

# The Structure, Causes, and Consequences of Tracking in the Danish Education System

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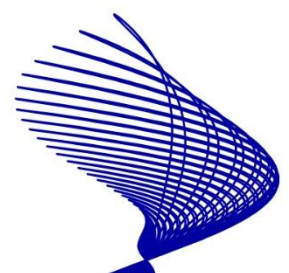
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# The Structure, Causes, and Consequences of Tracking in the Danish Education System

*Jesper Fels Birkelund<sup>1</sup>, Kristian Bernt Karlson<sup>2</sup> and David Reimer<sup>3</sup>*

## Abstract

This report provides an overview over the institutional configuration of the Danish educational system and its development over time with a focus on inequalities in educational attainment. We draw on population data from Danish administrative registers and we describe the development of educational attainment including track choices and field of study specializations for individuals born from 1960-1986. This cohort range was chosen in light of relevant institutional reforms of the Danish school system that led to changes in between- or within-school tracking. However, the bulk of our analyses that provide a detailed picture of tracking and tracking consequences, are based on the 1975 cohort. The first chapter provides a description of the basic structure of the Danish educational system and highlights some of the major educational reforms. In chapter two, we follow the historical development of educational attainment. Chapter three describes the flow of individuals (born in 1975) through the educational system. Chapter four analyses the long-term consequences associated with track choices. Finally, in chapter five some basic decomposition analyses are presented that help us to explain to what extent the association between social origin and the attainment tertiary degrees or labor market outcomes is mediated by prior track choices.

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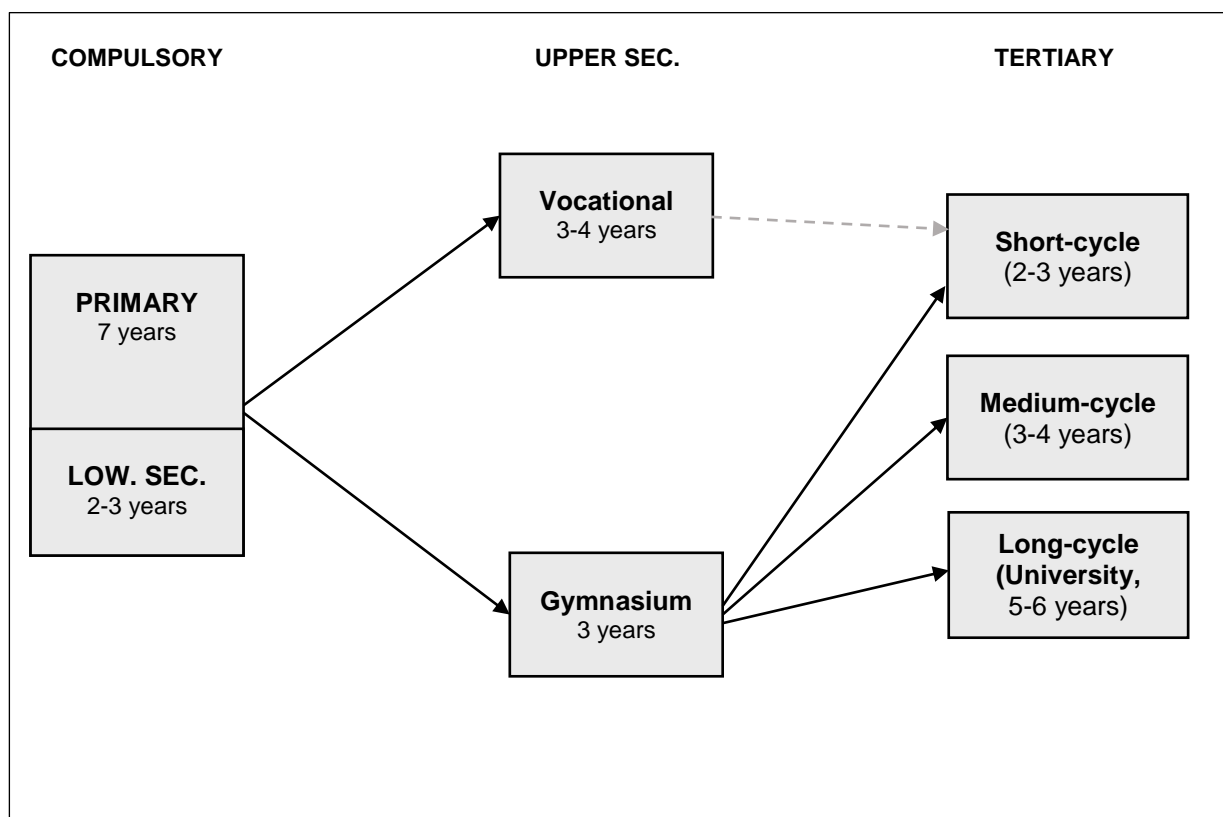
# Introduction

This report provides an overview over the institutional configuration of the Danish educational system and its development over time with a focus on inequalities in educational attainment. Numerous studies have addressed issues of educational inequality for the Danish country case, but not many analyze comprehensively the role of tracking or track choices for the generation of inequality (but see Holm et al. 2013; Holm and Jæger 2013; Jæger, Munk, and Ploug 2003; Thomsen and Andrade 2016; Wahler, Buchholz, and Møllegaard 2016). Drawing on population data from Danish administrative registers, we describe educational attainment including track choices and field of study specializations for individuals born from 1960-1986. This cohort range was chosen in light of relevant institutional reforms of the Danish school system that led to changes in between- or within-school tracking. However, the bulk of our analyses that provide a detailed picture of tracking and tracking consequences, are based on the 1975 cohort. The report proceeds as follows: Chapter one provides a description of the basic structure of the Danish educational system and highlights some of the major educational reforms. In chapter two, we follow the historical development of educational attainment. Chapter three describes the flow of individuals (born in 1975) through the educational system. Chapter four analyses the long-term consequences associated with track choices. Finally, in chapter five we present some basic decomposition analyses that help us to explain to what extent the association between social origin and the attainment tertiary degrees or labor market outcomes is mediated by prior track choices.

## 1. Basic structure and reforms of the Danish educational system

Despite a number of educational reforms over the past 50 years, the Danish educational system has retained the same basic structure (see figure 1.1 below). Upon completing primary and lower secondary schooling, children can either leave the educational system and enter the labor market, or select into one of two different upper secondary tracks. The first is three to four year apprenticeship-based vocational training, which is a mixture of on-the-job training at a company and formal schooling at upper secondary vocational schools. The second is the academic track known as the “Gymnasium” which also takes three years to complete. Completing the Gymnasium leads to eligibility for higher education. The Gymnasium is tracked in complex ways, comprising both within- and between-school tracking, and the complexity has increased over time as the Gymnasium curriculum has become increasingly differentiated (Danmarks Evalueringsinstitut (EVA) 2018). Upon completing the Gymnasium, students can enroll in higher education, which comes in three more or less hierarchically ordered types: Short-cycle higher education offered mostly at University Colleges of 2-3 years duration, medium-cycle higher education of 3-4 years duration, and long cycle higher education offered mostly at Universities with a duration of 5-6 years. Higher education is

differentiated into many different fields, and this differentiation has also increased over time as higher education has been expanding.



**Figure 1.1.** The overall structure of the Danish educational system

## Historical overview of reforms

Before 1958, the Danish educational system was divided into a rural educational system and an urban educational system. The rural system provided primary schooling, i.e., formally seven years of schooling, which was the minimum required years of schooling at the time. In addition to primary schooling, the urban system provided lower secondary schooling. Before 1958 in urban schools, students were tracked from grade five on into two overall tracks, either an advanced four-year program (*Eksamensmellemkole*) or a basic four-year program (*Fri mellemkole*). Upon completing the advanced track, students had the option to continue to academic upper secondary schools (*Gymnasium*) or to a one-year academic program (*Realklasse*). Upon completing the one-year academic program, students could choose to enroll in academic upper secondary schools.

The **1958 reform** is widely considered the most important educational reform in Denmark in the 20th century. The reform affected individuals born in 1942/43 and after. The reform consisted of three parts. First and most importantly, the rural and urban educational systems were unified. Rural schools were now required to offer lower secondary schooling in the same way as urban schools. Second, the tracking of students from grade five was abolished, meaning that both rural and urban schools now offered comprehensive primary schooling from grades one through seven. Third, lower secondary education (from grades eight through nine,

optionally 10) were divided into two overarching tracks: An advanced track (*Realskole*) and a basic track. Both tracks had a duration of two years, with students having the option of extending it by one year. Upon completing the advanced track, students were eligible to enroll in academic upper secondary schools (*Gymnasium*).

In **1966**, a two-year track was introduced in academic upper secondary education (*Højere Forberedelseseksamen, HF*) in addition to the traditional three-year track. Completing the track gave the equivalent of a regular Gymnasium degree, making students eligible for enrolling in higher education (typically medium-cycle higher education such as teacher colleges). The HF track, sometimes also called the “late-starter track”, has since its inception had the function as a pathway to eligibility to higher education for students who did not chose the traditional academic route.

The **1972 reform** increased the minimum required years of schooling from seven to nine years of schooling. Still, the reform had little overall impact on the overall educational level in Denmark, as most children at that point in time completed nine years of schooling.

The **1975 reform** abolished tracking in lower secondary schools, and instated what in Denmark is commonly referred to as the “undivided school” (*Enhedsskolen*). Our data shows that the first individuals affected by the reform were born 1962. Schools now offered a comprehensive and compulsory program from grades one through nine (optionally 10). However, in lower secondary education, schools were allowed to track students *within certain courses* into advanced classes (*Udvidet kursus*) and basic classes (*Grundkursus*). The within-course tracking occurred in mathematics, physics, and foreign language.

The **1987 reform** introduced electives at the *Gymnasium* (academic upper secondary education). Before the reform, students had to follow one of two overarching tracks: either a mathematics/science track or a language track. However, within those two tracks students could choose between three specializations, respectively.<sup>4</sup> While the reform retained the overarching tracks, it introduced a significant number of electives, including choosing between intermediate and advanced levels of a foreign language (typically German or English).

The **1993 reform** abolished the course-based tracking in lower secondary schools of the 1975 reform, and fully instated the “undivided school” in Denmark. All students now followed the same overall program from grades one through nine (optionally 10).

Apart from the 1987 reform, academic upper secondary education in Denmark, the Gymnasium, has also become increasingly differentiated. In 1995, the Gymnasium was fully divided into three three-year tracks with different specialization: the traditional *academic* track (STX), the mercantile track (HHX), and the technical track (HTX). In addition, the 2-year late-starter track, HF, founded in 1966, continues to exist. These tracks were typically offered (and still are) at different schools, meaning that upper secondary education is characterized by between-school tracking. The mercantile track has a very long legacy in Denmark in terms of post-compulsory mercantile schooling and training (its formal basis extends back to 1918). Until 1965, the mercantile track made students eligible for enrolling in business schools in

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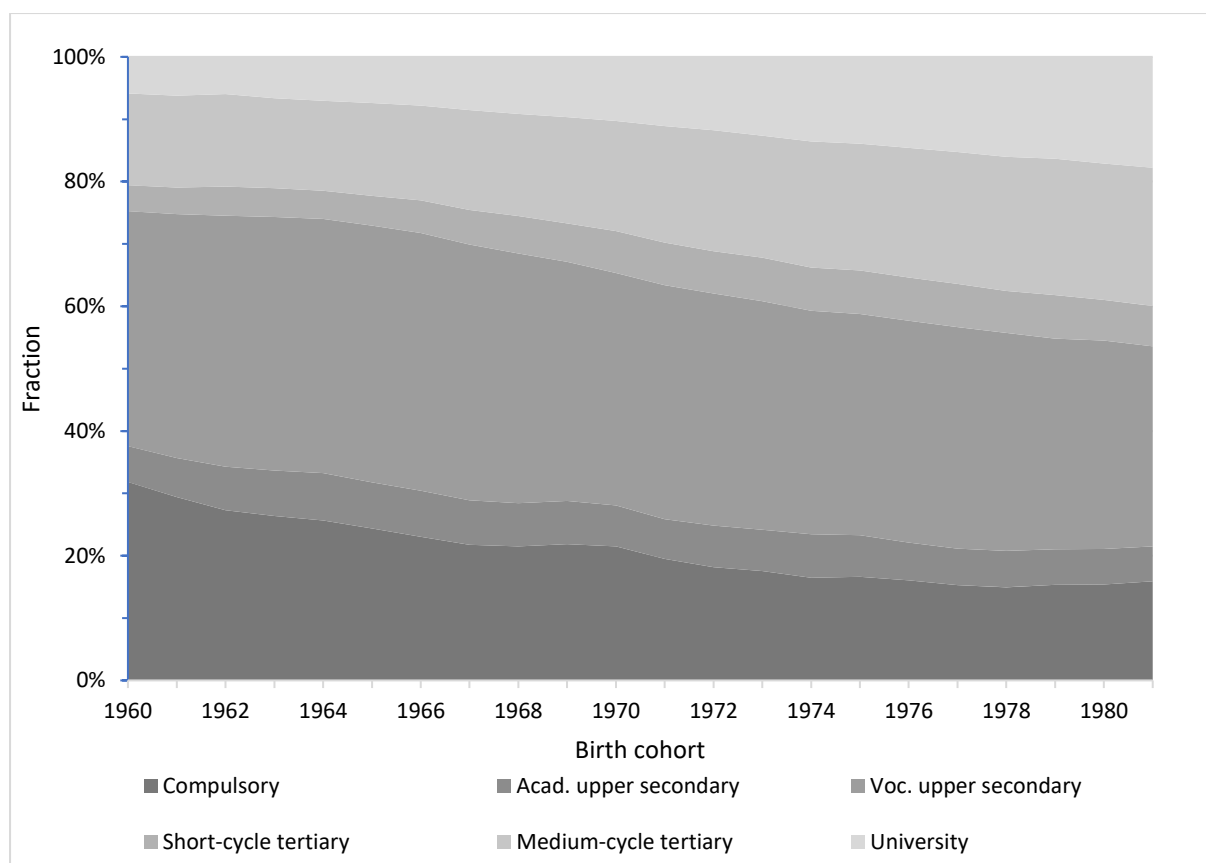
4 For the overarching language track: a modern languages track, a social science - language track or the classical languages track; for the overarching mathematics track: a mathematics-physics track, a social science - mathematics track or a hard sciences track.

higher education, but from then on, it increasingly made students eligible for enrolling in other university programs. However, only in 1995, the track became a full three-year Gymnasium track. The technical track goes back to 1982, when it was part of an experimental one-year program preparing students for engineering studies in higher education. In 1987, the technical track became a formal upper secondary program, which made students eligible for enrolling engineering studies in higher education or other selected fields of higher education. Only in 1995 the track became a full-fledged three-year Gymnasium track.

In 2005, academic upper secondary education was significantly reformed in three ways. First and most significantly, the overarching two-track structure (i.e., mathematics/physics or language) in the traditional *academic* track was replaced by a much more choice-based and school-specific configuration of courses. Although these configurations typically cluster into four overall *de facto* tracks (social science, science, language, and arts), there is a lot of heterogeneity in that schools had a large degree of discretion in terms of implementing the reform. Second, the structure of the three overall Gymnasium tracks – STX, HHX, and HTX – was unified into one structure (with an introductory program). Third, the three overall Gymnasium tracks were equalized in terms of making students eligible for enrolling in higher education. While the 2005 reform is considered a major reform of upper secondary schools in Denmark, it does not affect the cohorts that we are able to analyze here (it affects cohorts born from 1988 and onwards).

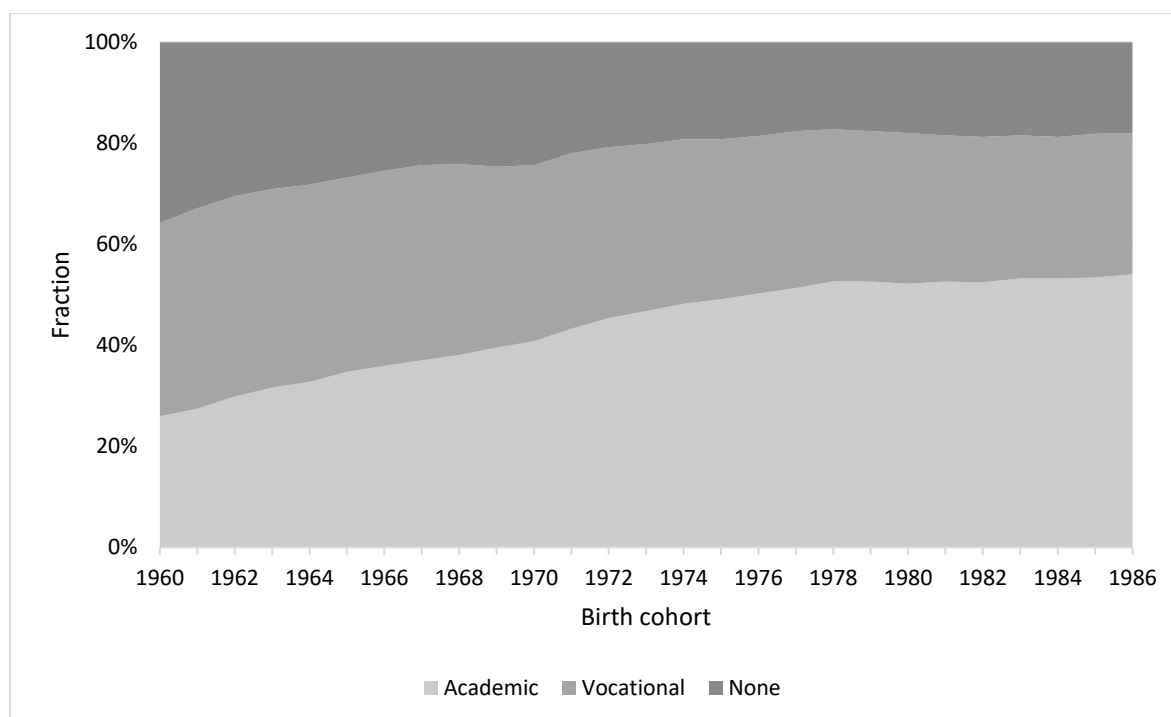
## 2. Trends in educational attainment

To begin with, we depict trends in the development of educational attainment for all individuals born 1960-1986 when they are 35 years old, respectively. Not surprisingly, the proportion of a cohort only attaining compulsory education steadily decreased while more and more individuals attained tertiary levels of education. Together, medium cycle tertiary education (today mostly University Colleges offering so-called professional bachelor degrees in pedagogy, nursing or teacher education) and universities absorbed the expansion. Short-cycle higher education programs only play a minor role in the Danish higher education landscape



**Figure 2.1.** Distribution of highest completed education at age 35 by cohort.

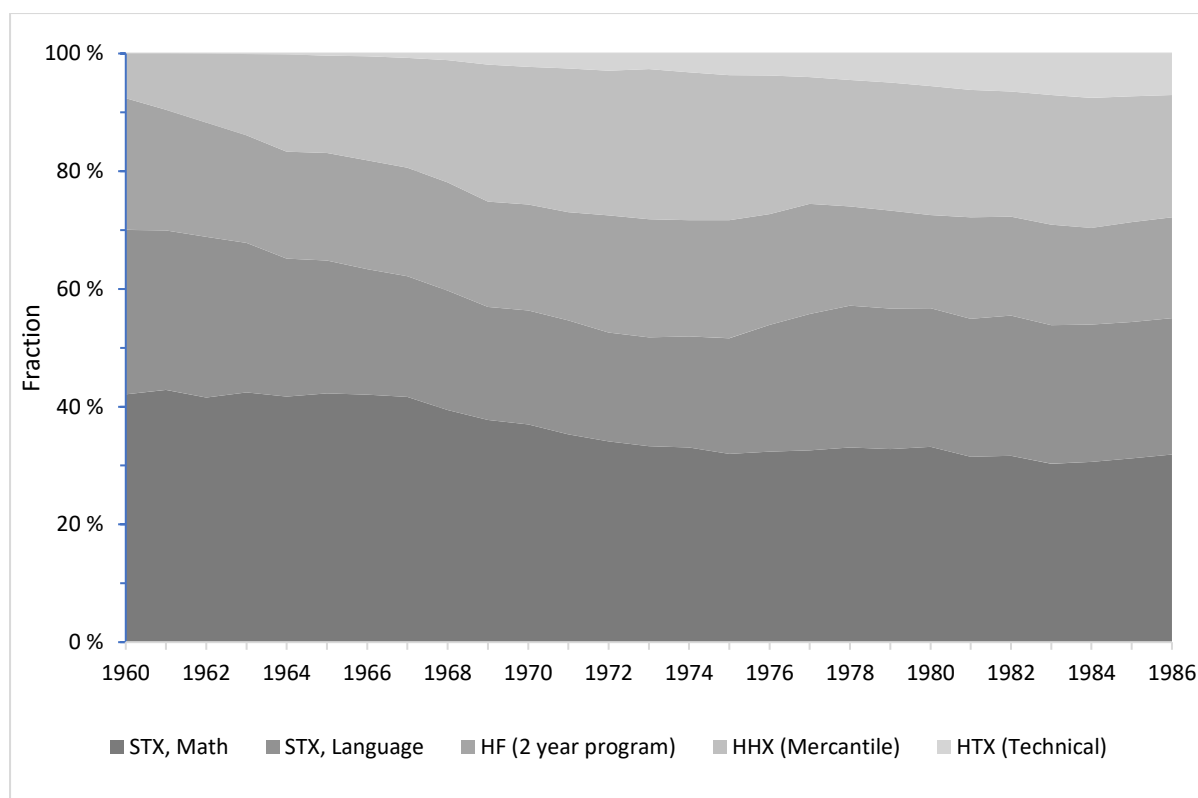
Figure 2.2 provides an overview over the attainment of the two main types of upper secondary education: gymnasium vs. vocational training (see chapter 1). For the youngest cohort (individuals born in 1986) ca. two thirds obtain an upper secondary degree at a gymnasium compared to ca. one third with a degree from a vocational upper secondary school. The relative increase in the attainment of gymnasium degrees at the expense of vocational training qualifications over the past decades is a controversial topic in Danish politics – with many arguing that fewer students should choose the academic pathway and attend a gymnasium instead of entering vocational training right away.



**Figure 2.2.** Distribution of completed upper secondary education at age 30 by cohort.

Figure 2.3 examines the development of the proportion of students who choose different specializations within specific gymnasium types. In this figure we differentiate within school tracking by examining three different specializations within the largest gymnasium track STX (the academic gymnasium) and between school tracking by looking at the other types of gymnasium (HF, HHX and HTX).





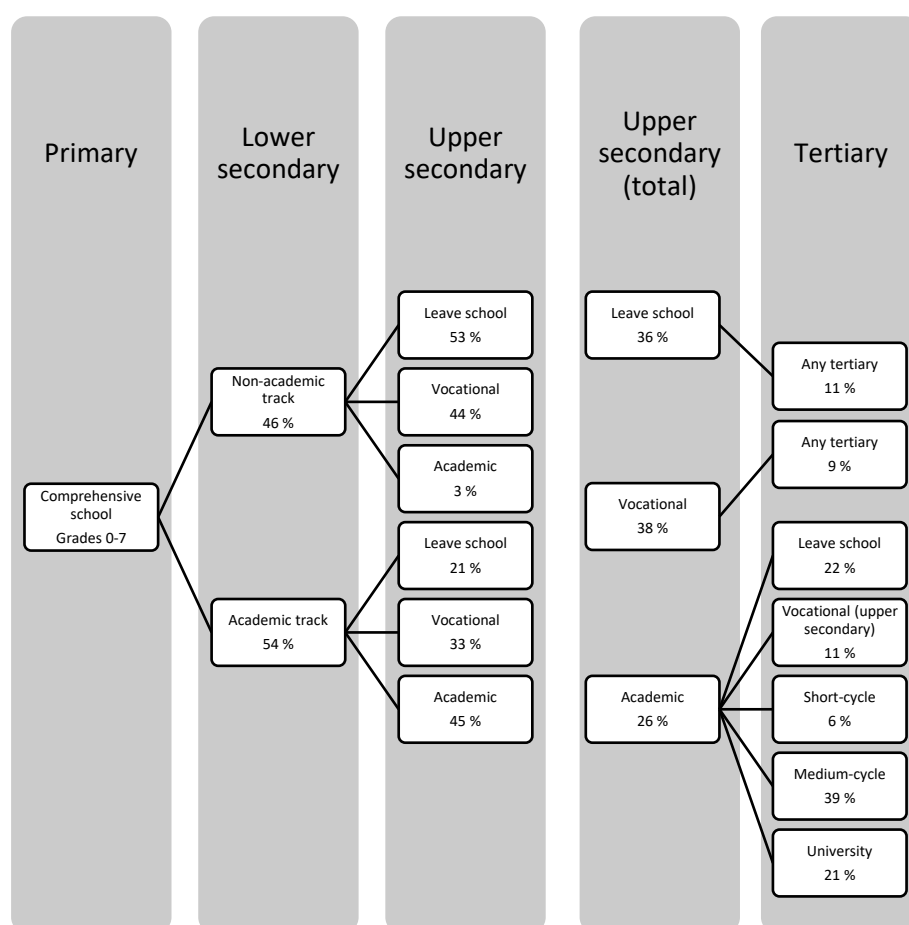
**Figure 2.3.** Distribution of track type among graduates of academic upper secondary education at age 30 by cohort.

Note 1: STX=general academic gymnasium. HTX=technical gymnasium. HHX=mercantile gymnasium. HF=short general academic gymnasium.

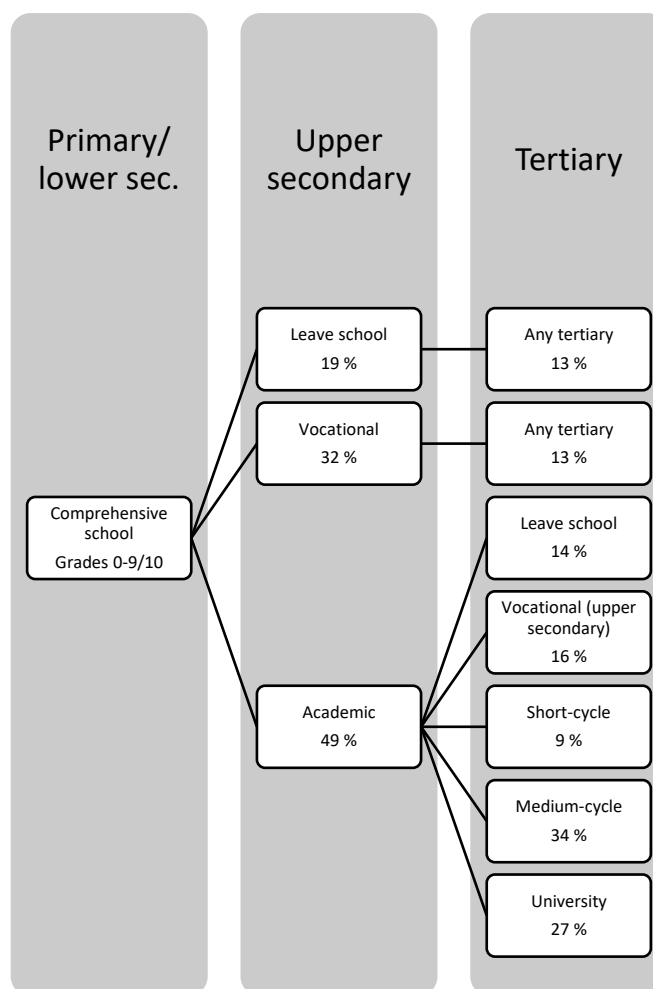
Overall, the proportion of students choosing the different gymnasium tracks has remained relatively stable for the past decades. The number of students choosing the math line at the traditional gymnasium has somewhat decreased over time while at the same time the proportion of students choosing the HTX (technical) gymnasium has slightly increased from the late sixties to today. Furthermore, the proportion of students choosing the mercantile track (HHX) has increased particular for those birth cohorts born in the 1960s up to the 1970s while it remained fairly constant thereafter.

## Flowcharts

We continue with an overview over the flow of individuals through the educational system for the three selected cohorts (flowcharts 2.4-2.6). Compulsory schooling (“folkeskole”) lasted only from grade 0-7 up to the (calendar) year 1975 when compulsory schooling was extended to nine years. After compulsory schooling, students decide between academic upper secondary education (Gymnasium) and vocational training. However, before 1975, an intermediate school type (realskole) was another option. About half of the individuals from the 1960 cohort (and the 1961 cohort) still attended this school type after compulsory schooling. When comparing the flowcharts for the three cohorts in Figures 2.4–2.6 it becomes clear that the proportion of students choosing the academic track after compulsory education and then some form of higher education has continually increased.

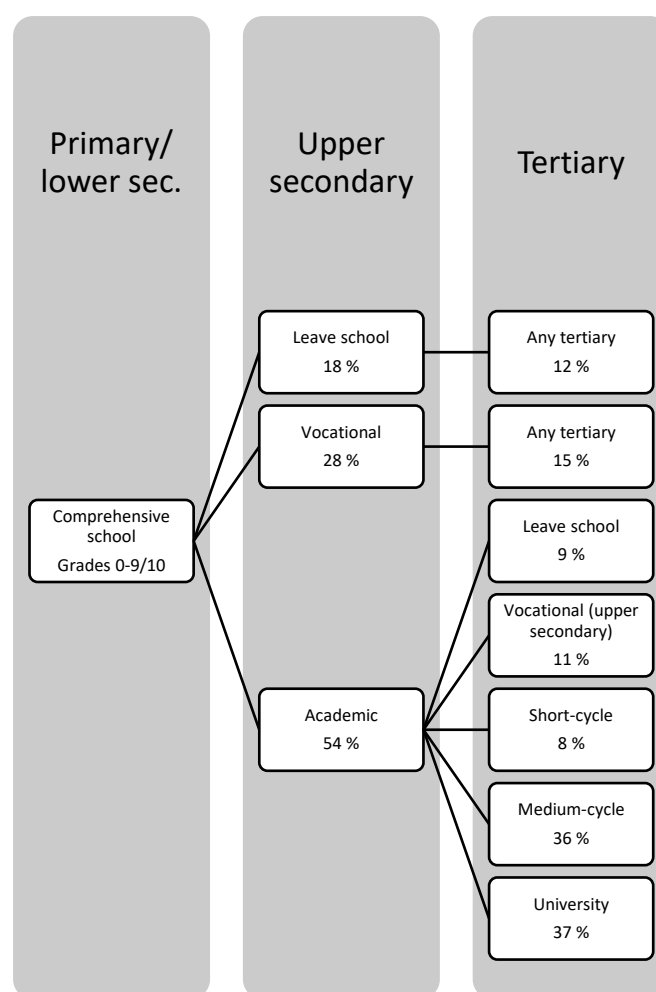


**Figure 2.4.** Cohort 1960.



**Figure 2.5.** Cohort 1975.

Note: Grade 10 is an additional option which allows undecided or academically weaker students to prepare for the next educational level.



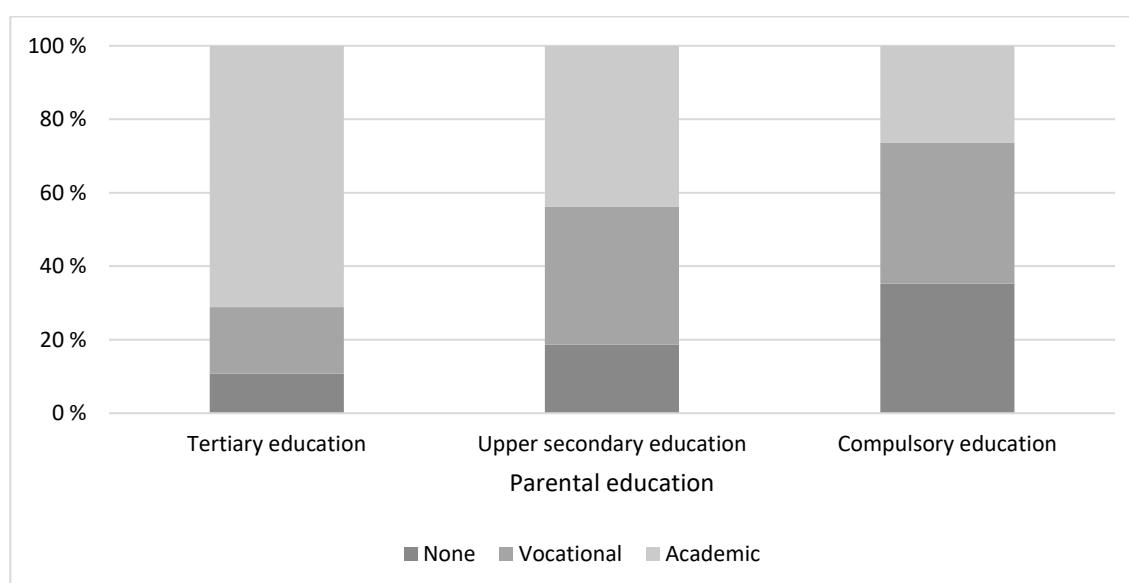
**Figure 2.6.** Cohort 1986.

### 3. Tracking and social inequality (OE)

In this chapter, we provide a detailed descriptive analysis of the association between students' social origin and tracking outcomes (the Origin-Education linkage) – among those born in 1975.

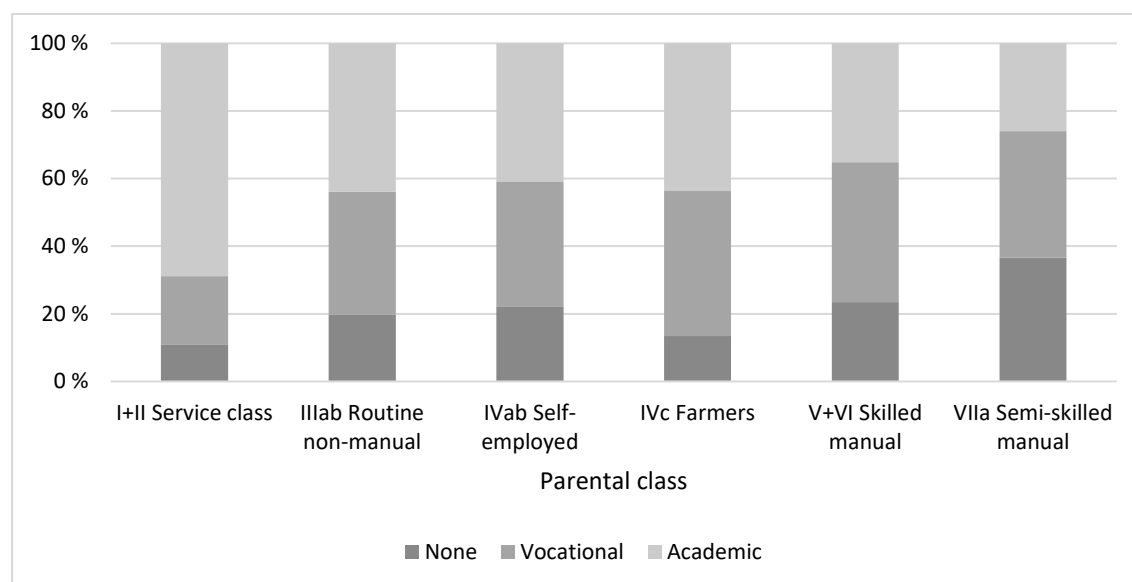
#### First tracking choice: Academic track vs. vocational training

We start out by exploring the association between parental class and tracking destinations in secondary education and differentiate between the attainment of an academic upper secondary degree vs. a vocational training qualification or no further education at all (Figure 3.1). We discern three levels of parental education and work with a seven category recode of the EGP class schema. Parental education, and also parental class is coded following the dominance principle (Erikson 1984), meaning that the highest educational qualification/class position of either parent is used to indicate the parental education level/class position. Not surprisingly, there is a clear gradient across levels of parental education. The majority of students with at least one parent who completed a tertiary degree overwhelmingly entered academic upper secondary education while students whose parents have attained compulsory education only much more often chose vocational training or no further education at all.



**Figure 3.1.** Distribution of upper secondary education by parental education, 1975 birth cohort.

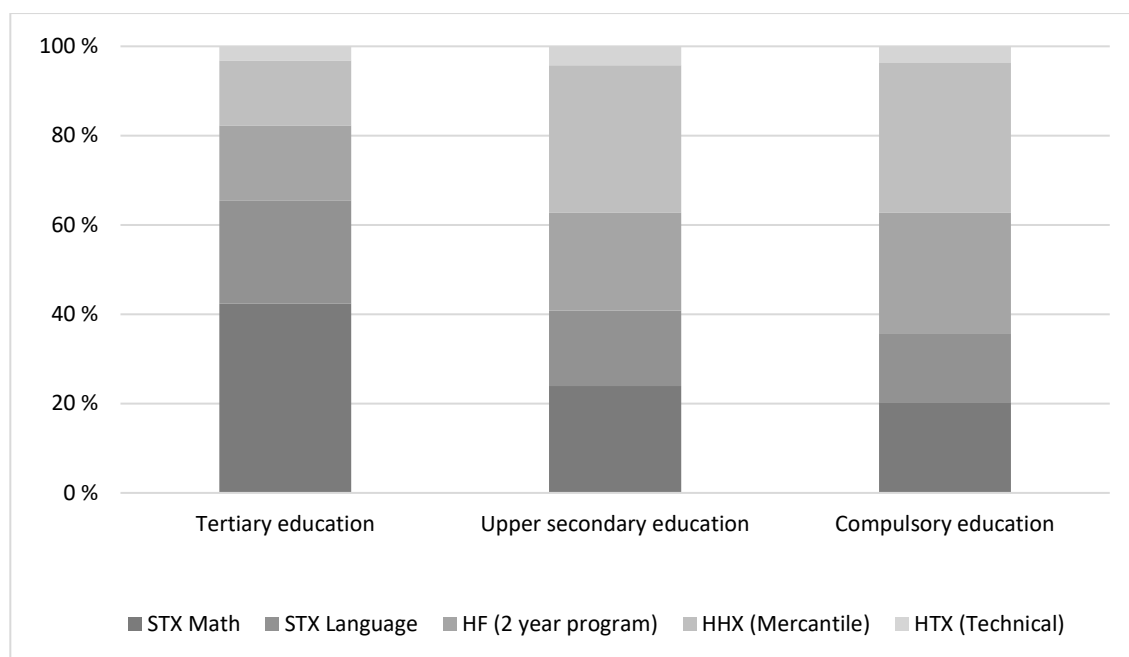
The gradient is similarly pronounced when comparing students' upper secondary education across social class origin (Figure 3.2). Students with the most advantageous class backgrounds (EGP class I and II) completed academic upper secondary education to a significantly larger extent compared to those with working class origins (EGP class VIIa) while the opposite is true for vocational training. However, differences between students with class backgrounds from the remaining class categories in the middle are not very accentuated.



**Figure 3.2.** Distribution of upper secondary education by parental class, 1975 birth cohort.

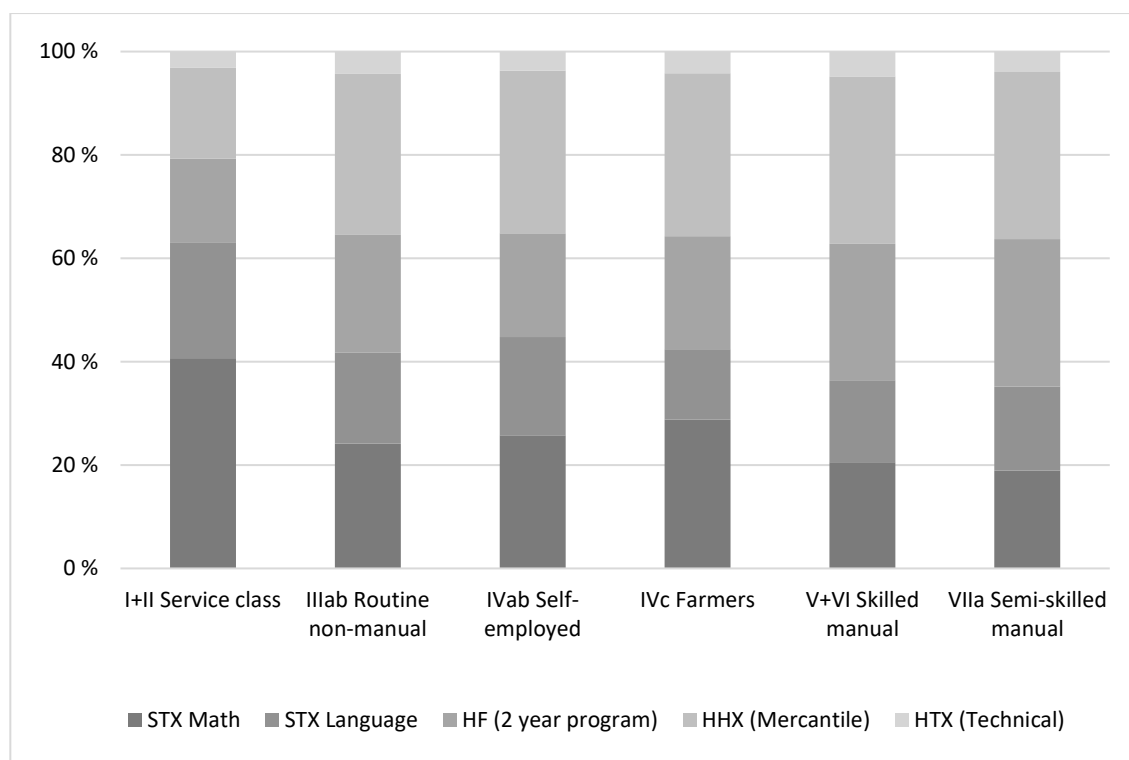
### Second tracking choice: Different upper secondary tracks within “gymnasium”

In a next step, we focus on tracking choices among those students that chose to attend the academic upper secondary education instead of vocational training or no further education (Figure 3.3). The distribution across the two major lines offered at the quantitatively largest upper secondary type, the traditional gymnasium (STX), are shown separately.



**Figure 3.3.** Distribution of track type among graduates of academic upper secondary education by parental education, 1975 birth cohort.

Overall, the traditional gymnasium (STX) and its two main specializations, (Math and Language) were chosen much more often by students with tertiary educated parents. Students whose parents attained lower levels of education considerably more often chose the mercantile (HHX) or late starter (HF) track. The choice of the technical gymnasium (HTX) does not seem to be strongly associated with parental education levels.



**Figure 3.4.** Distribution of track type among graduates of academic upper secondary education by parental class, 1975 birth cohort.

Using social class as a measure for social origin produces similar results concerning the association between track choices at academic upper secondary education as the parental education measure (Figure 3.4). Nevertheless, there is almost only a clear division between students of service class (I&II) origins who chose the two tracks offered at the traditional academic gymnasium much more often and students from all other class backgrounds, who more often chose the late starter (HF) and mercantile (HHX) type of gymnasium. Differences in academic track choice for students from different class backgrounds below the service class seem not to be very pronounced.

To measure the strength of the association between social origin and tracking in upper secondary education (Figures 3.3 and 3.4) we report McFadden's pseudo  $R^2$  from a multinomial logit regression models, which is .045 with regard to parental education and .039 with regard to parental social class.<sup>5</sup>

<sup>5</sup> If we replace the indicator for upper secondary track completion with an indicator which shows the first track enrollment choice (within one and a half year after completing 9th grade), pseudo  $R^2$  is .041 with regards to parental education and .036 with regards to parental social class.



## 4. Tracking and long-term outcomes (ED)

In this chapter, we explore the association between educational track choice and various long-term labor market outcomes. Furthermore, we also analyze the role earlier track choices play for the attainment of subsequent level/fields of education and test, to what extent results are sensitive with respect to the operationalization of our tracking indicators. Our database, which comprises population level data from Danish administrative registers, enables us to link individuals' education and labor market career without potential nonresponse bias or panel attrition that often occurs in longitudinal panel studies. In Table 4.1, we report the overall distribution of educational degrees and class positions among the 67,214 individuals from the 1975 birth cohort when they have reached occupational maturity (age 40).<sup>6</sup>

**Table 4.1.** Education and labor market outcomes at occupational maturity (age 40), 1975 birth cohort.

	Mean (%)	Std. dev.
<b>Higher education</b>		
University	0.14	
Other tertiary	0.27	
Tertiary total	0.41	
<b>Social class</b>		
I Higher service	0.22	
II Lower service	0.23	
IIIab Routine non-manual	0.26	
IVab Self-employed	0.04	
IVc Farmers	0.01	
V+VI Skilled manual	0.10	
VIIa Semi-skilled manual	0.14	
<b>Unemployment</b>	0.08	
<b>ISEI</b>	44.9	14.8
<b>Disposable income, 1,000 €</b>	38.9	47.9

In order to gain an impression to what extent tracking destinations are associated with labor market outcomes later in life, we proceed to estimate simple stepwise Linear Probability Models (Table 4.2). More concretely, we estimate models for the following dependent variables: Two *educational outcomes*: (1) attainment of any tertiary education, (2) attainment of university education (excluding lower level tertiary degrees); four measures for *class*

<sup>6</sup> Our analytical sample consists of all individuals who lived in Denmark in 2015 and who resided in Denmark already at the time they were six years old (at the start of elementary school).

*attainment*: (3) entry into the higher service class (EGP class I), (4) entry to the higher and lower service class combined (EGP I & II), (5) entry into the manual classes combined (EGP classes V-VII) and (6) entry into just the working class (EGP VIIab). Three additional outcomes considered are (7) unemployment<sup>7</sup>, (8) the International Socio-Economic Index of occupational status (ISEI) (Ganzeboom, De Graaf, and Treiman 1992) and (9) log disposable income.<sup>8</sup>

In all models, we introduce the polytomous variable for upper secondary education (vocational and academic vs. no education) in the first model. In the second model, we split academic upper secondary education into the five different tracks that we identified before (see chapter 3). In all the models focusing on labor market outcomes (class attainment, unemployment and ISEI), we additionally add a polytomous variable for level of tertiary degree (university, middle or short) in model 3 and tertiary field of study in model 4. The sample size of these latter models is reduced (N=60,202) compared to the first two educational attainment models (N=67,214) as individuals without employment are excluded. For the sake of readability of the tables, we chose to not present the coefficient estimates for level of tertiary degree (model 3) and field of study (model 4) but results are available on request.

### **Educational attainment (outcomes 1-2)**

Not surprisingly, the first model exploring graduation with any tertiary degree institution shows that the completion of academic upper secondary education increases the probability of attaining any kind of tertiary education drastically compared to no further education. There is no difference between those with a vocational vs. no further upper secondary degree. The second model shows that the differentiation between different academic upper secondary tracks explains additional variance in terms of the take up of tertiary education – the R<sup>2</sup> value increases from 33.8% in model 1 to 37.9% in model 2. Furthermore, the math track seems to lead to the greatest advantage compared to the reference category.

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<sup>7</sup> Unemployment is defined as all individuals who are unemployed or who are receiving social welfare benefits (*kontanthjælp*).

<sup>8</sup> Defined as yearly income in the year 2015 in Euro (generated on the basis of the variable *dispon\_13* from Statistics Denmark).

**Table 4.2.** OLS models regressing outcomes at occupational maturity on *upper secondary track outcomes*, 1975 birth cohort.

	Model 1 (Upper secondary vocational or academic)		Model 2 (+Tracks)		Model 3 (+Tertiary educational level)		Model 4 (+Field of study)	
<b>Outcome 1: Tertiary education</b>								
Upper secondary education (None)								
Vocational	- 0.006	(0.004)	-0.006	(0.004)				
Academic	0.569***	(0.004)						
Academic: STX, Math			0.718***	(0.005)				
Academic: STX, Language			0.651***	(0.006)				
Academic: HF (2 year program)			0.520***	(0.006)				
Academic: HHX (Mercantile)			0.351***	(0.006)				
Academic: HTX (Technical)			0.574***	(0.012)				
N	67,214		67,214					
R <sup>2</sup>	0.338		0.379					
Pseudo R <sup>2</sup>	0.268		0.303					
<b>Outcome 2: University education</b>								
Upper secondary education (None)								
Vocational	-0.013***	(0.004)	-0.013***	(0.003)				
Academic	0.253***	(0.003)						
Academic: STX, Math			0.455***	(0.004)				
Academic: STX, Language			0.293***	(0.005)				
Academic: HF (2 year program)			0.100***	(0.005)				
Academic: HHX (Mercantile)			0.101***	(0.004)				
Academic: HTX (Technical)			0.173***	(0.009)				
N	67,214		67,214					
R <sup>2</sup>	0.143		0.241					
Pseudo R <sup>2</sup>	0.215		0.291					
<b>Outcome 3: I Higher service class</b>								
Upper secondary education (None)								
Vocational	0.003	(0.005)	0.003	(0.005)	0.014**	(0.004)	0.004	(0.004)
Academic	0.271***	(0.005)						
Academic: STX, Math			0.433***	(0.005)	0.146***	(0.006)	0.120***	(0.006)
Academic: STX, Language			0.243***	(0.006)	0.034***	(0.006)	0.072***	(0.006)
Academic: HF (2 year program)			0.134***	(0.006)	0.025***	(0.006)	0.061***	(0.006)
Academic: HHX (Mercantile)			0.173***	(0.006)	0.086***	(0.006)	0.080***	(0.005)
Academic: HTX (Technical)			0.378***	(0.012)	0.228***	(0.011)	0.123***	(0.011)
N	60,202		60,202		60,202		60,202	
R <sup>2</sup>	0.105		0.151		0.293		0.351	
Pseudo R <sup>2</sup>	0.107		0.140		0.254		0.302	
<b>Outcome 4: I+II Service class</b>								
Upper secondary education (None)								
Vocational	0.031***	(0.006)	0.031***	(0.006)	0.047***	(0.005)	0.037***	(0.005)
Academic	0.463***	(0.005)						
Academic: STX, Math			0.610***	(0.006)	0.307***	(0.007)	0.277***	(0.007)
Academic: STX, Language			0.490***	(0.007)	0.233***	(0.007)	0.240***	(0.007)
Academic: HF (2 year program)			0.353***	(0.007)	0.167***	(0.007)	0.171***	(0.007)
Academic: HHX (Mercantile)			0.326***	(0.007)	0.207***	(0.006)	0.220***	(0.006)
Academic: HTX (Technical)			0.545***	(0.014)	0.340***	(0.013)	0.252***	(0.013)
N	60,202		60,202		60,202		60,202	
R <sup>2</sup>	0.198		0.228		0.320		0.354	
Pseudo R <sup>2</sup>	0.150		0.175		0.254		0.287	
<b>Outcome 5: V+VI+VIIab Man. class</b>								
Upper secondary education (None)								
Vocational	-0.011*	(0.005)	-0.011*	(0.005)	-0.023***	(0.005)	-0.022***	(0.005)
Academic	-0.383***	(0.005)						
Academic: STX, Math			-0.403***	(0.006)	-0.237***	(0.006)	-0.236***	(0.006)
Academic: STX, Language			-0.400***	(0.006)	-0.246***	(0.007)	-0.252***	(0.007)
Academic: HF (2 year program)			-0.353***	(0.006)	-0.229***	(0.006)	-0.230***	(0.006)
Academic: HHX (Mercantile)			-0.382***	(0.006)	-0.315***	(0.006)	-0.317***	(0.006)
Academic: HTX (Technical)			-0.309***	(0.012)	-0.190***	(0.012)	-0.170***	(0.012)
N	60,202		60,202		60,202		60,202	
R <sup>2</sup>	0.191		0.193		0.240		0.248	
Pseudo R <sup>2</sup>	0.186		0.191		0.262		0.273	

**Table 4.2. Continued**

	Model 1 (Upper secondary vocational or academic)		Model 2 (+Tracks)		Model 3 (+Tertiary educational level) <sup>1</sup>		Model 4 (+Field of study) <sup>1</sup>	
<b>Outcome 6: VIIab Semi-skil. manual</b>								
Upper secondary education (None)								
Vocational	-0.141***	(0.004)	-0.141***	(0.004)	-0.148***	(0.004)	-0.148***	(0.004)
Academic	-0.311***	(0.004)						
Academic: STX, Math			-0.326***	(0.005)	-0.220***	(0.005)	-0.220***	(0.005)
Academic: STX, Language			-0.318***	(0.005)	-0.221***	(0.006)	-0.224***	(0.006)
Academic: HF (2 year program)			-0.287***	(0.005)	-0.208***	(0.006)	-0.208***	(0.006)
Academic: HHX (Mercantile)			-0.309***	(0.005)	-0.262***	(0.005)	-0.267***	(0.005)
Academic: HTX (Technical)			-0.291***	(0.010)	-0.210***	(0.010)	-0.203***	(0.011)
N	60,202		60,202		60,202		60,202	
R <sup>2</sup>	0.112		0.112		0.141		0.143	
Pseudo R <sup>2</sup>	0.137		0.141		0.196		0.200	
<b>Outcome 7: Unemployment</b>								
Upper secondary education (None)								
Vocational	-0.151***	(0.003)	-0.151***	(0.003)	-0.153***	(0.003)	-0.152***	(0.003)
Academic	-0.184***	(0.003)						
Academic: STX, Math			-0.198***	(0.004)	-0.158***	(0.004)	-0.156***	(0.004)
Academic: STX, Language			-0.181***	(0.004)	-0.145***	(0.004)	-0.148***	(0.005)
Academic: HF (2 year program)			-0.160***	(0.004)	-0.131***	(0.004)	-0.131***	(0.004)
Academic: HHX (Mercantile)			-0.187***	(0.004)	-0.168***	(0.004)	-0.171***	(0.004)
Academic: HTX (Technical)			-0.198***	(0.008)	-0.167***	(0.008)	-0.162***	(0.008)
N	62,219		62,219		62,219		62,219	
R <sup>2</sup>	0.062		0.063		0.070		0.070	
Pseudo R <sup>2</sup>	0.092		0.098		0.113		0.117	
<b>Outcome 8: ISEI</b>								
Upper secondary education (None)								
Vocational	2.284***	(0.162)	2.284***	(0.159)	3.009***	(0.142)	2.934***	(0.139)
Academic	16.080***	(0.152)						
Academic: STX, Math			20.510***	(0.181)	8.877***	(0.187)	8.198***	(0.185)
Academic: STX, Language			17.070***	(0.207)	7.182***	(0.201)	7.496***	(0.200)
Academic: HF (2 year program)			13.379***	(0.208)	6.386***	(0.195)	6.373***	(0.193)
Academic: HHX (Mercantile)			11.635***	(0.195)	7.541***	(0.177)	8.141***	(0.179)
Academic: HTX (Technical)			16.292***	(0.395)	9.052***	(0.358)	8.199***	(0.359)
N	60,004		60,004		60,004		60,004	
R <sup>2</sup>	0.244		0.274		0.426		0.445	
<b>Outcome 9: Log disposable income</b>								
Upper secondary education (None)								
Vocational	0.232***	(0.006)	0.232***	(0.006)	0.234***	(0.006)	0.229***	(0.006)
Academic	0.413***	(0.005)						
Academic: STX, Math			0.539***	(0.007)	0.308***	(0.008)	0.295***	(0.008)
Academic: STX, Language			0.353***	(0.008)	0.171***	(0.009)	0.202***	(0.009)
Academic: HF (2 year program)			0.248***	(0.008)	0.130***	(0.008)	0.151***	(0.008)
Academic: HHX (Mercantile)			0.418***	(0.007)	0.329***	(0.007)	0.309***	(0.008)
Academic: HTX (Technical)			0.488***	(0.016)	0.342***	(0.016)	0.302***	(0.016)
N	67,081		67,081		67,081		67,081	
R <sup>2</sup>	0.081		0.099		0.139		0.153	

Note: Standard errors in parentheses. \* p<0.05, \*\* p<0.01, \*\*\* p<0.001; <sup>1</sup>: Coefficient estimates for tertiary educational level and field of study are not reported but are available on request.

The picture is similar when restricting the attainment of tertiary education to only those who completed a degree at a university (see second panel in Table 4.2) even if the coefficient

estimate for academic upper secondary (reference category is “no further education”) is considerably smaller compared to the previous analysis. Furthermore, completing a vocational degree decreases the likelihood of attaining a university degree compared to those with no further education. The differentiation of the academic track into five tracks makes a substantial contribution to the explanation of the attainment of a university degree as can be seen in the increase in the  $R^2$  value from 14.3% in model 1 to 24.1% in model 2.

### **Class attainment (outcomes 3-6)**

Next, we inspect the coefficient estimates for different categorizations of the EGP class variable (Table 4.2, outcomes 3-6). For entry into the higher service class only (outcome 3), the size and pattern of coefficient estimates in model 1 and model 2 is very similar to the previous model with university graduation as a dependent variable. Adding type of tertiary institution (model 3) and field of study (model 4) further explains considerable variance in the attainment of a higher service class position. Furthermore, the advantage of math track attendance for entry into the higher service class is almost completely mediated by subsequent choices of tertiary educational level and field of study.

When collapsing the higher and lower service class (outcome 4) the pattern of results is similar to the models for the previous outcome but the size of the coefficient estimates and the proportion of explained variance is to some degree larger across all models. Furthermore, a vocational training degree (compared to no degree) consistently leads to a higher chance of entering the combined service class whereas it is of no advantage for entering the higher service class.

We now turn to the other side of the class spectrum and look at placement into the manual/working class (EGP V-VIIb, outcome 5). Across each model, the explained variance increases indicating that all four tracking channels are consequential for the avoidance of placement into the collapsed manual/working class. However, the full model (model 4) only explains 24.8% of the variance, which is considerably lower than the full model for EGP I (35.1%) or EGP I and II combined (35.4%). This is not surprising given that the differences in academic specialization either at the gymnasium or tertiary level should not be as relevant for typical manual or working class jobs. When we consider placement into the working class alone (EGP VIIb, outcome 6) it becomes clear that both completion of academic and vocational upper secondary education, compared to no upper secondary education, reduce the risk of having a job in that category. However, the type of upper secondary academic track (model 2) and also the type of field of study (model 4) seem not to matter for this outcome – the introduction of these measures does not lead to an increase in  $R^2$ .

### **Unemployment, ISEI, Log income (outcomes 7-9)**

The regression of unemployment on the tracking indicators resembles the results from the regression on placement into the working class. While the attainment of an upper secondary qualification (both academic or vocationally) reduces the unemployment risk considerably, neither the type of academic upper secondary (model 2), or field of study (model 4) seem to be consequential and only the type of tertiary degree (model 3) adds, to a limited extent, to the explanation of the unemployment status. Finally, the last two labor market outcomes we

consider are the ISEI index measuring occupational status and log disposable income. The former is quite strongly related to all tracking indicators and the full model can account for 44.5 percent of the ISEI variance. Individual differences in log disposable income are also clearly related to the four tracking indicators (outcome 9) but not nearly as much as the ISEI score. The full model, which includes all of the indicators, can only account for 15.3 percent of the income variance.

### **Upper secondary track completion vs. enrollment – does it make a difference?**

In order to learn more about the dynamics of tracking choices, we rerun all models presented in Table 4.2 but exchange the indicator for upper secondary track completion with an indicator which shows the first track enrollment choice (within one and a half year after completing 9th grade). Overall, the pattern of results based on track enrollment in Table 4.3 is quite similar to the results based on track completion in Table 4.2. However, the advantage of both the academic track and especially the vocational track relative to no track enrollment/completion is consistently smaller in the enrollment models which is due to the fact that the reference group in the enrollment models includes more individuals who end up attaining an upper secondary degree, while some of those who enroll end up dropping out (see appendix Table 1.1 and 1.2). The attainment of any tertiary degree, for example, is less likely for individuals with vocational education (coefficient estimate of -.026) compared to those with no upper secondary degree in the enrollment model. In the attainment model, there is no significant difference between those two groups (coefficient estimate of -.006). Likewise, to provide another example, the comparison of the two models that have occupational status (ISEI) as a dependent variable illustrates that the relative advantage of the vocational track is smaller in the enrollment model (.510) compared the attainment model (2.284). These differences across specifications (e.g. models in Tables 4.2 vs. 4.3) are not trivial and point to the fact that the way tracking in upper secondary education is operationalized in the Danish context is quite consequential. Results for subsequent models where we inspect the field of study indicators differ to some extent but overall the pattern of results is quite similar.

**Table 4.3.** OLS models regressing outcomes at occupational maturity on *upper secondary track enrollment*, 1975 birth cohort.

	Model 1 (Upper secondary vocational or academic)		Model 2 (+Tracks)		Model 3 (+Tertiary educational level)		Model 4 (+Field of study)	
<b>Outcome 1: Tertiary education</b>								
Upper secondary education (None)								
Vocational	-0.026***	(0.005)	-0.026***	(0.005)				
Academic	0.484***	(0.004)						
Academic: STX, Math			0.607***	(0.005)				
Academic: STX, Language			0.534***	(0.006)				
Academic: HF (2 year program)			0.429***	(0.009)				
Academic: HHX (Mercantile)			0.271***	(0.006)				
Academic: HTX (Technical)			0.432***	(0.012)				
N	67,214		67,214					
R <sup>2</sup>	0.257		0.289					
Pseudo R <sup>2</sup>	0.197		0.224					
<b>Outcome 2: University education</b>								
Upper secondary education (None)								
Vocational	-0.028***	(0.003)	-0.028***	(0.003)				
Academic	0.236***	(0.003)						
Academic: STX, Math			0.390***	(0.004)				
Academic: STX, Language			0.240***	(0.005)				
Academic: HF (2 year program)			0.065***	(0.006)				
Academic: HHX (Mercantile)			0.075***	(0.005)				
Academic: HTX (Technical)			0.113***	(0.009)				
N	67,214		67,214					
R <sup>2</sup>	0.135		0.204					
Pseudo R <sup>2</sup>	0.185		0.239					
<b>Outcome 3: I Higher service class</b>								
Upper secondary education (None)								
Vocational	-0.014**	(0.005)	-0.014**	(0.005)	0.010*	(0.004)	-0.000	
Academic	0.250***	(0.005)						
Academic: STX, Math			0.379***	(0.005)	0.129***	(0.005)	0.098***	(0.005)
Academic: STX, Language			0.198***	(0.006)	0.024***	(0.006)	0.052***	(0.006)
Academic: HF (2 year program)			0.095***	(0.009)	0.015	(0.008)	0.040***	(0.008)
Academic: HHX (Mercantile)			0.141***	(0.006)	0.078***	(0.006)	0.066***	(0.005)
Academic: HTX (Technical)			0.300***	(0.011)	0.195***	(0.010)	0.098***	(0.010)
N	60,202		60,202		60,202		60,202	
R <sup>2</sup>	0.098		0.131		0.292		0.350	
Pseudo R <sup>2</sup>	0.096		0.120		0.253		0.300	
<b>Outcome 4: I+II Service class</b>								
Upper secondary education (None)								
Vocational	-0.006	(0.005)	-0.006	(0.005)	0.024***	(0.005)	0.019***	(0.005)
Academic	0.399***	(0.005)						
Academic: STX, Math			0.519***	(0.006)	0.244***	(0.006)	0.216***	(0.006)
Academic: STX, Language			0.398***	(0.007)	0.171***	(0.007)	0.178***	(0.007)
Academic: HF (2 year program)			0.264***	(0.010)	0.107***	(0.009)	0.106***	(0.009)
Academic: HHX (Mercantile)			0.253***	(0.007)	0.162***	(0.007)	0.175***	(0.007)
Academic: HTX (Technical)			0.424***	(0.013)	0.266***	(0.012)	0.196***	(0.012)
N	60,202		60,202		60,202		60,202	
R <sup>2</sup>	0.164		0.188		0.314		0.347	
Pseudo R <sup>2</sup>	0.122		0.142		0.248		0.281	
<b>Outcome 5: V+VI+VIIab Man. Class</b>								
Upper secondary education (None)								
Vocational	0.032***	(0.005)	0.032***	(0.005)	0.011*	(0.005)	0.012**	(0.005)
Academic	-0.308***	(0.005)						
Academic: STX, Math			-0.323***	(0.005)	-0.160***	(0.006)	-0.158***	(0.006)
Academic: STX, Language			-0.322***	(0.006)	-0.175***	(0.006)	-0.178***	(0.006)
Academic: HF (2 year program)			-0.265***	(0.009)	-0.151***	(0.008)	-0.148***	(0.008)
Academic: HHX (Mercantile)			-0.308***	(0.006)	-0.253***	(0.006)	-0.252***	(0.006)
Academic: HTX (Technical)			-0.194***	(0.012)	-0.095***	(0.011)	-0.083***	(0.011)
N	60,202		60,202		60,202		60,202	
R <sup>2</sup>	0.148		0.150		0.224		0.232	
Pseudo R <sup>2</sup>	0.146		0.151		0.251		0.262	

**Table 4.3. Continued**

			Model 1 (Upper secondary vocational or academic)	Model 2 (+Tracks)	Model 3 (+Tertiary educational level) <sup>1</sup>		Model 4 (+Field of study) <sup>1</sup>	
<b>Outcome 6: VIIab Semi-skil. Manual</b>								
Upper secondary education (None)								
Vocational	-0.055***	(0.004)	-0.055***	(0.004)	-0.067***	(0.004)	-0.067***	(0.004)
Academic	-0.228***	(0.004)						
Academic: STX, Math			-0.239***	(0.005)	-0.137***	(0.005)	-0.137***	(0.005)
Academic: STX, Language			-0.231***	(0.005)	-0.140***	(0.005)	-0.142***	(0.006)
Academic: HF (2 year program)			-0.201***	(0.007)	-0.130***	(0.007)	-0.128***	(0.007)
Academic: HHX (Mercantile)			-0.224***	(0.005)	-0.187***	(0.005)	-0.190***	(0.005)
Academic: HTX (Technical)			-0.197***	(0.010)	-0.132***	(0.010)	-0.127***	(0.010)
N	60,202		60,202		60,202		60,202	
R <sup>2</sup>	0.076		0.077		0.120		0.122	
Pseudo R <sup>2</sup>	0.102		0.104		0.178		0.183	
<b>Outcome 7: Unemployment</b>								
Upper secondary education (None)								
Vocational	-0.091***	(0.003)	-0.091***	(0.003)	-0.094***	(0.003)	-0.094***	(0.003)
Academic	-0.137***	(0.003)						
Academic: STX, Math			-0.147***	(0.004)	-0.105***	(0.004)	-0.104***	(0.004)
Academic: STX, Language			-0.124***	(0.004)	-0.088***	(0.004)	-0.090***	(0.004)
Academic: HF (2 year program)			-0.119***	(0.006)	-0.092***	(0.006)	-0.091***	(0.006)
Academic: HHX (Mercantile)			-0.140***	(0.004)	-0.124***	(0.004)	-0.126***	(0.004)
Academic: HTX (Technical)			-0.150***	(0.007)	-0.123***	(0.008)	-0.119***	(0.008)
N	62,219		62,219		62,219		62,219	
R <sup>2</sup>	0.034		0.035		0.046		0.047	
Pseudo R <sup>2</sup>	0.058		0.061		0.086		0.089	
<b>Outcome 8: ISEI</b>								
Upper secondary education (None)								
Vocational	0.510**	(0.160)	0.510**	(0.157)	1.767***	(0.136)	1.763***	(0.134)
Academic	13.451***	(0.154)						
Academic: STX, Math			17.122***	(0.180)	6.798***	(0.172)	6.248***	(0.171)
Academic: STX, Language			13.622***	(0.206)	5.093***	(0.188)	5.419***	(0.187)
Academic: HF (2 year program)			10.025***	(0.289)	4.328***	(0.254)	4.256***	(0.250)
Academic: HHX (Mercantile)			8.911***	(0.205)	5.914***	(0.179)	6.514***	(0.180)
Academic: HTX (Technical)			12.309***	(0.383)	6.957***	(0.334)	6.368***	(0.334)
N	60,004		60,004		60,004		60,004	
R <sup>2</sup>	0.196		0.220		0.418		0.437	
<b>Outcome 9: Log disposable income</b>								
Upper secondary education (None)								
Vocational	0.145***	(0.006)	0.145***	(0.006)	0.155***	(0.006)	0.150***	(0.006)
Academic	0.351***	(0.006)						
Academic: STX, Math			0.441***	(0.007)	0.232***	(0.007)	0.216***	(0.007)
Academic: STX, Language			0.253***	(0.008)	0.093***	(0.008)	0.120***	(0.008)
Academic: HF (2 year program)			0.210***	(0.011)	0.111***	(0.011)	0.125***	(0.011)
Academic: HHX (Mercantile)			0.351***	(0.008)	0.278***	(0.008)	0.254***	(0.008)
Academic: HTX (Technical)			0.385***	(0.015)	0.270***	(0.015)	0.232***	(0.015)
N	67,081		67,081		67,081		67,081	
R <sup>2</sup>	0.062		0.073		0.124		0.139	

Note: Standard errors in parentheses. \* p<0.05, \*\* p<0.01, \*\*\* p<0.001; <sup>1</sup>: Coefficient estimates for tertiary educational level and field of study are not reported but are available on request.



## 5. Decomposition of long-term social inequalities (OED)

The current chapter extends the analyses from chapter 4 by adding parental education (Table 5.1) and parental class (Table 5.2) to the outcome analyses based on linear probability models (see outcomes 1-9, chapter 4). More specifically, parental education, coded into three categories with tertiary education as a reference, is first introduced in Model 1 and then the tracking variables are added subsequently to the models in the same order as before (Models 2-5) – the last two models that differentiate between tertiary level and field of study can again only be added to the labor market models (outcomes 3-9). We show the unadjusted coefficient estimates in the first model only. In the second and the subsequent models we report to what extent the size of the parental education (parental class) estimates are reduced by the introduction of the tracking variables.

### Parental education and educational attainment (outcomes 1-2)

To illustrate this logic we focus on the first panel (outcome 1) in Table 5.1. Here we see that in a model without additional covariates, having parents with compulsory education only reduces the chance of attaining any tertiary degree considerably (coefficient -0.419) compared to those individuals where at least one parent has a tertiary degree. The relative disadvantage is smaller but still pronounced for those individuals whose parents have at least an upper secondary degree (coefficient estimate -0.285). Adding the first important tracking variable, which indicates whether individuals have completed academic, vocational or no upper secondary education, we see that the estimate for the gap between individuals with compulsory vs. tertiary parental background is reduced by 56% while the gap between individuals between upper secondary and tertiary parental background is reduced by 51%. Adding the second tracking indicator in model 2, the six different academic upper secondary tracks, in model 2, further helps to diminish the gap given that 66% of both differences are now explained by the first two tracking indicators.

### Parental education and labor market outcomes (outcomes 3-9)

For the different labor market considered, we see that parental educational background is consistently related to labor market advantages. Accounting for the different tracking choices reduces these advantages substantially, typically between 70% and 80%. Interestingly, even if there is some heterogeneity in terms of the size of the parental education estimates as well as explained variance across these models, the association between tracking pathways and parental education reduces the unadjusted parental education estimates quite similarly across outcomes and models.

**Table 5.1.** OLS models regressing outcomes at occupational maturity on parental education, 1975 birth cohort. Percentage explained of inequality of outcomes by parental education.

	Model 1 (Unadjusted)	Model 2 (+Upper sec. voc. or acad.)	Model 3 (+Tracks)	Model 4 (+Tertiary educ. level)	Model 5 (+Field of study)
<b>Outcome 1: Tertiary education</b>					
Parental education (Tertiary)					
Upper secondary	-0.285***	51%	66%		
Compulsory	-0.419***	56%	66%		
N	66,952	66,952	66,952		
R <sup>2</sup>	0.104	0.358	0.390		
<b>Outcome 2: University education</b>					
Parental education (Tertiary)					
Upper secondary	-0.193***	32%	55%		
Compulsory	-0.236***	42%	61%		
N	66,952	66,952	66,952		
R <sup>2</sup>	0.078	0.172	0.253		
<b>Outcome 3: I Higher service class</b>					
Parental education (Tertiary)					
	-				
Upper secondary	0.176***	36%	53%	82%	86%
	-				
Compulsory	0.243***	42%	55%	79%	84%
N	59,970	59,970	59,970	59,970	59,970
R <sup>2</sup>	0.052	0.123	0.160	0.295	0.351
<b>Outcome 4: I+II Service class</b>					
Parental education (Tertiary)					
	-				
Upper secondary	0.238***	45%	59%	79%	79%
	-				
Compulsory	0.372***	47%	56%	73%	73%
N	59,970	59,970	59,970	59,970	59,970
R <sup>2</sup>	0.077	0.218	0.240	0.324	0.358
<b>Outcome 5: V+VI+VIIab Man. class</b>					
Parental education (Tertiary)					
Upper secondary	0.141***	68%	70%	87%	86%
Compulsory	0.252***	62%	63%	76%	75%
N	59,970	59,970	59,970	59,970	59,970
R <sup>2</sup>	0.044	0.197	0.198	0.242	0.250
<b>Outcome 6: VIIab Semi-skill. manual</b>					
Parental education (Tertiary)					
Upper secondary	0.083***	61%	63%	81%	80%
Compulsory	0.178***	52%	53%	65%	65%
N	59,970	59,970	59,970	59,970	59,970
R <sup>2</sup>	0.031	0.118	0.118	0.144	0.146
<b>Outcome 7: Unemployment</b>					
Parental education (Tertiary)					
Upper secondary	0.025***	72%	80%	104%	100%
Compulsory	0.080***	56%	59%	69%	69%
N	61,977	61,977	61,977	61,977	61,977
R <sup>2</sup>	0.011	0.064	0.065	0.071	0.072
<b>Outcome 8: ISEI</b>					
Parental education (Tertiary)					
Upper secondary	-7.689***	45%	59%	83%	84%
	-				
Compulsory	12.243***	47%	56%	75%	76%
N	59,775	59,775	59,775	59,775	59,775

R <sup>2</sup>	0.094	0.268	0.290	0.430	0.449
<b>Table 5.1. Continued</b>					
<b>Outcome 9: Log disposable income</b>					
Parental education (Tertiary)					
Upper secondary	-0.129***	46%	57%	84%	83%
Compulsory	-0.259***	47%	54%	71%	71%
N	66,816	66,816	66,816	66,816	66,816
R <sup>2</sup>	0.027	0.087	0.104	0.141	0.155

Note: \* p<0.05, \*\* p<0.01, \*\*\* p<0.001

We now replicate the analysis presented in Table 5.1 but switch the indicator variable for parental education with a variable measuring parental social class (Table 5.2). Across all outcomes, the unadjusted coefficient estimates show that individuals with a parent from the service class (either I or II) have a consistent advantage across all outcomes.

### Parental class and educational attainment (outcomes 1-2) & labor market outcomes (outcomes 3-9)

The regression of tertiary education (outcome 1) and university education only (outcome 2) on the tracking indicators show that this advantage is considerably reduced in models 2 and 3. Accounting for the different tracking choices also reduces the parental class advantages consistently, with percent wise reductions between 60 and 80 percent. Similar estimates are obtained in the analyses of unemployment, ISEI and log disposable income.

## 6. Summary

Summing up, the regression and decomposition analyses presented in chapter 4 and 5 produced numerous estimates. However, even if there is variation across outcomes and social origin measures, results are quite consistent. Analyses in chapter 4 clearly showed that the four different types of tracks considered lead to substantial advantages on the labor market. Nevertheless, attainment of a vocational upper secondary degree most of the time but not always leads to a better educational or labor market destinations. Another interesting finding is that track choices, especially those within the academic track (type of academic upper secondary gymnasium such as math vs. language) or tertiary field of study are not quite as relevant for the negative labor market outcomes such as unemployment or attainment of a working class position. The decomposition analyses in chapter 5 revealed that the advantages individuals with a privileged parental education background or class background have, can to a large part be related to the different tracking choices the way we operationalized tracking in this chapter. Future work should try to disentangle to what extent the various track choices can be considered to be the effect of the different track choices or can be attributable to individual preexisting differences in skills or motivation (unobserved heterogeneity)

**Table 5.2.** OLS models regressing outcomes at occupational maturity on parental social class, 1975 birth cohort. Percentage explained of inequality of outcomes by parental social class.

	Model 1 (Unadjusted)	Model 2 (+Upper sec. voc. or acad.)	Model 3 (+Tracks)	Model 4 (+Tertiary educ. level)	Model 5 (+Field of study)
<b>Outcome 1: Tertiary education</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	-0.239***	56%	71%		
IVab Self-employed	-0.264***	57%	69%		
IVc Farmers	-0.198***	68%	85%		
V+VI Skilled manual	-0.310***	58%	70%		
VIIab Semi-skilled manual	-0.387***	59%	68%		
N	66,723	66,723	66,723		
R2	0.085	0.351	0.387		
<b>Outcome 2: University education</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	-0.165***	35%	59%		
IVab Self-employed	-0.163***	39%	61%		
IVc Farmers	-0.150***	39%	62%		
V+VI Skilled manual	-0.199***	39%	60%		
VIIab Semi-skilled manual	-0.217***	44%	63%		
N	66,723	66,723	66,723		
R2	0.065	0.164	0.250		
<b>Outcome 3: I Higher service class</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	-0.151***	38%	56%	83%	87%
IVab Self-employed	-0.150***	43%	59%	85%	89%
IVc Farmers	-0.152***	39%	55%	74%	80%
V+VI Skilled manual	-0.196***	40%	56%	81%	84%
VIIab Semi-skilled manual	-0.234***	42%	55%	78%	81%
N	59,825	59,825	59,825	59,825	59,825
R2	0.045	0.120	0.159	0.295	0.351
<b>Outcome 4: I+II Service class</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	-0.216***	45%	58%	74%	75%
IVab Self-employed	-0.229***	47%	59%	74%	76%
IVc Farmers	-0.244***	41%	51%	59%	60%
V+VI Skilled manual	-0.279***	48%	59%	75%	76%
VIIab Semi-skilled manual	-0.361***	47%	55%	70%	71%
N	59,825	59,825	59,825	59,825	59,825
R2	0.071	0.217	0.240	0.325	0.358
<b>Outcome 5: V+VI+VIIab Man. class</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	0.129***	67%	70%	82%	81%
IVab Self-employed	0.138***	70%	71%	85%	84%
IVc Farmers	0.148***	60%	62%	68%	68%
V+VI Skilled manual	0.195***	61%	63%	74%	73%
VIIab Semi-skilled manual	0.248***	60%	61%	73%	72%
N	59,825	59,825	59,825	59,825	59,825
R2	0.042	0.198	0.199	0.243	0.251

**Table 5.2. Continued**

	Model 1 (Unadjusted)	Model 2 (+Upper sec. voc. or acad.)	Model 3 (+Tracks)	Model 4 (+Tertiary educ. level)	Model 5 (+Field of study)
<b>Outcome 6: VIIab Semi-skill. manual</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	0.076***	62%	64%	78%	78%
IVab Self-employed	0.086***	63%	64%	78%	77%
IVc Farmers	0.088***	48%	49%	55%	56%
V+VI Skilled manual	0.114***	58%	61%	73%	71%
VIIab Semi-skilled manual	0.185***	50%	51%	61%	61%
N	59,825	59,825	59,825	59,825	59,825
R2	0.030	0.118	0.118	0.145	0.146
<b>Outcome 7: Unemployment</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	0.029***	62%	66%	79%	79%
IVab Self-employed	0.032***	69%	72%	88%	84%
IVc Farmers	-0.006	-	-	-	-
V+VI Skilled manual	0.046***	57%	61%	72%	72%
VIIab Semi-skilled manual	0.087***	52%	54%	62%	62%
N	61,815	61,815	61,815	61,815	61,815
R2	0.012	0.063	0.065	0.071	0.071
<b>Outcome 8: ISEI</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	-6.753***	47%	61%	81%	81%
IVab Self-employed	-7.026***	51%	62%	83%	83%
IVc Farmers	-6.309***	50%	63%	77%	77%
V+VI Skilled manual	-8.782***	50%	61%	81%	81%
VIIab Semi-skilled manual	-11.838***	48%	56%	73%	73%
N	59,630	59,630	59,630	59,630	59,630
R2	0.082	0.263	0.287	0.430	0.449
<b>Outcome 9: Log disposable income</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	-0.125***	46%	58%	78%	79%
IVab Self-employed	-0.147***	46%	54%	73%	72%
IVc Farmers	-0.096***	45%	55%	73%	75%
V+VI Skilled manual	-0.173***	46%	55%	75%	75%
VIIab Semi-skilled manual	-0.263***	46%	53%	68%	68%
N	66,571	66,571	66,571	66,571	66,571
R2	0.027	0.086	0.103	0.140	0.155

Note: \* p&lt;0.05, \*\* p&lt;0.01, \*\*\* p&lt;0.001

**Table 5.3.** OLS models regressing outcomes at occupational maturity on parental education, 1975 birth cohort. Percentage explained of inequality of outcomes by *upper secondary track enrollment*.

	Model 1 (Unadjusted)	Model 2 (+Upper sec. voc. or acad.)	Model 3 (+Tracks)	Model 4 (+Tertiary educ. level)	Model 5 (+Field of study)
<b>Outcome 1: Tertiary education</b>					
Parental education (Tertiary)					
Upper secondary	-0,285***	40%	52%		
Compulsory	-0,419***	44%	52%		
N	66,952	66,952	66,952		
R <sup>2</sup>	0.104	0.288	0.310		
<b>Outcome 2: University education</b>					
Parental education (Tertiary)					
Upper secondary	-0,193***	29%	48%		
Compulsory	-0,236***	38%	53%		
N	66,952	66,952	66,952		
R <sup>2</sup>	0.078	0.167	0.221		
<b>Outcome 3: I Higher service class</b>					
Parental education (Tertiary)					
Upper secondary	-0,176***	32%	45%	82%	85%
Compulsory	-0,243***	37%	47%	79%	82%
N	59,970	59,970	59,970	59,970	59,970
R <sup>2</sup>	0.052	0.118	0.144	0.293	0.350
<b>Outcome 4: I+II Service class</b>					
Parental education (Tertiary)					
Upper secondary	-0,238***	37%	49%	76%	77%
Compulsory	-0,372***	38%	45%	70%	71%
N	59,970	59,970	59,970	59,970	59,970
R <sup>2</sup>	0.077	0.191	0.207	0.319	0.352
<b>Outcome 5: V+VI+VIIab Man. class</b>					
Parental education (Tertiary)					
Upper secondary	0,141***	55%	55%	83%	82%
Compulsory	0,252***	48%	49%	71%	70%
N	59,970	59,970	59,970	59,970	59,970
R <sup>2</sup>	0.044	0.158	0.160	0.227	0.235
<b>Outcome 6: VIIab Semi-skill. manual</b>					
Parental education (Tertiary)					
Upper secondary	0,083***	48%	48%	76%	75%
Compulsory	0,178***	38%	38%	57%	57%
N	59,970	59,970	59,970	59,970	59,970
R <sup>2</sup>	0.031	0.087	0.088	0.125	0.127
<b>Outcome 7: Unemployment</b>					
Parental education (Tertiary)					
Upper secondary	0,025***	52%	48%	88%	84%
Compulsory	0,080***	36%	36%	53%	53%
N	61,977	61,977	61,977	61,977	61,977
R <sup>2</sup>	0.011	0.039	0.039	0.049	0.049
<b>Outcome 8: ISEI</b>					
Parental education (Tertiary)					
Upper secondary	-7,689***	37%	48%	81%	82%
Compulsory	-12,243***	38%	44%	72%	73%
N	59,775	59,775	59,775	59,775	59,775
R <sup>2</sup>	0.094	0.230	0.245	0.424	0.443
<b>Outcome 9: Log disposable income</b>					
Parental education (Tertiary)					
Upper secondary	-0,129***	38%	43%	79%	78%
Compulsory	-0,259***	37%	39%	64%	63%
N	66,816	66,816	66,816	66,816	66,816
R <sup>2</sup>	0.027	0.072	0.082	0.127	0.143

Note: \* p<0.05, \*\* p<0.01, \*\*\* p<0.001

**Table 5.4.** OLS models regressing outcomes at occupational maturity on parental social class, 1975 birth cohort. Percentage explained of inequality of outcomes by *upper secondary track enrollment*.

	Model 1 (Unadjusted)	Model 2 (+Upper sec. voc. or acad.)	Model 3 (+Tracks)	Model 4 (+Tertiary educ. level)	Model 5 (+Field of study)
<b>Outcome 1: Tertiary education</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	-0,239***	45%	56%		
IVab Self-employed	-0,264***	47%	57%		
IVc Farmers	-0,198***	59%	73%		
V+VI Skilled manual	-0,310***	46%	56%		
VIIab Semi-skilled manual	-0,387***	47%	54%		
N	66,723	66,723	66,723		
R2	0.085	0.279	0.305		
<b>Outcome 2: University education</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	-0,165***	32%	51%		
IVab Self-employed	-0,163***	37%	55%		
IVc Farmers	-0,150***	38%	56%		
V+VI Skilled manual	-0,199***	35%	52%		
VIIab Semi-skilled manual	-0,217***	41%	54%		
N	66,723	66,723	66,723		
R2	0.065	0.159	0.217		
<b>Outcome 3: I Higher service class</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	-0,151***	34%	49%	83%	86%
IVab Self-employed	-0,150***	40%	53%	85%	89%
IVc Farmers	-0,152***	39%	50%	75%	80%
V+VI Skilled manual	-0,196***	36%	48%	80%	83%
VIIab Semi-skilled manual	-0,234***	38%	48%	77%	80%
N	59,825	59,825	59,825	59,825	59,825
R2	0.045	0.114	0.142	0.293	0.350
<b>Outcome 4: I+II Service class</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	-0,216***	38%	49%	72%	73%
IVab Self-employed	-0,229***	41%	51%	57%	74%
IVc Farmers	-0,244***	37%	46%	59%	59%
V+VI Skilled manual	-0,279***	40%	49%	72%	73%
VIIab Semi-skilled manual	-0,361***	39%	45%	68%	68%
N	59,825	59,825	59,825	59,825	59,825
R2	0.071	0.188	0.205	0.319	0.352
<b>Outcome 5: V+VI+VIIab Man. class</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	0,129***	55%	57%	78%	77%
IVab Self-employed	0,138***	59%	59%	81%	80%
IVc Farmers	0,148***	53%	54%	66%	66%
V+VI Skilled manual	0,195***	49%	50%	70%	69%
VIIab Semi-skilled manual	0,248***	48%	49%	68%	67%
N	59,825	59,825	59,825	59,825	59,825
R2	0.042	0.158	0.160	0.228	0.236

**Table 5.4. Continued**

	Model 1 (Unadjusted)	Model 2 (+Upper sec. voc. or acad.)	Model 3 (+Tracks)	Model 4 (+Tertiary educ. level)	Model 5 (+Field of study)
<b>Outcome 6: VIIab Semi-skill. manual</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	0,076***	49%	50%	72%	71%
IVab Self-employed	0,086***	50%	51%	72%	72%
IVc Farmers	0,088***	47%	48%	59%	59%
V+VI Skilled manual	0,114***	45%	46%	66%	65%
VIIab Semi-skilled manual	0,185***	37%	37%	53%	52%
N	59,825	59,825	59,825	59,825	59,825
R2	0.030	0.086	0.087	0.125	0.127
<b>Outcome 7: Unemployment</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	0,029***	45%	45%	69%	66%
IVab Self-employed	0,032***	50%	50%	75%	72%
IVc Farmers	-0,006	-	-	-	-
V+VI Skilled manual	0,046***	39%	39%	59%	59%
VIIab Semi-skilled manual	0,087***	34%	34%	47%	47%
N	61,815	61,815	61,815	61,815	61,815
R2	0.012	0.039	0.039	0.049	0.049
<b>Outcome 8: ISEI</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	-6,753***	39%	50%	79%	79%
IVab Self-employed	-7,026***	44%	53%	81%	81%
IVc Farmers	-6,309***	46%	57%	77%	78%
V+VI Skilled manual	-8,782***	62%	50%	78%	78%
VIIab Semi-skilled manual	-11,838***	71%	45%	70%	70%
N	59,630	59,630	59,630	59,630	59,630
R2	0.082	0.223	0.241	0.423	0.442
<b>Outcome 9: Log disposable income</b>					
Parental social class (I+II Service)					
IIIab Routine non-manual	-0,125***	38%	43%	74%	74%
IVab Self-employed	-0,147***	39%	44%	69%	69%
IVc Farmers	-0,096***	52%	55%	80%	80%
V+VI Skilled manual	-0,173***	38%	42%	69%	69%
VIIab Semi-skilled manual	-0,263***	37%	40%	60%	61%
N	66,571	66,571	66,571	66,571	66,571
R2	0.027	0.071	0.081	0.127	0.143

Note: \* p&lt;0.05, \*\* p&lt;0.01, \*\*\* p&lt;0.001



# Appendix

**Table 1.1.** Association between first track enrollment (within one and a half year after completing 9th grade) and final track outcomes by age 30. Row percentages.

Track enrollment	Track outcomes							Total
	No completion	Vocational	Academic: STX, Math	Academic: STX, Language	Academic: HF (2 year)	Academic: HHX (Mercantile)	Academic: HTX (Technical)	
No enrollment	51%	29%	2%	1%	13%	3%	0%	100%
Vocational	21%	67%	0%	0%	7%	3%	1%	100%
Academic: STX, Math	3%	2%	89%	1%	4%	1%	0%	100%
Academic: STX, Language	4%	2%	0%	87%	5%	1%	0%	100%
Academic: HF (2 year program)	8%	6%	0%	0%	84%	1%	0%	100%
Academic: HHX (Mercantile)	2%	5%	0%	0%	1%	92%	0%	100%
Academic: HTX (Technical)	12%	13%	0%	0%	4%	1%	69%	100%
Total	19%	32%	16%	10%	10%	12%	2%	100%

**Table 1.2.** Association between first track enrollment (within one and a half year after completing 9th grade) and final track outcomes by age 30. Column percentages.

Track enrollment	Track outcomes							Total
	No completion	Vocational	Academic: STX, Math	Academic: STX, Language	Academic: HF (2 year)	Academic: HHX (Mercantile)	Academic: HTX (Technical)	
No enrollment	51%	18%	2%	3%	27%	4%	4%	20%
Vocational	40%	77%	1%	1%	25%	10%	14%	36%
Academic: STX, Math	2%	1%	97%	1%	7%	2%	2%	17%
Academic: STX, Language	2%	1%	0%	95%	5%	1%	0%	10%
Academic: HF (2 year program)	2%	1%	0%	0%	34%	0%	0%	4%
Academic: HHX (Mercantile)	1%	2%	0%	0%	1%	82%	0%	11%
Academic: HTX (Technical)	1%	1%	0%	0%	1%	0%	80%	2%
Total	100%	100%	100%	100%	100%	100%	100%	100%

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