

Limits of Meritocracy

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How Fields of Study
and Gender Segregation
Affect Social Stratification in Finland

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Abstract

This dissertation critically reviews the idea of meritocracy from both a theoretical and an empirical perspective. Based on a discussion of classical texts of social philosophy and sociology, it is argued that meritocracy as a concept for social stratification is best compatible with the sociological tradition of status attainment research: both frame social inequality in primarily individualistic terms, centring on the role of ascribed (e.g., gender, social background) and achieved (e.g., educational qualifications) characteristics for determining individuals' socioeconomic rewards.

This theoretical argument introduces the research problem at the core of this dissertation: to what extent can the individualistic conception of social stratification be maintained empirically? Fields of study and their interaction with educational attainment levels play a prominent role in the analysis of this question. Drawing on sociological versions of segmented labour market theory, it is assumed that fields of study may channel individuals into heterogeneous political-economic contexts on the labour market, which potentially modify the socioeconomic benefit individuals derive from their qualification levels. The focus on fields of study may also highlight economic differentials between men and women that derive from the persisting segregation of men's and women's occupational and educational specializations rather than direct gender discrimination on the labour market.

The quantitative analyses in this dissertation consist of three research articles, which are based primarily on Finnish data, but occasionally extend the view to other European countries. The data sources include register-based macro- and microdata as well as survey data.

Article I examines the extent and the patterns of gender segregation within the Finnish educational system between 1981 and 2005. The results show that differences between men's and women's field specializations have for the most part remained stable during this period, with particularly high levels of gender segregation observed at lower educational levels.

The focus in Article II rests on the effects of gender-segregated fields of study on higher education graduates' occupational status. It is shown that fields of study matter for accessing professional jobs and avoiding low-skilled positions in Finland: at the early career stage, particularly polytechnic graduates from female-dominated fields are less likely to work in professional positions. Finnish university graduates from male-dominated fields were more likely than their peers with different specializations to work as professionals, yet they also faced a greater risk of being sorted into low-skilled jobs if they failed to make use of this advantage.

Article III proceeded to analyse the joint impact of educational qualification levels and fields of study on young adults' median earnings in Finland between 1985 and 2005. The results show that qualification levels do not confer a consistent benefit in the process of earnings stratification. Advanced qualifications raise median earnings most clearly among individuals specializing in the same field of study. When comparing individuals with different field specializations, on the other hand, higher-level qualifications do not necessarily lead to higher median earnings.

Overall, the findings of this dissertation reveal a heterogeneous effect of education for achieving social positions, which challenges individual-centred, meritocratic accounts of social stratification and underlines the problematic lack of structural and institutional dimensions in the dominant account of social status attainment.

Tiivistelmä

Tämä väitöskirja tarkastelee kriittisesti meritokratian ideaa yhteydessä yhteiskunnan kerrostumarakenteeseen sekä teoreettisesta että empiirisestä näkökulmasta. Yhteiskuntafilosofian ja sosiologian klassikoiden tarkastelun kautta käy ilmi, että meritokratia sosiaalista kerrostumista jäsentävänä periaatteena on yhteensopiva lähinnä sosiologisen “status attainment”-tutkimusperinteen kanssa: molemmat käsittelevät yhteiskunnallista eriarvoisuutta pelkästään yksilöiden ominaisuuksien kautta, painottamalla henkilöiden taustamuuttujia (esim. perhetausta, sukupuoli) ja koulutussaavutuksia.

Teoreettinen keskustelu johdattaa väitöskirjan keskeiseen tutkimusongelmaan: missä määrin individualistinen käsite yhteiskunnallisesta kerrostumisesta kestää empiirisen tarkastelun? Tähän kysymykseen haetaan vastausta analysoimalla koulutusalan ja tutkintotason välistä vuorovaikutusta kerrostumisprosessissa. Sosiologiset työmarkkinoiden segmentaatio-teoriat antavat olettaa, että koulutusala kanavoi ihmiset erilaisiin poliittis-taloudellisiin konteksteihin työmarkkinoilla, mikä vaikuttaa tutkintojen mahdollistamiin tuloihin ja ammattiasemiin. Painottamalla koulutusalan merkitystä tämä väitöskirja tuo esiin sellaisia sukupuolivaikutuksia työmarkkinoilla, jotka johtuvat naisten ja miesten erikoistumisesta eri koulutusaloille pikemmin kuin esimerkiksi sukupuoleen perustuvasta syrjinnästä työmarkkinoilla.

Väitöskirjan kvantitatiiviset analyysit on esitetty kolmessa artikkelissa, jotka perustuvat lähinnä Suomea koskeviin aineistoihin, mutta mukana on myös muuta Eurooppaa koskevaa dataa. Lähdeaineistoina käytetään sekä rekistereihin että kyselytutkimuksiin pohjautuvaa dataa.

Ensimmäisessä artikkelissa tarkastellaan miesten ja naisten eriytymistä eri koulutusaloille suomalaisessa koulutusjärjestelmässä vuodesta 1981 vuoteen 2005. Tulokset osoittavat että sukupuolten välinen eriytyminen on pysynyt melko vakaana, erityisesti alemmilla koulutustasoilla.

Toisessa artikkelissa tutkitaan miten sukupuolittuneet koulutusalat vaikuttavat ammattikorkeakouluista ja yliopistoista valmistuneiden ammatilliseen asemaan uran alkuvaiheessa. Tulosten mukaan koulutusalan naisvaltaisuus heikentää ammattikorkeakouluista valmistuneiden todennäköisyyttä työskennellä erityisasiantuntijoina. Yliopistotutkinto miesvaltaiselta alalta lisää erityisasiantuntijatyön todennäköisyyttä, mutta uralla etenemisen epäonnistuessa, riski ajautua vain vähän ammattitaitoa vaativaan työhön kasvaa verrattuna naisvaltaiselta alalta valmistuneisiin.

Kolmas artikkeli käsittelee koulutusalojen ja tutkintotason yhteisvaikutusta nuorten aikuisten mediaanituloihin Suomessa vuosina 1985, 1995 ja 2005. Alojen sisäisissä vertailuissa tulot kasvavat koulutustason noustessa, mutta alojen välisissä vertailuissa korkeampi koulutustaso ei välttämättä tuo korkeampia mediaanituloja.

Yhteenvedon voidaan todeta, että tutkintotasolla ei ole yhtenevää vaikutusta sosiaalisen aseman saavuttamisessa suomalaisessa yhteiskunnassa. Tulos haastaa yksilökeskeiset, meritokraattiset tulkinnat sosiaalisesta kerrostumisprosessista ja korostaa rakenteellisten ja institutionaalisten ulottuvuuksien puutetta vallitsevissa käsityksissä sosiaalisen aseman saavuttamisesta.

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Article I

Prix, Irene. 2012. "Gender Segregation Within Different Educational Levels: Austrian and Finnish Trends in the Light of Educational Reform, 1981–2005." *Scandinavian Journal of Educational Research* 56 (6): 637–57

Article II

Prix, Irene. 2009. "Gender and Recent Graduates' Occupational Stratification: The Interactive Role of The Educational and Employment Sectors in Four Countries." *Comparative Education* 45 (4): 545–68

Article III

Prix, Irene. 2013. "More or Different Education? The Joint Impact of Educational Level and Fields of Study on Earnings Stratification in Finland, 1985–2005." *Acta Sociologica* 56 (3): 265–84

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Irene Prix

Part I

Introduction

1 | Aims of this dissertation

When sociologists studying education or social mobility speak of equality, they commonly distinguish equality of opportunity from equality of outcome (e.g., Breen and Jonsson 2005; Crompton 2008; Lynch 2000). Whereas equality of outcome pertains to the equal distribution of economic resources among all members of society, a society based on equality of opportunity aims at ensuring “that a person’s chances to get ahead (attain an education, get a good job) should be unrelated to ascribed characteristics such as race, sex, or class (or socioeconomic) origin” (Breen and Jonsson 2005, 223). According to the modernization thesis, this equality of opportunity is an inherent feature of modern capitalist societies: fundamental changes in the structure of the economy greatly increased the role of science and technology for economic growth, which in turn raised the skill requirements for workers (Blau and Duncan 1967; Kerr et al. 1973; Treiman 1970). As a consequence, the premium placed on competence has made it inevitable to stratify society “less on the basis of inheritance and property . . . than on education and skill” (Bell 1976, xcvi).

Applied to the social order, the idea of “meritocracy” tends to combine the principles of equality of opportunity with inequality of outcome based on achievement, thus proposing

the ideal of a society in which each person’s chance to acquire positions of advantage and the rewards that go with them depends entirely on his or her talent and effort. In such a society there will remain inequalities between different people’s life chances, but social institutions are designed to ensure that more favoured positions are assigned on the basis of individual merit; they are not allocated randomly, or by ascriptive characteristics such as race or gender, or by the machinations of the already powerful. (Miller 1996, 277)

With its focus on fair competition, the principle of equality of opportunity is thus quite compatible with an unequal distribution of resources

CHAPTER 1. AIMS OF THIS DISSERTATION

within society, provided that competitors over these rewards were judged exclusively on their achievement. The belief that social inequality is to a significant part the outcome of personal merit can be considered a popular view in a large number of countries: asked to evaluate the importance of several factors that may influence opportunities for “getting ahead in life”, roughly 75% of all respondents to the International Social Survey Programme (ISSP) in 2009 (administered in 41 countries) considered education and hard work as “essential” or “very important”. Admittedly, the proportion of people sharing this opinion in the individual countries varies quite considerably. But even among the apparently more sceptical countries in Europe, it appears that notions pertaining to meritocratic stratification enjoy widespread currency: roughly 50% of Norwegian and Finnish respondents perceive education as “essential” or “very important” for success, compared to even 90% of Germans who hold that view (ISSP Research Group 2012).

Many sociologists regard the idea of meritocracy as a “conventional wisdom” in academic as well as political circles of most Western societies (Goldthorpe 2003, 234; similar also Duru-Bellat and Tenret 2012). This notion of meritocracy also seems to be ingrained within the policy of major international institutions. Take, for example, a recent World Bank report on development, which takes great lengths to emphasize

that observed distributions of certain outcomes – such as incomes – are the product of complex processes, and that the primary interest for those concerned with equity is *not* outcome, but the fairness of the processes they participate in over their lifetimes. An income distribution in which some people are much richer than others because, given similar chances, they have worked much harder, may be regarded as fair. (World Bank 2005, 81)

With equality thus primarily defined by opportunities rather than outcomes, an important focus for the scholarly and political attention to inequality rests on the barriers that are thought to distort the fair competition over social positions, such as unearned advantages on the basis of gender or social background.

Of particular significance is the question of equality of *educational opportunity*. As the World Bank report explains, “disadvantaged children from families at the bottom of the wealth distribution do not have the same opportunities as children from wealthier families to receive quality education. So these disadvantaged children can expect to earn less as adults” (2). The reasoning in this quotation also illustrates that the notion of educational opportunity implicitly premises on an assumed meritocratic process of social stratification. Advocates of meritocracy argue

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that “incomes should reflect hard work and talent” (Saunders 2006, 194). So if socioeconomic rewards are primarily allocated on the basis of individuals’ achievement such as their education, it is fair access to such qualifications that is most crucial for improving individuals’ life chances and elevating them out of poverty.

The concept of meritocracy I focus on in this dissertation is thus made up of two central pillars, summarized graphically in figure 1.1. On the one hand, meritocracy demands the selection of individuals to social positions and educational qualification levels strictly on the basis of their ability and competence. Second, life chances are distributed on the basis of the achievement required by these social positions or qualification levels (resulting in legitimate inequalities in earnings and social status).

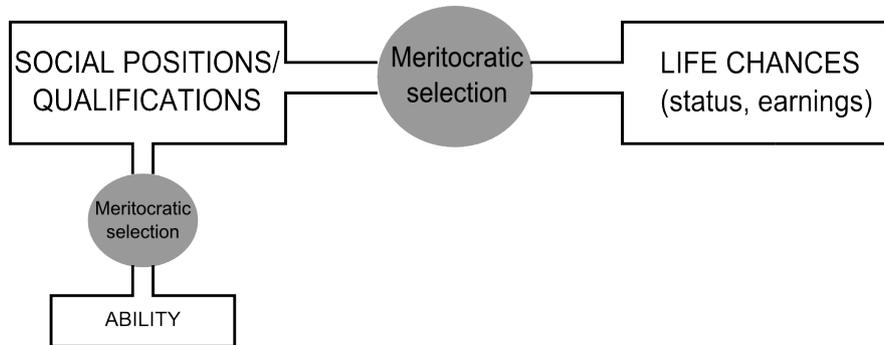


Figure 1.1: The meritocratic ideal of social stratification

The core aim of this dissertation is to subject this idea of meritocracy as a principle of social stratification to closer scrutiny. The first step in this endeavour is taken on a theoretical level: strolling through the history of ideas, chapter 2 probes to what extent meritocracy appears to have enjoyed common currency in past discussions of social organization. Various authors’ texts on social inequality serve as the basis for this first enquiry, spanning from Plato up to mid-20th century stratification theory. The main argument I put forward in chapter 2 is that favouring competence over ascription in the selection of candidates to a given social positions is not a recent idea, but pervades historical theories of the social order. What is *lacking* from the historical accounts I reviewed, on the other hand, is the notion that such achievement or competence should present a basis for the extent of economic resources and life chances distributed to individuals. As I will argue below, conceiving the social order as a meritocracy – understood as the allocation of life chances primarily on the basis of individual achievement – depends on a theory of stratification that disregards institutional and power-related factors, in order to reduce the complexity of social inequality to a question of

individuals' achieved and ascribed attributes.

The conclusion drawn from this first theoretical essay provides the basic motivation underlying the empirical analyses in this dissertation: does the inclusion of institutional aspects of achievement confirm or complicate a meritocratic interpretation of social stratification in Finland? In addition to reviewing the contemporary sociological critique of meritocracy, chapter 3 draws on sociological approaches to educational systems, labour markets as well as gender, in order to elaborate the key concepts structuring this dissertation. This discussion leads me to the core research questions structuring the empirical part of this dissertation: in which way may educational structures (fields of study, the degree of gender segregation within education, and different types of degrees at the same qualification level) affect the link between individuals' qualifications and their social positions?

As such, my scrutiny of the meritocratic account will focus less on the role of ascription in the social stratification process, but will instead highlight the contradictory patterns in which educational achievement is related to socio-economic outcomes. The results of my empirical analyses conducted for this dissertation are summarized in chapter 5, with the original research articles added to the appendix. Their findings reveal a heterogeneous effect of education for achieving social positions, which challenges individual-centred, meritocratic accounts of social stratification and further underlines the problematic lack of structural and institutional dimensions in the usual account of social status attainment.

The national context of the empirical analysis, as well as the data and methods applied in the three articles, will be introduced in chapter 4. Chapter 6 concludes this dissertation with a discussion of the empirical findings with regard to their theoretical implications, their limitations and the possible avenues they open for further study.

2 | Meritocracy in the history of ideas

Leaving aside the question whether predictions concerning modernization's promotion of competence and achievement as core principles of stratification have been factually accurate, the essay in this chapter aims at exploring the role that individuals' achievement – broadly defined as either acquired or innate ability and competence – matters for past thinkers' views on social stratification.¹ Canonical texts of social philosophy and sociology constitute the main source for this conceptual discussion, which starts with Plato and concludes with sociological functionalism.

While some writers in this selection present their ideal of the social order, others discuss the state of their respective present societies with a more empirical than a normative emphasis. But even the seemingly more empirical accounts contain “hypothetical” elements, in the form of theorizing and speculation as to what mechanisms have brought about or maintain certain social phenomena and in the writers' endorsement or critique of such developments. In discussing these various texts, I focus particularly on the extent to which writers invoked meritocratic notions when they explained, justified or critiqued any of the social phenomena they diagnosed in their respective societies.

Generally, a distinction must be made between the criteria that regulate access of individuals to particular socially-defined roles and positions (such as occupations), and the ranking of these positions in terms of social prestige or the political and economic rewards attached to them. The first section of this essay intentionally neglects these distinctions in favour of a quite broad view on how various authors judged the relative

1. To what extent effort has been applied in translating ability into achievement is not of primary concern to this discussion. Although this question is indisputably relevant to the debate on meritocracy more broadly, as Hayek ([1960] 2006) and Goldthorpe (1996) have aptly demonstrated, I have decided to concentrate on a different line of argument in this theoretical essay.

importance of achievement and ascription factors in justifying social distinctions (regardless whether they are defined either in terms of prestige or in terms of economic resources). The second section, on the other hand, asks whether historical views that proposed competence, talent, ability or skill as the factual or desired basis for differentiating social positions, also expected economic resources in society to be allocated proportionately to such achievement. Finally, this chapter concludes by discussing the role of meritocracy in sociological stratification theory of the 20th century. Rather than presenting meritocracy as a product of sociological functionalism, I propose that empirical status attainment research provides a greater degree of theoretical kinship with contemporary notions of meritocratic social stratification.

To summarize, there are three questions which this essay aims to address:

1. To what extent do the texts refer to individual competence or achievement over ascriptive criteria (such as social status acquired through family background) when they discuss the selection of individuals to social positions?
2. Do the texts justify the distribution of economic resources and life chances in society with references to the achievement and competence required from individuals in stratified social positions?
3. How (if at all) do notions of meritocracy found in these historical texts differ from the contemporary idea of meritocracy, and what implications does this have for empirical research on stratification?

2.1 Achievement and ascription in the selection process

2.1.1 Eliminating social background influences: total social mobility

Taking the notion that “we have different natural aptitudes, which fit us for different jobs” (Plato *The Republic* 370a) as his point of departure, Plato defines justice in his utopian republic as the principle that “one man was to do one job, the job he was naturally most suited for” (*Rep.* 433a). As such, social stratification, as conceived by Plato, necessarily takes the individual into the primary focus: rather than assigning the best-suited candidate to a given job, it is the *best-suited jobs* that are

allocated to each individual. Plato supposes a direct analogy between the functions within a state and the natural aptitudes existing among the populace (e.g., *Rep.* 435e). With the Guardian class excelling in reason and discipline, they are the rightful masters of those occupational groups (and thus individuals) that are to a greater extent dominated by their emotional desires (*Rep.* 431c–d). The basic criterion that vertically ranks occupations is the amount of self-discipline a given social position requires of the individual incumbent, producing in the state “a harmony between its strongest and weakest and middle elements . . . in which there is a natural concordance between higher and lower about which of them is to rule in state and individual” (*Rep.* 432a).

With primacy given to individuals’ aptitudes in the division of labour, Plato’s philosopher’s state is able to promote a concept of social mobility that realizes “equal opportunities” in its purest form. Children are separated from their parents right after birth and subsequently are subjected to systematic testing up until their adulthood, before finally being allocated to a social class in line with their individual abilities. Plato justifies this procedure to the citizens in his fictional state via a “foundation myth”:

You are, all of you in this community, brothers. But when god fashioned you, he added gold in the composition of those of you who are qualified to be Rulers (which is why their prestige is greatest); he put silver in the Auxiliaries, and iron and bronze in the farmers and other workers. Now since you are all of the same stock, though your children will commonly resemble their parents, occasionally a silver child will be born of golden parents, or a golden child of silver parents, and so on. Therefore the first and most important of god’s commandments to the Rulers is that in the exercise of their function as Guardians their principal care must be to watch the mixture of metals in the characters of their children. If one of their own children has traces of bronze or iron in its make-up, they must harden their hearts, assign it its proper value, and degrade it to the ranks of the industrial and agricultural class where it properly belongs: similarly, if a child of this class is born with gold or silver in its nature, they will promote it appropriately to be a Guardian or an Auxiliary. And this they must do because there is a prophecy that the State will be ruined when it has Guardians of silver or bronze. (*Rep.* 415a–c)

This inter-generational social mobility is matched by a strict commitment to intra-generational mobility. This means that social status can never be taken for granted, at least in the case of the Guardians: rather than resting on their once-achieved laurels for life, “any of them who

deserts or throws away his arms or shows any similar signs of cowardice should be relegated to the artisans or farmers” (*Rep.* 468a).

In theory, then, this is a system of social stratification where the principle of equal opportunities in its most purest form takes centre stage: no other criterion but individuals’ ability and achievement determine their position within the philosopher’s state. Nevertheless, Plato assumes a biological link between children’s ability and that of their parents. But by isolating children from their parents, his policy aims at developing these innate qualities to a degree that remains uncontaminated by the circumstances of these children’s family background.

2.1.2 Ascription as the precondition for demonstrating achievement or its lack

While in many respects outspokenly critical towards Plato’s *Republic*, what Aristotle at the first glance shares with his teacher is the notion that competence should be the primary criterion for appointing individuals to offices. This becomes clear when Aristotle reviews the political constitutions of Crete and Carthage. Whereas he criticizes the appointment of the ruling Elders in Crete due to the fact that they are exempt “from scrutiny and their life-tenures are privileges in excess of their merits” (Aristotle *The Politics* 1272a), he praises the corresponding Carthaginian political body, given that “its members are chosen on merit and not from all indiscriminately” (*Pol.* 1272b). Giving primacy to competence over family background constitutes a matter of justice for Aristotle:

For if, say, pipe-players are equal in skill, we must not give an advantage in instruments to those of better birth, for that would not enable them to play any better. The use of the better instrument ought to belong to the better performer. (*Pol.* 1282b)

But more than simply a matter of justice, matching individuals’ abilities with the requirements of social positions is a necessary requirement for social and political stability. For this reason, questions of ability need to be considered not only when filling positions of high esteem, but apply even when pondering the role of slaves in Greek democracies: “those whose condition is such that their function is the use of their bodies and nothing better can be expected of them, those, I say, are slaves by nature” (*Pol.* 1254b). In this sense, an inferior cognitive ability constitutes for Aristotle a necessary qualification for those working in agricultural occupations: “the best thing . . . is that they should be slaves. They should

not be all of one stock nor men of spirit; this will ensure that they will be useful workers and no danger as potential rebels” (*Pol.* 1330a).

Similarly to Plato, it is precisely because of his emphasis on merit and competence that Aristotle favours *aristocracy* as the ideal form of government, understood as the “rule of the majority who are all good men” (*Pol.* 1286b). The neglect of this merit principle constitutes one of Aristotle’s many misgivings about the democratic constitution, since it defies his view of justice:² if men are not equal in merit, it is unjust to treat them as equals, as much as it is unjust for discriminating among those with equal ability and merit (*Pol.* 1280a). According to Aristotle, then, the aristocratic form of government is clearly superior over democracy, given that “the democratic idea of justice is in fact numerical equality, not equality based on merit” (*Pol.* 1317a).

But what does merit mean to Aristotle, and how can it translate into a principle of stratification within society as a whole? A “good man” for Aristotle is a virtuous man, one whose soul is dominated by reason (*Pol.* 1333a). Similar to Plato, Aristotle establishes an intrinsic connection between the relationships of dominance assumed to exist within the individual and those within the state. Within the individual, “it is both natural and expedient for the body to be ruled by the soul, and for the emotional part of our natures to be ruled by the mind, the part which possesses reason” (*Pol.* 1254b). Drawing on the idea that virtue is distributed in differing amounts between the social classes, it follows that “the ruler then must have moral virtue in its entirety . . . And the other members must have such amount as is appropriate to each” (*Pol.* 1260a).

With virtue being intrinsically connected to the faculty of reason, the stratification of occupational groups also includes a divide in prestige between manual and non-manual work:

Those occupations which require most skill are those in which there is the smallest element of chance, the most mechanical are those which cause most deterioration to the bodies of the workers, and most slavish those in which most use is made of the body, and the most ignoble those in which there is least need to exercise virtue too. (*Pol.* 1258b)

While occupations thus vary in the extent of virtue they embody, the greatest merit in Aristotle’s aristocracy is reserved for those members of society, “who are without qualification best in virtue, not simply . . . good

2. Yet, compared to oligarchy and tyranny, Aristotle nevertheless regards democracy to be a relatively mild form of deviation from aristocracy (see *Pol.* 1289a).

in relation to some assumed situation” (*Pol.* 1293a), such as the requirements imposed by their occupation. Aristotle’s concept of absolute virtue is not a kind of ability that rests solely on an individual’s innate resources. The main condition for demonstrating a virtuous life in its true sense requires citizens of Aristotle’s aristocratic state to refrain from working in mechanical, commercial or agricultural occupations, since “they must have leisure to develop their virtue, and for the activities of a citizen” (*Pol.* 1328b). In order to achieve this state of leisure from which virtue can spring, in turn, “it is essential that the citizens should have ample subsistence” (*Pol.* 1329a).

However, it is by no means an automatic consequence that people of leisure develop the highest sense of virtue, and neither can virtue be acquired by economic means as such. Wealth and leisure make absolute virtue possible because they ensure that virtue is of the individual’s own making rather than a product of circumstances. It is not the same achievement to be virtuous in war, “[f]or war *forces* men to be just and restrained”, and it is in this sense that working for a living can be compared to war: “the end of war is peace and leisure is the end of work” (*Pol.* 1334a). Precisely because a life of independent means is free from such external sources of discipline, only leisure enables individuals to prove either their moral failures or their true merits.

To summarize, Aristotle implies that equal opportunities for demonstrating virtue require a minimum degree of equality in economic resources, as without leisure it is impossible to develop the highest form of Aristotelian virtue. In contrast to Plato’s republic, then, family background, as an ascriptive dimension with significant economic repercussions, functions as the *facilitator* for the type of achievement which counts most in Aristotle’s ideal state. Social inequality as such is of much lesser concern to Aristotle, perhaps as his main interest clearly lies with the small group of citizens, who by definition can afford a life of leisure. As much as he regards the state itself as a product of nature, as much is social inequality in the best state the outcome of natural processes, according to Aristotle: with cognitive ability exerting a natural superiority over bodily strength, the rank order of these abilities directly determine the functions within the household (between master and slave or wife) as well as within the occupational hierarchy in the community (*Pol.* 1252a, 1254a–b).

2.1.3 Ascription as the remnant of ancestral ability

When many centuries later, philosophers of the 18th and 19th century took to debating social stratification in their contemporary societies,

some of Aristotle’s views could still be heard echoing through their works, not least by their emphasis on competence as a key criterion for accessing the highest echelons of the social order. Indeed, this regard for ability leads Rousseau to endorse aristocracy as the ideal mode of government over democracy, given that “it is the best and most natural arrangement for the wisest to govern the multitude” (Rousseau [1762] 2004, 81). Democracy, on the other hand, would require “a large measure of equality in social rank and fortune, without which equality in rights and authority will not last long” (78), a requirement so unlikely to be met among humans that Rousseau deems only gods to be ever fit for democracy (79). While kindling a more optimistic vision on the perfectibility of reason and conduct than Rousseau, Condorcet shares this emphasis on ability, viewing greater skill and competence as constituting a “natural ascendancy” (Condorcet 1796, 264). In a similar vein, Saint-Simon argues for reason and ability to be the main criteria for social stratification, where “domination should be proportionate to enlightenment” (Saint-Simon [1803] 1964, 8).

While both Plato’s and Aristotle’s texts spent most of their discussions of ability in the context of finding the best form of government, the treatises of the here discussed Enlightenment thinkers extend their view to the striking extents of social and political inequality in their respective societies. Rousseau argues that social inequality was originally a product of differential abilities, which arose once humans had left their isolated “state of nature” and formed communities based on agriculture:

In this state of affairs, equality might have been sustained, had the talents of individuals been equal . . . ; but, as there was nothing to preserve this balance, it was soon disturbed; the strongest did most work; the most skilful turned his labour to best account; the most ingenious devised methods of diminishing his labour . . . and, while both laboured equally, the one gained a great deal by his work, while the other could hardly support himself. (Rousseau [1755b] 1973, 85–86)

For Condorcet, on the other hand, inequality of economic resources first occurred as the result of *chance* rather than individuals’ ability differences. In the first pastoral tribes, “as the flocks of each could not multiply in the same proportion, a difference of wealth was established” (Condorcet 1796, 31). When it comes to political offices, on the other hand, Condorcet concedes that personal ability criteria may have been the decisive force in the original differentiations of social prestige: “it was natural to agree that the decision of [quarrels within society, I.P.] should be referred to those whose age and personal qualities inspired the

greatest confidence. Such was the origin of the first political institutions” (Condorcet 1796, 26).

What both Rousseau and Condorcet agree on, however, is that neither differences in talent, nor character, nor chance, but historically evolved *social institutions* are to blame for the entrenchment and widening of economic and political inequality within society: these include the idea of private property (Rousseau [1755b] 1973, 98), as well as laws which confer political and/or economical advantages to the wealthy, exacerbating the disadvantage of the poor (Condorcet 1796, 259–62; Rousseau [1755b] 1973, 98–101).

Not all of their contemporaries share this view. Henri Saint-Simon, for one, proposes a direct relationship between the basic pattern of social inequality in his contemporary society and the seemingly naturally occurring ability differences in the population: “the haves govern the have-nots, not because they own property; they own property and govern because, collectively, they are superior in enlightenment to the have-nots” (Saint-Simon [1803] 1964, 4n1). He defines scientists, artists and industrialists as “the men who possess the most eminent, varied, and most positively useful ability, for the guidance of men’s minds at the present time”, and as such it is them “who should be entrusted with administrative power, that is to say, with the responsibility of managing the national interests” (Saint-Simon [1825] 1964, 78–79). The social status of the idle rich, on the other hand, who merely consume without innovating, should be relegated below these more enlightened property owners (Saint-Simon [1803] 1964, 2–5).

2.1.4 Family background as the nurturing ground for achievement

In contrast to Saint-Simon, Rousseau derives ability differences between social groups in his contemporary society as the *consequence* rather than the origin of their social status. For Rousseau, it is “easy to see that many of the differences between men which are ascribed to nature stem rather from habit and the diverse modes of life of men in society” (Rousseau [1755b] 1973, 72).

This determining force, which the social environment exerts on their mental and physical ability, is further developed by Adam Smith. Smith argues that differences in education and occupational context explain the “gross ignorance and stupidity which, in a civilised society, seem so frequently to benumb the understandings of all the inferior ranks of people” (Smith [1776b] 1999, 374). Having been for the most part quite alike as children, differential talents develop once individuals have been

allocated to different occupations or types of education, and it is due to such variations in environment that talent discrepancies develop among people (Smith [1776a] 1999, 120). The reason for the effects of occupation and education on individuals minds, in Smith’s view, lies in the varying degrees of stimulation that different social classes experience in their social environment:

The man whose whole life is spent in performing a few simple operations . . . has no occasion to exert his understanding or exercise his invention . . . He naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become . . . His dexterity at his own particular trade seems, in this manner, to be acquired at the expense of his intellectual, social, and marital virtues. (Smith [1776b] 1999, 368–9)

Those individuals leading a life of leisure without having to rely on wage labour, on the other hand, face quite different degrees of mental stimulation. Free to pursue a variety of activities, such opportunity “exercises their minds in endless comparisons and combinations, and renders their understandings, in an extraordinary degree, both acute and comprehensive” (370).

Yet, if differences in competence are the consequence rather than the cause of the division of labour, it is hard to conceive how a concept of innate ability or achieved competence might ever serve as a criterion for legitimizing social inequality. While Smith concedes that “the common people cannot, in any civilised society, be so well instructed as people of some rank and fortune” (371), his reasoning suggests that the main obstacle to this aim is not chiefly found in fundamental limitations in the capacity of learning among some groups of people.³ Instead, what makes a degree of social inequality inevitable and defensible for Adam Smith is mainly its general *usefulness* in relation to the national wealth. As the productivity of labour rises with an advanced degree of division of labour in society, it “occasions, in a well-governed society, that universal opulence which extends itself to the lowest ranks of the people” (Smith [1776a] 1999, 115). While a division of labour is thus necessary for ensuring economic growth, the resulting differences in working conditions together with fluctuations in the supply and demand of different jobs

3. However, Smith does concede that some individuals are more successful at given tasks than others (e.g., Smith [1776a] 1999, 208). Yet, I would argue that such differences are not the primary source for the development of the division of labour or the inequality of education for Smith.

make social inequality more or less inevitable within capitalism (Smith [1776a] 1999, 201–47). The fact that this logic of the market bars some individuals from fully developing their abilities and tastes is not of primary relevance to Smith’s treatise on political economy, even though he did have some regard for the lot of the working classes and considered a decent standard of living for the majority of the population as a matter of fairness (181–5).

Occupational mobility is nevertheless of great importance for Smith; a feature that his account could be said to share with Plato’s Republic. Yet, there is a clear difference in the reasons for defending individuals’ possibility to enter or leave occupational fields. Whereas the social and occupational structure in Plato’s ideal state was modelled after individuals’ abilities, it is *capital* which plays this primary role in the society that Smith describes: “The demand for those who live by wages, therefore, necessarily increases with the increase of the revenue and stock of every country, and cannot possibly increase without it. The increase of revenue and stock is the increase of national wealth” (172). Being able to enter and leave different types of occupations and jobs as an individual sees fit is a precondition for achieving the most efficient price paid for worker’s labour power between competing types of jobs: “If in the same neighbourhood, there was any employment evidently either more or less advantageous than the rest, so many people would crowd into it in the one case, and so many would desert it in the other, that its advantages would soon return to the level of other employments.” (201).

To sum up, the main reason for social inequality in Smith’s view lies not in a purported natural inequality of talents and abilities among individuals, but has its primary source in the requirements of capital.

2.1.5 Neither achievement nor ascription: stratification by markets

As another classic figure in the history of political economy, John Stuart Mill shares the basic premises of the market outlined by Adam Smith. Just like Smith, Mill emphasizes the structural relationship between capital and labour, regulated by the logic of supply and demand, as responsible for the unequal remuneration of different jobs. Not the ability and competence of different occupational groups, but their scarcity or overabundance in relation to demand by capital is what ultimately defines their socioeconomic position:⁴ “Wages, then, depend mainly upon the de-

4. However, Mill concedes that in some occupations, notably the professions, wages are mainly fixed by custom rather than the laws of supply and demand (e.g., Mill

mand and supply of labour; or as it is often expressed, on the proportion between population and capital” (Mill [1871a] 1965, 245).

But in contrast to Smith, Mill adds a clear individualistic spin to these structural relationships. While he sees the low wages of labourers as the consequence of their large numbers, the very fact that the supply of labourers outstrips available work is for Mill chiefly caused by the character failings of these workers: “Poverty, like most social evils, exists because men follow their brute instincts without due consideration” (367), as the pursuit of corporal pleasure without foresight tends to enlarge these workers’ families. As the solution for low wages, Mill suggests “that the labouring classes should be induced to practice a sufficient degree of prudence in regard to the increase of their families” (370). It is due to such differences in character and intelligence that skilled occupational groups are better off economically, according to Mill: “If the wages of artizans remain so much higher than those of common labourers, it is because artizans are a more prudent class, and do not marry so early or so inconsiderately” (388).

It is tempting to see a certain parallel with Aristotle’s view of aristocratic society in Mill’s emphasis on moral character, yet Mill does not regard the lack of self-restraint and prudence as a single, original cause for labouring workers’ condition. For him, the importance of class-specific fertility rates arises chiefly due to the lacking occupational mobility that he observes in the Britain of his time: “so complete, indeed, has hitherto been the separation . . . as to be almost equivalent to an hereditary distinction of caste; each employment being chiefly recruited from the children of those already employed in it, or in employments of the same rank with it in social estimation” (387). Mill criticizes this inequality of opportunity, to which he also counts occupational restrictions for women (Mill [1871b] 1965, 765), for artificially distorting the relationship between the supply and demand of labour.

Yet, despite his advocacy equality of opportunity and his staunch defence of competition as a cornerstone of liberty (Mill [1871a] 1965, 388; [1879] 1967, 729–30), Mill clearly rejects the idea that qualification in itself should grant an individual the *right* to access a given social position:

Whoever succeeds in an overcrowded profession, or in a competitive examination; whoever is preferred to another in any contest

[1871a] 1965, 398–9). Only in this occupational area sheltered from free competition are the custom-determined fees for services “modified from time to time by notions existing in the mind of purchasers and sellers, of some kind of equity or justice” (Mill [1871a] 1965, 243).

for an object which both desire, reaps benefit from the loss of others, from their wasted exertion and their disappointment. But it is, by common admission, better for the general interest of mankind, that persons should pursue their objects undeterred by this sort of consequences. In other words, society admits no right, either legal or moral, in the disappointed competitors, to immunity from this kind of suffering; and feels called on to interfere, only when means of success have been employed which it is contrary to the general interest to permit – namely, fraud or treachery, and force. (Mill [1869] 1977, 292–3)

Mill’s support for the expansion of education among the working classes derives to a significant part from its potential effects on socializing the lower classes into becoming conscientious citizens and workers. For the majority of people, education should simply “qualify them for forming a sound practical judgement of [their] circumstances”, while any intellectual training beyond this basic level is “chiefly ornamental” (Mill [1871a] 1965, 375). It is due to these effects on the *moral character* of the working classes that Mill hopes to make a difference to their socio-economic condition, expecting education primarily to have a restraining effect on their fertility rates (375). At the same time, such moral improvement may also increase workers’ aggregate productivity by strengthening their loyalty to their employers (108-10) and by removing the effects of “unsteady habits upon the energy and continuity of their work” (109).

In summary, what Mill’s emphasis on competition suggests is that *scarcity* in skills sought by capital, rather than useful competence or ability as such, is the main criterion of occupational stratification in terms of economic resources. Individual ability and skill are intrinsically important to Mill, but unlike Plato, he clearly rejects the idea that they should constitute the basis for social stratification.

2.1.6 Concluding remarks

Modernization theorists have argued that due to industrialization, modern society has become incompatible “with the assignment of managers or workers to occupations or to jobs by traditional caste, by racial groups, by sex, or by family status” (Kerr et al. 1973, 45). And yet, as an *idea* the allocation of jobs and social status according to some criterion of competence significantly pre-dates the era of mass production, given that the importance of individual ability for filling social positions has been emphasized since the time of the Ancient Greek philosophers.

However, most writings considered in this section also saw a person’s competence and talents as fundamentally associated also with ascriptive

characteristics: family background was conceived as the biological source for individuals' expected ability (Plato), as the outcome of ability differences between ancestors (Rousseau/Condorcet) and, through the wealth it bestows, the precondition for an individual to demonstrate merit (Aristotle) or develop higher-level ability (Smith).

With respect to what should determine the shape of social stratification, a clear conceptual rift became visible in the discussion. While Plato and Aristotle modelled social positions according to individuals' characteristics, political economists such as Mill and Smith give clear priority to the needs of capital and the free interplay of supply and demand in the interest of the national wealth.

2.2 Life chances as the reward for achievement?

The first element of meritocracy I outlined in this dissertation was the idea that competence and ability, rather than personal characteristics such as family background, gender or ethnicity, should determine access to social positions. The previous discussion has shown that this notion, at least when it comes to individuals' social background, was not entirely alien to social philosophers of previous centuries. But what about the second pillar of meritocracy identified in chapter 1, the distribution of economic resources among individuals according to their achievement? Are there traces of this principle to be found in historical ideas on the social order? Taking another stroll through the history of ideas, this chapter aims to find an answer to this question.

2.2.1 The higher the rank, the lower the reward

One of the examples for equal opportunities in their most consistent and radical formulation is Plato's philosopher state. Complete social mobility based on individual's traits and achievements is taken literally in this text, and all influence of family background, but also gender (e.g., *Rep.* 451e–452a), is completely eliminated from the stratification process. But does that mean that those with the highest form of achievement also face the greatest extent of economic resources in Plato's philosopher's state?

No, quite the opposite. While social positions are hierarchically graded based on ability, with only the most competent and virtuous individuals admitted to the highest ranks of Guardians, Plato proposes the hierarchy of social esteem to be *negatively* associated with the distri-

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bution of both economic resources and personal freedoms. According to Plato, the Guardians

shall have no private property beyond the barest essentials. Second, none of them shall possess a dwelling-house or store-house to which all have not the right of entry. Next, their food shall be provided by the other citizens as an agreed wage for the duties they perform as Guardians . . . They shall eat together in messes and live together like soldiers in a camp . . . They alone, therefore, of all citizens are forbidden to touch or handle silver or gold . . . they can't go for a holiday abroad on their own if they want to; they have nothing to spend on women or on all those other things on which those who are commonly reckoned well off spend their money. (*Rep.* 416d–420a)

Plato aims at completely decoupling personal wealth from social status within the community. He regards private property neither as a reward nor an incentive, but rather as a threat to the Guardian's performance, due to its potentially corruptive effects on their morals and virtue (*Rep.* 416d, 422a). To the extent that those at the top of the social hierarchy are considered to be equipped with the highest amounts of self-discipline and strength of character, it could be argued that these extensive restrictions to their personal freedoms are superfluous and contradictory. But Plato is eager to avoid even the smallest risk of moral corruption at the top. For him, it is in the highest social positions where failings of virtue have the potential to bring about the greatest harm: "If the Guardians of the laws and state, who alone have the opportunity to bring it good government and prosperity, become a mere sham, then clearly [the community, I.P.] is completely ruined" (*Rep.* 421a). Assuming that "small natures never do much good or harm to either" (*Rep.* 495b) individuals or communities, Plato permits workers and artisans to acquire private property and retain a higher degree of self-determination over their lives. But not only excessive wealth, also poverty is deemed as detrimental to the well-being of the community, as both would bar individuals from fully devoting themselves to the job they are most suited for. To prevent this injustice, as Plato sees it, requires the Guardians to ascertain that the distribution of economic resources in the lower classes avoids great discrepancies (*Rep.* 421d–422a).

Despite some important differences, Aristotle's views share a crucial component with his teacher Plato. Although he also values moral character and cognitive ability as the highest form of competence in his ideal aristocracy, Aristotle sees a comfortable standard of living as a necessary presupposition for demonstrating true virtue. Yet, despite this difference

between their points of departure, Aristotle's and Plato's views converge in their refusal to reward competence (measured by virtue and cognitive ability) with economic resources. Regarding pre-existing wealth more as an insurance against corruption than as a potential threat to virtue, Aristotle is convinced that "legal and other administrative arrangements should be such that holding office is not a source of profit" (*Pol.* 1308b). However, this does not mean that achievement should go unrewarded for Aristotle. Those who excel in noble actions ought to be "entitled to a larger share in the state than those who, though they may be equal or even superior in free birth and in family, are inferior in the virtue that belongs to a citizen" (*Pol.* 1281a). Thus, prestige and political honours, rather than economic rewards, should compensate the greater contribution in virtue afforded by these high-achieving citizens.

2.2.2 Remuneration as compensating disadvantages

Even though they assumed early social and economic inequality in the history of humankind to have been based on natural differences in personal abilities between individuals, neither Rousseau nor Condorcet condoned this early system of social stratification: it might have provided equal opportunities in the sense that only ability, not conventions of social background, secured the access to economic resources. Instead of restoring such apparently natural differences between individuals, the demands of these Enlightenment thinkers contained more radical ideas: such as "to prevent extreme inequality of fortunes; not by taking away wealth from its possessors, but by depriving all men of means to accumulate it"(Rousseau [1755a] 1973, 134). Rather than distributing economic resources as rewards for achievement, then, Condorcet appeals "to prevent riches from operating as the means of gratifying vanity or ambition" (Condorcet 1796, 260). On the whole, both Rousseau and Condorcet appear to criticize social inequality primarily due to the power differentials it inevitably entails, regardless of how it came to pass.

Similarly, Adam Smith saw differences in skills and cognitive ability between social groups primarily as a consequence rather than a precondition for their occupational placement. In his view, it is the division of labour itself which gives routine manual workers less room for developing ability than the wealthy leisure classes. But given the differences in occupational roles, does Smith's political economy theorize a connection between individuals' achievement within their occupation and the economic resources awarded to them in the form of wages?

Partially, yes, but skill is only one of the several elements that determine the wage level, according to Smith. On the one hand, it is the

relationship between supply and demand for labour which influences the amount of wages paid to workers, quite independently of their skills and performance. But in addition, Smith sees wages also determined by a (supposedly natural) tendency to equalize the disadvantages and advantages characterizing particular jobs. As such, Smith’s idea of wages as compensating for disadvantages shows some relation to the Aristotelian principle of distributive justice, which describes a form of an exchange “which will not come about unless the products are in some sense equal” (Aristotle *Nicomachean Ethics* 1133a). For Smith, there are five dimensions which play an independent part in differentiating wage levels between occupational groups:

First, the agreeableness or disagreeableness of the employments themselves; secondly, the easiness and cheapness, or the difficulty and expense of learning them; thirdly, the constancy or inconstancy of employment in them; fourthly, the small or great trust which must be reposed in those who exercise them; and fifthly, the probability or improbability of success in them. (Smith [1776a] 1999, 202)

If employments requiring greater skill are better remunerated in terms of wages, this happens due to the greater amounts of time and expenses that the worker must invest in order to acquire these skills (203–4). As a consequence, I would expect that innate talent, which exists without learning efforts, does not, according to Smith’s logic, qualify as eligible for the same kind of compensation as trained skills.⁵ The working conditions, on the other hand, have an additional impact on the wage level: even if they require the same level of skills, Smith would expect dangerous, dirty, difficult or physically straining work to command higher wages than safe, clean and easy jobs.

Smith’s view contradicts the conventional meritocratic interpretation of wages in two ways. First, he emphasizes several aspects unrelated to individuals’ achievement levels, such as the logic of supply and demand as well as working conditions. But in addition, he also considers the fundamental power asymmetry that characterizes the wage labour relation in a capitalist context as a major source of influence on wage differences within society. Unlike slavery, wage labour rests on the freedom of contract between workers and capitalists, and yet, Smith argues, these two parties’ “interests are by no means the same. The workmen desire to get

5. However, the scarcity of some talents enable them to establish monopoly prices for their labour independent of compensation for training, according to Smith ([1776a] 1999, 209).

as much, the masters to give as little as possible” (Smith [1776a] 1999, 169). Whereas the workers depend on their employers for their survival, the capitalist “could generally live a year or two upon the stocks which they have already acquired”. Smith concludes that “in the long-run, the workman may be as necessary to his master as his master is to him; but the necessity is not so immediate” (169). Both capitalists and workers try to limit the free play of the market in order to secure their interests, with masters forming “combinations to sink the wages of labour . . . conducted with the utmost silence and secrecy, till the moment of execution” (169), while the workers “act with the folly and extravagance of desperate men, who must either starve, or frighten their masters into an immediate compliance with their demands” (170). Eventually, so Smith, capitalists usually have the upper hand, as they “never cease to call aloud for the assistance of the civil magistrate, and the rigorous execution of those laws which have been enacted with so much severity against the combinations of servants, labourers, and journeymen” (170).

To summarize, it seems that for this political economist and philosopher, individual achievement such as skill is subordinated to a multitude of structural variables (including power relations, market and working conditions) that significantly affect individuals’ economic and political position in society.

2.2.3 Market logic and wages

In his *Principles of Political Economy*, John Stuart Mill devotes considerable space to refute Adam Smith’s explanation of wage inequality between different types of work. While Smith assumed physically taxing labour in unpleasant working conditions to generally be compensated by a wage increment, Mill rejects this notion as an “altogether false view”. Although such a situation might arise from a particular shortage of labourers, it does not reflect the general rule of what constitutes wages, in Mill’s opinion:

The more revolting the occupation, the more certain it is to receive the minimum of remuneration, because it devolves on the most helpless and degraded, on those who from squalid poverty, or from want of skill and education, are rejected from all other employments. . . . The hardships and the earnings, instead of being directly proportional, as in any just arrangements of society they would be, are generally in an inverse ratio to one another. (Mill [1871a] 1965, 383)

Thus, Mill quite openly acknowledges that the outcome of competition does not necessarily correspond with common ideas of justice. He

does not justify the lower pay of occupations populated with less-skilled as proportional to the level of their input or the intrinsic worth of their efforts, but simply in their quantitatively less favourable market relation compared to workers with more scarce characteristics. Wage inequality between occupations is thus not grounded in the essential characteristics of the workers in these types of jobs, at least not in any direct fashion.

Despite diagnosing intrinsic tensions between competition and justice, Mill endorses and defends the principle of competition as an important element in economy and society. What he sees at stake in the restriction of competition is nothing less than individuality itself: “to be protected against competition is to be protected in idleness, in mental dulness [sic]” (Mill [1871b] 1965, 795). The premise for Mill’s reasoning is the assumption of “the natural indolence of mankind; their tendency to be passive, to be the slaves of habit” (795). With passivity conceived as the essence of human nature, the only way to induce workers to increase their productivity is by making individuals’ life chances dependent on their performance as workers: “the closer the connection of every increase of exertion with a corresponding increase of its fruits”, the more will individuals overcome their natural inertia (Mill [1879] 1967, 740).

Thus, in contrast to *occupational* wage differences, Mill welcomes the idea of individual workers’ remuneration *within* a given type of employment to be a function of their achievement, as measured by their productivity. Here, his argument rests primarily on the assumed effect this method may have on overall output and profits. Paying workers piece-rate wages is one way of fostering individual productivity. As an even superior method to achieve this goal, Mill suggests to tightly connect workers’ interests with the well-being of the company they are working for. This can be achieved by “admission of the whole body of labourers to a participation in the profits . . . in the form of a percentage on their earnings . . . after a certain remuneration has been allowed to the capitalist” (743). In addition to inciting individual workers to ever greater exertions and productivity, thus raising the overall output, this system of workers as shareholders in the profits would allow the “healing of the standing feud between capital and labour” (Mill [1871b] 1965, 792).

Unlike Mill, Karl Marx considers this rift between capital and labour insurmountable within the capitalist framework, but not because of any violations of distributive justice in the wage labour relation. If a just exchange is defined as the exchange of equivalents, both wages based on time rates and piecework rates would fulfil this criterion in Marx’s view, as would a participation of workers in the share of the profits – and still, the relationship between workers and capitalists would remain fundamentally exploitative. According to Marx’s labour theory of value,

what workers sell to the capitalist is their labour power, and what they receive in the form of wages is the means required to maintain their labour power during that time at an average standard of living (Marx [1867] 1909, 189–91). However, as a commodity, labour power has the peculiar quality to be capable of producing a value that is greater than its own: “The fact that half a day’s labour is necessary to keep the labourer alive during 24 hours, does not in any way prevent him from working a whole day” (215). What human labour power as a commodity produces over and above the time needed to replace its own value is what Marx calls “surplus value”, the source of all profit (239–41). For Marx, this relationship is fundamentally exploitative, even though it fully conforms to what he considers the bourgeois concept of justice: labour power’s quality to create surplus value is “a piece of good luck for the buyer, but by no means an injury to the seller” (216), given that “the laws that regulate the exchange of commodities, have been in no way violated. Equivalent has been exchanged for equivalent” (216). As long as the capitalist system of production is maintained, any wage increases granted to the workers will never include the surplus value they create. Mill’s solution to close the rift between capital and labour, by linking workers’ interests in the company’s fate and possibly extending their share in the profits, might at best make workers somewhat better-off (albeit even more dependent on their employer), yet it would in no way change the fact that they remain exploited by the capitalist. According to Marx, “just as little as better clothing, food, and treatment, and a larger peculium, do away with the exploitation of the slave, so little do they set aside that of the wage-worker” (677).

But for Marx, the value of any given labour is not a stable, intrinsic characteristic of the type of work done, but depends crucially on the social relationships of production. If prices of necessities change through inflation or changes in productivity, so does the value of labour. Overall, Marx maintains that wages deviate from the value of employed labour power at any given moment in time and reflect the proper value of labour power only in the average of such deviations, that is, in the long run. Fluctuations in supply and demand, which affect labour power as much as any other commodity on the capitalist market, make it necessary for a continuous struggle between capital and labour: “If, during the phases of prosperity, . . . [the worker] did not battle for a rise of wages, he would . . . not even receive his average wages, or the value of his labour” (Marx [1865] 1998, 62). Indeed, Marx sees as “the general tendency of capitalistic production . . . to push the value of labour more or less to its minimum limit” (69). The main source of exploitation, however, remains the social relation of wage labour in itself.

With this focus on the wage labour relation as the primary source of inequality in capitalist society, Marx is considerably less concerned with inequalities arising from different types of employment. If occupations requiring greater skill and training are better paid on the labour market, this is because they have a greater value – by which Marx means something similar to Smith, namely, that the time and resources used to acquire these skills must be included in the costs of maintaining and reproducing the workers’ labour power (Marx [1867] 1909, 220). The fact that higher-skilled workers are on average better paid does *not* imply that they were in some sense less exploited by the capitalist, or that the surplus they produce was in some way greater than that created by unskilled labour: in both cases, capitalist profit arises from the difference between the value of their own labour power and the value of the product created by their labour power.

For Marx, it is far from self-evident what makes certain types of work to be regarded as higher and lower in skill. He seems to suggest that the reputation of an occupation as requiring higher skill may be a consequence of its scarcity in relation to the demand by employers, given that sought-after workers have greater bargaining power, which may also affect the skill definition of their labour power. For this reason, it is not at all certain what makes one occupation skilled and another one unskilled: “accidental circumstances here play so great a part, that these two forms of labour sometimes change places” (220n1) with regard to their skill label.

2.2.4 Concluding remarks

While some of the authors discussed in this section had previously noted a correspondence between individuals’ ability and their social position, neither the ancient philosophers nor economists of the capitalist market in this review considered achievement or ability criteria as a desirable or realistic basis for distributing economic resources. The most able members of Plato’s Republic received the highest social status, but were the most deprived in terms of personal freedom and property. Aristotle was similarly cautious about linking offices of greatest importance with economic rewards. But also for political economists such as Smith, Mill and Marx, the capitalist market appeared as quite unsuitable for distributing economic resources over individuals by achievement or justice criteria. For them, whether higher- or lower-skilled occupations are better paid is primarily a function of competition on the labour market, rather than in any essential way derived from their skill level. The closest John Stuart Mill gets to endorsing a distribution of life chances according to achieve-

ment is when he recommends linking workers' wages with their productivity within a given firm. Yet, such an arrangement would lead to an achievement-dependent hierarchy of wages only within a given workplace rather than society as whole. In the analysis of Karl Marx, evaluating certain types of labour as higher-skilled is to a large degree the outcome of power struggles, applied by some groups of workers as a measure to alleviate the inherent exploitation that lies at the heart of the wage labour relationship.

In sum, what sets these historical views on social stratification most apart from current conceptions of meritocracy is not primarily the focus on competence, but that none of them seems to emphasize the idea that individual achievement may serve as the key criterion for distributing economic resources – life chances – within society.

2.3 Modern sociology and the concept of meritocracy

Coined as a term in the 1950s, meritocracy in its contemporary meaning is often traced to sociological functionalism and Daniel Bell's theory of post-industrialism (e.g., Breen 2003; Solga 2008; Wesołowski 1981). Yet, as I will argue in this chapter, their accounts remain in conceptual tension with the idea of consistently rewarding individuals' achievement with proportionate levels of occupational status or wages. Instead, I suggest that it is only with the sociological tradition of status attainment research that the conceptual obstacles to the idea of meritocratic stratification have been removed, due to social inequality now being framed exclusively in terms of individual characteristics. Of course, not all researchers in this tradition explicitly endorse or debate meritocracy as a desirable principle for social stratification. Nevertheless, I argue that its analytical preoccupation with the effect of individuals' achieved and ascribed characteristics on their life chances puts status attainment research significantly closer to the meritocratic view on social stratification than the approaches previously discussed in this chapter.

2.3.1 Is meritocracy a liberal or a functionalist idea?

This section aims to scrutinize the frequently voiced idea that “contemporary conception of meritocracy overlaps or even merges with the functionalist theory of stratification” (Wesołowski 1981, 250). To what extent, if

at all, is this the case?

I will start this enquiry with Emile Durkheim's *Division of Labour in Society*, first published in 1893. For Durkheim, an advanced degree of division of labour makes a society's different parts increasingly interdependent, and yet this functional interrelation is not sufficient to create bonds of organic solidarity. For him, an unrestricted interplay of supply and demand on product and labour markets may prevent society's "functions to perform regularly and harmoniously" (Durkheim [1893] 1997, 303). What ensues is a state of *anomie*, a lack of social cohesion and solidarity. Rather than being closely adjusted to each other, people's needs and the production of goods are out of synch, coinciding only at random in a trial and error fashion (305). The situation of workers in this context constitutes a "debasement of human nature": reduced to being cogs in an enormous machine, they perform monotonous tasks without awareness of their larger social importance or meaning (306–7). By contrast, when the division of labour "is established through some purely internal and spontaneous action, without anything arising to hinder individual initiatives . . . , a harmony between individual natures and social functions cannot fail to occur" (312). Genuine organic solidarity in Durkheim's sense has quite a lot in common with social justice in Plato's philosopher state, in that it requires individuals to be able to perform exactly those tasks in society for which they are most suited. As a result, happiness arises on both a social and on an individual scale: "normally a man finds happiness in fulfilling his nature; his needs are proportionate to his means" (312). Furthermore, Durkheim's insistence that "labour only divides up spontaneously if society is constituted in such a way that social inequalities express precisely natural inequalities" (313) indicates another similarity with Plato: both appear to take individual characteristics as the point of departure for social stratification. Unlike Plato, Durkheim does include an element of competition over social positions, yet it must take place on a completely level playing field: organic solidarity requires "absolute equality in the external conditions of the struggle" (313).

Although this view leads Durkheim to object to the inheritance of wealth, he does approve of some sorts of economic inequality. In his account, social functions ought to be stratified on the basis of their "social value" or "social merit" (318–9). This social value of an object or a service is "not the total labour that it may have cost, but the part of that effort capable of producing socially useful effects, that is, effects that correspond to normal needs" (317). By this he refers not only to the amount of work expended, but he also includes "the intensity of the needs that it satisfies, and finally the extent of the satisfaction that it affords" (317).

In other words, achievement in Durkheim's sense is not primarily a matter of individuals' competence and effort, but it includes a significant social dimension. As such, work requiring the same amount of skill, expertise and efforts may be differently rewarded depending on its social usefulness. This emphasis on the social value of occupations thus further complicates rather than facilitate a meritocratic interpretation of Durkheim's theory of stratification.

Pitrim Sorokin's functionalist account of social mobility, on the other hand, operates with a less complex principle of stratification. For Sorokin, the main criterion for stratifying occupations in any type of society is social control and organization. The ranking of occupations according to this social value is explained by their functional necessity, understood as "the importance of an occupation for the survival and existence of a group as a whole" (Sorokin [1927] 1959, 100). As a universal, functionally necessary feature of human societies, rather than a consequence of modernization, Sorokin sees this ranking of occupations as usually correlated with the intelligence of their incumbents (101): "As long as a society exists more or less successfully, its higher strata as a whole consist of men on the average more intelligent than the people of the lower strata" (281).

For Sorokin, a social order based on intelligence is thus not a unique characteristic of industrial or post-industrial societies, but a universal feature of human communal life. What differentiates modern Western societies from those of other times and cultural contexts are the institutions involved with the allocation of individuals to social positions. With the army and the church losing their influence in times of peace and increasing secularity, as well as families becoming increasingly unstable and socially heterogeneous, the function of selection by ability in industrialized societies is now primarily performed by the school (183–5). As such, one of the main functions of the educational system is to diagnose a pupil's cognitive ability and promote or demote individuals "in the direction of those social positions which correspond to their general and specific abilities" (188). After this tentative sorting, it is the function of the occupational system to finally decide over individuals' ability and the corresponding social position they qualify (204).

Equal opportunities in education are not a great concern to Sorokin: although he concedes that environmental factors affect an individual's ability, he trusts that those with sufficient innate talent will in most cases make it to their rightful social positions (328–31). For the same reason, he is highly sceptical as to whether education can ever serve as a means to equalize opportunities for all: "No education can make out of an idiot, a bright man; out of a man of average heredity, a genius.

It somewhat raises the mental level of an average man, and that is all” (Sorokin [1927] 1959, 502).

Leaving the tautological nature of some of Sorokin’s claims as well as his high degree of trust in employers and schools as objective, unbiased ability-sorting machines aside, the important question regarding the present enquiry is this: does Sorokin see any functional reason for allocating individuals’ economic life chances on the basis of their social position? Surprisingly, this question is for the most part left unconsidered in Sorokin’s treatise on *Social Mobility*. In fact, my reading suggests that any links Sorokin implies between economic, political and social stratification rests on primarily *non-functional* mechanisms. With social control being the functional value that serves as the core criterion for occupational stratification, “by virtue of holding such an objectively influential place, the corresponding occupational groups can secure for themselves the maximum of privileges and power” (101). If economic resources are part of these privileges and power, then the distribution of life chances according to social positions in Sorokin’s account is *not* a functional necessity, but instead the simple result of a power asymmetry without any independent contribution to society’s functioning. Although this does make Sorokin’s view on stratification broadly compatible with a meritocratic stratification as previously defined in this dissertation, his account provides no support for characterizing the meritocratic view on stratification as an inherently functionalist concept.

In later works of sociological functionalism, meritocratic elements in stratification theory appear in ever weaker form. In fact, for Talcott Parsons, the increasing dominance of universalistic values in Western social systems have resulted in the *impossibility* to establish a continuous scale of merit or ability, according to which individual performances and contributions to society could be judged. Among the limitations for direct evaluation Parsons lists

“the level of competence necessary for an adequate judgement
A second problem concerns the inherent elements of indeterminacy of many of the standards of relative evaluation even within a class of cases, while a third concerns the comparability of different *kinds* of qualities and performances, even if the standards are relatively clear and definite with reference to each kind” (Parsons 1954, 109).

Universal standards of performance might work within a particular, well-defined context, but are difficult to bring into a homogeneous system of evaluation when extended to society as a whole. A direct link between competence and the distribution of life chances is further complicated by the market economy itself, which is easily illustrated by the discrepancy

between public and private sector employment: take “for instance that between the salary of a high Federal Judge and what the incumbent could usually earn in the private practice of law”. (Parsons 1954, 121)

The functionalist view on stratification advanced by Kingsley Davis and Wilbert E. Moore further strengthens aspects of neoclassical economics over merit criteria. For them, equal access to the competition over social positions without discrimination on the basis of ascribed characteristics is a vital necessity to arrive at equilibrium solutions. If some groups are systematically barred from competition over education and social positions, “such a situation adds an artificial scarcity to the natural scarcity of skills and talents”(Davis and Moore 1945, 248). These same reasons of efficiency also justify the inequality of socioeconomic positions as “an unconsciously evolved device by which societies insure that the most important positions are conscientiously filled by the most qualified persons”(243). But similarly to John Stuart Mill, and in contrast to Durkheim or Sorokin, there is no rationally conceived and consistent principle of ordering inscribed in their view of social inequality. Instead of constituting a merit order, it is through the interplay of supply and demand that some positions are more greatly rewarded than others:

Actually a society does not need to reward positions in proportion to their functional importance. It merely needs to give sufficient reward to them to insure that they will be filled competently . . . If a position is easily filled, it need not be heavily rewarded, even though important. On the other hand, if it is important but hard to fill, the reward must be high enough to get it filled anyway. Functional importance is therefore a necessary but not a sufficient cause of high rank being assigned to a position. (243–4)

In this version of functionalism, greater skill or competence is not inherently related to greater rewards, but the latter occurs solely as an incentive to achieve a greater abundance of candidates: remuneration of workers is severed from any notion of achievement, but also from any principles of distributive justice, be it the social value of the position or the value of the worker’s labour power. In this sense, I would argue that functionalism in the version of Davis and Moore (1945) shares more with liberal economics than current notions of meritocracy.

Incidentally, Friedrich August von Hayek, as one of the founding fathers of neoliberal thought (Harvey 2005, ch. 1), was explicitly and fervently opposed to restricting market forces by any rationally conceived principle of merit (Hayek [1960] 2006, 77). But Hayek also goes further than the American functionalists. He regards the idea of equal opportu-

nities with ample scepticism, arguing that it is questionable to what extent a clear separating line can be drawn between individual achievement and endowments received through one's genetic heritage and upbringing (Hayek [1960] 2006, 79). But more importantly, individual effort might not necessarily correlate with the market value of any given service: "The attempt to achieve a valuable result may be highly meritorious but a complete failure, and full success may be entirely the result of accident and thus without merit" (83). While accusing labour unions for causing unemployment and inflation, he also acknowledges (and heavily criticizes) the fact that labour and status group struggles greatly affect wage rates and occupational wage differences (ch. 18). For Hayek, references to meritocratic justice may nevertheless serve as a strategy to appease workers: "In any hierarchical organization it is important that the differentials between the remuneration of the different jobs and the rules of promotion are felt to be just by the majority" (241). Yet ultimately, Hayek abhors the idea of linking wages to any preconceived notion of justice, as it is fundamentally incompatible with a capitalist market economy (246).

When a few years later, Gary Becker first published his influential work *Human Capital* in 1964, it might have appeared that economical thought had opened up to meritocracy, viewing it as a spontaneous outcome of the market logic. After all, Becker assumed that workers with greater human capital (which he defined as comprising, among other factors, formal educational achievement as well as work experience) are more productive, leading to a wage increment of the better educated (Becker [1964] 1993, 29–58). But ultimately, also Becker's account suggests that the remuneration for the supposed greater productivity of workers depends quite crucially on the supply and demand of human capital: "Growth in the relative number of highly educated persons would, by itself, reduce rates of return to education" (221). There remains thus some degree of tension in Becker's account. On the one hand he considers education as conducive to workers' productivity, which in turn increases their wages. But at the same time, whether or not highly skilled workers achieve greater rewards than lower skilled workers, remains also in Becker's account a function of their relative scarcity on the labour market. As a consequence, it is hard to argue that the distribution of life chances in human capital theory is in any direct sense connected to the level of individuals' competence.

2.3.2 Classics of meritocracy: a focus on selection, not rewards

It was in a context of dystopia that the term meritocracy was originally coined. Published in 1958, Michael Young's novel *The Rise of the Meritocracy* first invented the term to describe a fictional future of British society, stratified according to the formula "intelligence and effort together make up merit" (Young 1961, 94). It is a society where social inequality remains more firmly entrenched than ever, being now fully legitimized through the idea of meritocratic social justice:

Today the eminent know that success is just reward for their own capacity, for their own efforts, and for their own undeniable achievement. They deserve to belong to a superior class . . . Today all persons, however humble, know they have had every chance. But if they have been labelled "dunce" repeatedly they cannot any longer pretend . . . Are they not bound to recognize that they have an inferior status – not as in the past because they were denied opportunity; but because they *are* inferior? (106–8)

Echoing the ideas of Plato, Aristotle, as well as Rousseau, democracy has been made redundant in this perfectly meritocratic future: "Today we frankly recognize that democracy can be no more than aspiration, and have rule not so much by the people as by the cleverest people; . . . a true meritocracy of talent" (21) which ultimately results in an "aristocracy of talent" (48). In this fictional meritocracy, "power and responsibility were as much proportioned to merit as education" (114). Jobs are allocated to individuals according to their individual ability, with manual jobs reserved for "those who have not the ability for anything better" (114). After entering the post-industrial age, when manual industrial work disappeared on a grand scale, workers with lower ability are increasingly assigned as domestic servants to the superior members of the meritocratic society (122). But most importantly, even in this consistent ordering of society into hierarchical positions graded by merit, the distribution of economic resources in society remains a disputed question, which meritocratic arguments seem unable to solve:

Granted (some of them would say), granted that the best astronomer should be made Royal, why should he get a larger emolument than the bricklayer who built his observatory?

This was ever an irritating question, since it was in these terms unanswerable. (156)

Although Young's meritocracy subsequently establishes equal wages for all ability strata, differential life chances are maintained by transforming wage increments for the more intelligent into occupational fringe benefits (including housing, cars, holiday homes, servants). This measure aims at "providing the best possible conditions for mental activity, during the whole of every twenty-four hours, on the job and off the job" (Young 1961, 158).

Nevertheless, I argue that the equation of economic resources with merit is only a *secondary* aspect in this original formulation of meritocracy in Young's satire. In my view, the thrust of the concept of meritocracy as applied in the novel is directed towards the gloomy political and social consequences of grading a population by ability. Differentials in economic resources, while not irrelevant, do not appear to be inherently answerable from within Young's concept of meritocracy, as the quotation above regarding wage differences appears to indicate. Power differentials certainly enable the elite to reinforce their position also economically, yet my reading suggests that such differentials between life chances are merely the consequence of the elite's social and political influence, rather than an inherent aim for the selection by ability and merit criteria.

Current debates on meritocracy tend to refer to Daniel Bell's vision of a post-industrial future as one of the classic works that helped establish the positive ideal of a meritocratic stratification of life chances (e.g., Breen and Goldthorpe 2001; Krauze and Slomczynski 1985; Solga 2008). Yet, also Bell held rather critical views towards the idea of meritocracy, for similar reasons as Hayek: meritocratic stratification remains in clear contradiction to the logic of the market and will prove unsustainable in the long run. The main characteristics of the post-industrial society predicted by Bell is the increasing reach of governmental planning in social and economic affairs at the expense of the free market, resulting in rational decision-making and the ascendancy of technical competence pervading all realms of society (Bell 1976, 358–64). As a consequence, so Bell, "in the post-industrial society, technical skill becomes an overriding condition of competence for place and position" (361). But precisely because of having subordinated the realm of economics under political planning and decision-making, post-industrial society will hold the seeds to both the rise and the dissolution of achievement-based meritocracy. On the one hand, "the post-industrial society, in its initial logic, is a meritocracy. Differential status and differential income are based on technical skills and higher education" (409). But frictions are inevitable when it comes to justifying the precise extent of such differences, given that the traditional role of the market as "the arbiter of differential reward, based on scarcity or on demand" in a post-industrial society is increasingly

replaced by political decision-making (Bell 1976, 451). This leads to a situation where “many more groups now seek to establish their social rights – their claims on society – through the political order” (364), ultimately proposing a fundamental challenge to meritocracy: “equality not of opportunity but of result” (428), exemplified by the affirmative action campaigns of disadvantaged groups (414–9).

What Bell’s account implicitly seems to assert is the fundamental *impossibility* of a meritocratic stratification of life chances in the context of capitalist economic structures: equality of opportunity in a liberal market society leads to the distribution of life chances based on supply and demand, not achievement (unless market success is redefined as achievement). While the post-industrial society with its harnessed market might be in the position of politically determining achievement and rewards, the impossibility of consistently ordering social positions and rewards by a homogeneous criterion of merit leaves it defenceless against claims arguing for the equality of results rather than opportunity. It is for this reason, I would argue, that Bell concludes his work by endorsing a concept of meritocracy that is limited to the idea of selecting individuals by competence within clearly defined contexts: “Meritocracy, in the context of my usage, is an emphasis on individual achievement and earned status *as confirmed by one’s peers*” (453, emphasis added). His notion of a “just meritocracy” is thus explicitly restricted to the realm of praise and esteem, leaving the distribution of life chances to be determined by market forces rather than any criterion of merit (452–3).

2.3.3 Meritocracy and the role of social mobility research

I propose that it is the social mobility literature, rather than functionalism, which provides the sociological framework most compatible with the concept of a meritocratic distribution of life chances. The term meritocracy may be as absent from such research as are explicit recommendations with regard to social ideals and policy. Still, by focusing sociological attention to the stratifying effects of ascribed and achieved individual characteristics, this research tradition conceives social stratification in terms that are themselves intimately entangled with the idea of meritocracy. In addition, it is due to this emphasis on the the dichotomy of individual ascription and achievement that social mobility research more broadly has become a key arena where academic debates about meritocracy are staged (e.g., Bond and Saunders 1999; Breen and Goldthorpe 2001; Goldthorpe 2003; Hauser et al. 2000).

This entanglement with meritocratic notions in social mobility re-

search is particularly strong in the case of the status attainment approach, which is also known as “the second generation of social mobility research” (Ganzeboom, Treiman, and Ultee 1991, 282). In their classic study on *The American Occupational Structure*, Blau and Duncan (1967) shifted the main analytical thrust from the in- and outflows of occupational tables towards examining the factors of influence on individuals’ occupational status (8–9). Arguing that “the role of education in engendering movement [between social positions, I.P.] was inadequately appreciated two decades ago” (113), they emphasize educational attainment as the key intervening variable responsible for explaining the lion’s share of men’s upward mobility in the social structure. Indeed, Blau and Duncan’s (1967) analyses demonstrate that ascriptive factors, such as respondents’ social origin (father’s education and occupation), region of origin, birth order and number of siblings, exert their influence on occupational status primarily indirectly, in the sense that these characteristics significantly affect the amount of schooling an individual is likely to receive.

Although meritocracy as a term remains absent from their choice of words, as a concept it thrives in their analyses and interpretations. While they acknowledge black Americans’ deep rooted disadvantage as an important exception, Blau and Duncan (1967) characterize the process of social stratification in the United States as “largely governed by universalistic criteria of performance and achievement . . . with education being the most important determinant of occupational status that could be discovered” (241). They embed this diagnosis of a shift from ascription to achievement in the stratification system into a narrative of modernization: with technological advances rendering unskilled jobs increasingly obsolete and expanding occupations with greater skill requirements (429), the authors conclude that “society cannot any longer afford the waste of human resources a rigid class structure entails” (431).

The most salient feature of Blau and Duncan’s (1967) status attainment approach lies in its individualistic spin on social inequality. It is most concerned with how individuals’ attributes (based on either achievement or ascription) determine their position within a hierarchical continuum of life chances (approximated by occupational status, occupational prestige, or directly measured as income). Institutional constraints and structural factors of influence on individuals’ social positions, such as the characteristics of educational systems, labour supply and demand, differentials in industry- and occupation-specific labour markets, variations in employment legislation, unionisation and bargaining power, are largely missing from this account. While this neglect of structural features distinguishes the status attainment approach from classic liberal accounts as

well as certain types of functionalist sociology, I argue that it is precisely due to this individualistic framing of social inequality that status attainment research provides a natural habitat for the idea of meritocracy in its contemporary sense.

Despite ample criticism (e.g., Bielby 1981; Burawoy 1977; Goldthorpe 1985; Goldthorpe and Marshall 1992; Horan 1978), the status attainment approach retained a strong position within the field of empirical research on social inequality. The methodological toolbox of status attainment research enlarged over time: discretely defined social ranks were accommodated via logit models, structural equation models have been applied to identify pathways between parental support, ambition, ability and rewards (Bond and Saunders 1999), sibling correlation models have been put forward to tackle potential bias originating from unmeasured family characteristics (Björklund and Jäntti 2012), and the use of event history models allows to examine status attainment over the life course as opposed to singular points in time (cf. review in Ganzeboom, Treiman, and Ultee 1991; Wolbers, Luijkx, and Ultee 2011). Yet, in its conceptual focus on meritocratic stratification, the status attainment model has changed very little. What persists is a concern with the ascriptive and achieved attributes of individuals associated with occupational or income strata, where structural constraints and institutional factors remain largely outside the scope of attention (e.g., Bukodi and Goldthorpe 2011; Härkönen and Bihagen 2011; Jonsson 1996; Marks 2009; Reisel 2013; Sandefur and Park 2007; van de Werfhorst 2007).

Adhering to the conceptual framework of status attainment research does not mean that these studies necessarily subscribe to a meritocratic account of stratification. In fact, status attainment models have been employed to demonstrate the persisting importance of ascription variables in the process of social stratification. But such critique notwithstanding, the status attainment approach in its basic formulation remains deeply entangled with the notion of meritocracy by virtue of their common emphasis on individualistically conceived social inequality.

2.3.4 Concluding remarks

It is certainly true that meritocratic notions resound throughout some works of functionalist sociology. However, as I tried to show in this chapter, the idea is far from fully developed within the functionalist literature: some authors remain vague with regard to its inherent functional character (Sorokin) or its relation to market-based stratification (Durkheim), others explicitly limit the reach of achievement-based rankings to specified occupational and market segments (Parsons), or even reject any

intrinsic relation between the size of rewards and the size of achievement (Davis and Moore). Furthermore, I have argued that the commitment to achievement-based allocation of life chances is only of secondary importance for the original inception of the term meritocracy (Young) and somewhat contradictory in Bell's classic study on post-industrialism.

The main difference between the meritocratic elements in functionalist and liberal theories and the status attainment school within social mobility research is their respective relationship to social structures and institutions (such as the educational system, markets and non-markets, power asymmetries, occupational organizations). However rudimentary their presence in functionalist and liberal accounts, it is this regard for institutional factors which to my mind represents the main obstacle to entertaining the idea of meritocratically stratified life chances. It is only by redefining social inequality as a narrowly individualistic concept that the status attainment approach appears unburdened by the tensions I have pointed out in functionalist and liberal accounts. As such, the status attainment model remains deeply entangled with the meritocratic idea of stratification.

3 | Sociological critiques of meritocracy

3.1 Ascription as a barrier to meritocracy

3.1.1 Inequality of opportunity

Although Blau and Duncan (1967) conclude their study with the diagnosis that “a fundamental trend toward expanding universalism characterizes industrial society” (429), they nevertheless are aware of some fundamental tensions between the principle of equality of opportunity and the achievement-based ranking of life chances. Despite the expansion of the educational system, they note that black Americans have “far less educational opportunity than do whites” (208). More generally, the authors concede that “the amount of education attained depends in part on level of origin” (155). This evidence of unequal chances for educational attainment threatens the power of meritocratic discourses to legitimize social inequality. For this reason, equality of educational opportunity has long been a prominent topic of interest and concern for sociological research as well as for social policy.

The fact that individuals’ type and length of schooling depends to an important degree on their family background (and often additionally on their gender and ethnicity) counts among the best-established findings in European and North American sociology (Berggren 2006; Breen and Jonsson 2000; Featherman and Hauser 1978; Halsey 1977; Helland and Støren 2006; Kivinen, Hedman, and Kaipainen 2007; Mare 1980; Raftery and Hout 1993; Shavit and Blossfeld 1996). Attempts to explain this universally acknowledged phenomenon, on the other hand, are generally more diverse. A number of accounts have pointed to genetic (Jencks et al. 1975, 64–75) and environmental mechanisms, which are thought to cause scholastic ability differentials between children of lower and higher social strata. According to the latter type of explanations, better-off parents may bestow greater cultural and economic resources to foster the cogni-

tive development of their offspring as well as lend their offspring greater encouragement compared to less privileged families (Blau and Duncan 1967, 417; Boudon 1974; Jencks et al. 1975, ch. 5; Sewell, Haller, and Ohlendorf 1970). Proponents of rational choice approaches have particularly emphasized the element of self-selection in the process. Given that failure to succeed in the educational system may be a more costly outcome for less privileged social classes, these parents may prefer educational strategies for their children that secure and maintain the family's social status and eschew more risky ambitions for upward social mobility (Breen and Goldthorpe 1997; Erikson and Jonsson 1996).

But while these types of accounts are compelled to take both scholastic ability at face value and the institutional intricacies of educational systems largely for granted, "culturalist" arguments of sociological inequality take on a different perspective on inequality of educational opportunity. Far from regarding the educational system as a neutral channel of mobility, Bourdieu and his collaborators argued that the criteria of ability selection within education are themselves fundamentally biased and act primarily as a mechanism to reproduce rather than to weaken the inheritance of social class: "The educational system demands of everyone alike that they have what it does not give. This consists mainly of linguistic and cultural competence and that relationship of familiarity with culture which can only be produced by family upbringing" (Bourdieu 1977, 494). In other words, rather than being an objective demonstration of individual achievement and merit, scholastic ability measures certified by the educational system tend to be inherently biased towards the cultural capital of the dominant classes (see also Bourdieu and Passeron [1977] 1990). A similar line of argument was proposed by Bowles and Gintis (1976), who highlight education as a support mechanism for reproducing and legitimizing capitalist relations of production and their ensuing social inequality. In their view, the educational system within a capitalist society functions mainly to inculcate "self-concepts, aspirations, and social class identifications of individuals to the requirements of the social division of labor" (129). The dependence of scholastic success on particular styles of behaviour and attitudes that conform with the cultural hegemony has also been emphasized by Collins (1979, Ch. 3). Power struggles in shaping the educational system and its relation with the economy at large play a similarly prominent role in his account, albeit with a more Weberian rather than Marxist bent. Instead of emphasizing class conflict, Collins sees the economic structure and its interlink with the educational system as shaped by a variety of smaller status groups, engaged in local struggles "within particular organizations or occupational sectors, or within particular ethnic groups" (94). In general,

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what the proposed entanglement between power and socioeconomic discrepancies with education boils down to is the idea that “ascriptive forces find ways of expressing themselves as ‘achievement’” (Halsey 1977, 185), therefore seriously complicating the idea of educational qualifications as objective markers of meritocratic achievement.

Whatever their favoured theoretical framework, most sociologists concur that the massive expansion of educational systems during the 20th century has not fundamentally changed the persisting inequality of educational opportunity in most countries. Raftery and Hout’s (1993) study of educational attainment in Ireland reports that “expanding schools reduced class differences in the overall distribution of educational attainments without affecting the class selectivity at any particular transition point” (60), since advantaged classes will be able to make disproportionately greater use of expanding educational opportunities. Studies conducted in a variety of other countries have drawn similar conclusions (Shavit and Blossfeld 1993). When it comes to higher education, rising enrolment rates in recent decades have in many countries coincided with structural reforms, which introduced new types of higher education institutions such as polytechnics (Kyvik 2004). While such reforms may help to widen access to higher education overall, the new institutional variety within higher education may at the same time help *preserve* the class bias in the access to higher-status institutions, if lower social strata are disproportionately channelled to less prestigious forms of higher education (Ayalon and Yogev 2005; Boliver 2011; Iannelli, Gamoran, and Paterson 2011). Similar developments characterize gender differences in education: whereas women’s level of educational attainment used to lag behind that of men’s in most countries, this disadvantage has either disappeared or shifted towards men among recent cohorts (Shavit et al. 2007). Persisting gender differences, on the other hand, exist in the qualitative choices men and women take within levels of education (e.g., Bradley 2000).

Despite their theoretical disagreements, the classics of sociological research on education seem to largely agree that a focus on the educational system is insufficient for understanding or tackling educational inequality. If “stratification is the principle factor responsible for inequality of educational opportunity (IEO) as well as for inequality of social opportunity (ISO)” (Boudon 1974, 193; similar sentiments are expressed in Blau and Duncan 1967, 205; Bowles and Gintis 1976, 101), the analysis of meritocracy cannot confine itself to the question of inequality of educational opportunities.

3.1.2 Ascription versus achievement in social stratification

A general theme in all traditions of social mobility research is the concern with empirically establishing the degree of “openness” of societies, defined as “a tendency towards greater equality of chances of access, for individuals of all social origins, to positions differently located within the social division of labour” (Goldthorpe 1980, 27). Nevertheless, the various strands of social mobility research have pursued this research interest in different ways. In this context, the status attainment approach has typically been more interested in the relative importance of ascription and achievement for social stratification than researchers identifying with the “class analysis” tradition.

This is illustrated by the fact that the log-linear models of the class analysis tradition have tended to disregard the intervening role of education in mobility processes. For a prominent class analyst like John Goldthorpe, this emphasis derives from an “interest in mobility from the standpoint of its implications for class formation and class action” (28). This ambition contrasts with the “the explanation of mobility or of occupational attainment in terms of variation in individual attributes” (30), which dominates the status attainment approach. However, at least since the mid-1990s, also the log-linear models of the class analysis tradition have tended to include a view on the significance of education in mediating social origins and destinations (e.g., Erola 2009; Ishida, Müller, and Ridge 1995; Jonsson 1996).

To the extent that social mobility studies thus share a common interest in the role of individuals’ achieved and ascribed attributes for attaining social positions (be they defined by a social class schema, as occupational status, income levels, or occupational prestige), empirical research of this sort has been at the forefront of examining the idea of meritocracy as a defining principle of social stratification in contemporary societies. Comparative settings are a frequent element of much research of this type, which typically takes the form of comparing stratification processes over different national contexts or between birth cohorts. The latter strategy is particularly suited for examining certain types of modernization theories that expect a “tightening bond” between education and socioeconomic outcome as well as the potential attenuation of ascriptive effects over time (Jonsson 1996).

While the importance of educational level for explaining socioeconomic outcomes counts as a universal finding in social stratification research, the persisting relevance of social origins challenges the meritocratic interpretation of this finding (e.g., Breen 2003; Hansen 2001;

Ishida, Müller, and Ridge 1995; Wolbers, Luijkx, and Ultee 2011). But has the relevance of ascription waned over time? This question cannot be answered with certainty or in a general sense for all countries: evidence both supports (Featherman and Hauser 1978; Härkönen and Bihagen 2011; Marks 2009) as well as (for some cohorts) contradicts the idea that the influence of social origin on socioeconomic outcomes has steadily declined over time in post-industrial societies (Erola 2009; Mastekaasa 2011; Wolbers, Luijkx, and Ultee 2011).

Indeed, some sociologists have presented compelling arguments for expecting ascriptive qualities to gain rather than lose importance for social stratification. If educational credentials become more widespread as a consequence of a more inclusive educational policy, it is less of a distinction to possess educational qualifications. This may force employers to look for other than educational characteristics in the selection of their work force (Grusky 1983; Jackson, Goldthorpe, and Mills 2005). Overall, it is unclear whether educational credentials have indeed become more important for status attainment, given that a declining or stable impact of education across cohorts has been observed in some countries (e.g., Jonsson 1996; Breen and Goldthorpe 2001; van de Werfhorst 2007; Sandefur and Park 2007), whereas returns to educational credentials appear to have increased in others (Härkönen and Bihagen 2011; Marks 2009).

Even if the importance of educational attainment constitutes the least contentious finding of social stratification research, whether education in itself exhausts the idea of merit contained in the meritocratic idea is debatable. Some advocates of meritocratic stratification understand the merit criterion as multidimensional rather than restricted to educational attainment. Following Young's original formulation, Saunders (1995, 38) argues that "meritocracy entails rewarding those individuals with particular abilities and high levels of motivation" (38). On the other hand, those studies that have succeeded in including additional components of merit, such as intelligence and motivation, appear to arrive at similar conclusions as studies that include only education-based measures of achievement (e.g., Breen and Goldthorpe 2001; Cawley, Heckman, and Vytlačil 2001). The remainder of this dissertation will focus therefore exclusively on education-based concepts of achievement.

3.1.3 Complicating meritocracy: gender

Although determining the relative role of ascriptive and achieved characteristics in the social stratification process has been the core ambition for much social research, in the past it was far from self-evident that this

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analytical focus should also include a regard for gender. In fact, it used to be an established practice to exclude women from the sampling population of social mobility and attainment studies. Despite their regard for several other factors of ascription (e.g., skin colour, migrant status and rural background), also Blau and Duncan (1967) followed this practice and restricted their samples to men only. While they acknowledge this decision as a limitation of their study, their reasoning nevertheless illustrates the superior importance they attribute to *male* stratification, as it is primarily with regard to the consequences for men that they deem women's labour market position relevant:

The limitation of our inquiry to the fortunes of men, though a legitimate preliminary simplification, reckons without the impact of the influx of women into the labor force *on men's chances of mobility*. Women do not offer competition to men in all occupations, but the supply of openings available to men can hardly be independent of the number of women ready and trained to work at a variety of skill levels. (113, emphasis added)

The absence of any regard for gender in most stratification studies until the mid-1970s prompted the begin of a fierce debate in sociology. This controversy, spanning almost two decades, revolved around the critique levelled against the "intellectual sexism", which feminist sociologists diagnosed in the conceptual framework of social mobility research (Acker 1973, 1980; Delphy and Leonard 1986; Erikson and Goldthorpe 1992; Goldthorpe 1983; Stanworth 1984). Taking the heterosexual, married couple as the elementary social unit, many social stratification researchers considered a man's occupational position as a feasible approximation of families' socioeconomic status (reviewed in Haug 1973). As a consequence, women's socioeconomic position was derived primarily from the class position of their husbands, disregarding the substantial labour market involvement of women, widespread economic power asymmetries within the married household as well as the fact that not all women (or men) entered or remained in a married relationship during their life time.

Simply including those women who have an occupation of their own, however, was deemed insufficient to resolve the difficulties. In fact, such a practice would result in the paradoxical situation that "if, *like her husband*, a woman has an occupation, this distances her from him in terms of social ranking, while if, *unlike her husband*, she is not employed, this brings her closer to him in terms of ranking" (Delphy 1981, 123). In addition, especially Marxist-feminist writers criticized the gender-blindness of dominant class conceptions, not least within Marxism. In their view, it is the domestic labour and childcare primarily exercised by female

spouses, which enables husbands to sell their labour power to employers in the first place. Furthermore, by emotionally supporting their employed husbands, homemaker spouses play an important role in buffering the impact of workers' alienation. Due to this "affective labour" as well as their reproductive work, unpaid domestic work is crucially embedded in the capitalist relations of production and simultaneously contributes to maintaining their stability (Chodorow 1979; Beechey 1978; Gardiner 1979; Kuhn 1978).

Possibly as a reaction against the feminist critique, since the mid-1970s, quantitative stratification research has more frequently extended the analysis to both men and women. The results of these studies soon demonstrated additional problems for interpreting social stratification as a meritocratic process. Sex differences in overall earnings were shown to persist despite equal levels of schooling and other characteristics (Fuchs 1971), and the income benefit attributed to education was lower for women than for men (Suter and Miller 1973). Yet, paradoxically, the processes of occupational status attainment and class mobility appeared to be approximately similar for American men and women (DeJong, Brawer, and Robin 1971; McClendon 1976; Treiman and Terrell 1975). More recent research on European countries has on the whole replicated these broad patterns: gender differences in the effect of education on occupational prestige appear to be small or similar in several countries (Shavit and Müller 1998; Härkönen and Bihagen 2011; van de Werfhorst 2004), while the gender wage gap net of educational and other characteristics persists (Arulampalam, Booth, and Bryan 2007).

The fact that women's and men's employment shares similar prestige, but leads to differences in earnings, poses a challenge to the meritocratic story of stratification: Is this simply a methodological artefact, caused by a flawed operationalization of occupational status or prestige? Indices used to measure occupational status in most status attainment models are typically constructed by weighting the average educational requirements and average earnings of *men's* occupations. Applied to samples of both men and women, some have argued that these composite indices tend to project a false homogeneity on the occupational structure and the gender distribution within it, given that "women have consistently higher occupational education scores than do men, but consistently lower occupational wage rate scores" (Warren, Sheridan, and Hauser 1998, 66).

To conclude, the review in this section has sketched two basic strands of critique levelled against the meritocratic ideal of social stratification: inequality of educational opportunity, on the one hand, and the continuing relevance of ascription in status attainment processes, on the other (summarized in figure 3.1). Both types of critique emphasize the

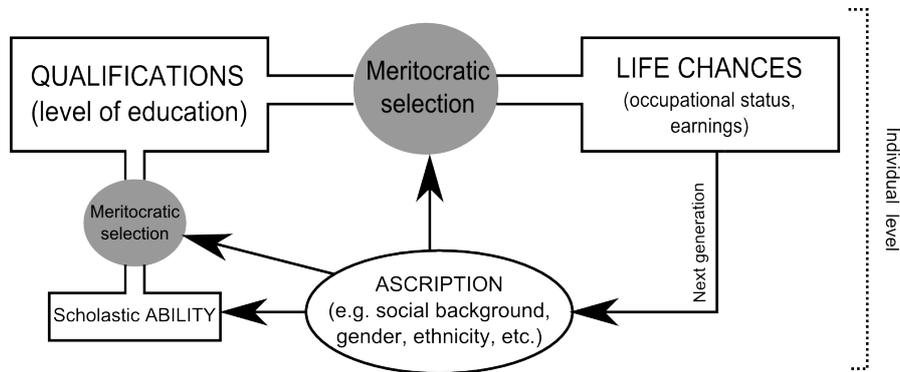


Figure 3.1: The dominant critique of meritocracy: the continuing importance of ascription for educational attainment and on the labour market

influence of individual characteristics (social background, gender or ethnicity) as disturbing the flawless functioning of meritocratic selection. In contrast, I would argue that the persistently documented gender differences in earnings, net of occupational prestige, pose a more fundamental challenge to the meritocratic thesis, in that it questions its individualistic conceptualization: if occupations with the same level of prestige and educational requirements systematically differ in the rewards they distribute to incumbents, can the occupational structure within market societies ever be expected to reflect incumbents' achievement or merit? And consequently, can individuals' characteristics ever tell the whole story of social stratification and inequality? A closer look on institutional features of education and the labour market may challenge the meritocratic account in a manner that goes beyond the focus on the ascription-achievement dichotomy that dominated this chapter.

3.2 Institutional problems of meritocracy

3.2.1 Gender segregation in education and the labour market

Gender segregation is a widely recognized phenomenon today. Women and men tend to occupy distinct segments within the labour market as well as the educational system. Researchers have adopted the terms “horizontal” and “vertical” gender segregation to point out the multidimensional nature of these distribution patterns. In this context, “horizontal segregation” is primarily used to describe a difference that does not obviously or immediately lead to a form of inequality, whereas “vertical segregation” tends to denote differences in rank of prestige or earnings

(e.g., Blackburn, Jarman, and Brooks 2000; Charles and Grusky 2004; Melkas and Anker 1997). When it comes to the labour market, the particular ways in which men and women are distributed across different occupations, firms and industries, are usually considered to constitute a horizontal axis of segregation. Vertical gender segregation, on the other hand, refers to differences in authority or skill grade within a given economic segment. In the context of the educational system, horizontal segregation characterizes men's and women's tendency to cluster around different fields of study within the same educational attainment level, whereas vertical segregation defines gender differences in the level of education typically attained (e.g., Charles and Bradley 2002).

Given that in its horizontal definition, men and women can be thought to occupy separate occupational and educational fields that are conceived to be equal in rank, to what extent is this type of gender segregation relevant to social inequality? In an intrinsic sense, I would agree with Charles and Bradley (2009) that horizontal gender segregation in education and labour markets may potentially "strengthen gender-essentialist stereotypes and influence the educational expectations and aspirations of subsequent student cohorts in the direction of greater sex typing" (930). In other words, the socializing effects of gender segregation may entrench cultural barriers that narrow the possibilities for individuals' personal development, their educational choices and their occupational prospects. Indeed, gender-typed fields of study have been shown to channel men and women into equally gender-typed jobs at the early career stage (Charles et al. 2001; Smyth 2005). But in addition, also horizontal gender segregation on the labour market has a decidedly socioeconomic dimension: even when comparing individuals with the same levels of education and experience, differences in the kind of occupations, industries and firms men and women are engaged in explain a substantial part of the gender wage gap (e.g., Allen and Sanders 2002; Korkeamäki and Kyyrä 2005; Petersen and Morgan 1995).

Why is it that women and men tend to be found in different types of jobs and occupations (a certain degree of overlap notwithstanding)? A significant number of theories emphasize women's and men's self-selection into gender-typed educational and occupational fields, although these approaches tend to differ with respect to the motivations they attribute to such choices. Arguing from a human capital perspective, Polachek (1978, 1981) assumes that women, behaving as rational actors, anticipate future employment breaks caused by motherhood and family responsibilities. As a consequence, they adjust their field choices to occupations that can be reconciled with intermittent labour force participation. But critics have pointed to the empirical evidence contradicting this position: nei-

ther are female-typical occupations more family-friendly (McCrate 2005), nor do they penalize women less for taking career breaks (England 1982). Other scholars have argued that gender-typical educational and career choices are the result of childhood socialization processes that shape individuals' desires and values (Marini and Brinton 1984), and is maintained over the life courses by various forms of social control (Jacobs 1995). These claims somewhat resonate with findings from a number of qualitative case studies. For instance, Greed (2000) highlighted that cultures of masculinity may hinder women's success in certain male-typical occupations. In contrast, working in female-dominated fields may have stigmatizing effects on men, but sometimes also provides them with career advantages over their female peers (Simpson 2004; Williams 1992).

The main tenets of socialization theory reappear when changing the perspective to managers' gender-biased hiring practices. According to the "statistical discrimination" literature, employers' beliefs about gender-typical labour market behaviour and productivity differences explain individuals' disadvantage in obtaining gender-atypical jobs (Bielby 1986). A variant of this theme resurfaces in the "gender queue" argument, which draws on the idea that individuals compete over jobs rather than wages (Thurow 1975). Employers are thought to rank job candidates according to their gender-biased preferences and training cost calculations, resulting in men being placed at the top of the resulting "labour queue". Changes in the organization of jobs, which diminish their desirability, have been suggested by gender queue theorists as the prime mechanism that leads jobs to feminize: if men's interest is steered towards more favourable employment opportunities, the top of the labour queue is left predominantly to women, who continue to see these jobs as more desirable than traditional female-dominated employment (Reskin and Roos 1990).

A different set of arguments sees the process of gender segregation and its socioeconomic effects more strongly influenced by patriarchal ideology rather than productivity considerations. Independent of any rational motive, social closure strategies aim primarily to guard male privilege against competition by women, leading to the expectation that "practices that exclude women from jobs and foster segregation should increase as the desirability of the job increases" (Tomaskovic-Devey 1993, 62). The consequence of accomplished segregation, as advocates of comparable worth theory argue, is the evaluation of job characteristics on the basis of the social value attributed to their main incumbents: "the *kind* of skills traditionally exercised by women are valued less in wage determination than are traditionally male skills" (England 1992, 40). Drawing on a number of case studies, it has been argued that the exact nature of tasks is largely independent from their evaluation as being typically female or

typically male: even if a new invention “arrives apparently gender-neutral it quickly acquires a gender by association with its user or its purpose” (Cockburn 1988; similar also Wetterer 2002).

Rather than attributing the causal force of gender segregation exclusively to sexist ideology, other feminist sociologists have highlighted the intersections between capitalist exploitation and women’s oppression involved in these processes. Pervasive patriarchal attitudes may have benefited capitalists: it legitimizes lower pay for women, which in turn poses a threat to better-paid male workers. In this situation of conflict between workers and employers, some researchers have argued that also the response of male-dominated unions was sourced from primarily patriarchal ideas. Rather than strengthening their front by integrating women into their ranks as equal members, several unions pursued strategies of exclusion in the attempt to monopolize skill definitions, training and high wages within an occupation for male workers, resulting in the gender segregation of jobs (Hartmann 1976; Walby 1986).

What the literature on gender segregation ultimately demonstrates is a fundamental heterogeneity within the labour market itself. If occupations of equal educational requirements lead to differential socioeconomic rewards in their respective employments, it is hard to argue that the occupational structure is primarily and consistently graded by individual merit criteria. Gender segregation accounts, which often emphasize employers’ discriminatory hiring practices as well as the socialization patterns and social control influencing individuals’ educational and occupational decisions, may be able to explain why women are underrepresented in particular occupations. However, they cannot shed any light onto what causes the socioeconomic differentials between male- and female-typical occupations. Marxist-feminist analyses as well as devaluation theory, on the other hand, have highlighted the central role that conflict plays for determining the characteristics of gendered employments, including the definition of required skills and the prestige attributed to them. In doing so, their arguments show a certain affinity to the sociological critique of neoclassical labour market theory. The following section will present an overview of such approaches.

3.2.2 Labour markets in sociological perspective

Dissenting from the neoclassical belief in perfect competition, Robert Averitt introduced the notion of “economic dualism” in the late 1960s, arguing that technological change has shaped two sectors of industrial production within the private sector of the economy: a monopolistic/oligopolistic core of large firms in concentrated markets, and a periphery of

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small businesses operating in a competitive environment (summarized in Averitt 1987, 1994). This basic idea proved further influential for a number of labour market economists, whose activism in anti-poverty and civil rights campaigns played a pivotal role in inspiring a break with the orthodoxy of neoclassical labour market theory during the 1960s and 1970s (Piore 1983, 250; recounted also by Hodson and Kaufman 1982, 731; Fine 1998, 123). The position of industries and firms at the “core”, where production is largely sheltered from extensive competition, or at the “periphery”, with extensive competition between small firms, was seen as a key moment in explaining wage differentials between workers. Being less exposed to competition, firms at the core provide more stable employment, better advancement via job ladders and can pay higher wages for their predominately white male workers. Secondary labour markets at the competitive periphery of the economy, on the other hand, are characterized by high turnover, dead-end, routine jobs with lower pay and stricter surveillance of the typically female and/or black workforce (e.g., Reich, Gordon, and Edwards 1973).

Yet, criticism against some implicit and explicit claims of dual economy theory soon abounded also among its sympathizers, particularly in the circles of heterodox economists and economic sociologists. The list of grievances included the simplistic alignment between dual economic segments and dual labour markets (Granovetter 1981). Furthermore, critics argued that the theory confounded the characteristics of workers and jobs, conceived of segmentation in an unduly unidimensional fashion, and did not go beyond description (Althausser and Kalleberg 1981; Hodson and Kaufman 1982; Kalleberg, Wallace, and Althausser 1981; Kalleberg and Berg 1994; Wallace and Kalleberg 1981).

As a consequence, dual labour market theory (or, to use a broader term, labour market segmentation theory) has since been reworked and developed in diverse ways with differing emphases. Kalleberg and Berg (1994, 6–7) summarize the various versions of labour market segmentation theory as chiefly concerned with six types of institutional arrangements: the size and market power of firms, the concentration and capital intensity of industries, occupations differentiated by their technical skill as well as their supply-demand relationship, classes defined by their ownership and control over capital, workers organized in unions and associations, as well as nation states in their legal, policy and cultural contexts but also in their capacity as employers. As the overall theme of these approaches remains “the belief that socioeconomic achievements of individuals are conditioned by differences in the social and economic organization of production” (Kalleberg, Wallace, and Althausser 1981, 651). It is in this respect that I see the sociological versions of labour market

segmentation in fundamental conflict with the individualistic focus pervading status attainment research and neoclassical labour economics.

To some degree, the previously heterodox emphasis on institutions and their heterogeneous effect on worker outcomes has in the meantime been incorporated into the neoclassical mainstream. An example is the notion of efficiency wages, launched by neoclassical economists as an explanation for wage differentials between labour market sectors (e.g., Lang and Dickens 1994). Accordingly, employers choose to pay higher wages as a more cost-efficient method than direct surveillance and control to ensure the industrial peace as well as workers' compliance with employers' goals.

Sociologist conceptions inspired by segmented labour market theory, on the other hand, tend to favour institutional sources of power as the central moment of labour market structures over utility-maximizing strategies of rational actors. For instance, capital-intensity has been thought to increase workers' bargaining power for higher wages, due to the fact that wage costs constitute a significantly lower share of employers' total costs in such companies and industries, whereas employers are dependent on workers' cooperation in the care for the expensive machinery (Hodson and Kaufman 1982). In addition, a large company size leads to a potentially more severely felt degree of alienation among workers, which in turn may increase their support for unionisation (Farkas, England, and Barton 1994). Furthermore, the greater size of profits expected in larger companies possibly increases their ability to pay higher wages and may make employers more likely to give in to workers' demands (Kalleberg, Wallace, and Althauser 1981). Also contexts where wages are settled by collective bargaining pose a challenge to human capital models, in that the resulting wage levels are more likely to reflect job characteristics and power differentials rather than individual workers' productivity (Sørensen and Kalleberg 1981).

A different type of power is exercised by occupational licensing. On the one hand, it constitutes a means to increase workers' control over their skills vis-à-vis employers. But on the other hand, licensed workers achieve this power primarily by restricting the labour supply of their occupation. As a consequence, licensing entails an element of conflict not only between employers and workers, but also between different occupations and among workers (Kalleberg, Wallace, and Althauser 1981; Sørensen and Kalleberg 1981; Weeden 2002).

Rejecting human capital and neoclassical approaches does not necessitate a rejection of education as an important factor in economic differentiation processes. Nevertheless, labour segmentation theories typically consider education in its social and institutional dimension rather than

merely as an individual attribute of workers. Weberian theories of social closure have underscored the importance of educational credentials for consolidating a sense of status and identity among those who share access to it, which serves as a resource in the competition over positions within the division of labour (e.g., Collins 1977, 1979). Marxist writers have emphasized how a workforce divided by such status competition struggles benefits employers, as it weakens solidarity among workers (Reich, Gordon, and Edwards 1973). These views on status competition could be considered as compatible with sociological versions of labour market segmentation theory, to the extent that they regard education as an instrument which “sorts people into occupations with differing levels of worker power” relative to employers (Kalleberg, Wallace, and Althausen 1981, 661). But returns to education cannot be assumed as homogeneous: “Similar inputs of education may result in different incomes depending on the firm and industrial context in which a person is employed” (661). As a consequence, empirical differences in the value of education between various economic segments have usually been treated as evidence against the individualistic interpretations of the role of education that dominate status attainment and neoclassical models (e.g., Beck, Horan, and Tolbert 1978; Beck and Colclough 1994).

3.2.3 Educational structures and the labour market

In recent decades, quantitative research in status attainment has become more sensitive towards institutional aspects of education. Particularly influential in this respect has been Allmendinger’s (1989) seminal paper, in which she showed that “educational system characteristics matter for occupational outcomes” (232). Her typology of educational systems features two main axes: first, the degree to which examinations, curricula, teacher qualifications and school budgets are standardized throughout a national context. Second, the extent to which particular educational levels are internally differentiated into different tracks, which introduces an element of selection into the system that typically leads to the stratification of pupil cohorts with respect to their maximally attained years of schooling.

In highlighting the socioeconomic consequences of educational structures, Allmendinger (1989) and other sociologists researching the school-to-work transition (e.g., Iannelli and Raffe 2007; Kerckhoff 2000; Shavit and Müller 1998, 2000; Wolbers 2007) have drawn on research conducted by the industrial sociologists Maurice, Sellier, and Silvestre (1986). Sympathetic to segmented labour market approaches, Maurice, Sellier, and Silvestre (1986) argue that the role of educational qualifications for ac-

cessing skilled jobs significantly differs in the French compared to the German manufacturing sector. In France, it is individual companies which “seem to bear the major part of the burden of establishing criteria and procedures whereby work force stratification is institutionalized”. In contrast, German “work force stratification is determined by a unique standard external to each individual firm; the level of occupational training received” (Maurice, Sellier, and Silvestre 1986, 168). As a consequence, firms in Germany draw mainly on “polyvalent” workers (68), whose occupational-specific skills acquired prior to entering the firm qualifies them for a variety of tasks. In France, on the other hand, workers acquired their training often in conjunction with a promotion on the job, making their skills largely firm-specific (67–78).

Despite a clear commitment to the institutional links between labour markets and educational systems, I would argue that much quantitative-empirical work in the sociology of education of recent years remains indebted to explanatory approaches that view labour market outcomes largely as the aggregate of individuals’ rational decisions under exogenous constraints. Such work considers the characteristics of educational systems primarily against the backdrop of neoclassical signalling and screening theories (Arrow 1973; Spence 1973), for which educational credentials are a means for employers’ to approximately estimate a candidate’s potential productivity and cognitive ability prior to hiring a candidate.¹ Qualifications gained in highly standardized and occupationally-stratifying educational systems are thought to increase the transparency of acquired skills, which in turn strengthens the signal quality of qualifications on the labour market (e.g., Andersen and van de Werfhorst 2010; Allmendinger 1989; Iannelli and Raffe 2007; Shavit and Müller 1998). At the same time, such systems tend to more rigidly confine students to either academic or vocational pathways, which to a large extent bars the latter group from more prestigious jobs, but also enhances their chances of attaining skilled and relatively stable employment (Arum and Shavit 1995; Shavit and Müller 2000). In national contexts where educational programmes are less standardized and less occupation-specific, recruiting employers are provided with considerably less reliable information concerning applicants’ suitability prior to hiring. As a result, more frequent job changes during the early career stage are a common occurrence, forcing employers to rely more heavily on firm-internal job ladders when

1. While signalling and labour queue theorists question the traditionally neoclassical assumption of perfect information, Fine and Milonakis (2009, ch. 4) have argued that these approaches stabilize rather than reject the neoclassical view on labour markets. Signalling theories are also at the basis of the labour queue and statistical discrimination arguments reviewed in section 3.1.3.

hiring for more skilled positions (Wolbers 2007).

However, it has become increasingly obvious that vertical dimensions, such as the level of qualification or the years of schooling attained, are not the only way in which education sorts individuals into different occupational positions and earnings strata. Empirical research in this area has focused particularly on horizontal differentiations within higher education, such as fields of study (Kelly, O’Connell, and Smyth 2010). But also the selectivity and prestige (Rumberger and Thomas 1993) as well as differences between academic and vocational emphases in higher education (Shwed and Shavit 2006) have received some attention. Some researchers have adapted the main tenets of signal theory to make sense of these patterns. For instance, given that individuals of higher measured academic (mathematical) ability are more likely to enrol in more “demanding” fields of study (Arcidiacono 2004) and more prestigious institutions (Davies and Guppy 1997), some authors interpret the greater occupational success of graduates of these fields as mediated by the greater cognitive ability which these qualifications signal to employers (Reimer, Noelke, and Kucel 2008).

By contrast, a different line of argument has put greater emphasis on the *kind* of skills that fields of study transfer to graduates, rather than viewing fields of study primarily as a signal for cognitive ability in an abstract sense. Accordingly, the degree of productivity signalled by a qualification depends strongly on what type of skills are in demand within different areas of the labour market segments: “In one type of job, financial and commercial skills and knowledge are beneficial and are preferred, but in other jobs one’s opportunities are greater with a field that teaches technical skills” (van de Werfhorst 2002). But more generally, what significance employers attribute to job applicants’ credentials may very well vary between industrial sectors and labour market segments within the *same* national context. As van de Werfhorst (2011) argues, some sectors may value job-specific skill signals, others may use credentials mainly to infer onto applicants’ cognitive ability and their presumed on-the-job training costs, while still others may regard qualifications as an indication for candidates’ ideological outlook and their suitability as “respectable and well-socialized employees” (Collins 1977, 130).

3.3 Research questions for empirical study

As the preceding review has shown, once educational and economic structures as well as their interlinks are allowed to enter the picture, the view that any unidimensional merit criterion like educational attainment can

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consistently improve individuals' position in the social order becomes ever more questionable. Feminist analyses of gender segregation, conflict theories of social stratification and segmented labour market theories have demonstrated that the distribution of socioeconomic rewards within capitalist labour markets is subject to power struggles, which are rooted in the material and social conditions of production. The review in this chapter has shown that educational qualifications may serve occupational groups as a tool to restrict their labour supply and close their ranks against competing groups, resulting in a strengthened bargaining power of workers vis-à-vis employers within particular occupational and industrial segments.² As a consequence, wages and occupational status may vary between individuals of the *same* qualification level, and net of all other personal characteristics, simply because they occupy different labour market segments.

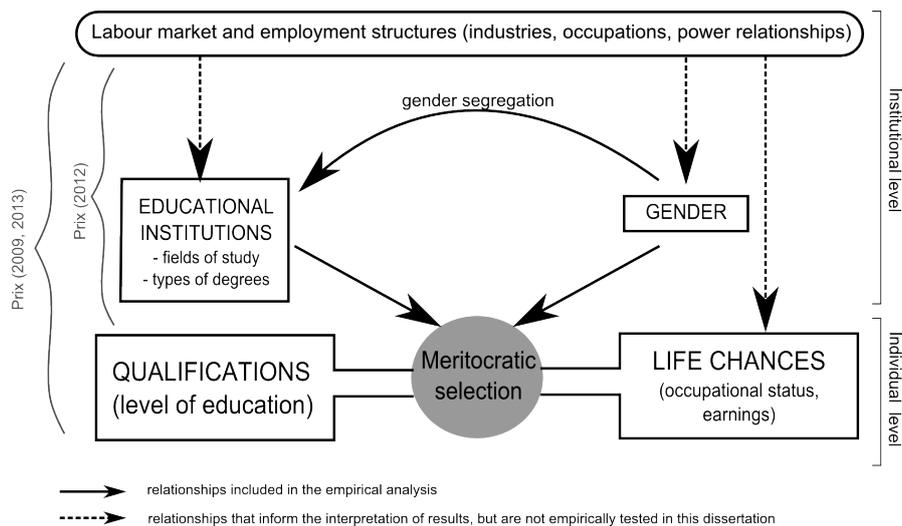


Figure 3.2: Research aim: To what extent do fields of study and gender segregation affect social stratification in Finland?

Against this backdrop, the following **research problem** arises for this dissertation: What happens when educational differentiations, such as fields of study and types of degrees, are included into the status attainment model? To what extent do such differences between individuals affect the commonly confirmed notion that higher levels of education increase individuals' occupational status and earnings? Figure 3.2 graphi-

2. I would argue that these views do not necessarily contradict the idea that education also transmits technical skills. However, the relevance of technical skills then derives predominately from their effects on power constellations within a given economic context.

cally summarizes the research problem of this dissertation.

Two possible scenarios are thinkable. If educational attainment is the main signal that indicates individuals' skills and productive capacity to employers, it may be expected that higher qualification levels lead to greater socioeconomic rewards, regardless of smaller variation between graduates of different fields of study. Alternatively, if the role of educational credentials varies more significantly between labour market segments, the question whether or not educational qualification levels increase individuals' socioeconomic position may depend more crucially on the fields of study involved. While not directly and empirically tested, this scenario assumes that fields of study and types of degrees may reflect some of the political and economical differences between labour market segments, which arise from differences between occupational groups and industrial branches as well as their typical relationship to public and private sectors of the economy and typical establishment sizes. This scenario would crucially threaten any meritocratic interpretation given to the role of education in social stratification processes.

In addition, a focus on fields of study helps to scrutinize some of the ways in which ascription variables like gender interact with educational achievement in social stratification processes. If male-dominated and female-dominated fields of study of a given qualification level lead to differential socioeconomic outcomes, society-wide gender differences in earnings and occupational status may be reinforced even if employers' hiring practices and wage policies remain free from gender discrimination.

I approach the research problem of this dissertation in three steps. After starting out with a focus on how men and women within given educational levels are segregated by their fields of study, I proceed to analyse the effects of gender-segregated fields of study on higher education graduates' occupational status. Finally, this perspective is widened by considering the joint effect that educational fields and qualification levels may exert on individuals' earnings. In detail, three research questions structure the empirical part of this dissertation, each corresponding to one of the three research articles that constitute the empirical core of this dissertation:

1. Does the level of education matter for the extent and the patterns of field-specific gender segregation? (Prix 2012)
2. In which way do gender-segregated fields of study and types of higher education affect graduates' occupational status? (Prix 2009)
3. To what extent do qualifications increase earnings, when variations between fields of study are considered? (Prix 2013)

Part II

Empirical analysis

4 | National context, data and methods

4.1 Finland in comparative perspective

4.1.1 Why Finland?

Finland is the only country which features in each of the three research articles that form the empirical core of this dissertation (Prix 2009, 2012, 2013). The considerations that led to this focus on Finland were threefold. What I would name a *cultural* reason stems from a desire to contribute to the sociological knowledge of the environment in which I planned and undertook my research, namely Finland. As an additional reason I will have to admit sheer *convenience*, given that the most accessible sources for high-quality data for my research concentrated on Finland. On the one hand, my research department had been involved in collecting the Finnish data for an international survey of higher education graduates (REFLEX) a few years earlier, which facilitated the inclusion of Finnish survey data into my analyses. On the other hand, the secondary data available from the national statistical office in Finland is of particular quality, given that national statistics in Finland (like in other Nordic countries) are predominately compiled on the basis of register-rather than survey information (UNECE 2007).

But there is also a *substantive* reason behind this emphasis on Finnish data in my dissertation. As the previous review has shown, the precise role of educational qualifications in social stratification processes is likely to vary between countries, depending not least on the institutional links between educational systems and the labour market. In national contexts where a large extent of occupation-specific training takes place within the context of the educational system rather than the workplace, individuals' fields of study may take on a particular significance for their status attainment. For this reason, the focus of enquiry in this dissertation has rested particularly on countries like Finland, which can be argued to

share these institutional characteristics. The next section will elaborate this claim in more detail.

4.1.2 Institutional links between education and work in Finland

According to Müller and Shavit (1998, 9), the term “qualification space” characterizes countries where educational institutions (1) provide a “high rate of *specific vocational education*”, (2) exhibit “a clear distinction between academic and vocational tracks”, and (3) follow curricula that have been standardized across the country. It is easy to show that Finland meets each of these three requirements. Broadly speaking, Finnish upper secondary education is stratified into two types of schools: high schools providing general education up to the matriculation exam (*lukiot*), and occupation-specific vocational education offered by vocational schools (*ammattilliset oppilaitokset*). Vocational education at the upper secondary level is a well-established educational option in Finland, as recent enrolment figures demonstrate: in 2011, 45% of 17-year-olds in Finland studied at vocational schools, whereas 48% of this age cohort were enrolled in high school education (Statistics Finland 2013c, table 3.2). Within upper secondary education, the spectrum of vocational courses recognized by the Finnish state comprised 120 standardized specializations (*koulutusohjelmat*) in 2011, divided into eight broad fields of study. Each programme requires three years of full-time study for completion. Apprenticeships remain a very marginal form of instruction in Finland, with vocational training being predominately school-based. Nevertheless, all vocational programmes include compulsory periods of on-the-job training in a company, where students’ job tasks are pre-coordinated with the school (FNBE 2012, 43–48).

The administrative context for vocational education further illustrates the comparatively close ties between this segment of the Finnish educational system and the labour market. Since the 1920s, Finnish policy on vocational education, including the planning of field-specific curricula, has been significantly influenced by a council that includes both employer and worker representatives as well as additional members representing the state and vocational institutions (Lintunen 2000, 215–6; Porvali 2000). Currently, responsibility for the development of curricula and evaluation of vocational education lies to a large extent in the hands of twenty-six field-specific vocational education committees (*koulutustoimikunnat*) within the Finnish National Board of Education, each consisting of industry-specific representatives of labour unions and employer organizations but also of vocational education teachers (FNBE

2013).

However, in one particular respect, Müller and Shavit's (1998) characterization of qualification spaces provides some complications for the Finnish context. According to their hypothesis, the occupational specificity of vocational training at the secondary level should lead to "less pressure to attain ever higher credentials" (7), resulting in the expectation of a relatively low rate of tertiary attainment (in the age group of 25- to 44-year-olds) at around 15%. It should be noted that the rate of tertiary attainment mentioned by Müller and Shavit (1998) stems from empirical data gathered during the 1980s and 1990s (e.g., Müller, Steinmann, and Ell 1998). This raises the question whether more recent trends in educational expansion may have affected the significance of this criterion in Müller and Shavit's (1998) definition of a qualification space system. In Finland, tertiary attainment (defined as bachelor-level or higher) among the 25- to 44-year-olds amounted to roughly 13% in 1995, whereas this figure had reached roughly 31% by 2011 (Statistics Finland 2013b, own calculations).

One aspect contributing to the massive expansion of tertiary education in Finland was structural reform. In the early 1990s, Finland introduced polytechnics (*ammattikorkeakoulut*) as a new type of higher education alongside the traditional universities.¹ This dual structure of higher education was established by transforming what previously constituted a higher-level segment of vocational education (*opisto*) into higher education institutions (see Rauhala 2000). While polytechnics are not technically classified as universities, the polytechnics award bachelor-level degrees (and since 2005 also master-level degrees) that are legally equivalent to corresponding university degrees in Finland (Polytechnics Act 351/2003, 18§). Furthermore, the United Nations' educational classification system ISCED-97 categorizes both polytechnic and university degrees as belonging to the same academic level, defined as ISCED-5A (Statistics Finland 2013a).

Faced with a steady expansion of higher education in Finland, the polytechnic reform may have somewhat sheltered the more traditional universities with their academic focus from the bulk of the influx of new students, channelling them instead into the more vocationally oriented polytechnics. When only university graduates are considered, the share of tertiary graduates in 2011 reaches roughly 15% among 25- to 44-year-

1. While the Finnish Ministry of Education and Culture uses the term "polytechnics" for referring to this type of Finnish education in English-language contexts, it states that some polytechnics prefer the translation "University of Applied Sciences" (Finnish Ministry of Education and Culture 2013).

olds, which amounts to a difference of only 2 percentage points compared to 1995 (Statistics Finland 2013c, own calculations based on appendix table 8).

4.1.3 Comparative settings and the role of causality

All three research articles in this dissertation share a comparative angle in their analyses, which includes cross-country comparisons and/or a view on trends over time. To what degree a comparative setting can assist in identifying causal mechanisms has been the topic of an ongoing debate in the social sciences (e.g., Goldthorpe 1997a; Mahoney 2003; Øyen 1990; Tilly 1997). Rather than to facilitate a causal statement of a logical-deterministic kind, the use of comparisons across time and space in this dissertation pursues a much more modest aim: namely, to increase the detail of description and contextualization.

This reluctance to apply any formal methods (logical or statistical) to arrive at causal interpretations stems from my deep scepticism towards methodological fixes that purport to achieve causal evidence. In this sense, I agree with Goldthorpe (1997b), when he argues that “causality is a property of theoretical statements, and can no more be directly observed in the historical record than it can in statistical results” (128). This does not mean, however, that the articles that make up this dissertation are wholly unconcerned with statements of a more explanatory kind. In fact, the main ambition of this dissertation aims at gauging the degree to which institutional-structural features might offer alternatives to the meritocratic interpretation of social stratification. The more detailed statistical description of the role of education for social status attainment serves to examine whether the causal narratives of conventional stratification accounts remain consistent with the empirical patterns identified in my articles. What is missing, however, is any attempt to more formally test *rival* causal mechanisms.

The fact that only countries with similar institutional frameworks were included in the comparisons of articles I (Prix 2012) and II (Prix 2009) again illustrates that the comparative perspective in this dissertation does not claim an independent analytical role. Austria, Switzerland, the Netherlands and Norway have previously been characterized as sharing central features of the “qualification space” model of relations between their educational systems and the labour market (for Austria, see Shavit and Müller 2000, 444; for Switzerland and the Netherlands, see Müller and Shavit 1998; for Norway, see Allmendinger 1989, 240). Any cross-comparisons regarding the role of educational institutions for producing gender segregation patterns (Prix 2012) or their role in gendered status

attainment processes (Prix 2009) is therefore meant to primarily detect differences between countries that exist *despite* their general institutional similarities. As such, the comparative view primarily aims at preventing unwarranted generalizations across national contexts.

To the extent that trends over time are considered in articles I (Prix 2012) and III (Prix 2013) of this dissertation, the comparative perspective takes on a more substantive role. Identifying historical trends can help specify whether educational reform may have affected gender segregation patterns over time (Prix 2012) as well as whether contemporary relationships between educational credentials for individuals' income attainment constitute a historical outlier (Prix 2013). But even in these two instances, the applied comparisons aim primarily at a detailed contextualization and description and cannot serve as a means to determine causality.

4.2 Three types and sources of data

Each article of this dissertation utilizes not only a different data set, but also different types of data, which are summarized briefly in table 4.1.

4.2.1 Register-based macrodata

Patterns and trends of gender segregation by field of study in article I have been examined using *register-based macrodata*, drawn from administrative records of educational institutions in Finland and Austria for the period between 1981 and 2005 (measured in roughly five-year intervals). The greatest advantage of using aggregated, register-based data is that measurement error can be assumed to remain small. Due to the fact that these register-based figures nearly exhaustively cover the Finnish educational system at the vocational secondary and tertiary level, the analyses applying this sort of data do not need to rely on statistical inference. But the aggregated nature of publicly available macrodata also comes with a downside, in that it is lacking in depth. This relates to the fact that it was impossible to link these public use files with additional information, either on the economic environment of the individual educational institutions (e.g., variety of educational possibilities, demographic structure, regional unemployment and income levels) or the individuals enrolled, such as their social background and their educational and/or occupational pathways. Combining micro- and macrodata of this sort could have been useful for connecting the description of gender segregation patterns more closely with issues of class and social stratification.

The historical and cross-country comparison in article I made it necessary to harmonize the data by field and level of study. Not only do educational structures and types of programmes vary between Finland and Austria, but each country’s education system has been differentially affected by reforms during the period of observation. In addition, official classifications used to summarize programmes into broad fields of study have varied over time, which constitutes additional hurdles for cross-country and historical comparisons. Therefore, it was necessary to acquire enrolment figures for each *detailed* educational programme when constructing the time-series in the article. The level of detail, particularly in publicly available Finnish education statistics, also varied between the years. Fortunately, Statistics Finland could provide me with some programme-specific tables for the 1980s, which had not been published as part of their educational statistics publication series.

The data situation in Austria posed some challenges of its own. While detailed, programme-specific Austrian educational statistics were available for the period between the 1980s and 2002, health-related programmes were for the most part excluded from these statistics. For several years, the Ministry of Health, which regulates training in health-related fields in Austria, published their own statistics on students enrolled in these programmes, yet the level of detail for these figures varied quite significantly between the publication years. Gaps in the enrolment numbers for midwifery training during the mid-1990s could be filled with the help of staff from midwifery colleges, who provided me with their institutions’ enrollment statistics. Overall, the very detailed classification of vocational programmes by programme title and school type at upper secondary and post-secondary level was discontinued in Austria after the year 2002. As a consequence, the time series for gender segregation levels calculated for Austria in article I ends with the year 2002 for the vocational level, but continues up until 2005 in the case of higher education students.

4.2.2 Cross-sectional survey data

Analyses in article II make use of international *survey data* focusing on higher education graduates. Collected as part of the REFLEX project (short for “Research into Employment and professional FLEXibility”), the aim of the study was to research the labour market experiences of higher education graduates in the knowledge economy (Allen and van der Velden 2011, 2). Higher education alumni from sixteen countries, who all graduated between 1999 and 2000, were contacted with the re-

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Characteristics	Article I	Article II	Article III
Data type	macrodata	microdata	microdata
Data source	official enrolment statistics	graduate survey	administrative registers
Unit of analysis	educational programmes	employed graduates	employed young adults (age groups 28–30 and 33–35)
Countries	Finland, Austria	Finland, the Netherlands, Norway, Switzerland	Finland
Time periods	1981–2005	2004	1985–2005
Sample size	population data	8704 cases	440,829 cases

Table 4.1: Characteristics of the data used for this dissertation

quest to fill in a questionnaire (either on paper or online).² Only those individuals who graduated with a bachelor’s or master’s degree, that is, tertiary education programmes classified at the 5A level of the International Standard Classification of Education (ISCED-97), were considered as the survey population in this project. The random sample drawn in each country was stratified with regard to fields of study and type of higher education. Some countries included also strata for region and gender (Allen and van der Velden 2011, 6–8).

For my analyses in article II, I have selected four countries from the REFLEX survey to be included into the sample: Finland, the Netherlands, Norway and Switzerland. The higher education system of these four countries is characterized by a dual structure, consisting of a university and a polytechnic sector, which was a key aspect of analysis in article II. The response rate to the REFLEX survey in these four countries varied between 35% in the Netherlands and 55% in Switzerland (Allen and van der Velden 2011, table 1.1). The included information on graduates’ fields in the survey makes the REFLEX data particularly suitable for the research project of my dissertation, given that educational variables in similar large-scale survey projects of a more general nature (such as the International Social Survey Project (ISSP) or the European Value Study (EVS)) tend to focus exclusively on educational levels or years of educations. A noteworthy and welcome exception to this tendency is the European Social Survey (ESS), which during waves

² The Reflex dataset I had access to contained thirteen European countries and 36,000 cases in total.

2–4 also included a question on educational fields.

However, there are two characteristics of the REFLEX survey that make it better suited than the ESS data for the aims of this dissertation. First, while the ESS survey has the advantage of including also individuals with other than higher education qualifications, any more refined analyses of how educational fields and levels interact are likely to lack statistical power, given that country-specific samples seldom exceed 2000 cases (e.g., Norwegian Social Science Data Services 2013). Although the sample size from the individual countries in the REFLEX study is comparable with the ESS, the fact that REFLEX contains only higher education graduates also means that differentiations by field of study and type of higher education are sufficiently well represented in order to facilitate more complex statistical analyses. Second, unlike any of the other surveys mentioned above, REFLEX focuses on a single graduate cohort (those who completed their degree in 1999/2000). This cohort design of the REFLEX study has certain benefits for my research purposes. Given that graduates in this survey earned their degree at the same time, it may be speculated that they faced the same general economic climate upon entering the labour market. In addition, the REFLEX study's rich variety of variables on individuals' employment careers prior to as well as after completing their higher education degree meant that differences between individuals' labour market experiences in the REFLEX sample could be relatively well accommodated in the analyses.

Nevertheless, using sample data, like that provided by the REFLEX survey, also has its drawbacks. Individuals' self-reported information may contain errors, and the less than ideal response rates hint at a potential bias introduced by cases not missing at random. The exclusive focus on higher education graduates somewhat limits the external validity of results, as only a quite select group of people was observed. The fact that higher education dropouts are by definition missing from this survey of graduates further increases the extent of this selectivity.

4.2.3 Register-based microdata

Using *register-based microdata* helps avoid some of these common problems of survey data research. For article III in my dissertation, I received access to a very extensive sample of Finnish residents, whose demographic, educational and socioeconomic data Statistics Finland had compiled from various administrative registers. In Finland, as in other Nordic countries, collecting this type of data is facilitated by the fact that Finnish citizens as well as permanent residents in Finland receive a personal identification number (*henkilötunnus*), which facilitates the

efficient combination of separate administrative files containing personal data.

The data set obtained from Statistics Finland has a longitudinal structure: in 1970, a (roughly) 33% sample of 3- to 35-year-olds was drawn, for which follow-up data was added in five-year intervals up until 2005.³ Over the years, this data set was augmented by several younger cohorts: a 40% sample of 3- to 5-year-olds and 8- to 10-year-olds was included in 1980, followed by another 40% of children aged 3 to 5 years in 1985. The total sample comprises several hundred thousand cases, which is an obvious improvement in statistical power over the typically modest size of most surveys.

An additional advantage of register data is the fact that the source of information in the data set are not the individuals themselves, but administrative registers, which minimizes measurement error as well as the occurrence of missing values. However, precisely this property of register data may also be viewed with some degree of ethical concern. In effect, individuals in the data set have no control over the extent to which they participate in any given study based on register data, nor can they decide over the quality and amount of their personal data that is disclosed via the registers.⁴

The advantages of register data for research purposes notwithstanding, some additional downsides of this type of data must be noted. For example, the researcher has no influence on the way the variables in the data set are defined. It can be argued that this is a general feature of research based on secondary data rather than a particular characteristic of register data. Yet, this common feature is particularly fervent in register-based secondary data, given that the compilation of official registers are chiefly tailored towards the purpose of administration rather than research.

Another complicating issue for register-based research with Finnish data are foreigners moving to Finland or Finnish citizens who spent extended periods of time abroad. If these individuals have completed a qualification abroad, this information does not necessarily end up in an official qualification register (*tutkintorekisteri*). According to Statistics

3. Strictly speaking, there are some gaps in this age bracket. Counting from the youngest to the oldest, three age cohorts are each included and the subsequent two omitted. In other words, the data set for 1970 includes 3- to 5-year-olds, 8- to 10-year-olds, 13- to 15-year-olds, and so on, up to and including 35-year-olds.

4. According to the Finnish Personal Data Act (523/1999, 14§ and 15§), personal data contained in registers may be used for scientific research purposes without the consent or the knowledge of the individuals concerned, as long as certain conditions are met (i.e., individuals must remain unidentifiable in the data).

Finland, educational degrees obtained abroad by Finnish citizens (and permanent residents in Finland) “do not end up in the qualification register unless the individual actively requests the recognition of their foreign degree by the [Finnish] authorities” (Rapo 2011, 32, my translation).⁵ In the case of article III, I believe these drawbacks had nevertheless no serious repercussions on the findings and conclusions.

4.3 Measures

In this section, I introduce and discuss the core variables of articles I–III (summarized also in table 4.2). In addition to the variables of substantive interest, a number of additional factors have been included in the models of articles II and III to eliminate their possibly confounding influence on the key predictors in the analyses (see table 4.3).

4.3.1 Socioeconomic outcome

Two measures of socioeconomic outcome were included in this dissertation: occupational status and earnings.

Article II focuses on graduates’ *occupational status* as the dependent variable in the multivariate models. As the basis for my outcome variable, I utilized the International Standard Classification of Occupations (ISCO-88), which ranks occupations according to the level of skill typically required for performing such work. According to this framework, professional work requires the highest skill level (skill level 4), defined as “tertiary education (begun at ages 17–18 and lasting 3–6 years and leading to a university degree or equivalent)” (Elias 1997, table 1). The work of technicians and associated professionals (semi-professionals hereafter) is characterized by skill requirements corresponding to a post-secondary qualification of similar length not equivalent to a university degree (skill level 3). Clerical and skilled work (major groups 4–8) is situated at skill level 2 and defined as requiring secondary education, whereas elementary occupations (major group 9) with skill level 1 demand no more than primary education (Elias 1997, table 1).

The hierarchical nature of this classification scheme led me to define an ordinal measure of occupational status, distinguishing occupations broadly by the skill level nominally attributed to them in the context of the ISCO-88 framework: professionals and managers (major groups 1

5. Quoted passage in the Finnish original: “Esimerkiksi suomalaisen ulkomailla suorittama tutkinto ei päädy tutkintorekisteriin, ellei henkilö itse ole aktiivinen ja hae viranomaisilta hyväksyntää ulkomaiselle tutkinnolleen.”

and 2), semi-professionals (major group 3), clerks and lower-skilled occupations (major groups 4–9). The role of this three-category variable in article II is to measure the probability of graduates attaining occupations that are generally seen as equivalent to the level of their education. Note that legislators, senior officials and managers (major group 1) deviate from the ISCO-88 classification principles, in the sense that this group is not defined on the basis of skill. Nevertheless, I added them to the category of professionals, assuming that any managerial work graduates are involved in five years after completing their degree is likely to correspond to professional work in terms of skill requirements. Armed forces occupations (major group 10) were excluded from my analyses in article II.

Two major differences between ISCO-88 and the occupational classification that preceded it (ISCO-68) are noteworthy. First, the focus on skill in ISCO-88 was introduced “at the expense of industry distinctions” (Ganzeboom and Treiman 1996, 206) which were still prevalent in ISCO-68. Second, “self-employment, ownership, and supervising status are not acknowledged, whereas they were a central basis of distinctions in ISCO68” (207). I argue that shedding structural criteria such as industry, authority, and ownership relationships in favour of ranking occupations along a continuum of the skill or educational level required from typical incumbents, exhibits some interesting affinities between the conceptual core of ISCO-88 and the status attainment view on social stratification and labour markets.⁶

However, whether the occupational levels distinguished by ISCO-88 also lead to a corresponding hierarchy of material rewards for their incumbents is an entirely different matter. For this reason, article III takes a different view on socioeconomic outcomes compared to article II, defining it on the basis of individuals’ taxable gross annual *earnings* from employment and self-employment.

4.3.2 Educational level

Due to variations in the type of data available, the definition of *educational level* somewhat varies between the three articles in this dissertation. This is primarily due to the fact that the varying comparative

6. What level of skill best describes the task requirements of occupations and subsequently determines their rank in a hierarchically conceived official classification is far from self-evident or neutral. For the case of Finland, Kinnunen’s (2001) case studies of the classification disputes between engineering and nursing occupations aptly illustrate the gender dynamics and status competition struggles involved in skill-based official ranking endeavours.

angles applied in this dissertation necessitate some degree of harmonization, which in turn also blurs some educational distinctions.

Article I differentiates university and polytechnic education at the level of higher education, but defines vocational education in relatively broad terms, combining vocational courses at the upper secondary level with post-secondary vocational education. While it would have been interesting to distinguish between the various types of vocational education, such a distinction would have put too much strain on the cross-country comparison: It is not immediately obvious which of the several different types of higher-level vocational training in Austria would best correspond to Finnish vocational colleges, without introducing contradictions for the Austrian context.⁷

The rich history of educational reform in Finland added somewhat to these complications of classification. From the 1980s until the polytechnic reform in the mid-1990s, all vocational students in Finland attended a common first introductory year (*yleisjakso*) before beginning their specialized training on either the basic level or the higher-level of vocational education (Honka 2000, 80–85). As a result, school statistics, particularly in the late 1980s and up until the mid-1990s, included a large segment of first-year vocational students, who could not be classified as belonging to either the lower or the higher-level segment of vocational education. Excluding this large portion of students would have introduced a discontinuity compared to the years prior to and after the polytechnic reform. For all these reasons, merging all vocational levels into one segment appeared to be the most feasible option, even though this meant losing interesting differentiations.

Similar harmonization problems were at the root of my decision to merge polytechnic students and the vocational college segment in article III. Educational level in article III is defined as including five different qualifications: basic schooling (primary and lower secondary education), vocational secondary education, high school, intermediate education (vocational college degrees in 1985–2005 and additionally polytechnic graduates in 2005) and university degrees (bachelor level or higher). Keeping polytechnic graduates and vocational college graduates separate during the period of observation (1985–2005) would have meant that the variable

7. The Austrian vocational and post-secondary system of education is highly differentiated and contains a significant share of programmes classified as category ISCED 4 (Austrian Agency for International Cooperation in Education and Research (OeAD) 2013). This category designates programmes that “straddle the boundary between upper-secondary and post-secondary education from an international point of view”, but “can, considering their content, not be regarded as tertiary programmes” (UNESCO 2006, 31).

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for educational level consisted of five groups in 1985 and 1995, but would have included an additional sixth group in 2005. By then, polytechnic graduates were already quite numerous, but vocational college degrees were still a common occurrence in the age group under consideration. To facilitate comparisons over time, I decided to merge polytechnic and vocational college graduates, which felt like a viable option given the historical connection between these two institutions. There is an obvious disadvantage to this solution, however, as it prevents comparing the socioeconomic outcome of polytechnic graduates to that of graduates from their predecessor institution.

Variable	Article I	Article II	Article III
Outcome variable	extent of gender segregation by field of study (A_j)	occupational status	gross annual earnings (logged)
Occupational status	not applicable	professionals (incl. managers), semi-professionals, clerks/lower	
Educational level	vocational, polytechnic, university	polytechnic, university	basic, high school, vocational, intermediate, university
Gender segregation by fields of study	gender segregation index A_j	female-dominated, male-dominated, gender-balanced (defined by A_j cutoff values)	not measured
Field of study	education, humanities and arts, social sciences (including business and law), science (including mathematics and computing), engineering (including manufacturing and construction), agriculture and veterinary, health and welfare, services		

Table 4.2: Key variables in articles I–III

In contrast to articles I and III, the analyses of article II contain only a single level of education (ISCED-5A), differentiated by type of higher education into polytechnic and university degrees. It is of course true that in some countries (e.g., in Finland), the polytechnic degrees are predominately tied to the bachelor level, whereas most university students study towards a master’s degree. Nevertheless, I perceived the distinction between degree levels (bachelor’s or master’s) as less relevant

in the context of article II's main research question, given that both types of higher education are formally classified as providing the basic skills required for professional occupations according to the International Standard Classification of Occupations (ISCO-88).⁸

4.3.3 Educational fields

Educational fields have been defined in a largely consistent fashion in all three articles, distinguishing eight broad fields of study in accordance with the ISCED-97 classification scheme (Andersson and Olsson 1999): pedagogic education, humanities and arts, social sciences (including business and law), science (including mathematics and computing), engineering (including manufacturing and construction), agriculture and veterinary, health and welfare, and services. This classification standard has been developed with the explicit aim to facilitate cross-national comparisons, which made it particularly suitable for the research aims in this dissertation. Furthermore, documentation material is publicly available online (Andersson and Olsson 1999; European Consortium for Accreditation 2013), which makes the attribution of particular programmes to broad fields of study more transparent to the reader of this research.

In some instances, however, I have slightly deviated from this operationalization of educational fields. Article I excludes two subgroups of programmes from the service field, namely transport and security. This was due to the fact that enrolment figures for these programmes were not consistently available for each required year in both countries. Article II, on the other hand, utilizes the field definition mainly as a basis for calculating the extent of gender segregation by field of study, including only their gender-type into the statistical models rather than the eight broad fields themselves.

4.3.4 Gender segregation by fields of study

Gender segregation by fields of study is most relevant for articles I and II. The proper way to measure gender segregation has been heavily debated in recent years, but to my knowledge, no general consensus seems to have emerged to date. Most scholars involved in this discussion agree that the index of dissimilarity (D), which has been widely used to express the overall extent of gender segregation by occupations or fields of study, has

8. The equivalence of polytechnic and university degrees in terms of occupational skill level has been made even more explicit by the latest revision of the occupational classification (ISCO-08), which explicitly refers to ISCED-5A degrees in the definition of professional work. (ILO 2012, 13–14).

features that make it a problematic tool for comparisons between countries or points in time (Watts 1992; Grusky and Charles 1998; Gorard and Taylor 2002). One of D’s main weaknesses is its margin-dependency: “The value of D will decline, for example, whenever highly segregated occupations (such as craft workers) grow smaller and hence contribute less to the overall index value” (Charles and Grusky 2004, 40). A similar critique has been levelled against the practice of measuring segregation by the percentage share of women within a given occupation or field in comparative research, since the percentage value is influenced by the overall share of women in the labour force and the size of particular occupations (Semyonov 1980, 542–3).

What constitutes the most appropriate alternative measure of gender segregation, on the other hand, is not so clear. Maria Charles and David Grusky have advocated a log-multiplicative modelling framework as the most adequate way to examine the phenomenon of gender segregation. For those cases where a scalar index needs to be used, they have proposed using the A-index, which constitutes the closed form of their saturated log-multiplicative model, as a margin-free alternative to more conventional scalar indices of segregation (Charles and Grusky 1995, 2004). However, not all segregation researchers agree with their conceptualization: Watts (1998, 491) criticized the fact that A standardizes each unit (occupations or educational fields) to the same size, whereas Blackburn, Jarman, and Brooks (2000, 120) are sceptical regarding the claimed margin-independence of A (or, for that matter, of odds ratios more broadly).

In this dissertation, I have chosen to measure gender segregation by the A-index suggested by Charles and Grusky (1995). This decision is based primarily on the fact that this index enables a perspective on the field-specific profiles of gender segregation within a given level of education, whereas the majority of alternative indices tends to simply produce a summary measure of overall gender segregation by fields of study. For this reason, A_j , as the field-specific subcomponent of A, will be the most relevant measure for my research.⁹ A_j is defined as

$$A_j = \ln \left(\frac{F_j}{M_j} \right) - \left[\frac{1}{J} \sum_{j=1}^J \ln \left(\frac{F_j}{M_j} \right) \right], \quad (4.1)$$

where F_j and M_j denote the number of women and men in field j ,

9. Charles (1992) labelled an earlier version of the A-index as “ratio index”, containing the identical field-specific component as the A-index. I used the term “ratio index” in Prix (2009), but referred to it as A-index in Prix (2012). The mathematical definition of the field-specific index is the same in both cases.

respectively, and J indicates the number of total fields (see also Charles 1992, eq. 2).

Negative A_j values indicate male over-representation and positive values indicate female over-representation *relative to the average gender ratio in all fields*. Perfect gender integration is indicated by A_j taking a value of zero, which means that the gender ratio in a given field perfectly corresponds to the *average* gender ratio at a given educational level. The extent of gender segregation in a given field can also be expressed in slightly more intuitive terms: the antilog of a given A_j value indicates the factor by which women are overrepresented in this field (with the reciprocal of this number presenting the relationship in terms of men's overrepresentation). This conceptualization of gender segregation is thus inherently *relative*. For example, if a given field experiences a heavy influx of men, while all others remain unchanged, this event has repercussions for the A_j values of each field, since changes in one field at the same time affect the gender ratio in the average field.

Apart from its uses for tracing the development of gender segregation over time (article I), the A_j index can be applied to derive a categorical variable of gender segregation. Of course, generating a categorical variable from a continuous measure cannot avoid an element of arbitrariness in the choice of cutoff values. For my purposes, I defined gender-balanced fields as those characterized by A_j values between -0.5 and 0.5. Fields are defined as male-dominated if A_j remains lower than -0.5, whereas female-dominated fields exceed the 0.5 threshold (articles I and II). To illustrate, if the average field was characterized by a gender proportion of 50:50, an A_j value of 0.5 in a given field would indicate a female over-representation by a factor of $\exp(0.5) = 1.65$, or, in other words, a share of 37.75% men and 62.25% women.¹⁰

Note that the gender-typing of fields as either male-dominated, female-dominated or integrated somewhat varies between the analyses in article I and II.¹¹ This discrepancy most likely derives from two sources:

10. Further elaboration of this example: Substituting $M_j + F_j = 100\%$ and (assuming an even gender ratio in the average field) $A_j = \ln\left(\frac{F_j}{M_j}\right) = 0.5$, the percentage share of men in a field with $A_j=0.5$ corresponds to $\% \text{ men} = \frac{100}{\exp(0.5)+1} = 37.75$. In Prix (2009, 567) and Prix (2012, 643), I calculated the percentages corresponding to the index value of 0.51 (which would amount to 37.5% men), yet I mistakenly attributed them to an A_j value of 0.5 in the text. This is a rather unfortunate oversight on my part. However, this error in my example does not have any repercussions for the analyses or results in either article.

11. The terms 'male-dominated' and 'female-dominated' as used throughout this dissertation strictly refer to the numerical representation of men and women in various fields of study, but make no comment on asymmetries of power or influence between

differences in the unit of analysis (student enrolment per programme in article I, graduates in article II) and the type of data used (population data drawn from registers in article I, survey data in article II). Differences in the returns to female- and male-typical fields of study remain relevant in article III, although gender segregation is not directly measured in the context of that study.

Article I	Article II	Article III
no control variables	public sector, work experience, number of previous employers, part-time work, months unemployed, age, cohabitation, children, parents' education	labour market status, time since graduating, recently unemployed, age, married, parents' occupational status ¹² , region

Table 4.3: Control variables used in articles I–III

4.4 Multivariate statistical methods

The fact that the empirical part of this dissertation is sourced from three quite different types of data has had certain methodological repercussions. As article I could rely on register-based population data, there was no need to apply inferential statistical methods. At the same time, the aggregated nature of this data made it difficult to employ a multivariate framework, given that it was impossible to cross-classify either educational institutions or individuals with other variables (such as the regional economic context of institutions at a given point in time, or individuals' class background and educational biography). However, rather than directly pursuing aims of causal explanation, article I focuses on a detailed description of the relationship between patterns of gender segregation and educational levels. In terms of method, this descriptive emphasis and the availability of population data led to my decision to rely primarily on *segregation index calculations*. As discussed in more detail in the previous section, choosing Charles and Grusky's (1995) A-index for this task was motivated primarily by its margin-free properties

the genders in these contexts.

¹² Measured using Ganzeboom and Treiman's (1996) International Socioeconomic Index (ISEI). For mapping national Finnish occupational classifications into ISEI scores, I have utilized Erola's (2011) and Ganzeboom's (2011) conversion tools.

as well as its ability to describe the field-specific profile rather than only the overall extent of gender segregation.

In contrast, my investigation of research questions 2 and 3 relied on detailed multivariate data, which enabled me to statistically isolate the association between educational variables and socioeconomic positions from possibly confounding effects (deriving from individuals' work and unemployment experience, social background, living conditions, etc.). This chapter will briefly outline the characteristics and pitfalls of the multivariate methods applied in this dissertation.

4.4.1 Logistic regression and linear probability models

In article II, I applied *multinomial logistic regression* models to estimate higher education graduates' chances to access professional rather than semi-professional or lower-ranking occupations. When the dependent variable is binary or multinomial, logistic regression (using maximum likelihood estimation) is usually preferred over linear regression models. Both types of models belong to the family of generalized linear models, thus they share the property of applying a linear function of explanatory variables to estimate the conditional mean of the dependent variable. The main difference between the two lies in how they treat this mean of the dependent variable: logistic regression transforms it by applying a logit link function, whereas the linear regression model leaves the dependent variable essentially untransformed (i.e., uses an identity link).

The reasoning underlying this logit transformation in logistic regression relates to the fact that categorical outcome variables are usually meant to approximate the *probability* of observations falling into one particular category. Since probabilities are bounded between 0 and 1, the relationship between covariates and the response variable (i.e., the probability of a given outcome to occur) must be S-shaped rather than linear, with slopes thus varying, depending on the position within the distribution. The logit link converts probabilities into logged odds, which have properties more suitable for linear estimation, while retaining the non-linear relationship on the scale of probabilities (Pampel 2000, ch. 2). At the same time, however, this transformation somewhat complicates the interpretation of estimated coefficients, since logged odds merely give an indication of the direction of effects, but remain very unintuitive as regards the size of effects. In my analyses published in article II, I therefore resorted to the common practice of interpreting effects as odds ratios, which are derived from the raw coefficients (logged odds) by applying the (natural) antilog.

Yet, while less abstract than logged odds, it would be exaggerated to label odds ratios as an entirely straightforward alternative. What they indicate is the factor by which an increment in the independent variable changes the *odds* of belonging to the outcome category of the response variable. Odds are mathematically defined as the ratio between the probability for an event occurring and the probability that it will not occur. As a consequence, effects expressed in terms of odds ratios (which compare the odds of two distinct groups to belong to the outcome category) are not entirely equivalent to effects on the probabilities.

Although logistic regression models successfully account for the non-linearity of probabilities, it has become increasingly recognized in recent years that this otherwise desirable property causes serious problems for group and model comparisons, as well as for the interpretation of coefficients more generally (Allison 1999; Mood 2010). Because the variance of residuals in logistic regression models is fixed, adding variables to the model increases its total variance and therefore also changes the scale of the dependent variable. The troubling consequence of this property is that logistic regression coefficients (logged odds or odds ratios) will be sensitive to the omission of such variables that are related to the response, even if they may be uncorrelated with other covariates in the model. For this reason, I avoided comparing coefficients across nested logistic regression models in article II. Although this particular type of unobserved heterogeneity may still affect the odds ratios presented in article II, the silver lining to this problem is that “we always know the *direction* of the impact: it can only lead to an *underestimation* of the effect” (Mood 2010, 72). Odds ratios presented in article II may therefore be viewed as potentially conservative estimates of the associations in question.

To probe the robustness of results, I replicated the models of article II using linear probability models, which are identical to linear regression models except for their binary dependent variable. This type of models is not affected by the kind of unobserved heterogeneity specific to logistic regression (78–79). However, linear probability models are often regarded with suspicion, due to the fact that they disregard the inherent non-linear nature of probabilities and are usually plagued by heteroscedasticity (e.g., Aldrich and Nelson 1984; DeMaris 2004). The latter problem can be alleviated by using heteroscedasticity-robust standard errors. As I will show in more detail in chapter 5, replicating the analyses using linear probability models with heteroscedasticity-robust standard errors led to substantively similar results as those reported in article II.

4.4.2 Median regression

The longitudinal structure of the register-based data set used for article III in principle permits the application of panel data methods, which are generally thought to better avoid bias originating from time-constant (although not time-varying) unobserved heterogeneity (such as fixed effects methods). In the case of article III, however, I chose to use the data in a repeated cross-sectional rather than longitudinal fashion. This is because I considered the five-year intervals between observations in my sample as too coarse for exploiting the benefits of panel data methods, but also because my research questions are more tuned towards exploring group-differences rather than within-individual effects, whereas the latter are typically at the centre of longitudinal designs.

Article III applies *median regression* to model the combined effect that fields of study and levels of education exert on young adults' earnings in Finland. This type of regression is synonymous with quantile regression models estimated at the median of the conditional distribution. While the roots of this method go back to the 18th century, the recent development of quantile regression has been heavily influenced by the seminal work of Roger Koenker (Koenker and Bassett 1978; Koenker 2005). Quantile regression is similar to linear regression, to the extent that both methods assume that the association between covariates and the response can be modelled as a linear function of the independent variables. But beyond sharing this basic principle, there are noteworthy differences. Linear regression crucially rests on the assumption that the effects of covariates on the response are constant across the conditional distribution of the response. As such, the covariates are assumed to affect only the location of the conditional distribution, but not its shape. In contrast, quantile regression can generally incorporate both location and shape shifts by modelling the effects of covariates separately for any quantiles deemed sociologically relevant. In this way, quantile regression may provide a more complete picture of effects and can additionally highlight certain types of heteroscedasticity that derive from such shape shifts.

Estimating conditional quantiles, instead of the conditional mean, has consequences for computing parameter estimates. Rather than minimizing squared residuals as in linear regression, coefficients for median regression models are estimated by minimizing *absolute* residuals with the help of linear programming methods. In order to obtain estimates at different quantiles of the conditional distributions, the residuals are weighted according to the quantile in question and depending on whether they are positive or negative (Hao and Naiman 2007, 33–38).

Even when effects on the central tendency are of primary substantive interest, like in article III of this dissertation, quantile regression may be preferable over ordinary least squares. Whereas the mean is greatly affected by outliers and distributional skew, the median, being a quantile-based measure of central tendency, is robust to such common complications. By the same token, median regression (i.e., quantile regression estimated at the median) is “robust to distributional assumptions because the estimator weighs the local behavior of the distribution near the specific quantile more than the remote behavior of the distribution” (Hao and Naiman 2007, 42). Given the typically asymmetric distribution of income, I considered median regression as the appropriate choice of method for studying complex educational effects on earnings in article III.

4.4.3 The problem of sample selection bias

In both article II and III, only those individuals who were employed during the period of observation were included in the sample. Given that being employed could be considered as a non-random event, the analyses may potentially be affected by *sample selection bias* (Berk 1983; Breen 1996). In other words, the factors that affected individuals’ chances to be employed in the first place may bias the effect of variables intended to model the factors that determine individuals’ *size* of earnings or their occupational status. In this sense, sample selection bias may be considered a variant of omitted variable bias, where the selection process into the sample has been omitted from the model and may confound relationships between the independent and dependent variable. The most commonly applied remedy for this problem is Heckman’s two-step estimator. First, a probit model is used to estimate the selection process, on the basis of which a particular estimator (the inverse Mill’s ratio) is computed. Entering the inverse Mill’s ratio into the model of substantial interest is generally seen as one way to correct for possible selection bias (Heckman 1979).

While this type of sample selection correction has become relatively common in research on labour market outcomes, critical voices have demonstrated that “it is exceedingly difficult to know whether Heckman’s estimator worsens or cures” the problem (Stolzenberg and Relles 1990, 408), insisting that there can be “no automatic way to diagnose and correct sample selection bias” (Stolzenberg and Relles 1997; similarly also Bushway, Johnson, and Slocum 2007). Whether or not sample selection bias may be a problem is thus first and foremost a matter of theory, hence substantive considerations must precede any mathematical fix.

Is it therefore likely that sample selection bias may affect the results in article II and III? For those graduates unsuccessful in securing a job that matches their type of schooling, I do believe that unemployment or a temporary absence from the labour force may be realistic alternatives to taking a less-skilled job. This scenario might artificially lower the probability of graduates working in clerical or lower-skilled occupations. The contrast between professionals and non-professionals in article II may therefore be somewhat biased. However, the precise extent of this problem is difficult to estimate, in my opinion, and any possible correction is further complicated by the fact that “the Heckman two-step estimator is specifically a probit model followed by a linear regression, and there is no simple analog of the Heckman method for discrete choice models” (Bushway, Johnson, and Slocum 2007, 161–2).

Methods have been developed to correct for sample selection bias also in quantile regression models (e.g., Buchinsky 2001). Nevertheless, I decided to also leave estimates in article III uncorrected for potential sample selection bias. In order to probe to what extent sample selection bias may drive the results obtained in article III, I replicated the analyses using a broader income measure, which includes social benefits and other income from non-employment sources. This alternative definition of income allowed me to utilize 98%–99% of the sample in the analyses. Given that these replications left the main conclusions substantially intact, I concluded that sample selection bias does not appear to significantly affect the results in article III.

5 | Results

Before proceeding to the empirical core of this dissertation and a summary of its key findings, it may be useful to recapitulate the main research aims of this dissertation.

The point of departure for this project was a sense of scepticism towards the individual-centred explanations of social stratification processes found in meritocratic rhetoric and the sociological status attainment literature. These approaches tend to identify personal achievement as the main causal factor for explaining differences in socio-economic status among individuals, although the persistent role of ascribed characteristics (particularly gender and social background) is generally acknowledged. As the literature review in this dissertation has shown, there are reasons to question the focus on individual characteristics prevalent in social stratification research. If labour markets are highly segmented, conditions of labour demand, but also employers' and employees' bargaining power and strategies, can be assumed to vary significantly within the economy. In national contexts where educational specializations are relatively tightly linked to particular sets of occupations and industries, the socioeconomic effect of qualifications may vary by fields of study to an extent that questions any linear association between educational attainment levels and life chances. In other words, whether or not educational qualifications increase individuals' occupational status and/or earnings, net of all other personal characteristics, may not be answerable in a general sense, but could inherently depend on the fields of study in question.

Against this background, the main aim of the empirical part in this dissertation is to take a closer look at whether educational qualifications produce homogeneous socioeconomic outcomes for individuals with varying field specializations and types of degrees. Before examining the effects of educational qualifications on occupational status and earnings, I focus on gendered enrolment patterns within the educational system as a preparation for analysing the role of field-specific stratification effects. This step may also elucidate the complications that arise from

conceiving of ascription (gender) and achievement (education) as mutually independent factors in the meritocratic view on stratification. If fields of study differ in their socioeconomic prospects, gender-segregated enrolment patterns may reinforce differentials between men and women in social stratification processes, even if employers remain innocent of gender-discriminating recruitment practices. Article I focuses on this first research question, analysing the relationship between levels and types of education and the degree of field-specific gender segregation they exhibit. Articles II and III subsequently examine the extent to which educational characteristics, such as fields of study and degree types, modify the importance of qualification levels for occupational status and earnings stratification.

The articles at the empirical core of this dissertation each correspond to one of the three research questions formulated previously (see chapter 3.3). Their findings are summarized in the following three sections of this chapter.

5.1 Field-specific gender segregation in education

Most sociological explanations of gender differences in educational and occupational choices highlight the power of gender-normative socialization, which shapes children's interests and their views on appropriate occupations and educational fields as they grow up. But does the level of education matter for the extent to which male and female students are segregated by their field of study? Given that international research on educational inequality repeatedly finds students' class background to significantly influence their educational prospects and transitions (see chapter 3.1.1), both social class and gender ideology are likely to be relevant sources for variations in the extent and patterns of field-specific gender segregation at different levels of the educational system.

In this context, culturalist as well as rational choice theories of class-based differentials in educational attainment may be adapted to include issues of gender. Some authors have argued that cultures of hypermasculinity may provide a compensating strategy for working class men's lack of status and power in the social hierarchy (Pyke 1996). If less advantaged classes more strongly adhere to traditional ideals of gender-specific behaviour than better-off white collar strata, female students may experience a greater pull towards fields connected to caring occupations and men may more strongly identify with technical fields at the vocational

level compared to students within the higher education system.¹ Relying on an alternative causal mechanism, rational choice approaches may broadly expect the same outcome. If gender-atypical field choices are negatively sanctioned in the labour market, individuals from more privileged social backgrounds may be more able to bear any economic and personal risks attached with such a decision. As a consequence, gender segregation by field of study may take on different patterns at vocational schools compared to higher education institutions.

The analyses in article I broadly confirm the expected lower degree of gender segregation by field of study within higher education compared to vocational education (figure 2 of article I), yet the research design applied in the article does not allow a decision over the exact mechanisms leading to this outcome. Since the overall level of gender segregation may conceal a variety of field-specific patterns and trends, figure 3 (article I) compares field-specific segregation values among university students with the vocational sector. In both Austria and Finland, gender-integrated fields are more numerous at the university level than the vocational sector. While the most extremely segregated fields at the vocational level (male-typical engineering in Austria and Finland, female-dominated education in Austria, female-dominated health and social welfare in Finland) remain dominated by one gender group also at the university level, the extent of their segregation is lower compared to the vocational sector in both countries.

Interestingly, some fields have *strengthened* their gendered student profile over time. For instance, the field of natural/computer sciences at vocational level has become increasingly male-dominated in both Austria and Finland. This result suggests that gender segregation as such is not simply a remnant of a less “enlightened” past that would more or less automatically subside over time. In fact, the most dominant trend in most fields at both vocational and university level could be said to be stability, although desegregating trends are equally observed at both levels (e.g., vocational-level agriculture in both countries).

The comparatively low levels of gender segregation among university fields may give rise to similar expectations for the polytechnic sector, which was established in the mid-1990s as a new sector of higher education to complement the more traditional universities in Austria and Finland. However, a comparison of gender segregation patterns at polytechnics with other types of education largely disappoints this expecta-

1. This is not to say that better-off classes are less constrained by gender ideology as such, but it is possible that occupational or field choices are somewhat less essential for “doing gender” in some social classes compared to others.

tion (see figure 4 of article I). In both Finland and Austria, polytechnic gender segregation displays a greater similarity with the trends and patterns observed at the vocational rather than the university sector. As a consequence, it may be argued that a high rank within the educational hierarchy of qualification levels is in itself an insufficient predictor for the extent and shape of gender segregation by field of study.

In this context, the Finnish polytechnic sector, which was established largely by reforming and upgrading the vocational colleges, provides an interesting case: Was the upgrading effort of vocational colleges to the level of polytechnic higher education accompanied by changes in the gender segregation patterns? To answer this question, I calculated field-specific segregation parameters for a more detailed range of educational programmes during the time span that preceded and followed the polytechnic reform (see table 2 of article I). Of the 24 detailed fields of study included, half were affected by desegregating trends, whereas gender segregation increased (7 fields) or remained stable (5 fields) in the remaining fields. It might be that the polytechnic reform directly contributed to the observed desegregation tendencies, for example, by increasing the attractiveness of programmes or tempting a different student demographic to enrol in their institutions. But on the other hand, desegregation may also have occurred as a consequence of other historical changes, relating to employment prospects in certain occupations or the attitudes towards traditional gender roles among various social groups in the population. Therefore, the exact causal mechanism that led to changed patterns of gender segregation after the polytechnic reform cannot be determined with certainty in this study.

Comparing the development of field-specific gender segregation parameters with enrolment growth figures in each of the affected fields, however, may give at least some clues as to the direction of the observed changes. Male-dominated fields that showed trends of desegregation experienced growth among both male and female students, with women's figures showing stronger percentage growth than men's.² Tendencies towards more gender integration among female-dominated fields, on the other hand, seemed to coincide more often with a decline in female student numbers and small growth among men.³ These figures tentatively suggest that desegregation of male- and female-dominated fields of study may be driven to a larger extent by women's changing enrolment pattern

2. This trend affected the following detailed fields: engineering, forestry, manufacturing, and sports (see table 2 of article I).

3. This was the case for the following detailed fields: domestic services, nursing and caring, medical diagnostic and treatment technology (see table 2 of article I).

rather than men's increased interest in female-typical fields of study.

5.2 Gender-segregated fields and graduates' occupations

The primary aim of article II was to examine the extent to which university and polytechnic degrees lead to equal occupational status at the early career stage. Using the REFLEX graduate survey, multinomial logistic regression models were fitted to assess which factors affect graduates' odds to access the extreme ends in the occupational status ranking: professional positions on the one hand, and clerical or lower-skilled occupations on the other hand, with both groups contrasted against semi-professions as an intermediate occupational status category. In this context, professional positions were regarded as most appropriate to graduates' skill levels, whereas semi-professional and clerical or lower-skilled positions would constitute a mismatch in terms of graduates' skills and their job requirements. Models were fitted separately for four countries: Finland, the Netherlands, Norway and Switzerland.

Chronologically, article II (Prix 2009) belongs to the early stages of my dissertation project, which perhaps explains its strong exploratory emphasis: rather than testing any particular hypotheses or expectations, the analyses in article II aim at establishing whether the stratification process shows differential patterns for higher education graduates, depending on their field of study as well as on whether they have gained a polytechnic or university degree. The article first examines the additive effect of graduates' gender, as well as the impact of the characteristics of their qualification (fields of study, type of degree) and the sector of their employment (public or private), on their occupational chances. In the remainder of article II, I analyse the extent to which these key variables *interact* in determining graduate's chances of working in professional positions five years after graduating. Rather than applying the same model to all the four countries under consideration, I attempted to determine which particular configuration of interaction effects provides the best fit for each country-specific sample. As a consequence, this analytical strategy does not permit a direct comparison of coefficients cross-nationally. Yet, as I have argued above, such comparisons are ill-advised in any empirical context relying on odds ratios derived from logistic regression models.

To demonstrate the robustness of my results, I have replicated the models in article II for this chapter using linear probability models. The interaction effects estimated in these replicated analyses will be graphi-

cally displayed and discussed in this chapter. Note that the coefficients of the linear probability models estimate the effects of predictors on the *probability* rather than the odds of belonging to a given occupational group (Mood 2010). Therefore, the sizes of coefficients estimated in article II and in the figures of the present chapter cannot be directly compared, but the direction of effects and their relative size (across groups) remains on the whole robust over both types of analyses.

It is particularly through the focus on fields of study that this article addresses the overall research problem of this dissertation. First, do (gender-segregated) fields of study affect graduates' occupational status? Second, are polytechnic and university graduates differently affected by heterogeneity in the socioeconomic value of their field specialization? In this sense, article II considers not only the overall gaps between polytechnic and university graduates' chances on the labour market, but further examines their differences from the perspective of field-specific and gender dynamics.

With respect to graduates' occupational chances, individuals' type of higher degree clearly matters in all four countries under consideration (table 2 of article II). In the Netherlands, Finland and Norway, polytechnic graduates are somewhat less likely than university graduates to work in professional positions five years after graduating. In the Netherlands and Switzerland, on the other hand, polytechnic degrees may constitute a disadvantage even when it comes to avoiding low-skilled employment: compared to university graduates, polytechnic graduates in these countries are more likely to end up in clerical and lower positions rather than semi-professions.⁴

But are polytechnic and university graduates also affected by differential field-specific and gender dynamics in the occupational stratification process? Article II tests for the inclusion of several interaction effects (by means of backwards elimination based on likelihood ratio tests) to examine this question (table 3 of article II). Effects of gender-segregated fields of study appear to differ between university and polytechnic graduates in the occupational status attainment process in all countries except the Netherlands. In Norway and Switzerland, the socioeconomic effect of fields of study additionally varies between the public and private sectors of employment. But what do these interaction effects mean in detail for

4. While the results for Norway in table 2 of article II suggest that polytechnic higher education may serve as a safety net, in the sense that polytechnic graduates appear more successful than university graduates in avoiding clerical and lower skilled employment in favour of semi-professional positions, the linear probability model with heteroscedasticity-robust standard errors could not replicate this statistically significant coefficient.

graduates' occupational status in these countries? As none of the five interaction effects significantly improve the Dutch model in article II, the rest of the analysis focuses exclusively on the interaction models of Finland, Norway and Switzerland.

In some cases, the two-way interaction terms added to the main-effects model in each country shared a component (see table 3 of article II). For example, in Norway and Switzerland, gender-segregated fields of study interacted both with the sector of education as well as with the sector of employment. In these cases, interpreting the role of gender-segregated fields of study for the occupational status process needs to take into account both the type of degree in question as well as whether graduates worked in the public or private sector.⁵ This led to relatively extensive and admittedly complicated tables of odds ratios in article II (tables 4 to 7). To facilitate the interpretation of these results, I will present the core findings of the interaction models included in article II in a graphical manner in this chapter, with coefficient sizes referring to the replication of article II by means of linear probability models.⁶

Figure 5.1 presents the differential effect of gender-segregated fields of study on graduates' probability to access high and low positions in the Finnish occupational hierarchy. For polytechnic graduates, having specialized in female-dominated fields of study significantly lowers the probability to work as professionals, compared to graduates with male-dominated and gender-integrated majors. Among university graduates, on the other hand, gender segregation by fields of study does not seem to affect their chances for professional employment in a noteworthy way. If professional work is unavailable, gender-typed fields of study seem to make the lowest skilled category of employment a less likely outcome among polytechnic graduates, who for the most part are sorted into the intermediate rank of semi-professionals. In contrast, having failed to access professional positions increases the probability that university graduates from male-dominated fields end up in low-skilled employment compared to their peers with female-dominated and gender-integrated field specializations. In other words, the same type and field of study that confers greater chances for high-status employment (professional occu-

5. "The coefficient for any lower-order term is conditional to the other variables in all product terms that it is involved with being zero (Jaccard 2001, 65; the same applies for linear regression models, see, e.g., Jaccard and Turrise 2003, 68).

6. The size of coefficients describes the average impact of a given predictor on individuals' probability of working in professional or low-skilled employment, respectively, compared to semi-professional jobs. For example, a coefficient of 0.20 means that a given predictor increases the outcome probability by an average of 20 percentage points, net of other effects included in the model.

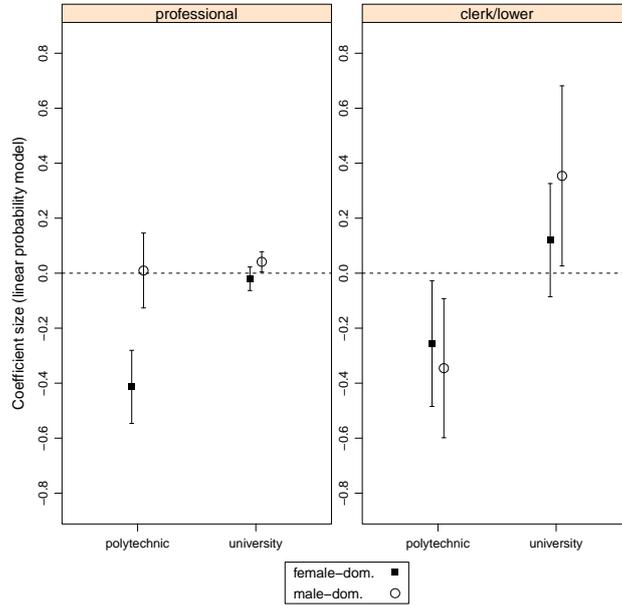


Figure 5.1: Finland: Effects of gender-segregated field of study (reference category: gender-integrated fields within each type of higher education) on graduates’ probability to access professional positions (left panel) and clerical or lower occupations (right panel) rather than semi-professional positions. Replication of table 4 of article II, using a linear probability model with heteroscedasticity-robust standard errors. Values on the y-axis refer to predictors’ impact on the outcome probability.

pations) may be associated with a greater risk of ending up in low-skilled employment, if its advantageous career prospects remain unrealized.

In Norway, the relationship between gender-segregated fields is further differentiated by employment sectors (figure 5.2).⁷ Interestingly, male-dominated fields appear to confer a disadvantage to both university and polytechnic graduates in the Norwegian public sector. In the private sector, this disadvantage of male-dominated fields persists for polytechnic graduates but turns into a slight advantage among university graduates. Clerical employment is an overall rare event for Norwegian graduates, especially for those who earned their degree at a university (a lack of sufficient cases in non-professional occupations explains the lack

7. Due to clerical or lower employment being a very rare event for Norwegian university graduates in the sample, it was impossible to estimate the effect of university education on the chances to fall into clerical employment. For this reason, I disregarded the clerical vs. semi-professional contrast in article II (see also table 6 of article II). Nevertheless, I retained the estimated coefficients for polytechnic graduates’ chances to end up in lower-status occupations in figure 5.2 of this chapter, mainly for the sake of completeness.

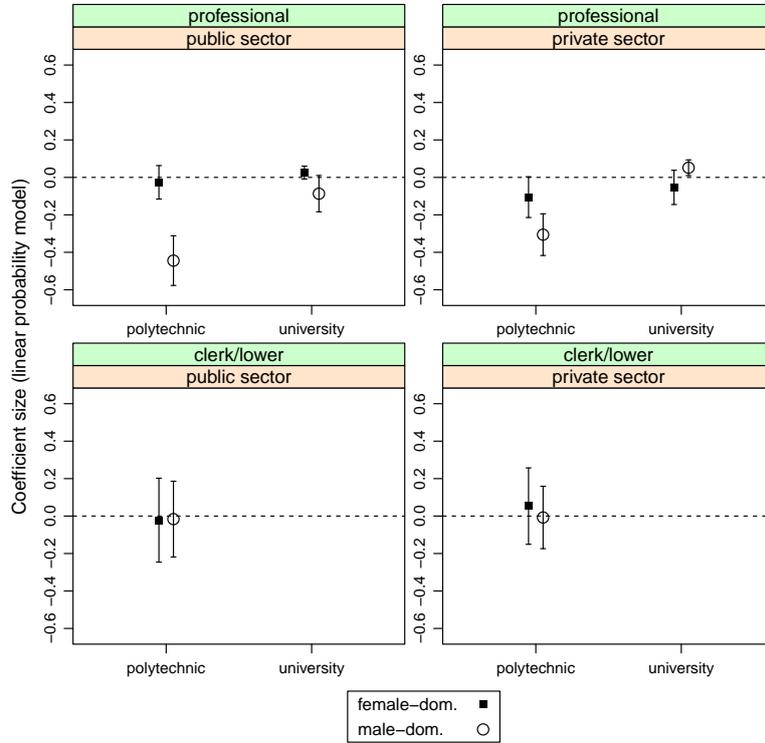


Figure 5.2: Norway: Effects of gender-segregated field of study (reference category: gender-integrated fields within each type of higher education) on graduates' probability to access professional positions (upper panels) and clerical or lower occupations (lower panels) rather than semi-professional positions within the public sector (left panels) and the private sector (right panels). Replication of table 6 of article II, using a linear probability model with heteroscedasticity-robust standard errors. Values on the y-axis refer to predictors' impact on the outcome probability.

of estimates in figure 5.2). No field-specific differences appear to exist among polytechnic graduates with regard to being allocated into clerical or lower-ranking employment rather than semi-professional positions.

The Swiss interaction results are particularly complex, due to the fact that gender-segregated fields appear to somewhat differentially affect the occupational status of male and female graduates. Figure 5.3 reports the replicated results of table 7 of article II for graduates' chances to access professional occupations. For men, male-dominated fields of study confer a clear advantage over gender-integrated fields when it comes to graduates' professional employment in the private sector, regardless whether the degree was awarded by a university or a polytechnic (see figure 5.3, lower left panel). This benefit of male-dominated fields does not seem to exist to the same extent for women: polytechnic degrees in a male-

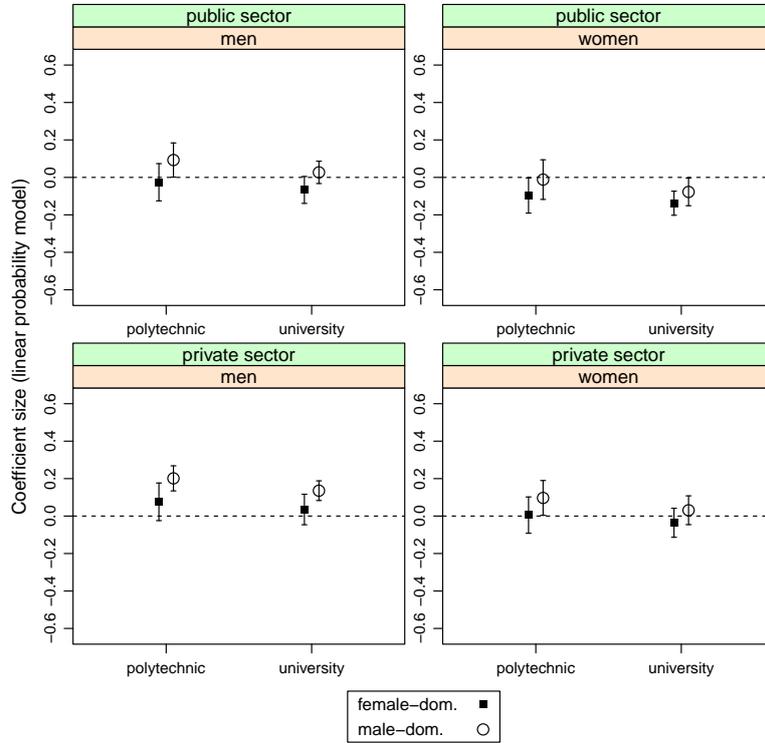


Figure 5.3: Switzerland: Effects of gender-segregated field of study (reference category: gender-integrated fields within each type of higher education) on graduates' probability to access professional positions rather than semi-professional positions within the public sector (upper panels) and the private sector (lower panels) among men (left panels) and women (right panels). Replication of first half of table 7 of article II, using a linear probability model with heteroscedasticity-robust standard errors. Values on the y-axis refer to predictors' impact on the outcome probability.

dominated discipline may slightly improve women's chances in the private sector, but no differences between male-dominated, female-dominated or gender-integrated degrees were observed for female university graduates in the private sector (lower right panel in figure 5.3). For women, female-dominated fields of study (comprising predominately arts and humanities degrees, see figure 1 of article II) appear to be an outright hindrance for professional employment in the public sector (upper right panel). This disadvantage of female-dominated fields extends to men only in the case of university graduates. Male-dominated fields, on the other hand, appear to somewhat increase the chances for professional employment among male, but not female, polytechnic graduates. In contrast, a male-dominated university degree appears to hurt women's chances for professional employment in the public sector compared to gender-integrated

fields (upper right panel of figure 5.3).⁸

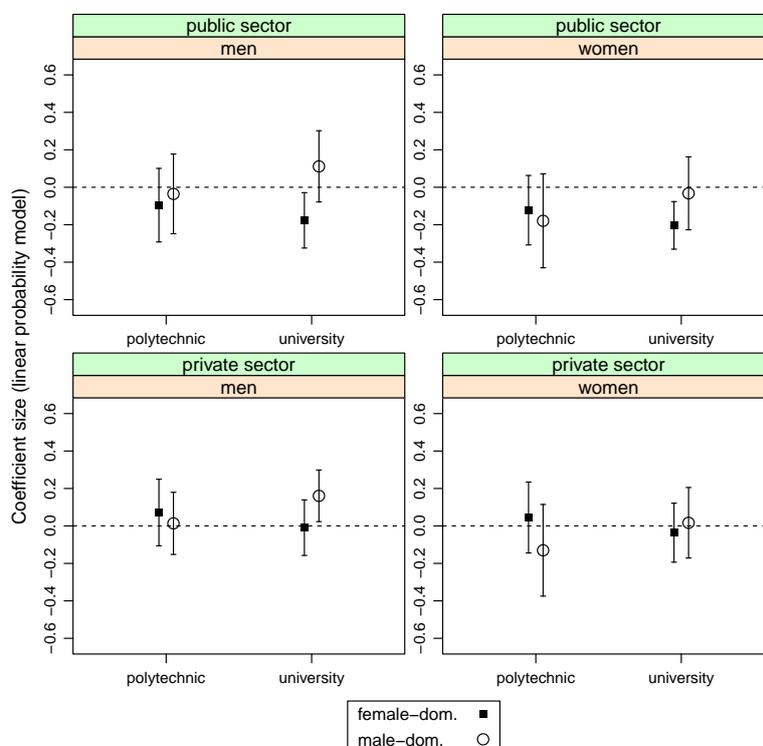


Figure 5.4: Switzerland: Effects of gender-segregated field of study (reference category: gender-integrated fields within each type of higher education) on graduates' probability to access clerical/lower-skilled positions rather than semi-professional positions within the public sector (upper panels) and the private sector (lower panels) among men (left panels) and women (right panels). Replication of the second half of table 7 of article II, using a linear probability model with heteroscedasticity-robust standard errors. Values on the y-axis refer to predictors' impact on the outcome probability.

For avoiding clerical and lower-skilled employment in favour of semi-professional positions, the (gender-segregated) field of study does not appear to matter for Swiss polytechnic graduates (figure 5.4). For university graduates, on the other hand, female-dominated fields of study constitute a similar safety net as among Finnish polytechnic graduates: although not beneficial for professional employment, female-dominated rather than gender-integrated fields of study make it less likely to fall

8. Note that coefficient estimates for men and women in figure 5.3 remain within each others confidence intervals in most cases. Nevertheless, men and women differ with respect to which gender-segregated fields of study produce statistically significant coefficients.

into the lowest-ranking occupational groups – at least when it comes to employment in the public sector (upper panels in figure 5.4). In the private sector, the greater benefit of male-dominated fields of study to obtain professional employment coincides with a greater risk to fall into low-skilled employment, if professional positions are unobtainable. However, this risk seems to be restricted to male university graduates (lower panels in figure 5.4).

To summarize the findings of article II, gender-segregated fields of study differ in three out of the four included countries with regard to their effects on graduates' occupational status, depending on the type of institution where they were gained as well as on graduates' employment sector. In Finland and Norway, whether fields are female-dominated, male-dominated or gender-integrated has greater socioeconomic consequences for polytechnic than for university graduates. The Swiss university and polytechnic sectors, on the other hand, resemble each other more closely with respect to the extent that gender segregation impacts on graduates' occupational status.

On the whole, higher education degrees do not appear to constitute a homogeneous asset for achieving high-status positions. Instead, their labour market value varies between fields of study, types of degrees, and graduates' employment sector. At the same time, it cannot be concluded that female-dominated fields are always disadvantageous to graduates, nor that male-dominated fields always improve individuals' occupational status. What contributes to the complex relationship between fields of study and occupational status is the ambiguity in defining advantage: some fields may be more beneficial for accessing professional positions, whereas other fields may provide greater immunity towards more blatant forms of mismatch between graduates' educational qualification and the skill requirements of their jobs.

5.3 The joint effect of fields and levels of study on earnings

Article II's key finding, according to which gender-segregated fields of study may severely affect both university and polytechnic graduates' occupational status, represents the point of departure for the third and last article in this dissertation: if fields of study significantly modify the relationship between individuals' educational qualifications and their socioeconomic position, to what extent are qualification levels a secure road towards higher socioeconomic positions? In other words, article III (Prix 2013) aims at examining whether or not increased levels of educa-

tional attainment are unconditionally beneficial for individuals' earnings, or whether the effect of educational qualifications in the social stratification process depends on the particular fields of study involved. As such, article III focuses on the *joint* impact that fields of study and levels of education exert on individuals' earnings. In contrast to the analyses presented in the previous section, however, this article considers a wider range of both fields of study and levels of education. Instead of applying a cross-country comparison, article III focuses on young Finnish adults during 1985, 1995 and 2005.

Starting out with a fairly typical status attainment model, which contains qualification levels as the only educational variable, article III confirmed the well-established finding that higher levels of education tend to be associated with higher average earnings. Among young Finnish adults in their late twenties and early- to mid-thirties, upper secondary education yields a roughly 10% increment in median earnings, post-secondary education (vocational college or polytechnic degree) improves median earnings by around 20-30% and a university degree by roughly 50% compared to basic education (table 3 of article III).⁹

But what happens when fields of study are included into this view? Although previous research has increasingly pointed to the field-specific differences in the returns to educational qualifications, the question remains whether such variation *within* qualification levels may also overlap with variation *between* qualification levels. Such an outcome may challenge the commonly received wisdom that higher levels of educational attainment on average improve individuals' socioeconomic position. To answer this question, I added dummy variables that capture all possible combinations between the fields of study and levels of education distinguished in the data, with basic schooling serving as the reference category. The median regression coefficients of these new field-level variables are depicted in figure 1 of article III. The results show that individuals' educational attainment levels are on the whole associated with increased earnings – however, this holds true most clearly within the *same field* of education. Comparing the impact of educational qualification levels *across* the eight fields of study displays a large number of incidences where within-level variation overlaps with between-level variation. For instance, compared to basic schooling, intermediate-level health qualifications (vocational college or polytechnic degrees) appear to have no greater effect on young men's earnings in 2005 than an upper secondary qualification in engineering (figure 1 of article III, leftmost panel in the

9. Coefficients (β) in table 3 of article III are converted into percentages using the following formula: $(\exp(\beta) - 1) * 100$

lower row). Similarly, in 2005, intermediate-level science degrees (vocational college or polytechnic degrees in computer science) led to a roughly similar earnings increment for women as a university degree in the humanities.

Perhaps these overlaps simply represent idiosyncratic fluctuations or the consequences of credential inflation? The historical comparison suggests otherwise, given that also in 1985 and 1995 higher qualification levels in many cases failed to confer a greater earnings increment than lower-level qualifications from a different field of study (see upper and middle panels of figure 1 of article III). Nevertheless, credential inflation appears to indeed have somewhat affected the impact of university degrees among young adults in Finland. For a closer look on how the field-specific effect of qualifications on individuals' median earnings developed since the mid-eighties, I re-arranged the field-specific coefficients by year in figure 2 of article III. Both the field-specific view and the median regression model containing only educational levels (figure 2 and table 3 of article III, respectively) show that the earnings increment of university degrees declined relative to compulsory education between 1985 and 2005.

When it comes to intermediate- and vocational levels of education, however, the standard model of earnings attainment conceals a variety of contradictory developments across different field specializations. Whereas the overall value of intermediate-level education remained roughly stable between 1985 and 2005 (table 3 of article III), the field-specific coefficients in figure 2 (article III) confirm this view only for the field of engineering (among men) and agriculture (among women). Almost all other fields at the intermediate level were affected by a quite significant decline regarding their impact on individuals' earnings between 1985 and 2005. Similar discrepancies between the level-only and the field-specific view exist in the case of vocational upper secondary education. Although the status attainment model in table 3 of article III estimated a slight increase in the effect of upper secondary vocational education on individuals' earnings, figure 3 of article III suggests that this improvement may be representative only of certain fields (such as engineering, business, services). By contrast, a decline in earnings affected an equal number of other vocational fields (e.g., health, humanities, sciences).

Although gender differences were not the most central concern of article III, its findings nevertheless invite a return to some of the issues raised by the previous discussion of gender segregation. As the analysis presented in article I has shown, the fields of health and engineering have been most consistently associated with a particular gender over time (see

figures 3 and 4 of article I). Both fields provide high returns at university level to both women and men (article III). However, an interesting pattern arises at the vocational level. The same two fields of study differently affect men and women with vocational qualifications (figure 2 of article III, bottom panels). For women, a vocational qualification in the male-dominated field of engineering is *less* lucrative (or, in 2005, only equally lucrative) compared to the more traditionally female choice of health and social welfare. For men, on the other hand, returns at the vocational level are higher in the male-typical field of engineering compared to the female-typed health and social welfare field. These differences make it apparently rational for both women and men to stick to a gender-typical field at the vocational level, whereas no such differences were observed among university graduates. Such gender-specific returns to education among men and women with vocational qualifications may be one contributing factor to the higher extent of gender segregation observed at vocational compared to higher education institutions (figure 3 of article I). Unfortunately, a further examination of this potential causal link remains outside the scope of article III as well as this dissertation.

Overall, I would argue that the preoccupation with qualification levels (or years of education), typical for status attainment models, may produce a false impression of homogeneity as regards the role of educational credentials for social stratification. Field-specific differences in the effect of education on earnings severely question the received wisdom of status attainment research, according to which educational achievement is linearly related to socioeconomic outcomes. Put differently, attaining higher levels of education does not necessarily improve individuals' earnings compared to lower-educated groups.

Part III

Conclusion

6 | Conclusion

6.1 Discussion of results

The overall ambition of this dissertation was to take a closer look at the idea of meritocracy from both a theoretical and an empirical point of view. In this context, I have defined the notion of meritocracy as containing two basic elements. First, the commitment to equal opportunities favours competence (such as ability, skill, educational achievement) rather than individuals' family background or other ascriptive criteria (gender, ethnicity, etc.) in the selection of candidates for any given social position. Second, material rewards allocated to individuals in such positions should be to a significant degree proportionate to the competence their work requires (perhaps including a reward for individual performance), again without regard to the ascriptive attributes. In short, I consider meritocracy as the idea of favouring achievement over ascription as the overriding principle for both selecting and rewarding individuals within the hierarchy of social positions.

This dissertation started out with a theoretical essay analysing the role of meritocratic notions in historical views of social stratification (chapter 2), selected from the canon of social philosophy and sociology. Reviewing these classical texts, spanning from Plato's *Republic* to the European Enlightenment, I have argued that a preference for competence over ascriptive attributes in the recruitment to social positions is not a recent idea, but is shared by the majority of writings surveyed in this comparison. Most of these authors were also aware of intricate links between achievement and ascriptive attributes. For Aristotle, Jean-Jacques Rousseau and Adam Smith, culturally and materially affluent circumstances are a major factor of influence for the development of individuals' ability, an idea which to some degree resounds also in more recent sociological approaches to explaining the persisting influence of family background on individuals' educational attainment (e.g., Boudon 1974; Bourdieu 1977).

But even though the idea of equal opportunities may to be not en-

tirely alien to historical views on social stratification, the second identifying element of meritocracy appears to be conspicuously absent from these accounts, as none of the reviewed texts clearly invoked the notion of a merit-based allocation of economic rewards throughout society. Plato's ideal state is even characterized by an inverse relationship between competence and economic rewards, with the Guardians as the highest ranking social group in terms of prestige being barred from private property and allowed the least extent of personal freedom. Also Rousseau and Condorcet were critical towards the idea of attaching economic rewards to competence, preferring instead to rein in overall inequality in society.

Perhaps the idea of linking achievement with the distribution of life chances derives from the expansion of wage labour and the capitalist mode of production in modern societies? The review of classical liberal economists' views on wage determination invites some doubt as to such a conclusion. For John Stuart Mill, the price of labour power is chiefly determined by the interplay of supply and demand on the labour market. A century earlier, this view was already voiced by Adam Smith, although his theory considers wages also as a means to balance out advantageous and disadvantageous aspects that characterize a given job. But in addition, both Smith and later Karl Marx draw on a labour theory of value, which – at first glance – seems to come closest to establishing a link between competence and economic rewards. Broadly speaking, this theory regards the size of wages as dependent on the average necessities required to reproduce the expended labour power. This includes not only the material means necessary to keep a worker alive for another day, but also the time and resources applied by the average worker to acquire the skills needed on the job. Yet, interpreting Marx' labour theory of value as akin to a meritocracy of skill-based earnings differentials, however, fails in one crucial respect: for Marx, the value of higher-skilled labour power is *socially* determined. Broadly speaking, the value of a given level of skill would vary depending on whether the costs for attaining this sort of training are usually born by the state or the workers themselves. Additionally, average productivity in the production of consumer goods as well as fluctuations in supply and demand would affect the value of labour, to the extent that these issues influence the availability and costs of essential necessities. There is thus no *intrinsic* relationship between the level of skill and its economic reward. As a consequence, I argue that neither classical liberal economics nor its most radical critique considers a merit-based reward for competence as compatible with a capitalist market logic.

Although meritocratic stratification has sometimes been considered the product of sociological functionalism, a review of Durkheim, Sorokin,

Parsons as well as Davis and Moore yielded no clear support for this thesis. In fact, Parsons considered it increasingly unlikely for complex societies to achieve a consistent comparison and evaluation of occupational positions according to merit criteria, while Davis and Moore endorsed the logic of supply and demand as an overriding principle for determining economic rewards.

So where does the idea that economic rewards throughout society are supposed to be structured by merit criteria, such as competence and educational achievement, originate? This dissertation cannot exhaustively answer this question, but neither does the question of origins constitute the main focus of this theoretical enquiry. What chapter 2 does argue is that the meritocratic view on stratification appears most compatible with the sociological research literature on status attainment. This empirical research tradition for the most part postulates a linear relationship between individuals' (ascribed or achieved) attributes and a graded hierarchy of socioeconomic positions (such as occupational status, prestige and income). As such, a crucial difference separates this version of social inequality research from earlier accounts of social organization in social philosophy as well as classical liberal economic theory: for the most part, the conceptual framework of status attainment research has jettisoned references to economic or political structures that characterized earlier approaches, emphasizing instead individuals' educational qualification levels as the major channel for social mobility.

The conceptual discussion of meritocratic stratification presented in chapter 2 leads directly to the empirical core of this dissertation: to what extent can the individualistic conception of status attainment be maintained empirically? I approached this basic question with a focus on the role of educational achievement, examining the extent to which *fields* of study modify the socioeconomic impact of qualification *levels* in social stratification processes. In doing so, I have relied mainly on Finnish data, but the analyses extend occasionally to Austria, the Netherlands, Norway and Switzerland. The results have been published in the form of three journal articles, which are summarized in chapter 5 and added to the appendix of this dissertation.

The reason why empirical attention centres on fields of study in this dissertation lies in its assumed role in approximating the potential influence of political-economic and institutional context (such as capital intensity, unionization, firm size, etc.). Fields of study may play some role in sorting individuals into particular labour market segments particularly in those societies, where educational credentials tend to be highly differentiated and curricula are characterized by a comparatively large share of occupation-specific content. All countries used in this empirical

study can be argued to share such comparatively close ties between the educational system and the labour market. Drawing on sociological versions of segmented labour market theory, I expected to find the effect of educational qualifications on socioeconomic outcomes to vary, depending on individuals' fields of study.

It is in this sense that the empirical analyses presented in this dissertation differ from other critiques of meritocracy: the focus in the present work rested not on the persistent relevance of ascriptive factors (such as social background, gender, ethnicity), but on the conflicted role of educational attainment in social stratification processes. In addition, the inclusion of fields of study facilitated a second way of stepping outside the confining dichotomy of ascription and achievement, at least with regard to gender: if men and women tend to be segregated within education by their fields of study, socioeconomic differentials between fields of study may reinforce gender differences within the labour market even in the absence of any direct discrimination.

To what extent, then, do fields of study matter for social stratification? Before examining this question directly (articles II and III), this dissertation investigated the extent to which educational enrolment differs between men and women with regard to their areas of specialization. Article I investigated segregation patterns by fields of study in Finland and Austria for the time period between 1981 and 2005. The findings of article I revealed important similarities between the two countries: in both cases, the extent of gender segregation appears to be greater at lower qualification levels, in the sense that university education is characterized by a larger number of gender-balanced fields than vocational education.

The precise mechanisms leading to this outcome can only be speculated upon. Does the typically adolescent age at which individuals choose upper secondary education mean that they are more influenced by gender stereotypes in their career choices than the young adults embarking on higher education, as Charles et al. (2001) speculate? A second result of article I casts some doubt on this interpretation. Particularly in Finland, the extent and patterns of gender segregation at the level of polytechnic higher education show much more commonalities with the lower-ranked level of vocational education than the university sector of higher education.

Another potential explanation for differences in segregation patterns across various types and levels of education rests on the well-established fact that educational transitions continue to be highly influenced by students' social background. If occupational choice is a more essential element in gender-appropriate behaviour among less privileged social

classes, choosing gender-atypical fields of study may be a more conflicted option for working-class individuals overrepresented in vocational education than for university students from backgrounds with elite cultural capital. In fact, the results of article III suggests that there may be higher risks attached to gender-atypical field choices at lower as opposed to higher levels of education: women with vocational qualifications received a higher increment on their median earnings if they graduated from the field of health and social welfare rather than engineering, whereas the opposite was the case for their male peers. By contrast, the same fields were equally lucrative for men and women with university education (article III). Incidentally, university fields are also characterized by a significantly lesser extent of field-specific gender segregation than vocational education (article I). If discriminating behaviour and cultures of masculinity and femininity differ within the occupational hierarchies on the labour market, gender-atypical field choices may carry different degrees of personal and economic risk across the various social strata. This may in turn feed back into the educational system, by affecting the social mobility strategies and educational choices of various social classes, producing higher levels of gender segregation by field of study at lower educational levels.

Taken together, I would argue that these findings of articles I and III provide some backing for the idea that neither social stratification nor gender segregation can be reduced to questions of individuals' rational or socialized behaviour – but neither are such individual-level factors irrelevant for explaining these empirical patterns. More likely, I argue, is the interaction of both factors: if gender ideologies form part of a social closure strategy, they may be strengthened in economic contexts and during periods of time where struggles between employers and workers have exacerbated. As a result, awareness of these dynamics may influence also individuals' decision-making and eventually their preference order regarding gender-typical and -atypical fields of study or work. The precise causal mechanisms at play in gender segregation may thus vary considerably, depending on a variety of economic and social conditions.

The issue of gender segregation in education may thus be closely related to the finding that fields of study modify the socioeconomic effect of educational attainments, both in terms of occupational status (article II) and earnings (article III). Among higher education graduates, this modifying impact of fields of study may to some degree strengthen gender differentials in occupational status, given that graduates from male-dominated, female-dominated and gender-balanced fields of study tend to face different chances to access what are commonly considered occupations adequate for higher education graduates, namely, professional

jobs. However, the findings in article II also demonstrated that whether gender-segregated field choices are associated with advantages or disadvantages in the occupational stratification process depends on the type of higher education degree as much as it depends on the country in question and the employment sector where graduates work. The complex relationship between gender segregation by field of study and the labour market therefore defies any simple reductions and broad generalizations: in Finland, female-dominated fields of study tend to worsen the chances for professional employment among polytechnic graduates, whereas in Norway, it is polytechnic graduates from male-dominated fields that face this disadvantage. By contrast, university graduates in either country faced much more similar chances to attain professional positions irrespective of their field's gender label. What is more, the same field that decreases graduates' chances for professional employment may nevertheless prove as a safety net that helps dampen the impact of occupational mismatch. For instance, while female-dominated polytechnic fields made professional employment a less likely outcome in Finland, polytechnic graduates with this field specialization were also less likely than those from gender-integrated fields to work in the lowest status category distinguished in this study, that is, clerical or lower-skilled occupations. In some countries, such as Finland and Norway, the impact of fields of study on occupational status was larger for polytechnic graduates, whereas the occupational status of individuals with a university degree was to a noticeably lesser extent affected by their field specializations. Overall, these findings demonstrate that higher education is not a uniform asset on the labour market.

The findings of article II raise several important questions: does a similar effect of fields of study exist when the focus is shifted towards earnings? How do variations in the effect of fields of study on life chances compare with the impact of a broader range of qualification levels? To find an answer to these questions, it does not suffice to simply add fields of study as an additional educational variable into the status attainment regression. Such a design would reveal the average effects of fields of study net of individuals' educational attainment level, as well as the average effect of educational level when holding fields of study constant. But this analysis would be unable to determine whether the diversity between fields of study in terms of their socioeconomic effects may *overlap* between different qualification levels. In other words, do less lucrative fields at higher levels of education still provide a socioeconomic benefit over the more lucrative fields at lower qualification levels?

Attempting to answer these questions in article III, I added combinations of fields and levels of education to an otherwise conventional earn-

ings regression model. The findings of article III confirm that whether or not educational qualifications increase median earnings depends quite noticeably on the fields of study involved. The notion that a higher level of education raises earnings applies most clearly to individuals of the *same* field of study. But if fields of study are allowed to vary between levels of education, then it is far from certain that individuals with higher-level educational qualifications systematically enjoy higher earnings than lower-educated individuals. The results of article III therefore show that qualification levels do not appear to confer a consistent benefit in the process of earnings stratification.

Explanatory approaches couched in primarily individualistic terms would perhaps point to the possibility that systematic differences in (signalled or actual) ability between graduates across fields of study could lead to the findings in article II and III (e.g., Reimer, Noelke, and Kucel 2008). Yet, several questions remain unresolved in this type of reasoning. Is it realistic to assume that employers search for candidates on the basis of some kind of abstract and general criterion of cognitive ability? Or is it *occupation-relevant* ability that is most relevant for them when it comes to filling vacancies? In Finland, as I have argued above, a better case can be made for the latter scenario. Any additional training that employees receive within organizations is more likely to constitute a kind of socialization into the particular work environment than a substantial transmission of occupational skills. Against this background, I would expect only a limited amount of competition between graduates of different fields of study on the Finnish labour market.

In my view, interpreting the socioeconomic effect of fields of study in meritocratic terms is further complicated by the sheer size of the effect. Polytechnic graduates of certain fields of study are not simply more likely to end up in graduate employment with somewhat lesser prestige, but they are facing a noticeably higher risk than graduates of other fields to end up in non-professional employment, which may be interpreted as a mismatch between their level of education and the skill requirements of their employment. Earnings increments between fields of study do not simply vary among individuals with a given educational attainment level, but they overlap with field-specific returns to lower levels of education. Even if signalling theory was the main mechanism underlying these social stratification processes, the results presented in this dissertation suggest that qualification levels themselves do not transmit even some kind of baseline level of ability to employers. Furthermore, the interaction between fields and levels of education with regard to earnings persists over several decades in recent history. This historical constancy may additionally cast some doubt on the idea that credential inflation, by weakening

the signal function of higher-level qualifications, should be at the root of the findings reported in article III.

At this point, it seems that even sociological approaches favouring individual-level explanations may require to take the broader institutional and economic context into account. Consider the following imaginary cases. Within the construction industry, pay scales for skilled workers on a construction site may remain lower than those of vocational college-educated engineers assisting in the project management, with the latter perhaps earning less than the university-educated architects responsible for the design of the project. If education contributes to distinguishing these occupational hierarchies, it is still a far stretch to expect that the average earnings increments attributed to qualification levels in this context will be similar to the education-specific pay differences between nursing assistants (trained at upper secondary level), registered nurses (with vocational college or polytechnic degrees) and medical doctors. In this respect, I believe that sociological approaches to labour market segmentation theory may be able to offer more adequate avenues for explanation, precisely because they consider the economic conditions that affect the power dynamics between occupational groups and vis-à-vis employers in *particular* segments of the economy.

To conclude, I would argue that the findings of this dissertation question the meritocratic interpretation of social stratification by highlighting the limits of individualistic explanatory approaches. Educational achievement does not correspond to consistent rewards in terms of life chances, even if other factors of influence (such as experience, age, gender, social background) are controlled for. While education certainly is not irrelevant, framing it mainly as an individual attribute may preclude the view to the social sources of its socioeconomic effect on individuals. However, this does *not* mean that individuals' actions and preferences are superfluous for sociological views on stratification. Rather, my point is that arguments of educational returns make sense only in clearly defined economic and social contexts within a given labour market segment or even organization, where educational achievement has a context-specific meaning. This may have some redeeming consequences for signalling theory, to the extent that it may prove applicable to some labour market segments, though not others, as van de Werfhorst (2011) recently argued. By neglecting the heterogeneous economic and social conditions within the economy at large, status attainment research may be prone to oversimplify and, as a consequence, fail to accurately capture the social stratification process.

6.2 Limitations of this study

To put the findings of this dissertation into their proper context, it is imperative to also consider the limitations of this research. In this section, I will concentrate on key issues of a conceptual kind and those pertaining to the research design in a broader sense. For a discussion on how compromises regarding classifications and methodological limitations may affect the results, I refer the reader to chapter 4 as well as to the original articles of this dissertation.

6.2.1 Excluding the non-employed

In focusing largely on employed individuals (articles II and III), this dissertation shares a shortcoming with the majority of social stratification research. Social positions within society are not exclusively determined by earnings and/or prestige derived from employment. A focus on the latter necessarily excludes several groups of individuals, such as the unemployed, full-time students, those living on incapacity benefit, pensioners, asylum seekers without the right to work, unregistered workers, parents on childcare leave as well as full-time unpaid carers. Despite their lack of employment, these groups can hardly be considered as located outside the class system or the status attainment processes of society. On the contrary, as feminist research in particular has argued, in some cases the social roles of these groups directly help maintain the relations of production in society. Nevertheless, individuals outside the wage labour relation continue to pose a problem for quantitative research on status attainment and social mobility.

One common way to circumvent the problem of non-employed individuals in quantitative studies has been to assign these individuals their last recorded occupational position before they left employment. I have not followed this practice in this dissertation. Apart from the temporal inconsistencies it introduces, this solution obviously remains focused on the employed and leaves the crucial issue at hand largely unaddressed. As I was unable to find an alternative method to deal with the non-employed in this dissertation, my analyses are bound to reproduce this problematic characteristic of sociological stratification research.

6.2.2 Retaining the status attainment paradigm

One of the central arguments of this dissertation refers to the inherent limitations of the status attainment model, understood as the statistical modelling of a continuously or hierarchically conceived notion of social

positions (e.g., occupational status, earnings) on the basis of individuals' attributes. However, the actual empirical analyses conducted in my research largely share some key characteristics with status attainment models. Article II focuses on what could be considered the skill rank of occupations, whereas the dependent variable in the models of article III is earnings. In both articles, the independent variables estimated in these models overwhelmingly pertain to individuals' characteristics, such as their field of study and their employment history. As such, my analyses remain deeply embedded within the status attainment model, rather than being able to overcome it entirely. Yet, I believe a case can be made to argue that the limitations of this research design can become evident also from *within* the paradigm, by highlighting results that remain difficult to reconcile from within a purely individualistic framework. Rather than to simply dismiss the status attainment model from the outset, my aim was to contribute a critical perspective on it.

But at the same time, this decision also has repercussions on the kind of causal statements my analysis is able to make. As my research was intended primarily to explore the limits of conventional accounts of stratification rather than formally test alternative hypotheses, the structural explanation put forward to explain the socioeconomic role of fields of study in the social stratification process remains largely speculative.

6.2.3 Conceptions of labour market segments

The lack of formal testing between rivalling accounts of the social stratification process also had some conceptual consequences. In particular, the notion of labour market segments was left only very broadly specified. How precisely are such labour market segments to be defined? Do they coincide with industries, occupations, organizations of a certain size? It is admittedly difficult to directly answer this question. The sociological views on labour markets reviewed in chapter 3 suggest that a variety of material factors (e.g., capital intensity of industries, organization size, etc.) may influence the bargaining position and strategies adopted by either employers and employees. These processes may have repercussions for the value that employers attribute to educational credentials of their workforce. Similarly, the extent to which educational credentials serve employees to pursue social closure strategies may vary between labour market segments. Ultimately, my position resonates with Ben Fine's, who argues that the definition and demarcation of labour market segments is necessarily an empirical one:

Theory merely identifies underlying structures and processes in the structuring of labour markets. How these interact and give

rise to labour market segments differs and is not predetermined in an axiomatic way. Rather, it depends upon the outcome of conflicts over, around and within the labour markets themselves. (Fine 1998, 197)

6.3 Prospects for future research

Both the results and the limitations of this dissertation raise a number of questions to be considered in future research.

Given the scepticism voiced in this dissertation towards individual-centred explanations of social stratification, a natural extension of the here presented work would need to more closely focus on the ways that educational fields may be linked with labour market segmentation processes in a country like Finland. Such an analysis could start with investigating the degree to which fields of study concentrate individuals of various qualification levels into related industrial and occupational contexts. The precise role of educational credentials for individuals' status attainment would then have to be investigated within each of these economic contexts, but equally important would be an analysis of how individuals' attributes (including their fields of studies and/or educational qualification levels) may hinder or improve their mobility between labour market segments. As such, endeavours with greater regard for economic and institutional structures could neither afford to ignore nor to overemphasize the role of individuals' attributes.

Similarly, it may be worth pursuing a status attainment perspective on the group- rather than individual level. This may be realized by investigating to what extent educational upgrading of occupations has benefited these groups in an economic as well as a social sense. For example, did the polytechnic reform increase the average pay in those occupations that experienced the greatest influx of this new type of higher education graduates? Did the increase of educational status change the job descriptions or extent of responsibility entrusted to the new incumbents of these positions in any way? Did the educational upgrading change their relationship with other groups, ranked higher or lower in the context-specific occupational and power hierarchy? Investigating such occupation-specific questions may prove a useful complement to existing individual-level analyses of the Finnish polytechnic reform, which have revealed that not all fields of study benefited equally from this increase in educational status (Böckerman, Hämäläinen, and Uusitalo 2009).

A greater concern for the economic and social context of occupations may also cast some light on the material consequences of pursuing

CHAPTER 6. CONCLUSION

gender-atypical careers, which in turn may provide some new perspectives on the puzzle of gender segregation in education. As my dissertation has shown, lower educational levels appear to be more strongly affected by field-specific gender segregation. This raises the question as to whether a part of this phenomenon may be seen as a rational response to predicted difficulties on the labour markets related to these fields. A possible enquiry into this question may be set up as a longitudinal study, comparing the career development of individuals in gender-typical and atypical occupations at different qualification levels, ideally taking into account also the economic context of these occupations (industrial branch, organization size, union strength, capital intensity, profit development, etc.). Such an analysis of the economic risks associated with gender-atypical education could be complemented with a closer look as to whether potential class-specific differences in gender socialization and gender stereotypes may be another factor behind the higher extent of field-specific gender segregation at lower educational levels.

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Appendices

The original articles have been removed from the electronic version of this dissertation. The hyperlinks listed below lead to the articles in their electronic form on their respective publisher's website.

Article I

Prix, Irene. 2012. "Gender Segregation Within Different Educational Levels: Austrian and Finnish Trends in the Light of Educational Reform, 1981–2005." *Scandinavian Journal of Educational Research* 56 (6): 637–57

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Article II

Prix, Irene. 2009. "Gender and Recent Graduates' Occupational Stratification: The Interactive Role of The Educational and Employment Sectors in Four Countries." *Comparative Education* 45 (4): 545–68

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Article III

Prix, Irene. 2013. "More or Different Education? The Joint Impact of Educational Level and Fields of Study on Earnings Stratification in Finland, 1985–2005." *Acta Sociologica* 56 (3): 265–84

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