves differently in response to a stereotypical task (Bordalo et al., 2019), which in turn affects the ability and willingness to perform on the task.

We leave several important research questions for the future. First, the origins of differences in preferences and beliefs are still not well understood. Moustafa et al. (2021) argue that individualized Cognitive Behavioral Therapy (i-CBT) interventions could reduce math anxiety by targeting the core underlying reason. The impact of any intervention will naturally depend on the importance of the underlying origins. These most likely arise in individuals' social environment in terms of families, caregiver, teachers, schools, and peers. The importance of the social environment and families should not be underestimated as parents' math anxiety is strongly related to their children's math anxiety (Maloney et al., 2015) and interventions targeting parents have also been shown effective in increasing child's math achievement (Berkowitz et al., 2015). Furthermore, there is a growing literature estimating causal family and sibling spillovers in field of study and STEM choices in high school (Joensen and Nielsen, 2018; Dahl et al., 2020) and in college (Altmejd et al., 2021). Second, how important are these early gaps for gender disparities later in life? How can we best identify and foster talent?[7] What is the role of the future returns to specific investments?

2 Data Description

2.1 Chicago data: U-Program

We use data from a 2016/2017 field experiment in three public junior high schools in the South of Chicago, Illinois.[8] Students aged 12-14 were eligible to participate; in total we have data for 1,498 students. The majority of our sample consists of students of color (70% Black, 19% Hispanic), and students from low-income households (96%, 94%, and 69% of the students in these schools are eligible for free or reduced price lunch). In this paper, we use the baseline survey data linked to school administrative records.

Education choices. We use school records on the students' track choices in math and English from the 7th grade, and differentiate between the most advanced course track versus intermediate or easy course tracks.

[7] Kraft et al. (2022) in this symposium discuss the promise and pitfalls of some interventions with particular focus on an online mentoring program.

[8] See Joensen et al. (2020) for more details on the field experiment and data.

Test scores. We use standardized Measures of Academic Progress (MAP) for math and reading skills. The math test assesses performance on number sense, estimation and computation, algebra, geometry, measurement, statistics and probability, problem-solving, reasoning, and proofs. The reading test assesses reading comprehension, the capacity to identify literary elements, phonics, word recognition, and word relationships.

Socio-emotional skills. We use school records on the number of days students are absent. To elicit the Big 5 personality traits, we use a 10-item survey (Gosling et al., 2003). There were five possible responses to each item: (a) Very much like me, (b) Mostly like me, (c) Somewhat like me, (d) Not much like me, and (e) Not at all like me.

Additionally, we use an eight-item grit scale (Duckworth et al., 2007) with the same five possible responses. Grit is split into two factors: consistency of interest and perseverance of effort. The full text of the questions reads as follows:

- New ideas and projects sometimes distract me from previous ones.
- I have been obsessed with a certain idea or project for a short time but later lost interest.
- I often set a goal but later choose to pursue (follow) a different one.
- I have difficulty maintaining (keeping) my focus on projects that take more than a few months to complete.
- Setbacks (delays and obstacles) don't discourage me. I bounce back from disappointments faster than most people.
- I am a hard worker.
- I finish whatever I begin.
- I am diligent (hard working and careful).

Finally, our self-control measure is based on Tsukayama et al. (2013) and consists of eight items, each with five possible responses: (a) Almost never, (b) About once a month, (c) About 2-3 times a month, (d) About once a week, and (e) At least once a day.

Investments. We use self-reported measures of how many hours per week students spend on homework, scheduled activities like sport, time with friends, TV and internet. We supplement this data with self-reports of who (if anyone) helps students with their homework. These questions read as follows:

- How many hours do you usually spend [ACTIVITY] on a typical school night (Monday through Thursday)?

- How many hours do you usually spend [ACTIVITY] on a typical day of the weekend (Friday, Saturday, Sunday)?
- When you usually work on your homework, who from your immediate family helps you out if you get stuck? MARK ALL THAT APPLY.

  (My mom, dad, brother, sister, none of the above)
- When you usually work on your homework, what other people help you out if you get stuck? MARK ALL THAT APPLY.

  (My grandparent, tutor, friend, another person, none of the above)

Preferences, Motivation, and Expectations. We use self-reported measures of what motivates students to do their homework, their most and least favourite courses, and their estimates of the likelihood of graduating high school and college, and high school and college graduation premiums at ages 19 (23) and 40. The full text of these questions reads as follows:

- In general, what is your BIGGEST [SECOND BIGGEST] motivation for doing your homework?

  (I like learning, I get rewards for doing my homework, I liked the challenge of doing hard problems, Because I have to, None of the above)
- Of all the school subjects below, which one do you like BEST [LEAST]?

  (Math, Science, English, History/Social studies, Foreign language studies)
- How likely is it that YOU will graduate from HIGH SCHOOL if you spend 30 minutes [1 hour] each day working on homework?

  (10% or less, 20%, ..., 90% or more)
- How likely is it that YOU will graduate from COLLEGE if you spend 30 minutes [1 hour] each day working on homework?

  (10% or less, 20%, ..., 90% or more)
- Imagine for YOURSELF that the picture below represents the amount of money that YOU will make at the age of 19 (at the beginning of your adult life) if YOU DROP OUT OF SCHOOL in 9th grade: How much money do you think YOU would make at the age of 19 (at the beginning of your adult life) if YOU had GRADUATED HIGH SCHOOL INSTEAD?

  (20% less, 10% less, ..., 60% more and up)
- Now, imagine for YOURSELF that the picture below represent the amount of money that YOU will make at the age of 40 (in the middle of your adult life) if YOU DROP OUT OF SCHOOL in 9th grade: How much money do you think YOU would make at the age of 40 (in the middle of your adult life) if YOU had GRADUATED HIGH SCHOOL INSTEAD?

(20% less, 10% less, ..., 60% more and up)

- Imagine for YOURSELF that the picture below represents the amount of money YOU will make at the age of 23 (just after college age) if YOU DROP OUT OF SCHOOL in 9th grade: How much money do you think YOU would make at the age of 23 (just after college age) if YOU had GRADUATED COLLEGE INSTEAD?

  (20% less, 10% less, ..., 60% more and up)

- Now, imagine for YOURSELF that the picture below represents the amount of money YOU will make at the age of 40 (in the middle of your adult life) if YOU DROP OUT OF SCHOOL in 9th grade: How much money do you think YOU would make at the age of 40 (in the middle of your adult life) if YOU had GRADUATED COLLEGE INSTEAD?

  (20% less, 10% less, ..., 60% more and up)

Background variables. Finally, we observe the students' gender, age, race, ethnicity, and the school they attend in 7th or 8th grade.

Table 1 provides sample descriptive statistics of all the included variables: overall and by gender.

2.2 Swedish data

We combine data from several Swedish administrative registers for the cohorts completing compulsory schooling (9th grade) in 1988-97. This corresponds to the stipulated schooling trajectory for Swedes born in 1972-81. We merge the ninth grade, high school, and higher education registers to obtain longitudinal education histories. Finally, we merge the data from the education registries with the longitudinal integration database for health insurance and labour market studies (*LISA*) to obtain information of graduate degree attainment and additional background variables. The administrative data for the full population is quite detailed from 9th grade through college, and we supplement these data with the Evaluation Through Follow-up (ETF72) survey focusing on 3rd through 9th grade for the oldest cohort in our sample.

9th grade registry: We use data on course choices, since these cohorts could choose whether to take a more advanced track in math and/or English or not. We also use data on math grades and grade point average (GPA).

High school registry: Similarly to the 9th grade registry, we focus on specialization choices and performance measured by GPA. We classify high school students into four tracks: vocational and three academic tracks in Humanities, Social Sciences, and STEM. A reform implied that the high school graduating cohorts from 1996 and earlier are classified according to the high school lines they attend, while those graduating in 1997 are classified according to the

programs they attend. The academic STEM track consists of the science (76) and technical (80,81) lines pre-reform, the science program (49) is also added during the transition years, and the science program (NV) for the post-reform cohorts. The academic social science track comprises the business (72) and social science lines (78) pre-reform, the social science program (53) is also added during the transition years, and the social science program (SP) for the post-reform cohorts. The academic humanities track primarily consist of humanities line (74) pre-reform, the arts program (19) is also added during the transition years, and the arts program (ES) for the post-reform cohorts. Finally, all vocational high school lines and programs are grouped in the vocational high school track.

Higher education registry: From the Higher Education registry, we use data on acquired college degrees. The Swedish education nomenclature (SUN2000) codes build on the International Standard Classification of Education (ISCED97). We classify all academic degrees into two levels ($\leq$ 3 years and $\geq$ 4 years) according to the SUN2000Niva code and and five fields according to the first digit of the SUN2000Inr code. For the purpose of this study, we single out Economics (SUN2000Inr=314) from the Social Sciences majors while we group together the Education majors with the Humanities and Arts majors (first digits in SUN2000Inr code 1 and 2, respectively) and the Technical and Engineering majors with the Math and Sciences majors (first digits in SUN2000Inr code 5 and 4, respectively). Thus all college degrees are classified into the following majors: (1) Economics, (2) Business, Law, Social Sciences, (3) Engineering, Math and Sciences, (4) Medicine and Health Sciences, (5) Education, Humanities and Arts.

We merge these registers to the **Evaluation Through Follow-up** (ETF72) surveys administered to 3rd, 6th, and 10th grade students by the Department of Education and Special Education at Gothenburg University.[9] This survey was administered to a random sample of the oldest cohort in our population who was sampled when in 3rd grade in the 1981/82 school-year. These individuals are mostly born in 1972. This data includes extensive measures of aptitude and achievement tests, absenteeism, special education and tuition, and grades in various courses through compulsory schooling, as well as extensive student and parent surveys related to student achievement, confidence, inputs, grit, and interpersonal skills.

Tables 2 and 3 provide sample descriptive statistics of all the included variables: overall and by gender. Table 2 for the ETF72 sample focuses on the early grade school through high school years, while Table 3 for the full Swedish sample focuses on the years from compulsory schooling completion through college.

[9] Härnqvist (1998) and Giota (2006) provide additional details on the construction of the survey.

3 Supplementary Tables

3.1 Descriptives

Tables 1 provides summary statistics for the U.S. UProg sample, Table 2 for the Swedish ETF72 sample, and Table 3 for the full Swedish. Each table reports the overall mean, the mean for men, the mean for women, and the difference. Panels of the tables are broken out by variable categories which correspond to the variable categories used in the Gelbach decompositions in the main text and elsewhere in this online appendix.

Table 1: Descriptive Statistics, UProg sample (Part 1)

	All	Men	Women	Difference
Early Test Scores				
MAP: Math	0.12	0.10	0.15	-0.05
	(0.93)	(0.94)	(0.92)	
MAP: Reading	0.06	-0.03	0.15	-0.18
	(0.91)	(0.96)	(0.85)	
Above med Math and Reading	0.41	0.38	0.44	-0.06
Above med Math, below med Reading	0.10	0.11	0.08	0.03
Above med Reading, below med Math	0.11	0.11	0.11	0.00
7-8th Grade Choices				
Adv. Math & English	0.10	0.07	0.12	-0.05
Adv. Math	0.03	0.02	0.04	-0.02
Adv. English	0.07	0.05	0.08	-0.03
Socio-Emotional Skills				
Days Absent	0.14	0.14	0.13	0.01
	(0.14)	(0.14)	(0.14)	
Big 5: I see myself as someone who...				
has few artistic interests	2.99	3.04	2.93	0.11
	(1.40)	(1.42)	(1.39)	
has an active imagination	3.91	3.87	3.94	-0.07
	(1.18)	(1.23)	(1.13)	
tends to be lazy	3.06	3.18	2.92	0.26
	(1.22)	(1.22)	(1.20)	
does a thorough job	3.69	3.69	3.69	0.00
	(1.03)	(1.05)	(1.00)	
is reserved	3.07	3.18	2.94	0.24
	(1.21)	(1.24)	(1.16)	
is outgoing, sociable	3.78	3.79	3.77	0.02
	(1.19)	(1.19)	(1.19)	
is generally trusting	4.13	4.06	4.19	-0.13
	(0.99)	(1.03)	(0.95)	
tends to find fault with others	3.54	3.53	3.55	-0.02
	(1.12)	(1.14)	(1.10)	
is relaxed	2.74	2.56	2.95	-0.39
	(1.27)	(1.29)	(1.21)	
gets nervous easily	3.12	2.81	3.46	-0.65
	(1.33)	(1.34)	(1.24)	
N	1,482	776	706	

Table 1: Descriptive Statistics, UProg sample (Part 2)

	All	Men	Women	Difference
Socio-Emotional Skills (Cont.)				
Grit:				
New ideas and projects sometimes distract	2.82	2.83	2.82	0.01
	(1.24)	(1.25)	(1.22)	
Obsessed with a certain idea or project,...	3.07	3.10	3.03	0.07
...but lost interest	(1.27)	(1.26)	(1.28)	
Often set a goal, but choose to pursue a ...	3.02	3.05	2.99	0.06
...different one	(1.27)	(1.31)	(1.23)	
Difficulty maintaining focus on longer projects	3.07	3.05	3.09	-0.04
	(1.28)	(1.29)	(1.26)	
Setbacks don't discourage, bounce back from...	3.45	3.58	3.31	0.27
...disappointments fast	(1.21)	(1.23)	(1.18)	
I am a hard worker	4.11	4.08	4.14	-0.06
	(0.96)	(0.99)	(0.92)	
I finish whatever I begin	3.77	3.83	3.71	0.12
	(1.00)	(0.99)	(1.00)	
I am diligent (hard working and careful)	3.95	3.88	4.03	-0.15
	(1.00)	(1.05)	(0.95)	
Self-Control: During the past school year...				
I forgot something I needed for class	3.44	3.32	3.57	-0.25
	(1.29)	(1.29)	(1.29)	
I interrupted other students while they ...	3.77	3.62	3.93	-0.31
...were talking	(1.42)	(1.44)	(1.38)	
I said something rude	3.41	3.38	3.43	-0.05
	(1.50)	(1.49)	(1.51)	
I couldn't find something because my space ...	3.98	3.92	4.04	-0.12
...was messy	(1.31)	(1.33)	(1.29)	
I lost my temper at home or at school	3.65	3.67	3.64	0.03
	(1.38)	(1.38)	(1.39)	
I did not remember what my teacher ...	3.62	3.55	3.71	-0.16
...told me to do	(1.31)	(1.30)	(1.31)	
my mind wandered when I should have ...	3.14	3.18	3.10	0.08
...been listening	(1.40)	(1.36)	(1.43)	
I talked back to my teacher or parent when ...	3.88	3.90	3.87	0.03
...I was upset	(1.32)	(1.30)	(1.35)	
N	1,482	776	706	

Table 1: Descriptive Statistics, UProg sample (Part 3)

	All	Men	Women	Difference
Investments				
Time-Use:				
Homework	0.31	0.31	0.32	-0.01
Sports	0.43	0.47	0.38	0.09
Friends	0.51	0.54	0.48	0.06
TV	0.66	0.66	0.66	0.00
Internet	0.59	0.59	0.60	-0.01
Homework Help:				
Mom	0.50	0.49	0.52	-0.03
Dad	0.22	0.21	0.24	-0.03
Brother	0.13	0.11	0.16	-0.05
Sister	0.17	0.16	0.19	-0.03
Grandparent	0.16	0.17	0.15	0.02
Tutor	0.03	0.04	0.03	0.01
Friend	0.41	0.36	0.47	-0.11
Other	0.17	0.15	0.20	-0.05
Extracurriculars:				
Sports	0.46	0.55	0.36	0.19
Clubs	0.11	0.08	0.15	-0.07
Music	0.15	0.09	0.23	-0.14
Other	0.14	0.13	0.16	-0.03
Internet at Home	0.14	0.16	0.13	0.03
N	1,482	776	706	

Table 1: Descriptive Statistics, UProg sample (Part 4)

	All	Men	Women	Difference
Preferences				
Likes Math	0.44	0.48	0.40	0.08
Likes Science	0.22	0.24	0.20	0.04
Likes English	0.15	0.09	0.21	-0.12
Likes History/Social Studies	0.14	0.16	0.12	0.04
Dislikes Math	0.28	0.26	0.31	-0.05
Dislikes Science	0.20	0.18	0.22	-0.04
Dislikes English	0.14	0.16	0.11	0.05
Dislikes History/Social Studies	0.23	0.21	0.26	-0.05
Motivation: Learning	0.35	0.32	0.37	-0.05
Motivation: Reward	0.25	0.26	0.23	0.03
Motivation: Challenge	0.24	0.24	0.25	-0.01
Motivation: Duty	0.63	0.62	0.63	-0.01
HS Grad Prob: If Low (3 h)	0.61	0.60	0.61	-0.01
HS Grad Prob: If High (7 h)	0.73	0.73	0.73	0.00
College Grad Prob: If Low (3 h)	0.47	0.46	0.49	-0.03
College Grad Prob: If High (7 h)	0.65	0.64	0.66	-0.02
Exp. HS Premium at age 19	0.25	0.26	0.24	0.02
Exp. HS Premium at age 40	0.35	0.35	0.36	-0.01
Exp. College Premium at age 23	0.35	0.37	0.34	0.03
Exp. College Premium at age 40	0.42	0.42	0.42	0.00
N	1,482	776	706	

Table 1: Descriptive Statistics, UProg sample (Part 5)

	All	Men	Women	Difference
Race/Ethnicity/Background				
Age	12.90	12.94	12.85	0.09
	(0.80)	(0.86)	(0.73)	
Black	0.70	0.71	0.70	0.01
White	0.14	0.15	0.13	0.02
Hispanic	0.19	0.16	0.21	-0.05
School				
School 1	0.22	0.20	0.24	-0.04
School 2	0.50	0.50	0.50	0.00
School 3	0.28	0.30	0.26	0.04
N	1,482	776	706	

Table 2: Descriptive Statistics, Swedish ETF72 sample (Part 1)

	All	Men	Women	Difference
HS Track Choices & GPA				
Academic STEM	0.15	0.21	0.10	0.11
Academic Social Science	0.17	0.12	0.25	-0.13
Academic Humanities	0.02	0.01	0.05	-0.04
Vocational	0.42	0.49	0.42	0.07
No High School	0.17	0.17	0.19	-0.02
High School GPA	-0.04	-0.17	0.11	-0.28
	(1.01)	(1.00)	(0.99)	
9th Grade Choices & GPA				
Adv. Math & English	0.47	0.47	0.53	-0.06
Adv. Math	0.06	0.09	0.04	0.05
Adv. English	0.15	0.12	0.21	-0.09
Standardized GPA (9th)	-0.02	-0.21	0.18	-0.39
	(1.01)	(1.00)	(0.97)	
Standardized Math grade (9th)	-0.01	-0.06	0.05	-0.11
	(1.01)	(1.04)	(0.98)	
above median math grade and GPA	0.27	0.24	0.31	-0.07
above median math, below median GPA	0.09	0.11	0.08	0.03
above median GPA, below median math	0.20	0.16	0.25	-0.09
Std. 9th Swedish National Test Scores	0.00	-0.14	0.13	-0.27
	(1.00)	(1.05)	(0.94)	
Std. 9th Math National Test Scores	0.00	0.08	-0.10	0.18
	(1.00)	(1.03)	(0.96)	
Std. 8th English National Test Scores	0.00	-0.06	0.04	-0.10
	(1.00)	(1.01)	(0.99)	
above median math and language skills	0.21	0.21	0.21	0.00
above median math, below median language	0.10	0.13	0.08	0.05
above median language, below median math	0.11	0.08	0.15	-0.07
7th Grade Choices				
Adv. Math & English	0.61	0.59	0.65	-0.06
Adv. Math	0.07	0.09	0.05	0.04
Adv. English	0.10	0.08	0.12	-0.04
No Adv. Math or English	0.22	0.24	0.18	0.06
N	9,419	4,511	4,257	

Table 2: Descriptive Statistics, Swedish ETF72 sample (Part 2)

	All	Men	Women	Difference
Early Test Scores				
Std. 3rd Language Test Scores	0.00	-0.07	0.09	-0.16
	(1.00)	(1.02)	(0.95)	
Std. 3rd Math Test Scores	0.00	0.01	-0.01	0.02
	(1.00)	(1.03)	(0.95)	
Std. 6th Language Test Scores	0.00	-0.04	0.06	-0.10
Std. 6th Math Test Scores	0.00	0.01	-0.01	0.02
	(1.00)	(1.03)	(0.95)	
Std. Early Language Test Scores	0.00	-0.07	0.09	-0.16
	(1.00)	(1.01)	(0.94)	
Std. Early Math Test Scores	0.00	0.02	0.00	0.02
	(1.00)	(1.03)	(0.95)	
Std. Early Test Scores	0.00	-0.01	0.04	-0.05
	(1.00)	(1.03)	(0.94)	
above median math and language skills	0.33	0.33	0.34	-0.01
above median math, below median language	0.15	0.17	0.14	0.03
above median language, below median math	0.15	0.13	0.17	-0.04
Socio-Emotional Skills				
Days absent in 3rd grade	7.30	7.23	7.25	-0.02
	(4.20)	(3.88)	(3.41)	
Days absent in 4th grade	36.75	35.98	37.87	-1.89
	(37.67)	(37.61)	(37.20)	
Days absent in 5th grade	38.58	38.07	39.24	-1.17
	(37.97)	(38.50)	(37.58)	
Days absent in 6th grade	38.83	37.93	40.14	-2.21
	(37.80)	(37.83)	(37.65)	
Do you give up if you get a difficult task to do in school?				
Yes	0.11	0.09	0.12	-0.03
No	0.73	0.76	0.73	0.03
Do you often think about other things when you do maths... ...and writing in school?				
Yes	0.31	0.34	0.28	0.06
No	0.52	0.50	0.56	-0.06
Do you think that it is unpleasant to have to answer questions in school?				
Yes	0.09	0.06	0.13	-0.07
No	0.75	0.79	0.73	0.06
Do you always do your best, even when the tasks are boring?				
Yes	0.65	0.63	0.69	-0.06
No	0.19	0.22	0.16	0.06
Do you think that you have to learn lots of pointless stuff in school?				
Yes	0.33	0.38	0.28	0.10
No	0.51	0.47	0.57	-0.10
N	9,419	4,511	4,257	

Table 2: Descriptive Statistics, Swedish ETF72 sample (Part 3)

	All	Men	Women	Difference
Socio-Emotional Skills (Cont.)				
Do you get disappointed if you get bad results in a test?				
Yes	0.59	0.59	0.61	-0.02
No	0.24	0.26	0.24	0.02
How do you feel about drawing and painting?				
Fun	0.18	0.19	0.17	0.02
Neither fun nor boring	0.30	0.30	0.32	-0.02
Boring	0.36	0.37	0.37	0.00
How do you feel about doing sport and physical exercise?				
Fun	0.05	0.04	0.06	-0.02
Neither fun nor boring	0.26	0.21	0.33	-0.12
Boring	0.53	0.61	0.47	0.14
How do you feel about singing?				
Fun	0.19	0.29	0.10	0.19
Neither fun nor boring	0.32	0.36	0.29	0.07
Boring	0.33	0.21	0.47	-0.26
Do you like working together with other children in the class?				
Yes	0.78	0.77	0.81	-0.04
No	0.07	0.08	0.05	0.03
Do you think that other children in the class like working... ...together with you?				
Yes	0.71	0.72	0.72	0.00
No	0.09	0.09	0.09	0.00
Do you often think that you would like to be better at working... ...together with other children?				
Yes	0.28	0.30	0.28	0.02
No	0.54	0.53	0.56	-0.03
Do you ask the teacher for help when you do not understand?				
Yes	0.82	0.82	0.84	-0.02
No	0.03	0.03	0.02	0.01
Do you think that your teacher thinks that you often ask for help?				
Yes	0.13	0.14	0.13	0.01
No	0.68	0.69	0.70	-0.01
Would you like to ask the teacher for help more often than you do?				
Yes	0.09	0.08	0.09	-0.01
No	0.74	0.75	0.75	0.00
Do you think you are bad at drawing and painting?				
Yes	0.42	0.43	0.42	0.01
No	0.41	0.41	0.42	-0.01
Do you think that the other children in the class think that you are... ...bad at drawing and painting?				
Yes	0.31	0.33	0.29	0.04
No	0.49	0.48	0.52	-0.04
Do you often think that you would like to be better at... ...drawing and painting?				
Yes	0.61	0.59	0.65	-0.06
No	0.22	0.24	0.20	0.04
N	9,419	4,511	4,257	

Table 2: Descriptive Statistics, Swedish ETF72 sample (Part 4)

	All	Men	Women	Difference
Socio-Emotional Skills (Cont.)				
Do you think that you are bad at sport and physical exercise?				
Yes	0.19	0.14	0.25	-0.11
No	0.64	0.70	0.60	0.10
Do you think that the other children in the class think that you are... ...bad at sport and physical exercise?				
Yes	0.18	0.14	0.22	-0.08
No	0.63	0.68	0.60	0.08
Do you often think that you would like to be better at... ...sport and physical exercise?				
Yes	0.48	0.43	0.54	-0.11
No	0.35	0.40	0.30	0.10
Investments				
Which clubs/societies are you a member of?				
Not a member of any club	0.14	0.13	0.16	-0.03
Sporting club	0.38	0.44	0.33	0.11
Hobby club	0.02	0.02	0.03	-0.01
Religious society	0.02	0.01	0.03	-0.02
Political organization	0.00	0.00	0.00	0.00
Temperance society	0.01	0.01	0.01	0.00
Nature or environmental society	0.01	0.01	0.01	0.00
Have you ever visited your mother at her place of work?				
No	0.13	0.14	0.12	0.02
Yes, once	0.06	0.06	0.06	0.00
Yes, a few times	0.18	0.19	0.18	0.01
Yes, many times	0.44	0.43	0.46	-0.03
Have you ever visited your father at his place of work?				
No	0.13	0.10	0.16	-0.06
Yes, once	0.08	0.07	0.09	-0.02
Yes, a few times	0.24	0.23	0.26	-0.03
Yes, many times	0.38	0.43	0.33	0.10
How much television do you normally watch?				
Never	0.02	0.01	0.03	-0.02
30 minutes a day	0.04	0.03	0.05	-0.02
1 hour a day	0.14	0.11	0.17	-0.06
2 hours a day	0.25	0.23	0.28	-0.05
3+ hours a day	0.23	0.26	0.21	0.05
How often do you read newspapers and comics?				
Everyday	0.43	0.52	0.35	0.17
Sometimes	0.34	0.29	0.41	-0.12
Never	0.07	0.05	0.09	-0.04
How often do you read books?				
Everyday	0.36	0.23	0.51	-0.28
Sometimes	0.37	0.45	0.30	0.15
Never	0.11	0.18	0.05	0.13
N	9,419	4,511	4,257	

Table 2: Descriptive Statistics, Swedish ETF72 sample (Part 5)

	All	Men	Women	Difference
Investments (Cont.)				
How often do you do sport?				
Everyday	0.40	0.45	0.35	0.10
Sometimes	0.35	0.31	0.40	-0.09
Never	0.09	0.08	0.09	-0.01
How often do you spend time doing a hobby?				
Everyday	0.29	0.27	0.32	-0.05
Sometimes	0.37	0.41	0.36	0.05
Never	0.18	0.17	0.19	-0.02
How often do you do writing and math at home?				
Everyday	0.21	0.16	0.26	-0.10
Sometimes	0.50	0.52	0.50	0.02
Never	0.13	0.17	0.09	0.08
How often do you do homework or other school work at home?				
Everyday	0.54	0.51	0.58	-0.07
Sometimes	0.29	0.32	0.26	0.06
Never	0.02	0.03	0.02	0.01
Do you get help at home with your school work?				
Yes	0.70	0.70	0.73	-0.03
No	0.14	0.15	0.13	0.02
Preferences				
How do you feel about doing maths?				
Easy	0.32	0.38	0.27	0.11
Difficult	0.04	0.03	0.04	-0.01
Do you think that you are good at math?				
Yes	0.66	0.70	0.63	0.07
No	0.17	0.14	0.21	-0.07
Do you think that your teacher thinks that you are good at math?				
Yes	0.62	0.65	0.61	0.04
No	0.18	0.17	0.20	-0.03
Do you often think that you would like to be better at doing math?				
Yes	0.52	0.52	0.53	-0.01
No	0.32	0.32	0.32	0.00
How much have your choices about math courses in 7-9th grade... ...been dependent on your				
Ability	0.40	0.43	0.39	0.04
Interest	0.35	0.38	0.34	0.04
Parents	0.26	0.30	0.23	0.07
Teacher	0.22	0.24	0.21	0.03
Classmates	0.09	0.10	0.08	0.02
Future	0.24	0.29	0.20	0.09
N	9,419	4,511	4,257	

Table 2: Descriptive Statistics, Swedish ETF72 sample (Part 6)

	All	Men	Women	Difference
Preferences (Cont.)				
How do you feel about reading aloud to your friends?				
Easy	0.40	0.37	0.45	-0.08
Difficult	0.09	0.10	0.08	0.02
Do you think that you are bad at reading?				
No	0.72	0.73	0.74	-0.01
Yes	0.11	0.12	0.11	0.01
Do you think that your parents think that you are bad at reading?				
Yes	0.05	0.07	0.04	0.03
No	0.77	0.76	0.80	-0.04
Do you often think that you would like to be better at reading?				
Yes	0.29	0.32	0.27	0.05
No	0.54	0.51	0.57	-0.06
Do you think that you are good at spelling?				
Yes	0.61	0.58	0.67	-0.09
No	0.22	0.26	0.18	0.08
Do you think that your parents think that you are good at spelling?				
Yes	0.67	0.63	0.73	-0.10
No	0.15	0.19	0.11	0.08
Do you often think that you would like to spell better?				
Yes	0.42	0.47	0.37	0.10
No	0.41	0.37	0.47	-0.10
How much have your choices about English courses in 7-9th grade... ...been dependent on your				
Ability	0.41	0.39	0.45	-0.06
Interest	0.45	0.41	0.50	-0.09
Parents	0.27	0.30	0.25	0.05
Teacher	0.23	0.24	0.23	0.01
Classmates	0.09	0.11	0.08	0.03
Future	0.25	0.26	0.24	0.02
Do you think that it is hard to understand when the teacher... ...explains things?				
Yes	0.10	0.10	0.10	0.00
No	0.73	0.74	0.74	0.00
Do you think that the teacher thinks that you understand when she... ...explains things?				
Yes	0.76	0.76	0.78	-0.02
No	0.06	0.07	0.06	0.01
Do you often think that you would like to understand things better... ...when the teacher explains things?				
Yes	0.28	0.28	0.28	0.00
No	0.55	0.55	0.56	-0.01
N	9,419	4,511	4,257	

Table 2: Descriptive Statistics, Swedish ETF72 sample (Part 7)

	All	Men	Women	Difference
Preferences (Cont.)				
Do you think that you do well in school?				
Yes	0.64	0.66	0.65	0.01
No	0.17	0.16	0.18	-0.02
Do you think that your parents think that you do well in school?				
Yes	0.74	0.73	0.77	-0.04
No	0.08	0.09	0.06	0.03
Do you often think that you would like to do better in school?				
Yes	0.45	0.47	0.45	0.02
No	0.37	0.37	0.39	-0.02
Do you know what type of occupation would you like to have... ...when you become an adult?				
Very sure	0.20	0.22	0.18	0.04
Rather sure	0.36	0.34	0.39	-0.05
Unsure	0.29	0.30	0.30	0.00
Do you know what you are going to do after the end of... ...compulsory education?				
Very sure	0.33	0.33	0.33	0.00
Rather sure	0.26	0.27	0.27	0.00
Unsure	0.24	0.24	0.25	-0.01
What do you think you will do after compulsory school?				
Start to work	0.07	0.10	0.05	0.05
Start High School	0.65	0.63	0.70	-0.07
Socio-Economic Status				
SES 1 - Higher civil servants, senior salaried employees, ...senior management, and independent professionals	0.16	0.16	0.16	0.00
SES 2 - Lower and intermediate non-manual employees... ...and self-employed individuals	0.42	0.43	0.42	0.01
SES 3 - Skilled and non-skilled workers in goods and services	0.35	0.35	0.37	-0.02
N	9,419	4,511	4,257	

Table 3: Descriptive Statistics, Swedish sample (ALL)

	All	Men	Women	Difference
9th Grade Choices & GPA				
Adv. Math & English	0.49	0.47	0.51	-0.04
Adv. Math	0.05	0.07	0.04	0.03
Adv. English	0.17	0.13	0.21	-0.08
Standardized GPA (9th)	-0.01	-0.20	0.19	-0.39
	(1.00)	(0.99)	(0.96)	
Standardized Math grade (9th)	0.00	-0.05	0.04	-0.09
	(1.00)	(1.02)	(0.97)	
Above median math grade and GPA	0.27	0.24	0.30	-0.06
Above median math, below median GPA	0.08	0.10	0.06	0.04
Above median GPA, below median math	0.21	0.16	0.27	-0.11
HS Track Choices & GPA				
Academic STEM	0.16	0.20	0.11	0.09
Academic SocSci	0.21	0.15	0.28	-0.13
Academic Hum	0.06	0.04	0.08	-0.04
Vocational	0.39	0.42	0.37	0.05
No High School	0.18	0.19	0.17	0.02
Standardized GPA (HS)	-0.02	-0.17	0.13	-0.30
	(0.99)	(1.00)	(0.96)	
College				
Any College Degree	0.30	0.22	0.38	-0.16
Economics	0.00	0.00	0.00	0.00
Bus/Law/SocSci	0.07	0.05	0.09	-0.04
Eng/Math/Sci	0.09	0.11	0.06	0.05
Health Sci	0.06	0.02	0.11	-0.09
Educ/Hum/Arts	0.07	0.03	0.12	-0.09
N	973,068	498,514	474,554	

3.2 Gelbach Decompositions

This section provides detailed Gelbach (2016) decompositions of the gender gap (men - women) for various education choices and outcomes. These extend the results from Table 1 in the main paper and include decompositions for a richer set of choices and outcomes than what is included in the main text.

Table 4: Gelbach Decomposition of Gender Differences: Test Scores

	7-8th Grade			3rd-6th Grade	
	MAP Math	MAP Reading	GPA	Math	Language
Gender diff. ($\overline{Y}_M - \overline{Y}_W$)					
Base	-4.21	-18.16	-40.61	2.22	-16.29
	(5.15)	(5.08)	(4.21)	(2.14)	(2.11)
Full	3.17	-5.72	-30.58	3.84	-4.48
	(4.98)	(4.83)	(3.97)	(2.01)	(2.16)
Avg. outcome, Women ($\overline{Y}_W$)	21.97	21.95	305.81	0.14	9.40
	(3.69)	(3.65)	(3.02)	(1.53)	(1.52)
Gelbach Decomposition					
Socio-Emotional	-4.85	-4.72	-5.77	1.07	0.86
	(2.32)	(2.33)	(2.44)	(0.90)	(0.96)
Investments	-8.13	-7.92	-4.83	-3.10	-3.69
	(2.22)	(2.06)	(1.47)	(0.95)	(0.98)
Preferences	3.56	-2.31	1.07	0.30	-9.32
	(2.04)	(1.85)	(1.30)	(1.28)	(1.17)
SES/Race/Ethnic	2.16	2.38	-0.16	0.18	0.17
	(1.04)	(1.07)	(0.97)	(0.24)	(0.25)
Location/School	-0.12	0.13	-0.34	-0.07	0.16
	(0.35)	(0.77)	(0.89)	(0.23)	(0.20)
UProg	✓	✓	✓		
ETF72				✓	✓

Notes: The top part of this table shows the gender difference in selected outcomes in a linear regression model with no controls ("Base") and the full set of explanatory variables ("Full"). The bottom part of the table shows the Gelbach (2016) decomposition for groups of pre-determined variables. The Gelbach decomposition uses the omitted variables bias formula to perform a conditional decomposition for the role of different groups of controls on a parameter of interest. The columns refer to the following outcomes: In the 7-8th grade section, "MAP Math" refers to the average of all MAP scores for math skills in 7-8th grade, "MAP Reading" refers to the average of all MAP scores for reading skills in 7-8th grade, and "GPA" is the average of grades in 7-8th grade. In the 3rd-6th grade section, "Math" refers to the average of the standardized national math test scores from 3rd and 6th grade, and "Language" refers to the average of the standardized national language test scores from 3rd and 6th grade. All numbers are multiplied by 100 to be percentages.

Table 5: Gelbach Decomposition of Gender Differences: Advanced Course Choices

	7th Grade			7-8th Grade			9th Grade		
	Math & Engl	Math	Engl	Math & Engl	Math	Engl	Math & Engl	Math	Engl
Gender diff. ($\overline{Y}_M - \overline{Y}_W$)									
Base	-6.52	4.85	-4.23	-5.57	-2.42	-2.50	-5.42	-1.11	-14.21
	(1.04)	(0.56)	(0.65)	(1.81)	(1.07)	(1.57)	(1.08)	(1.08)	(1.01)
Full	-4.40	1.98	-2.68	-0.64	-2.54	-1.13	-0.75	0.80	-5.24
	(0.99)	(0.65)	(0.71)	(1.84)	(1.22)	(1.71)	(0.95)	(0.95)	(0.85)
Avg. outcome, Women ($\overline{Y}_W$)	66.31	4.82	12.21	13.68	4.74	9.12	53.25	57.69	74.65
	(0.75)	(0.40)	(0.47)	(1.30)	(0.77)	(1.13)	(0.77)	(0.77)	(0.72)
Gelbach Decomposition									
Early TS	-0.98	0.53	-0.25	-1.27	-0.13	-1.89	-0.65	-0.40	-0.98
	(0.36)	(0.09)	(0.10)	(0.79)	(0.25)	(0.53)	(0.35)	(0.35)	(0.26)
Socio-Emotional	-0.29	0.24	0.22	-1.43	0.57	0.46	-1.54	-1.23	-0.71
	(0.42)	(0.27)	(0.29)	(0.73)	(0.47)	(0.67)	(0.40)	(0.39)	(0.35)
Investments	-0.35	0.46	0.72	-1.59	-0.35	-0.22	-0.68	-0.92	-0.08
	(0.42)	(0.28)	(0.30)	(0.67)	(0.41)	(0.58)	(0.40)	(0.40)	(0.37)
Preferences	-0.74	1.68	-2.42	-0.94	0.34	-0.12	0.04	1.36	-2.33
	(0.44)	(0.23)	(0.25)	(0.50)	(0.35)	(0.46)	(0.34)	(0.33)	(0.31)
SES/Race/Ethnic	0.06	-0.02	0.01	-0.07	-0.41	0.41	0.08	0.07	0.05
	(0.08)	(0.03)	(0.03)	(0.29)	(0.18)	(0.27)	(0.13)	(0.12)	(0.08)
Location/School	0.17	-0.02	0.18	0.36	0.11	-0.01	0.08	0.11	-0.13
	(0.27)	(0.06)	(0.21)	(0.31)	(0.14)	(0.18)	(0.15)	(0.19)	(0.13)
7th grade choices							-2.00	-0.91	-4.79
							(0.39)	(0.39)	(0.48)
UProg				✓	✓	✓			
ETF72	✓	✓	✓				✓	✓	✓

Notes: The top part of this table shows the gender difference in selected outcomes in a linear regression model with no controls ("Base") and the full set of explanatory variables ("Full"). The bottom part of the table shows the Gelbach (2016) decomposition for groups of pre-determined variables. The Gelbach decomposition uses the omitted variables bias formula to perform a conditional decomposition for the role of different groups of controls on a parameter of interest. The columns refer to the following outcomes: "Math & Engl" refers to the probability of taking both advanced Math and English, "Math" refers to the probability of taking only advanced Math, and "Engl" refers to the probability of taking only advanced English, in each respective section. All numbers are multiplied by 100 to be percentages.

Table 6: Gelbach Decomposition of Gender Differences: High School Track

	Humanities		Social Science		STEM	
	Uncond	Cond	Uncond	Cond	Uncond	Cond
Gender diff. ($\overline{Y}_M - \overline{Y}_W$)						
Base	-4.25	-9.88	-14.07	-29.71	13.46	39.59
	(0.47)	(1.15)	(1.09)	(2.15)	(1.06)	(2.05)
Full	-2.27	-5.91	-9.07	-24.65	15.73	30.55
	(0.61)	(1.53)	(1.31)	(2.74)	(1.12)	(2.48)
Avg. outcome, Women ($\overline{Y}_W$)	5.04	12.01	26.22	62.44	10.73	25.55
	(0.33)	(0.79)	(0.78)	(1.48)	(0.75)	(1.41)
Gelbach Decomposition						
Early TS	-0.01	0.09	-0.13	-0.94	0.02	0.85
	(0.05)	(0.22)	(0.14)	(0.43)	(0.11)	(0.39)
Socio-Emotional	0.23	0.82	-0.24	-1.71	0.05	0.89
	(0.24)	(0.73)	(0.51)	(1.17)	(0.44)	(0.95)
Investments	-0.40	-0.56	-0.24	0.70	-0.35	-0.14
	(0.24)	(0.65)	(0.54)	(1.17)	(0.45)	(1.05)
Preferences	-0.37	-1.00	-0.28	-2.15	1.34	3.14
	(0.19)	(0.65)	(0.40)	(1.10)	(0.36)	(0.92)
SES/Race/Ethnic	0.03	0.08	0.13	-0.30	0.07	0.22
	(0.02)	(0.09)	(0.07)	(0.18)	(0.09)	(0.15)
Location/School	0.05	0.28	-0.10	-0.30	-0.05	0.01
	(0.06)	(0.24)	(0.16)	(0.44)	(0.12)	(0.38)
7th grade choices	0.07	-0.02	0.29	0.03	0.10	-0.01
	(0.08)	(0.13)	(0.17)	(0.24)	(0.16)	(0.23)
9th grade choices	-0.06	-0.84	-0.73	-0.75	-0.38	1.60
	(0.11)	(0.29)	(0.30)	(0.39)	(0.29)	(0.50)
9th grade TS & GPA	-1.53	-2.81	-3.70	0.35	-3.08	2.46
	(0.25)	(0.69)	(0.58)	(1.29)	(0.62)	(1.28)
ETF72	✓	✓	✓	✓	✓	✓

Notes: The top part of this table shows the gender difference in selected outcomes in a linear regression model with no controls ("Base") and the full set of explanatory variables ("Full"). The bottom part of the table shows the Gelbach (2016) decomposition for groups of pre-determined variables. The Gelbach decomposition uses the omitted variables bias formula to perform a conditional decomposition for the role of different groups of controls on a parameter of interest. The columns refer to the following outcomes: "Humanities" refers to the probability of taking the academic humanities track in high school, "Social Science" refers to the probability of taking the academic social science track in high school, and "STEM" refers to the probability of taking the academic STEM track in high school. The columns labeled "Cond" refer to the same respective probabilities, conditional on enrolling in an academic high school. All numbers are multiplied by 100 to be percentages.

Table 7: Gelbach Decomposition of Gender Differences: Economics in College

	College (Long)		Econ Major		Econ Major (Long)			
	Uncond	College	Uncond	College	Uncond	College	Long College	Econ Major
Gender diff. ($\overline{Y}_M - \overline{Y}_W$)								
Base	-5.15	11.85	0.10	0.95	0.04	0.54	0.69	-6.68
	(0.07)	(0.19)	(0.01)	(0.04)	(0.01)	(0.03)	(0.06)	(1.75)
Full	-2.23	9.28	0.21	1.08	0.13	0.66	0.92	-2.36
	(0.07)	(0.20)	(0.01)	(0.04)	(0.01)	(0.03)	(0.06)	(1.83)
Avg. outcome, Women ($\overline{Y}_W$)	18.72	49.49	0.27	0.71	0.19	0.49	0.99	68.72
	(0.05)	(0.12)	(0.01)	(0.02)	(0.01)	(0.02)	(0.04)	(1.34)
Gelbach Decomposition								
9th grade choices	0.08	-0.02	0.00	0.04	0.00	0.02	0.04	0.13
	(0.01)	(0.03)	(0.002)	(0.01)	(0.001)	(0.01)	(0.01)	(0.14)
9th grade TS & GPA	-2.32	-0.20	-0.05	0.02	-0.04	-0.004	-0.002	-3.44
	(0.03)	(0.04)	(0.004)	(0.01)	(0.003)	(0.01)	(0.01)	(0.62)
HS choice	0.40	3.25	-0.05	-0.18	-0.03	-0.12	-0.25	-0.24
	(0.02)	(0.07)	(0.002)	(0.01)	(0.001)	(0.01)	(0.02)	(0.29)
HS GPA	-1.07	-0.47	-0.02	-0.01	-0.01	-0.01	-0.01	-0.76
	(0.01)	(0.03)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.24)
ALL	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The top part of this table shows the gender difference in selected outcomes in a linear regression model with no controls ("Base") and the full set of explanatory variables ("Full"). The bottom part of the table shows the Gelbach (2016) decomposition for groups of pre-determined variables. The Gelbach decomposition uses the omitted variables bias formula to perform a conditional decomposition for the role of different groups of controls on a parameter of interest. The columns refer to the following outcomes: "College Long" refers to the probability of attaining any 4-year college degree, "Econ Major" refers to the probability of having a college degree in Economics, and "Econ Major (Long)" refers to the probability of having a 4-year college degree in Economics. The columns labeled "College" refer to the same respective probabilities, conditional on having a college degree. The column labeled "Long College" refers to the same respective probability, conditional on having a 4-year college degree. The column labeled "Econ Major" refers to the same respective probability, conditional on having a college degree in Economics.

Table 8: Gelbach Decomposition of Gender Differences: STEM in College

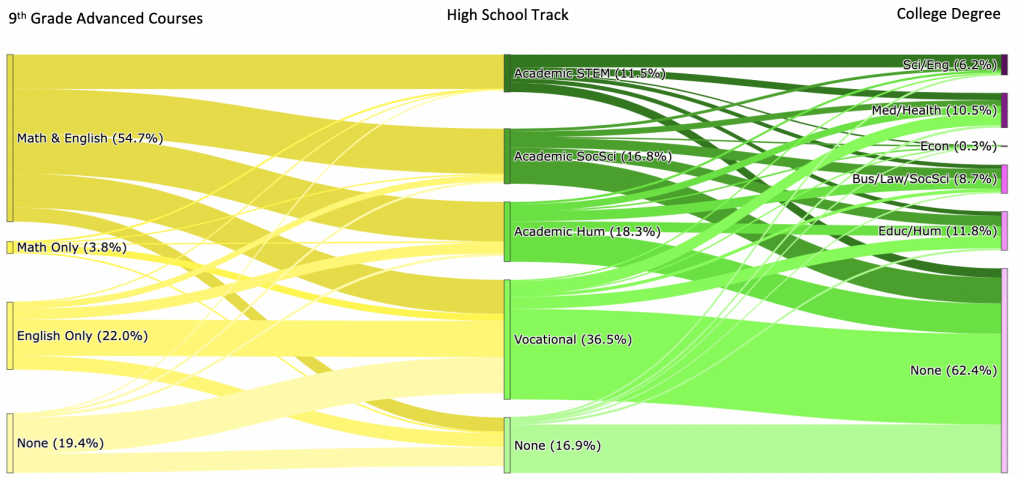
	STEM Major		STEM Major (Long)		
	Uncond	College	Uncond	College	Long College
Gender diff. ($\overline{Y}_M - \overline{Y}_W$)					
Base	5.21	35.30	2.64	20.00	28.18
	(0.06)	(0.16)	(0.05)	(0.15)	(0.23)
Full	3.76	22.57	1.75	10.95	14.73
	(0.06)	(0.16)	(0.04)	(0.14)	(0.22)
Avg. outcome, Women ($\overline{Y}_W$)	6.27	16.57	4.29	11.35	22.94
	(0.04)	(0.10)	(0.03)	(0.09)	(0.15)
Gelbach Decomposition					
9th grade choices	0.08	1.24	0.09	0.51	1.08
	(0.01)	(0.03)	(0.01)	(0.02)	(0.04)
9th grade TS & GPA	-0.46	1.51	-0.45	0.90	1.91
	(0.02)	(0.04)	(0.02)	(0.03)	(0.05)
HS choice	2.32	9.97	1.75	7.85	10.40
	(0.02)	(0.08)	(0.02)	(0.07)	(0.12)
HS GPA	-0.49	0.00	-0.48	-0.21	0.05
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
ALL	✓	✓	✓	✓	✓

Notes: The top part of this table shows the gender difference in selected outcomes in a linear regression model with no controls ("Base") and the full set of explanatory variables ("Full"). The bottom part of the table shows the Gelbach (2016) decomposition for groups of pre-determined variables. The Gelbach decomposition uses the omitted variables bias formula to perform a conditional decomposition for the role of different groups of controls on a parameter of interest. The columns refer to the following outcomes: "STEM Major" refers to the probability of having a college major in Engineering, Math, or Science, and "STEM Major (Long)" refers to the probability of having a 4-year college degree in Engineering, Math, or Science. The columns labeled "College" refer to the same respective probabilities, conditional on attaining a college degree. The column labeled "Long College" refers to the same respective probability, conditional on attaining a 4-year college degree.

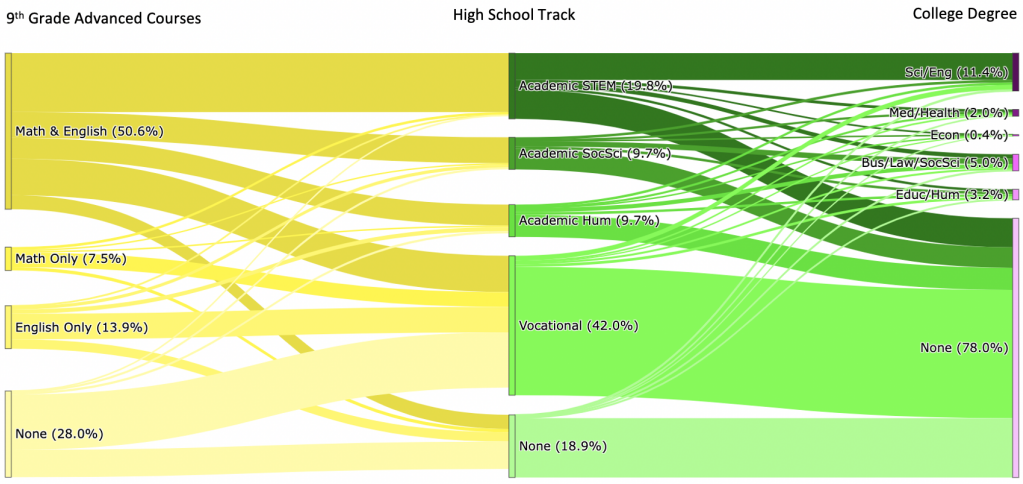
4 Supplementary Figures

4.1 Investment Difference

Figure 1: Pathways from 9th Grade to College



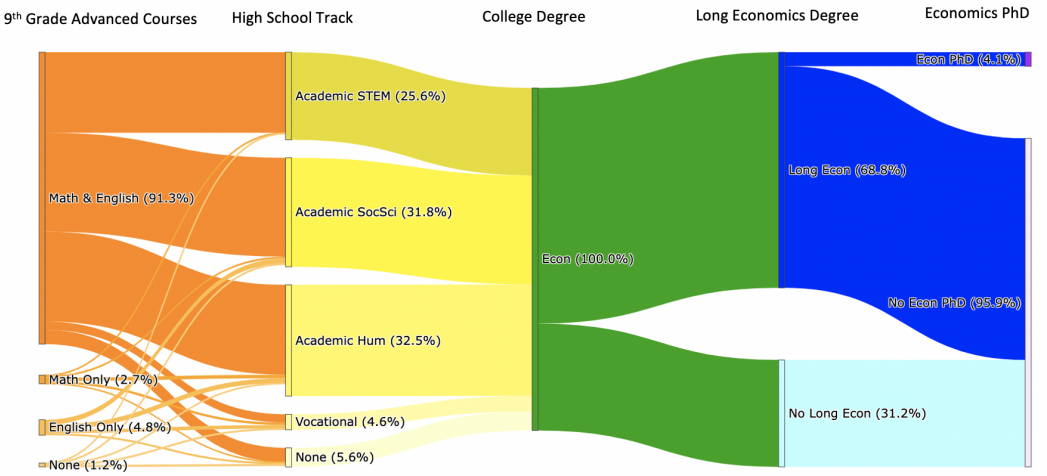
(a) Women, Sweden



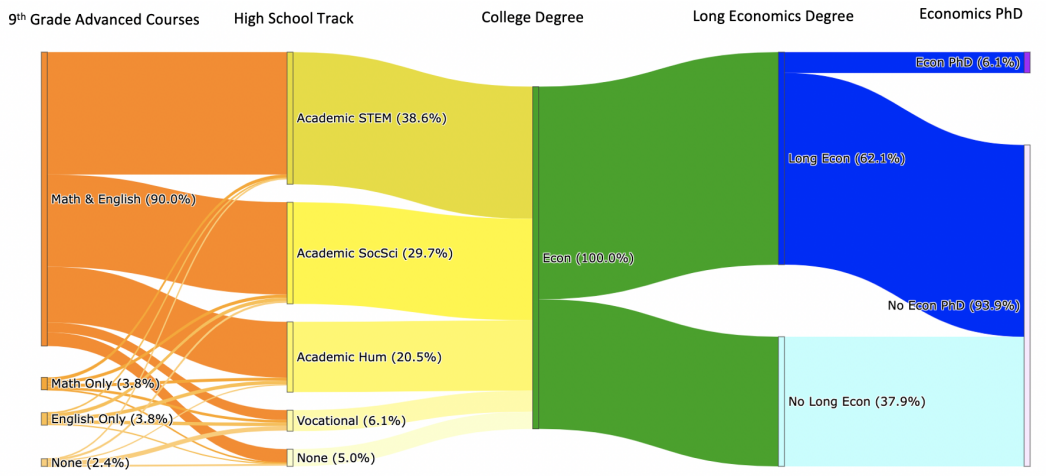
(b) Men, Sweden

Notes: Figure shows a education flows and proportions from 9th grade advanced courses, high school track, and college degrees for women (a) and men (b).

Figure 2: Pathways of Economics College Graduates



(a) Women, Sweden



(b) Men, Sweden

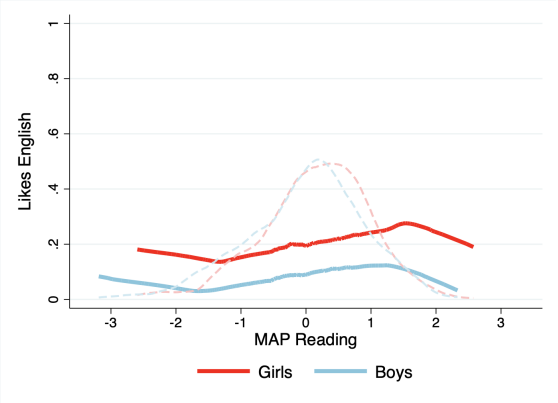
Notes: Figure shows a education proportions and flows for women (a) and men (b) who major in economics in college at various points in the education pipeline: 9th grade advanced course choices, high school track, college degree (all economics by construction), if they obtained a 4 to 5 year "long" college degree or not, and if they went on to obtain an economics PhD.

4.2 Preference and Belief Difference

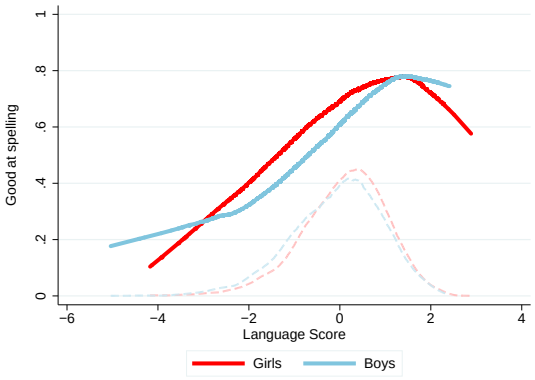
This subsection provides additional comparisons of preferences and beliefs for girls and boys from the U.S. UProg and Swedish ETF72 samples. First, Figure 3 is the language equivalent to Figure 1 in the main text as it plots preference differences for "Likes English", "Good at spelling", "Finds reading Easy", and "Not bad at reading" against their relevant test scores for girls and boys. Girls are much more likely to report liking English at every point at the reading test score distribution. They are also somewhat more likely to report that they are good at spelling and find reading easy.

Second, Figure 4 reports evaluations based on an external point of view. For example, they are asked "Do you think that your teacher thinks that you are good at math?". Interestingly, no gaps exist between girls and boys in this measure.

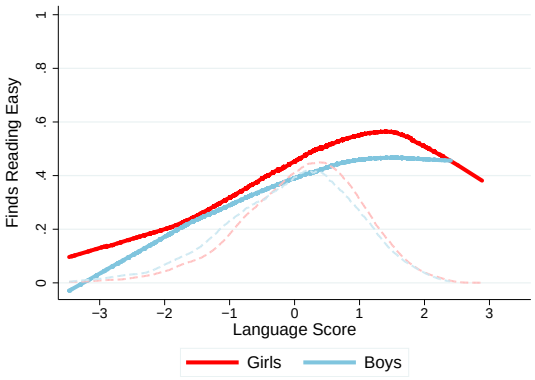
Figure 3: Language Preferences over the Language Test Scores Distribution



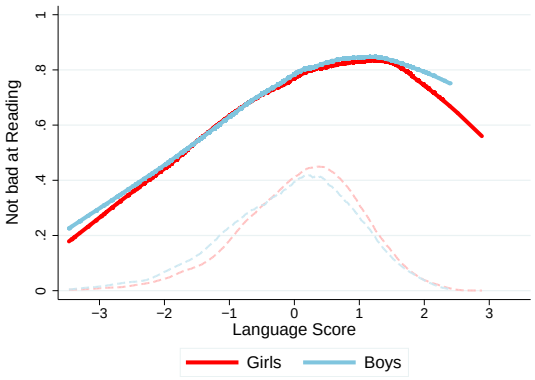
(a) UProg: Like English



(b) ETF72: Good at spelling



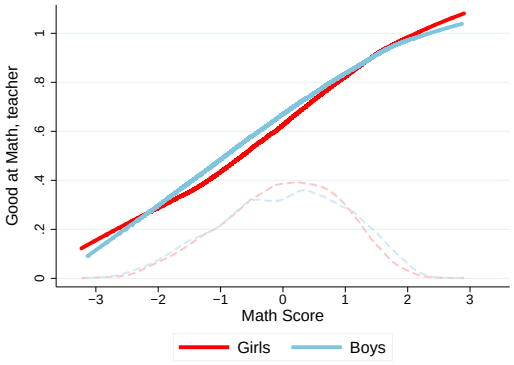
(c) ETF72: Reading easy



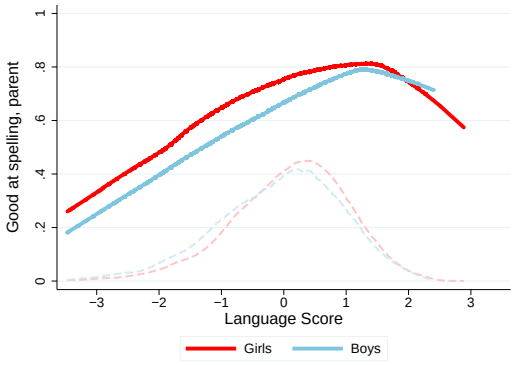
(d) ETF72: Not bad at reading

Notes: This figure shows the fraction of students responding that English is their favorite subject ("Like English"), that they are good at spelling ("Good at spelling"), that they find reading easy ("Reading easy"), and that they are not bad at reading ("Not bad at reading") over the distribution of early language ability. In panel (a), language ability is measured by the standardized Measures of Academic Progress (MAP) Reading test score using the UProg data. In panels (b), (c), and (d), language ability is measured by the standardized average of the total points on the two language aptitude tests in 3rd grade (reading and verbal opposite ability) and the reading ability test in 6th grade using the ETF72 data. The blue lines refer to boys and the red lines refer to girls. Solid lines trace average preferences by test score, while dashed lines trace the test score distributions.

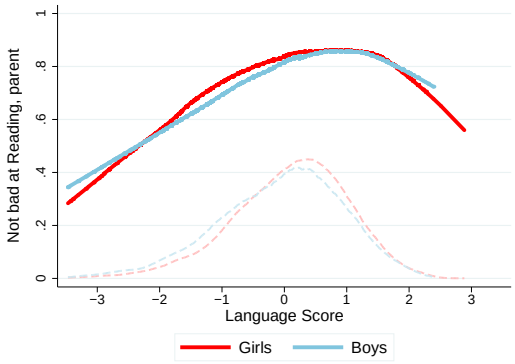
Figure 4: External point of view Math and Language Ability Beliefs.



(a) ETF72: Good at math, teacher



(b) ETF72: Good at spelling, parent



(c) ETF72: Not bad at reading, parent

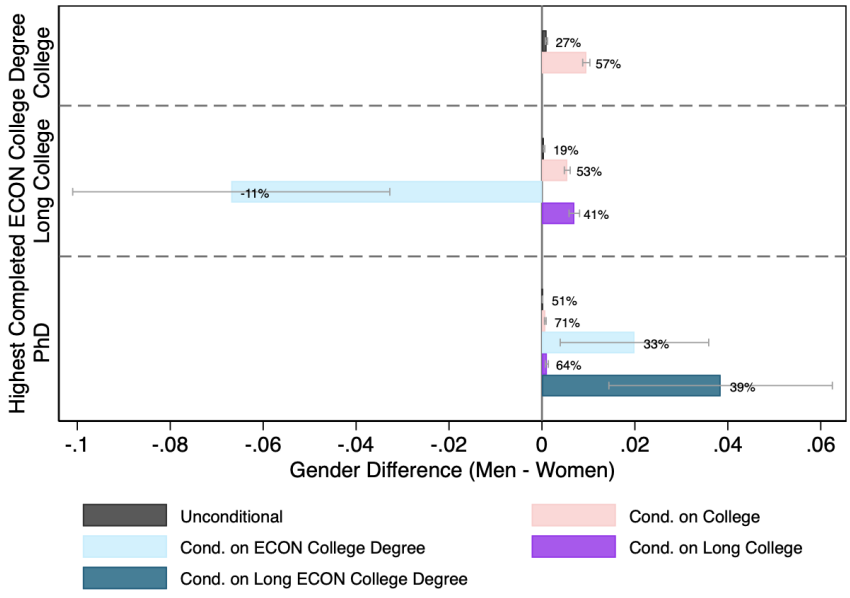
Notes: This figure shows the fraction of students responding "YES" to the question "Do you think that your teacher thinks that you are good at math?" in panel (a) and "Do you think that your parents think that you are good at spelling?" in panel (b), and responding "NO' to the question 'Do you think that your parents think that you are bad at reading?" in panel (c). Early math test scores in panel (a) are the standardized average of the total points on the two math aptitude tests in 3rd grade (spatial and mathematical ability) and the three math aptitude tests in 6th grade (inductive, spatial, and mathematical ability tasks 1-19). Early language test scores in panels (b) and (c) are the standardized average of the total points on the two language aptitude tests in 3rd grade (reading and verbal opposite ability) and the reading ability test in 6th grade. The blue lines refer to boys and the red lines refer to girls. Solid lines trace average preferences by test score, while dashed lines trace the test score distributions. Data source: ETF72 data.

4.3 Pipeline into STEM and Economics Education

This subsection provides three additional results on the pipeline into economics and STEM education. The first set of figures report raw and conditional gender gaps (men - women) in various education choices and outcomes. Figure 5 shows the gender gaps in the economics pipeline, Figure 6 shows the gaps in 9th grade choices through college majors, while Figure 15 shows the gaps in language and math test scores. The second set of Figures 8 and 9 show sorting into high school graduation, academic high school graduation, and high school tracks over time in Sweden.

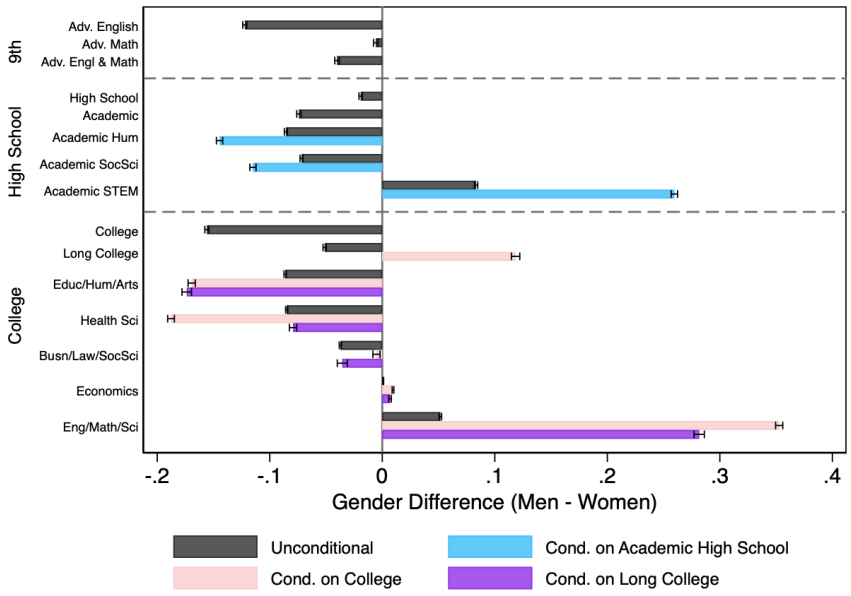
The final set of figures visualize results from the Gelbach decomposition of the gender gap (men - women) for the education choices and outcomes in Table 1 in the main text. The black bars show the raw gap, the grey bars show the regression-adjusted gap, and the colored bars show the proportion of the gaps explained by the various sets of variables available for the given choice or outcome.

Figure 5: Gender Differences in Economics Education Choices, Sweden



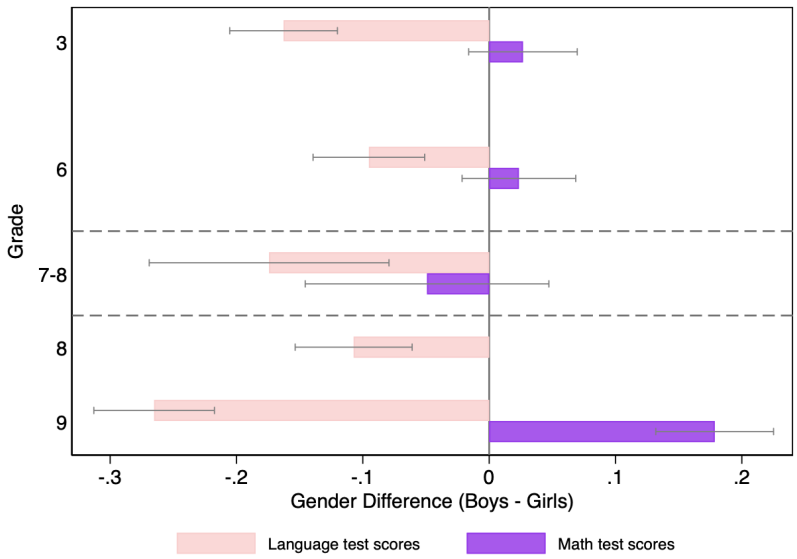
Notes: Figure shows the gender difference (men - women) in economics education choices. Different colored bars show the gap when conditioning on various prior education choices.

Figure 6: Gender Differences in Education Choices, Sweden



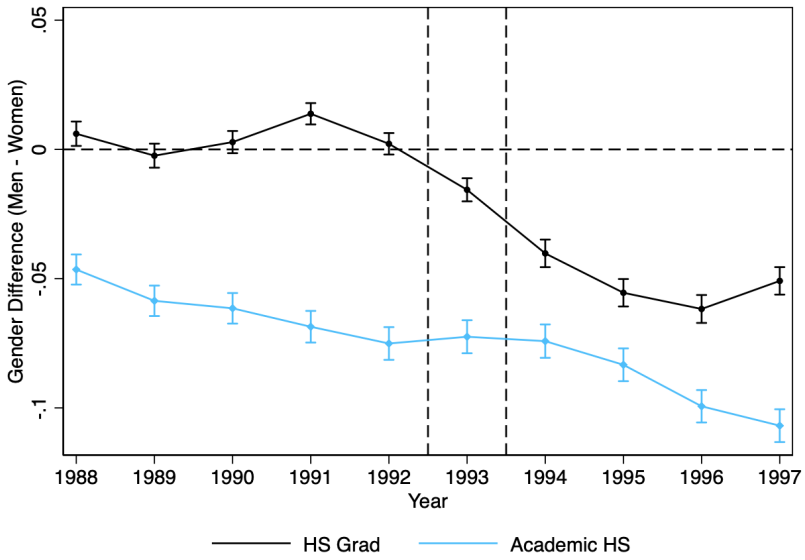
Notes: Figure shows the gender difference (men - women) in education choices in 9th grade, high school, and college. Different colored bars show the gap when conditioning on various prior education choices.

Figure 7: Gender Differences in Math and Language Test Scores, Sweden



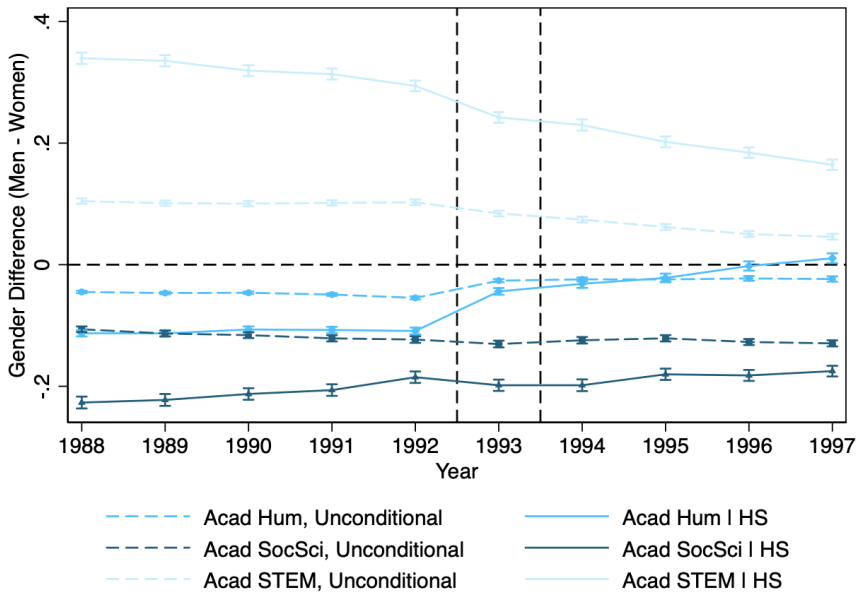
Notes: Figure shows the gender gap (boys - girls) in math and language test scores by grade. Grades 3, 6, 8, and 9 are from Swedish data, while grades 7-8 are from UProg data.

Figure 8: Gender Differences in High School Graduation over time, Sweden



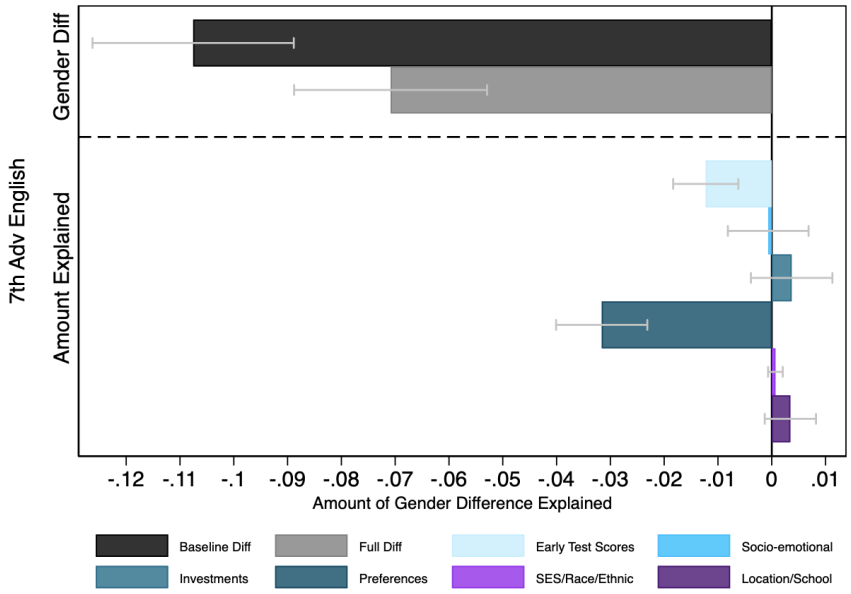
Notes: Figure shows trends in the gender difference (men - women) in high school graduation rates in Sweden over time. The black line shows the gap in high school graduation. The blue line shows the gap in graduating with an academic high school degree.

Figure 9: Gender Differences in Academic High School Tracks over time, Sweden



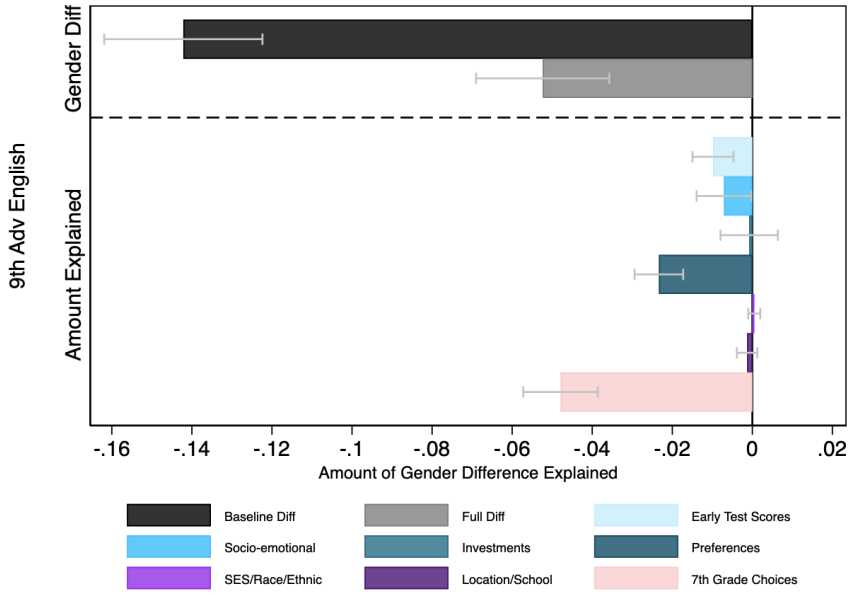
Notes: Figure shows trends in the gender difference (men - women) in high school track choices in Sweden over time. Dashed lines show unconditional gaps, while solid lines show gaps conditional on attaining an academic high school degree.

Figure 10: 7th Grade English



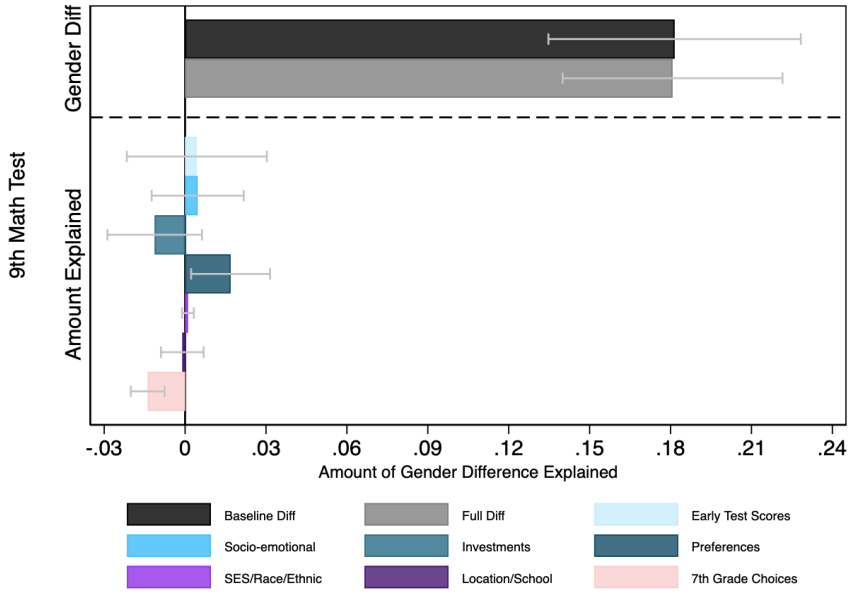
Notes: Figure visualizes the Gelbach decomposition for of the gender gap (men - women) taking advanced English in 7th grade in Sweden; column (i) in Table 1 in the paper.

Figure 11: 9th Grade English



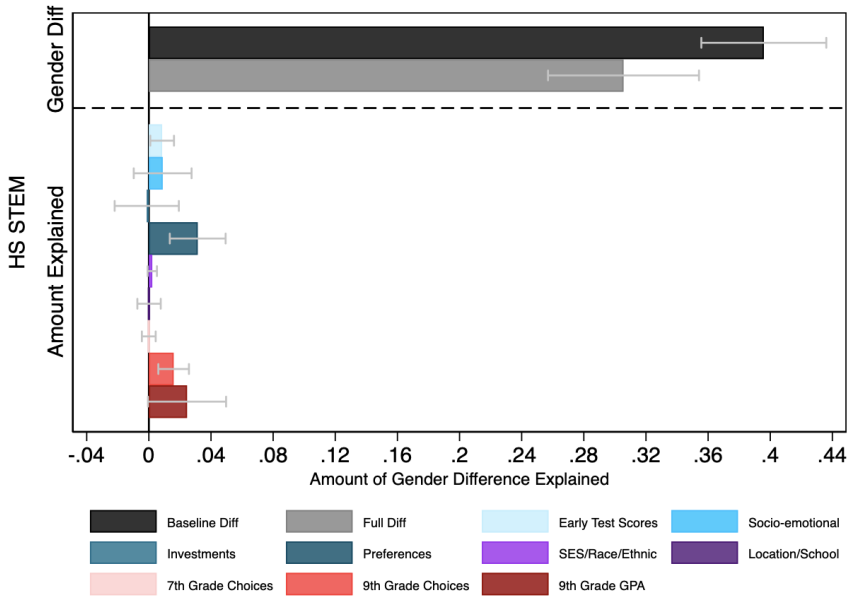
Notes: Figure visualizes the Gelbach decomposition of the gender gap (men - women) for taking advanced English in 9th grade in Sweden; column (ii) in Table 1 in the paper.

Figure 12: 9th Grade Math Tests



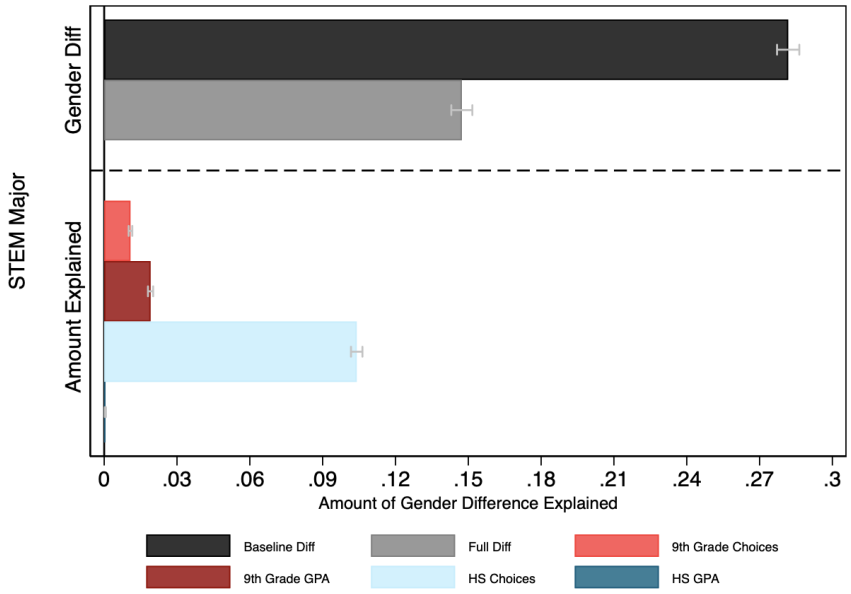
Notes: Figure visualizes the Gelbach decomposition of the gender gap (men - women) for taking advanced math in 9th grade in Sweden; column (iii) in Table 1 in the paper.

Figure 13: HS STEM, conditional on Academic HS



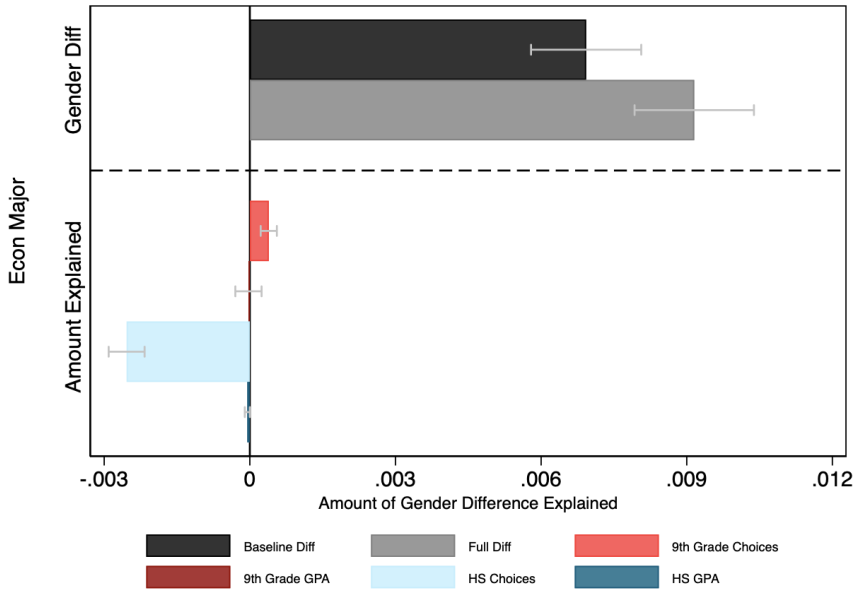
Notes: Figure visualizes the Gelbach decomposition of the gender gap (men - women) for choosing the STEM track in high school conditional on choosing an academic track; column (iv) in Table 1 in the paper.

Figure 14: STEM Degree, conditional on attaining a college degree



Notes: Figure visualizes the Gelbach decomposition of the gender gap (men - women) for majoring in STEM conditional on graduating from college; column (v) in Table 1 in the paper.

Figure 15: ECON Degree, conditional on attaining a college degree



Notes: Figure visualizes the Gelbach decomposition of the gender gap (men - women) for majoring in economics conditional on graduating from college; column (vi) in Table 1 in the paper.

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