School choice, space and the geography of marketization

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Analyses of educational restructuring in upper secondary education in Sweden

Anna-Maria Fjellman

UNIVERSITY OF GOTHENBURG
ACTA UNIVERSITATIS GOTHOBURGENSIS

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Abstract

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The main aim of the dissertation is to investigate, analyze and create a research-based understanding of the spatialities of the Swedish school choice in upper secondary education using a socio-spatial framework. The dissertation is comprised of three empirical studies based on six cohorts of register data from The Gothenburg Longitudinal Database. The individuals included in the analyses were 664 895 students attending an upper secondary school in Sweden between 1997 and 2011. The studies are focused on three analytical levels: national, regional and individual level. The individual-level variables were about student family background (i.e., gender, migration background, parental educational level, residential location, school location and program choice) and their school achievement (i.e., grades) for compulsory education. The school- and municipal-level variables included the educational provider of each upper secondary school, a classification of municipality groupings and student commuter rates for each municipality.

The first study analyzed the spatial materialization of the national upper secondary quasi-market. A substantial but geographically differentiated expansion of upper secondary education provisions was observed where rural and sparsely populated municipalities were especially afflicted by school closures. The market structures were found to be clustering and concentrating as new urbanized spatial interrelationships (i.e., student mobility flows) emerged between municipalities. The second regional study analyzed market expansion and described choice consequences for a rural school market. The

expansion was related to spatial interactions through mobility flows between the municipalities simultaneously as educational provisions were redistributed to the market core municipality. The two studies indicate market structural formation is different between urban areas compared with rural areas and therefore the metropolitan school markets (i.e., Gothenburg, Malmö and Stockholm) were selected for analysis. The third study utilized a propensity score analysis to analyze the probability of commuting within these markets, given students' choices of program at upper secondary education. The outcome variable from the propensity analysis was used as a dependent variable in several multiple linear regression analyses. The independent variables consisted of students' background variables and their school achievements. The results established a regionally divergent presence of differentiated student mobilities based on gender and migration background being mediated through choices of upper secondary programs and educational provider.

In the integrated discussion, the results on the uneven spatial materialization of the quasi-market and the differentiated mobilities of upper secondary students are discussed in relation to the socio-spatial framework, which relies on the concepts of space, mobility and power-geometry as theorized by Doreen Massey. In sum, the results show how geographical market segmentation in the Swedish quasi-market are affecting the actualities of what choices can be made. Additionally, the differentiated mobilizing of students across parts of the Swedish quasi-market spatially reproduced injustices based on students' gender, migration background, school ownership and market location.

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Tables and Figures

The empirical studies

The following texts are included in the dissertation:

Fjellman, A. M., Yang Hansen, K., & Beach, D. (2018). School choice and implications for equity: the new political geography of the Swedish upper secondary school market. *Educational Review*, DOI: 10.1080/00131911.2018.1457009

Fjellman, A.-M. (2017). Differentiering genom reglerad marknadsanpassning: Uppkomsten av en regional skolmarknad [Differentiation through regulated market adjustment: The emergence of a regional school market]. *Utbildning & Demokrati*, 6(1), 107–132.

Fjellman, A-M. School choice, private providers and differentiated mobilities in Swedish metropolitan school markets: exploring through a counterfactual approach. *Submitted.*

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Anna-Maria

Chapter 1. Introduction

The last decades have seen an increase in marketization and privatization in several public domains but more so in the educational sector. A belief in market forces solving social differentiation in educational outcomes (Henig, 1995) paired with an aspiration to increase democracy and freedom for individual citizens and decrease public expenditure have dominated the educational area (Ball, 2012; Dahlstedt & Fejes, 2018). The privatization of the educational sphere has transformed both policy and schools through implementation of several market led reforms but also how education, learning and teaching are conceptualized, managed and delivered (Ball & Youdell, 2009; Apple, 2004). School choice intertwined with market logic as an organizational principle in educational systems is now a global phenomenon (Ball & Nikita, 2014). On the frontier of disassembling public education, Sweden qualifies for one of the most drastic changes by transforming from a centralized unified educational system to a decentralized counterpart where marketization is embraced on multiple levels (Lundahl et al., 2014; Lundahl, 2002; Beach, 2010; Dahlstedt, 2011).

The ideology of marketization refers to beliefs encouraging the superiority of private delivery of education and the need of private strategies being adopted by public providers (Whitty & Powers, 2000; Burch, 2009). The experience of privatization is similarly also conceptualized as a social transformation: "[…] it involves changes in the meaning and experience of education, what is means to be a teacher and a learner […]." (Ball, 2007, 186). A shift in the relationship between teachers and teaching sets aside professional judgment for commercial decision-making when teachers are re-conceptualized as managers, producers and providers of education (Ball, 2003a). Lundahl et al. (2013) distinguish between internal and external marketization (cf. endogenous and exogenous privatization in Ball & Youdell, 2008). Internal marketization is defined by how schools are increasingly organized as businesses (through NPM-strategies; Lundahl et al., 2013, 503) characterized by evaluation, assessment and a consumer-brand relationship with parents and students. External marketization is defined by how education organizes

through school choice, profit-making incentives, private providers and competition between school providers through market exposure. Lundahl et al. (2013) analyzed the Swedish market transformation process and determined that Sweden has embraced both internal and external marketization through strong beliefs in competition and choice, expansion of private providers through all levels of education and import of business-like strategies and concepts into the educational domain. Marketization also refers to a restructuring of public education where market behavior of individuality, flexibility and an active participation in the 'freedom of choice' is emphasized (Dovemark et al., 2018; Lundahl et al., 2014). The educational reforms carried out in Sweden in the 1990s and forwards implemented school choice, a voucher system and private suppliers of education - measures that ultimately instituted a quasi-market setting where educational provisions are regulated by 'market adjustment' (Prop 1991/ 92: 95; Prop 1992/ 93: 230; Gustafsson, Hörlin & Vlachos, 2016). In the current dissertation, this historical and political transformation of the Swedish educational system and the continuing businessification of it currently is interchangeably referred to as (a process of) marketization.

A significant political shift in the questions on how education should be provided and how equity and equality should be pursued in education was realized in bringing about decentralization, deregulation and market governance in the educational system (Lindblad & Lundahl, 1999, Gustafsson et al., 2016). The introduction of market governance and choice in Sweden were presented as redeemers of social equality and equity in education (Beach, 2018; Prop 1991/ 92: 95), however, empirically, rather these measures have been associated with strengthening and reproducing educational inequalities and furthering segregation (Yang Hansen & Gustafsson, 2018; SOU, 2017: 35; Böhlmark & Lindahl, 2015). Traditionally, Swedish policies have been known for promoting ideas of educational quality and equitable access to good education for all – regardless of gender, social class and geographical location (Beach, 2017; Berhanu, 2016a; Lundahl, 2016; Antikainen, 2006). Current educational legislation (that affects all levels of schooling in Sweden) guarantees equity in both access to and the form of education, regardless of social background and residence (SFS 2010:800). How the educational system is organized (and re-organized) in this new quasi-market setting is of central importance to the actuality of these goals.

The process of marketization is intimately tied with space and place where geographical availability of education is restructured over time through mobilities and spatial variations in educational provisions (Thiem, 2009; Gulson & Symes, 2007). The availability of Swedish education are dependent on the choices made by students, on the school establishments of both private and public providers as well as the formation and organization principles of local school markets. Whilst implications of choice have been studied at municipal and individual levels in terms of motivational factors, impact on student achievement outcomes as well as school and residential segregation - the long-term spatial effects of marketization and school choice on equity at different levels, regions, market areas and geographical locales within the Swedish school system is less acknowledged and more ambiguous. This is especially true for the effects of interactions between market structural formations and patterns in educational provisions at a national level and their implication for providing an equitable choice of education.

Historically, social differentiation in Swedish education has persistently been a problem both in terms of systematic differences in educational outcomes and access to upper secondary and higher education (Marklund, 1980; Härnqvist, 1958). It currently still is (Yang Hansen & Gustafsson, 2018; SOU, 2017: 35; Svensson, 2006; OECD, 2015; Erikson & Rudolphi, 2009; SOU 2010: 99). Examining the complexities of how educational opportunities and choices are restructured over time by market adjustment at national, regional and municipal levels involve investigating the geographical characteristics and structural formations of the quasi-market and educational provisions as well as uncovering if patterns and variation in student mobilities are related to their social backgrounds. In this, establishment and closure patterns of private and public providers is important to consider. Consequentially, this dissertation focuses on the spatialities of school choice in upper secondary education and asks important questions such as, in our marketized educational system; what kind of choices can be made and what are the implications of these choices over time?

Initially, the market directed educational reforms implemented in the 1990s were publically considered a "tremendous" success by media and private educational entrepreneurs exporting the Swedish free school model abroad to

the UK (Rönnberg, 2017; Munkhammar, 2007; Cowen; 2008). However, escalating differentiation, segregation and negative trends in educational outcomes (Yang Hansen & Gustafsson, 2016; 2018; Mellén, 2017; Trumberg, 2011; OECD, 2015; Bunar, 2010a; Kallstenius, 2010) have critics arguing how these school reforms of choice, decentralization and privatization rather illustrate "the dark side of competition" (Fisman, 2018). The fundamentals of Swedish education now include phenomena such as schools going bankrupt (Holm, 2017), school fairs commercializing education (Dahlstedt & Harling, 2017) and educational conglomerates alongside venture capitalists organizing education and selling standardized educational concepts to Swedish students (Skolinspektionen, 2014). Teachers are advised to keep a watchful eye on the financial status of their private employer and get out when then debts surpass half of the capital to prevent losses of individual earnings (Lärarnas tidning, 2018). Private providers aggravate grade inflation (Vlachos, 2010; Hinnerich & Vlachos, 2013; 2016), as private students fare worse in higher education compared to their municipal peers, despite retaining a higher point average in grades from upper secondary school (Skolverket, 2018a). Public opinion on the choice and market geared reforms and current educational system is divided, as citizens seem to retain trust in Swedish education while at the same time saying that quality has deteriorated (Lindblad et al., 2018). Similarly, the public is very critical towards private providers and the possibility of generating profits in public services (and are essentially advocating re-governmentalization) while at the same time enjoying the possibility to choose (Lindblad, Nilsson & Lindblad., 2018).

What makes "the Swedish choice" special is the accompanying tax- financed voucher system and the possibility of making profit on education. Private providers can generate profits from these vouchers by running upper secondary schools (Wiborg, 2015). The Swedish national voucher system share similarities to the economic voucher structures that was implemented in Chile in 1981 as an important part of an extensive decentralization and choice reform package (e.g., Carnoy, 1998). The Swedish 'free school act' and the voucher reform have enabled private providers' access to educational infra-structures created by the state from decades of taxation and establishing themselves as organizers and providers of education in a new quasi-market (Prop. 1991/92: 95). The voucher reform was promoted as a form of equitable privatization (as schools could not charge students fees) but they

have been argued to be essentially financing privatization and personal choices with public funds (Beach, 2018). Moreover, in the governmental propositions and inquiries, the voucher system was claimed to be an integral part of a more 'free' school choice (Prop 1991/ 92: 100; Prop 1991/ 92: 95) by conceptualizing parental influence in education mainly as the position of financiers of schools (SOU 1992: 38; 95-96). The importance of parents navigating and evaluating different educational alternatives was highlighted, but the authors concluded that this navigation would be premised on the enterprising and resourceful qualities of parents and dismissed apprehensions on vouchers furthering segregation based on social groups and class (SOU 1992: 38; 98-99). However, no positive effects on equality, efficiency or education standards can be attributed to the voucher reform (Böhlmark & Lindahl, 2015); rather it has had a negative influence (SOU, 2017: 35; Hultén & Lundahl, 2018; Brandén & Bygren, 2018). Additionally, empirical results validate concerns on social selectiveness and cream skimming by private providers, partly mediated through establishment patterns where they favor native and white neighborhoods and economically strong municipalities (e.g., Angelov & Edmark, 2016; Böhlmark, Holmlund & Lindahl, 2015; Hinnerich & Vlachos, 2016).

While bettering geographical availability of education attracted far less attention in the policy briefs pre-dating the reforms compared to arguments on expanding "the right to choose" and "what choices to make", upper secondary education has expanded vastly in absolute numbers since 1995 and onwards. The quantity of upper secondary educational provisions has expanded mostly due to the introduction of private providers; however, the dimensions of the spatial distribution of the expansion across Sweden are questionable. Forgoing the previous proximity allocation principle students can now use school choice to theoretically choose a school anywhere in Sweden. In this sense, place should matter less and some of the effects of residential segregation was theorized to be alleviated through the possibility of school choice (Prop 1991/ 92: 95; SOU 1992: 38). However, studies on the spatiality of education show how inequalities and differences are being produced between places as education is restructured through market logic and choice (Lindgren, 2012; Beach et al., 2018). The market setting and choice mechanism seem to reinforce and exacerbate differences, which historically have been present before in disadvantaged and marginalized areas (e.g., Beach

et al, 2018, Beach, 2017; Ambrose, 2016; Öhrn, 2011; Bunar; 2010b; Arnman, Järnek & Lindskog., 2004).

Influences of geography is also visible in student achievement outcomes and in student mobility patterns. School belongingness and geographical location can progressively explain differences in student school achievements, that is, their grades (Gustafsson & Hansen, 2011; Gustafsson et al., 2014; Skolverket; 2009). School choice enabled mobilization of white and middle class students is visible in migratory flows of students emanating from schools in disadvantaged neighborhoods and communities in the Swedish capital and similar tendencies are highlighted in cross sectional studies on national data (Söderström & Uusitalo, 2010; Andersson, Malmberg & Östh, 2012). Parents and students articulate choosing schools motivated by seeking avoidance of minority students and 'immigrant' schools and these racist directed apprehensions and choices organizes local school markets rather than only pedagogical excellence (Bunar & Ambrose, 2018). School homogenization is prevalent as privileged students are pooled in certain schools (Trumberg, 2011) and school choice have aggravated school segregation based on ethnicity in municipalities where choosing is more common (Böhlmark et al, 2015). No longer a success story – the narrative of "a crisis in Swedish education" is pushed in both political conversations and media outlets (Fridolin, 2018; Lindblad, 2018; Vlachos, 2014). However, the Swedish choice seems to be here to stay, as recommended political measures to counteract segregation and 'bad' choices focus more on making sure students and parents are making active and informed choices rather than questioning the implications and longevity of the choice mechanism itself (SOU, 2017: 35, cf. Dahlstedt & Fejes, 2018).

Why space matters – a geographical perspective on education

Society is necessarily constructed spatially and the spatial organization of society makes a difference to how society works. Spatial processes are actually social relations taking a particular geographical form (Harvey, 2010; Massey, 1992; Wacquant, 2007), therefore making spaces (and borders) very influential in people's lives. The restructuring of the Swedish educational system through marketization is a good illustration of this. Marketization have resulted in a

large set of unwanted outcomes with processes intertwined on multiple institutional levels that is increasingly difficult to investigate as the complexity of the system is amplified. Space as a concept has become more relevant as new movements and spaces are not open for everyone within this spatial reorganization in education (Sheller & Urry, 2007; Lindgren, 2010). However, residential segregation, social differentiation and market segmentation are interlinked with choice practices, student mobilities, educational opportunities and school provisions. Although a coupling of education and geography can greatly contribute to analyzing power relations in spatial patterns and uneven geographical developments of structures (re-)distributing educational resources (Thiem, 2009; Butler & Hamnett, 2007) there have been comparatively few studies focused on national level, which utilizes that interdisciplinary approach (Taylor, 2009). In this, the current dissertation can make a significant contribution of knowledge. Analyzing the "[…] geographic particularities of the education market at various scales." (Taylor, 2009, 549) will further bring forth the actualities of what school choices can be made.

The organization of the educational system is an important aspect as the Swedish system has been ideologically and materially transformed through marketization, privatization and choice (Öhrn & Weiner, 2017). The value of a spatial perspective in choice research is important to a production of new spatial trajectories but also in uncovering reproduction of inequalities through movements (Rowe, 2015; Massey, 1991a; Manderscheid, 2009). While these market outcomes can be spatially configured, space is not deterministic per se and "[…] spatial differences are not entities independent of social (or natural) processes." (Duncan, 1989, 132). A socio-spatial theoretical framework emphasizes the relation between the social and space without risking "spatial fetishism" by recognizing the socio-spatial dialectic: "[…] that social and spatial relationships are dialectically inter-reactivate, inter-dependent; that social relations of production are both space-forming and space-contingent…" (Soja, 1980, 211; see also Soja, 1989; Duncan, 1989). The significance of geography transcends concepts of cartography, areal partition and measurements of distance; it is also represents important feelings of identity, social practices and experiences of community belongingness (i.e., Massey, 2004; 2005). Geography matters greatly in education as the social significance of a good school available in the local neighborhood or white flight from schools in minority communities and disadvantaged

neighborhoods is very impactful in young people's everyday lives, self-perceptions and educational futures (e.g., Bunar & Ambrose, 2018; Bunar, 2010b; Ambrose, 2016). The strength in the combination of an educational and geographical perspective further recognizes, both empirically and theoretically, the presence of regional economic specificities embedded in geographical uneven developments intermingling in "the geographies of privilege and the geographies of choice" (Soja, 2010, 59) and can analyze these in terms of how educational provisions are continuously redistributed through choice-directed market adjustment and privatization. In this sense, market adjustment denotes what is chosen, what is available, what is on offer and by whom, and how this geography of marketization is restructured over space and time.

Aim and research questions

The current dissertation has been produced within the CHANCE-project[1] funded by the Swedish Research Council. The intention of the dissertation is to investigate, analyze and create a research-based understanding of the spatialities of the Swedish school choice in upper secondary education using a socio-spatial framework applied to the now marketized educational system. There is a distinct logical explanation for this focus. "Choice practices are inherently spatial […] (Rowe, 2015, 87) as well as intrinsically selective. Choices facilitate exclusion and avoidance of student minorities and undesirable neighborhood schools through the strategic navigation of the school market by students and parents. In this, choices are also strongly related to geographical locales. Moreover, as forewarned by the Swedish Power Commission Report (SOU 1990: 44) they tend to operate in favor of economically strong actors, which is observable in how white, middle class parents and their children tend to benefit most from these choices (Ball, 2003b; Kosunen, 2016). This is also evident in a Swedish context (Bunar & Ambrose; 2018; Forsberg, 2018; Ambrose, 2016; Andersson et al., 2012; Bunar & Sernhede, 2013; Kallstenius; 2010).

[1] Changes in educational policy for Swedish upper secondary school during two decades: Consequences for distribution of school resources, recruitment and outcomes. https://ips.gu.se/forskning/forskningsprojekt/chance

This dissertation further aims to provide knowledge on the geography of marketization in Sweden as both a process and an outcome. Marketization needs to be problematized in relation to the context where it occurs since its characteristics varies depending on history, culture and politics inherent to the country (Lundahl, 2017, 672; Waslander, & Thrupp, 1995). Researchers concentrating on studying the market effects and outcomes resulting from the educational reforms in the 1990s in Sweden have produced a large body of empirical work (e.g., Dahlstedt & Fejes, 2018; Beach & Dyson, 2016; Ambrose, 2016; Forsberg, 2015; Lundahl et al., 2014; Bunar & Sernhede, 2013; Trumberg, 2011; Kallstenius, 2010; Fredriksson, 2010; Myrberg, 2006). In this, the current dissertation has the possibility of contributing important knowledge to the discussion on the interrelationship between the school choice mechanism and geographical locales in the creation and maintenance of the Swedish quasi-market and highlight structural consequences over time in the school system. This has to do to partly with the kind of data that have been used, specifically register data. The nature of register data (i.e., population data) enables a longitudinal exploration of market adjustment in the Swedish educational quasi-market, both on national, regional and municipal level. This will highlight choice effects on multiple geographical scales. Additionally, there is a contribution of utilizing a socio-spatial framework. This framework enables an analysis of new spatial interactions, student trajectories and mobilities and their relation to social backgrounds in a continuing shifting educational landscape.

In addition, the dissertation provides a critical discussion problematizing the consequences of school choice and market adjustments through employing concepts of social and spatial justice. Conceptualizing the spatiality of school choices through interdependencies and social practices contributes valuable knowledge on how inequalities, injustices and differences are reproduced in our educational system by looking into distributional consequences stemming from individual choices. By extension, the supposed self-adaptiveness of the market – the theoretical notion of equilibrium in the system between what is wanted and chosen and what is on offer – is problematized, discussed and questioned.

In conclusion, the current dissertation is directed by two main research questions:

1. How has the ongoing restructuring process of the quasi-market been spatially materialized post-reform?
2. Who has been mobilized within this new quasi-market setting?

Disposition of the dissertation

This compilation dissertation consists of two parts, where the first part is the integrated essay and the second part consists of three empirical studies. The integrated essay will offer an extended overview of the historical background, theoretical framework, previous research and methodological designs underlying and driving the analyses in the empirical studies. The disposition of the integrated essay is organized as follows. In chapter 2, the historical and political background of the Swedish educational reforms is summarized, emphasizing important initiatives such as municipalization, deregulation, privatization, school choice and the underlying political briefs and government bills. Chapter 3 consists of the theoretical framework where important assumptions and central concepts inherent to a socio-spatial perspective is explained and discussed. In chapter 4, a literature review of earlier research is presented. The review is focused first on the actuality of quasi-market operations such as competition, choice practices, school survival, and effects on equity, market segmentation and private providers. Second, studies on the relationship between school choice, space and mobilities are reviewed and discussed.

In chapter 5, the methodological assumptions behind the statistical techniques utilized in each study are discussed and the motivations behind the design of each specific empirical analysis is described. Potential threats to validity, and statistical bias inherent to both data structure and methods is also described, ending with a description of ethical considerations. In chapter 6, the process of analysis for each empirical study is described, focusing on specifically the data selection and the rationales behind it and finally the results from the three articles are summarized separately. In chapter 7, the results are discussed in relation to the theoretical framework, previous research and the previously articulated research questions. Additionally, a critical discussion on choice and

market adjustment implications are problematized through concepts of social and spatial justice. To finish, ideas for future research are recommended and the section is ended with a description of the conclusions.

Chapter 2. The marketization of Swedish education: a background

Two significant characteristics of marketization in Scandinavian welfare states are a gradual change transpiring over a longer time and the nature of a more hidden process (Petersen & Hjelmar, 2014). The transformation from public to private delivery of education in Sweden was comprised of several important policy changes and educational reforms that occurred in steps. The line between public and private is redrawn when spaces of knowledge are reorganized and the educational sector is opened up to private interests and private management (Ball, 2007). Although the current dissertation is specifically focused on Swedish marketization, it is important to note that these developments of marketization was (and is) part of a global encompassing movement where public sectors organizing welfare services are subjugated to neoliberal restructuring, commodification and privatization (Beach, 2010; 2018). The current chapter sets the background for the empirical studies by outlining important national initiatives that actualized market governance and privatization in the Swedish school system. Initiatives, briefs and policies that effected the spatial dimensions of upper secondary school supply, geographical availability of education and supported choice-enabled student mobilities are specifically highlighted.

Transformation of governance in education

The distinguishing features of Swedish education governance in the post-war period consisted predominantly of centralized regulatory governance, where ideological, judicial, economic and administrative schemes were based on uniformity (Berg et al., 2015). Post-World War II, the political focus was bringing forth important reforms such as a unified primary education for children and an organizationally cohesive but program differentiated upper secondary education for youths (Richardsson, 2010; Lindblad & Lundahl, 1999). The underpinnings of a just society was politically tied to a fair educational system promoting equality, social integration and organized through a comprehensive school with socially mixed classrooms (Bunar &

Sernhede, 2013; Lindblad & Lundahl, 1999). The comprehensive school reform during that time is an example of a social democrat initiative mainly motivated by democratic values and an attempt to reduce social differentiation (Richardsson 2010, Lundahl, 2017). Strong state governance was argued to be fundamental in the pursuit of equality in education (Lundahl, 2002). However, despite ideological beliefs and political pursuits, the comprehensive schools were marked by differentiation, exclusion and social inequalities. Educational success and selection of upper secondary education also correlated strongly with students' social background (Härnqvist & Svensson, 1980).

Political debate during the 70s and 80s became increasingly vocal about and critical towards the role and obligations of a centralized and bureaucratic welfare state in the public sector (SOU 1990: 44, 402). The core of the critique was about economical inefficiency and limitations in not letting students partake in decisions regarding their educational career (framed in discourses of wanting to provide 'freedom' and 'choices' to individuals) and perceived inabilities in adjusting local education (Lindblad & Lundahl, 1999). Objections toward the government's role and responsibility however were not exclusive to education but also present in debates on health care (Trumberg, 2011, 44). Consequently, there was a shift in the question of how issues of social differentiation in schools could and should be solved. Previously pursued as equality through social cohesion and collective uniformity, these thoughts were replaced by ideas of decentralization and increased user participation (Börjesson, 2016). An important inquiry on inner workings of schools notes large variations in resources and needs between schools, municipalities and regions and recommend that decision-making should be decentralized to create opportunities for local adjustment to suit these diverse needs and funds (SOU 1978: 4, 24). Governmental briefs officially arguing for the decentralization of upper secondary education came about in 1983 where it was declared it needed to be renewed in an innovative way so that the organization could be adjusted to fit the needs of all adolescences (Prop 1983/ 84: 116).

The promotion of citizen participation and democratic influence were argued to be contingent on the power structure of society (Dir 1985: 36). Inquiry commissions were created in the quest for increased democracy in education and society, for example the Power Commission report (Ball & Larsson, 1989;

SOU 1990: 44). The Swedish democratic ideal was politically formulated as a reinforcing relationship between democracy, social security and effective production (Dir 1985: 36; SOU 1990: 44). Additionally, it was tied to sovereignty of the peoples' rule and similarity achieved through citizen influence in collective decision-making processes (SOU 1990: 44, 14). However, a major conclusion in the report was how changes in societal development lead away from the Swedish model, which is deemed unable to handle the complexities of a modern multicultural Swedish society and the differentiated needs of its citizens (SOU 1990: 44, 394). It was argued that, although internationally Sweden might be considered as prosperous and opulent, internally the country was characterized by social and power differences between citizens in terms of opportunities of participation and democratic influence. The democratic ideal was deemed not fully realized for all Swedish citizens (SOU 1990: 44).

Although increasing individual citizens' power in societal life was believed important and the possibilities of decentralizing (and therefore modernizing) the duties of the state were deemed necessary, the authors of the report was optimistic about how Swedish society could meet these challenges (SOU 1990: 44, 402). However, another important conclusion in the Power Commission report was how a market setting can only function equally if all the consumers share similar purchasing power, and it was stated that was not the case in Sweden (SOU 1990: 44, 259). Therefore, while promoting individual autonomy in a new multicultural and decentralized society was seen as developing and modernizing Swedish democracy, the authors were much more apprehensive with recommending the introduction of market mechanisms and a market setting in the public sector (SOU 1990: 4). Rather, they concluded market mechanisms would damage equity - not support or promote it (SOU 1990: 44).

Decentralization, municipalization and geographical availability of upper secondary education

The critique towards the role of the state governance in education and advocating for ideas of decentralization were ultimately actualized in three important government bills (Prop 1988/ 89:4, Prop 1989/ 90: 41; Prop 1990/ 91: 18). The educational reforms implemented between 1989 and 1991 instituted several significant changes in who would be responsible for organizing education and how it would be financed (Isaksson, 2011). The responsibilities for the educational system (i.e., compulsory education, upper secondary education and adult education) were redistributed between the state and the municipalities, through a reform, known as the municipalitization of public education[2] (Dir 2012: 84; SOU 2014: 5; Isaksson, 2011). The municipalities gained full employer responsibility for all educational staff and the previous teacher and principal positions that had been handled by the state was discontinued (Prop 1988/ 89:4). Most importantly, the financial system of how educational funds were distributed between the components of the educational system changed so that the municipalities took over the responsibility to decide how these funds were to be allocated. In 1993, the financial responsibility of the municipalities expanded, as they could further decide on the (re-)distribution of funds between schools and other municipal functions and activities (Gustafsson et al., 2016).

The expanded role and responsibility of municipalities in education, which occurred post-reform is significantly interrelated with the geographical availability of schools in the Swedish school system. The spatial arrangement of educational provision for upper secondary education are central to a discussion regarding the materialization of the educational quasi-market. In this and especially post-decentralization, the municipalities[3] play an important role. While municipal influence over education increased after the

[2] Known in Swedish as: kommunaliseringen av skolväsendet.

[3] A municipality is an administrative areal unit, which functions as a local governing entity. Municipalities are responsible for several welfare functions in addition to education such as elderly care and social welfare. Sweden is partitioned into 290 municipalities, which vary greatly in geographical size, demography and context (e.g., metropolitan, urban, rural and sparsely populated). Municipalities are governed by public officials who is elected by citizens every fourth year (Sveriges kommuner och landsting, 2018).

municipalization reform, the role of the state transformed from a more detailed oriented focus and economic governance to being focused mainly on national guidelines and governance through management by objectives. The state still retained a comprehensive responsibility for securing that the municipalities were providing an equitable education and safeguarding that national objectives and goals would be attained. At the same time, the idea was securing freedom to adjust and organize education and teaching for the municipalities within the frame of decisions declared by the government and parliament (Gustafsson et al., 2016; Prop 1988/ 89:4). Motives behind the decentralization also included intentions to expand student and parental influence in education and give families opportunities for greater responsibility together with personal involvement (Prop 1990/ 91: 18; SOU 2014: 5). However, Jarl (2012) argues that the mission of municipalization reforms was contradictory; first, as a democratic reform geared towards strengthening local democracy and influence and second, as a management reform geared towards increasing efficiency. These contradictions contributed significantly towards the complexity in the municipal mission of acting as main responsible providers for education (Jarl, 2012). Post-reform both school leaders and teachers articulated frustration in relation to the actualities of implementing contradictory policy goals in their everyday work: "Most school actors perceive the combination of quality demands, lack of resources and increased bureaucratization as an unsolvable complex. The goals and demands in the policy documents conflict with practice. Priorities become a moral dilemma." (Lindblad et al., 2002, 293).

Persisting implementation issues related to the municipalization reform motivated further inquiry into the effects of decentralization. An inquiry analyzing the causal effects of municipalization twenty years after the implementation outright labels the municipalization reform a failure. This is argued to be due to implementation difficulties, abstract curriculum, unprepared teachers, lack of support from the state in the implementation process as well as malfunctions in municipal evaluations and follow ups of education (SOU 2014: 5; see also Tholin, 2006). However, reintroducing centralized management was still deemed as an unrealistic alternative in the report: "A modern school system that is accountable to the central government requires a regional or local central government organization with a certain amount of independence from the Government and central school

authorities" (SOU 2014: 5, 29). There are currently large disparities between municipalities in how much funds are specifically assigned to education and some of these differences were present pre-municipalization (SOU 2014: 5). In terms of financial differences, several reasons are proposed for economic difficulties in funding education: such as the Swedish financial crisis in the beginning of the 1990s, geographical context and location as well as municipal demographics (2014: 5). Geographical availability of education associates with municipal demography as smaller student populations specifically relate to difficulties in retaining and providing a local educational alternative compared to the more population dense metropolitan and urban municipalities (Åberg-Bengtsson, 2009; SOU 2014:5). Providing and organizing education in rural and urban regions are both expensive, albeit costs are not structurally similar (SOU 2014: 5).

Geographical availability is defined as with what ease individuals can overcome distance and reach destinations through a system of infrastructure and transport (Larsson, Elldér & Vilhelmson, 2014). In conjunction with geographical availability, another concept can be important: value of opportunity, which states that places will have different influencing attractiveness depending on the supply of that place when all else is equal (Larsson, Elldér & Vilhelmson, 2014). A place with a larger supply of for example employment opportunities or upper secondary schools is potentially more attractive to individuals compared to places with smaller supply within equal proximity. In education, geographical availability has been defined as measured distance to schools and specifically for upper secondary education as the presence of *one* upper secondary school in most municipalities (SOU 1993: 85, 85). After a substantial expansion of upper secondary education in the 1960s, availability of upper secondary education did comparatively increase until the 1990s (SOU 1993:85). The presence of private providers has expanded the amount of upper secondary schools significantly, although the main growth came about in the 2000s and remained rather modest in the first years after the policies allowing private providers were implemented. By the aforementioned definition of geographical availability however, the municipalities, which have at least one upper secondary school (whether it be private or publicly run) available to local students[4], have decreased from 277

[4] Often referred to as 'skolkommuner' in official statistics.

to 259 municipalities between 1995 and 2015 (see Study I; Skolverket, 2017). Furthermore, in 2017, privately run upper secondary schools are still not geographically accessible on a national level as these are concentrated to only 34 % of all Swedish municipalities, that is, 99 of 290 municipalities (Skolverket, 2018b). The longitudinal development of geographical availability of educational provisions, both in terms of school establishments and closures is an important part to consider in the process of market adjustment.

Freedom of choice, vouchers and private providers – the institution of a quasi-market in education

After the decentralization process was finalized in the implementation of the municipalization reform, additional reforms instituting educational vouchers, school choice and private providers followed (i.e., Prop 1991/ 92: 95; Prop 1992/ 93: 230). These deregulation and choice directed reforms are often regarded as a marketization of the Swedish educational system (Gustafsson et al., 2016, 36). These reforms eased earlier enrolment restrictions based on proximity allocations and facilitated establishment of publicly funded private schools, which can generate profit from a tax financed voucher system maintained by the municipalities. The ambition behind the implementation of private providers were stated as not being limited to a choice between private and public providers of education, but also aimed for an all-embracing educational choice practice where parents and students choose between different public schools as well (Prop 1991/ 92: 95, 7). The right to and possibility of choosing a school and your children's education was framed as important in a 'free' society (Prop 1991/92: 95, 8). Hopes in private providers saving schools in rural communities threatened by school closures were explicitly expressed as a contributing motivation behind the reforms (Prop 1991/92: 95, 9). However, the attached committee report contained a warning from Stockholm municipality, that a possible over-establishment of private schools in the metropolitan region could occur (Prop 1992/ 93: 230; 45).

Similarly, competition between schools was articulated as a quality increasing measure in education together with beliefs in the presence of private providers decreasing public expenditure more efficiently (Prop 1991/ 92: 95, 10). Interestingly enough, the initial bill state that although choosing a school

outside of the residential municipality should be possible in some cases, the situation where choosing and commuting students from neighboring municipalities are out-competing the local students in local schools needs to be avoided (Prop 1991/ 92: 95, 9). The intentions with the aforementioned all-embracing choice were also related to the proposal where educational funds were being tied to individual students (and their choice of provider and school) (Prop 1992/ 93: 230, 25).

The responsibility for education was partitioned between the state and municipalities. First, where the state is responsible for defining quality demands, rights and obligations and equity standards and second, where municipalities are obligated to oversee that the citizens have access to a good education and mainly organizing and financing it (Prop 1992/93:230, 26). However, students' rights to an equitable education were formulated as depending on a varied supply of educational paths and pedagogical methods instead of the previous uniform and cohesive educational organization (Prop 1992/93:230, 26-27). Ideologically, these formulations are an important note in educational political history on how education should be provided and how equity is defined and achieved (Arreman- Erixon & Holm, 2011; Lundahl, 2002; Berg et al., 2015; Gustafsson et al., 2016; Lindblad & Lundahl, 1999). Compared to the previous mainly social democratic decentralization initiatives, these reforms were championed by a conservative government between 1991 and 1994. However, the ideas of deregulation and choice were not challenged by the social democratic party returning to power in 1994 (Lundahl, 2002; Lindblad & Lundahl, 1999). Consensus from the Swedish Social Democrats have been portrayed as a contributing factor toward the large extent of how marketization has served and operated in the Swedish educational system (Englund, 2005; Volkmar & Wiborg, 2014).

Implementation difficulties characterized the subsequent years as Sweden suffered from a large economic crisis, which spurred many budgets cuts and savings in municipalities and the educational sector. The principals and teachers were left on their own with minimal time to implement the reforms in practice with little support from the state (Jarl, 2012). Throughout the years the dissatisfaction with the municipalities, schools and teachers dominated the public debate (and still do) and gradually different mechanisms of control were implemented by the state. For example, school inspections and an

obligation for the municipalities to provide regular evaluations and accounts of quality assurance in their schools (Nytell, 2006; Oxenswärdh, 2011, 63). The state-directed regulation of the Swedish quasi-market relies heavily on different accountability measures and governance at a distance through reforms and policy but also more practically through school inspections and school establishment controls (Carlbaum, 2014).

Important initiatives that further directly affected and expanded the Swedish choice (as well as the relationship between choice and mobility) included implementing the unrestricted opportunity to apply for a national program in another municipality even if it was available in an upper secondary school in the residential municipality of the students (i.e., 'Frisök'; Prop 2006/7: 71). It was predicted to promote cost effectiveness in educational planning for municipalities (Motion 2006/07:UbU15, 6-7). Directly in conjunction with this proposal, an initiative named the proximity guarantee ('närhetsgarantin') was motioned by the Left party as a countermeasure to the suggestion's expected acerbating effect on socioeconomically based segregation between schools, however, it was ultimately rejected (Motion 2006/07:UbU15, 9-10; Motion 2006/07:Ub11).

Intended to evaluate the effects of the educational reforms implemented in the 1990s an extensive report was written in 2014 (see Holmlund et al., 2014). The report concluded that the educational reforms have no connection to lowered students outcomes in Swedish education and that there is no empirical support for how the municipalization reform added to disparities in the allocation of educational funds (Holmlund et al., 2014). The authors also conclude that negative developments in student achievement outcomes were present prior to the implementation of the 1990s reforms (Holmlund et al., 2014). The results from the report are conflicted with previous inquiries that labelled the municipalization as a failure (see SOU 2014: 5; Berg et al., 2015). However, the empirical operationalization of important concepts, analytical inferences and conclusions in the report have been critiqued. The focus of the critique concerned mainly how the authors were ignoring how the reforms might have reinforced these negative social and educational developments and outcomes regardless of timeline (e.g., Gustafsson et al., 2016). This can be exemplified on how the inquiry posed questions on the effects of a freedom of choice on equity and segregation in education. To be able to evaluate these

effects 'an active school choice' is conceptualized prior to analysis.[5] Operationalizing 'active' choice as choosing another school than the majority of the students in your neighborhood can be misleading in terms of actual intentions behind the choice and how this relates to the neighborhood composition. It is especially related to what school is available (geographically) and accessible (meritocratically) for the students retained within the boundaries in the analyzed geographical units. It has been argued that the inferences and conclusions from this report should be interpreted with caution (cf. Gustafsson et al, 2016). Especially as the results are antithetical compared to a large body of Swedish research inferring negative effects on student outcomes, school segregation and equity attributed to these specific educational reforms (e.g., Dahlstedt & Fejes, 2018; Ambrose, 2016; Gustafsson & Yang Hansen, 2016; Gustafsson et al., 2016; Söderström & Uusitalo, 2010; Trumberg, 2011; Andersson et al., 2012; Beach et al., 2018).

Public and private ownership in upper secondary education

Scrutinizing the dimensions of provider ownership in education post-reform is important both in relation to the political beliefs on how private providers would aid in persistent difficulties with for example rural accessibility of education (i.e., Prop 1991/92: 95, 9) and to what extent a choice of education is actualized as an accessible diverse supply of schools (see Study I). While at first (post-reform) only a handful of private schools were founded, eventually their numbers grew over time and private suppliers of education are now a regular part of the Swedish education system. However, they are mainly considered an urban phenomenon, as that is where a majority of the private schools is established (Lundahl et al., 2014; Lundahl, 2017).

[5] An 'active' school choice is operationalized as a student choosing a different school than the most frequently chosen public school in the geographical 'neighborhood' unit (or as choosing a private provider) (Holmlund et al., 262-263). These units are demarcated through the SAMS-grid. Measurement errors for this specific analytical operationalization are related to mainly two issues. First, the possibility of the SAMS unit not corresponding with the schools catchment areas. Second, as some of the SAMS units are small, deducing the most "common" school in such as small geographical area can lead to misrepresentation in the estimation (Holmlund et al., 2014, 262-263). These estimations of choice (that is, choosing "an alternative public school" or choosing a private school) is then related to student background characteristics to be able to compare selection effects and school compositions. Moreover, the differences in SAMS-units based on regions (specifically metropolitan regions) further contributes to questions on reliability.

In 2012, 53 % of Stockholm's upper secondary students attended private schools, while 47 % in Gothenburg and 45 % in Malmö chose a private school (Jämförelsetalsdatabasen, 2018). However, only every tenth student in rural areas attended a private school (Lundahl et al., 2014). In the 2000s, the number of private providers of education grew significantly and represented almost 50 % of all upper secondary schools in 2011 (Skolverket, 2014). The proportion of ownership (public versus private) in upper secondary education is however more difficult to discern after that year. After 2011 the category 'school' was replaced by 'school unit' in official statistics, which made it possible for a school to be divided in several administrative units while remaining within the same building, same geographical location and run by the same principal.

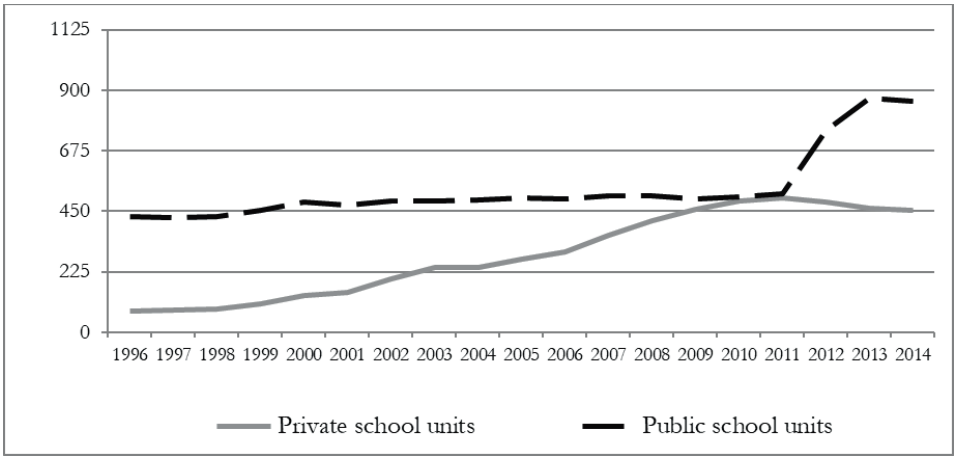

Figure 1. Distribution of school units by ownership in upper secondary education between 1996 and 2014.

This administrative initiative affected mainly public schools, which increased their total numbers vastly in 2011 by the implementation of this organizational change. This meant that, theoretically, a school, previously measured in the statistics as one school could the following year now be categorized as two (or more) schools with everything else remaining the same. The effect is illustrated by the sudden increase of number of public schools from 1005 schools in 2011 to 1253 school units in 2012 (+248) (see Figure 1). Approximating the proportion of ownership in upper secondary education for national level by official statistics leads to an estimation of 35 % private

schools in 2015. However, calculating the proportion of ownership between providers through an application web site with schooling information, the relationship is estimated as closer to 40 % for the same year (Gymnasium.se, 2016).[6]

Table 1. Educational ownership in upper secondary education by municipality group

	Public providers/ Private providers (%)				
Municipality groupings (n=290)	**1997**	**2000**	**2003**	**2008**	**2011**
Metropolitan areas (3)	82/19	72/28	49/51	37/63	32/68
Suburban municipalities (36)	85/15	76/24	69/31	59/41	45/55
Larger cities (26)	90/10	79/21	58/42	45/55	44/56
Medium-sized cities (40)	95/5	91/9	77/23	65/35	49/51
Sparsely populated municipalities (29)	100/0	96/4	100/0	93/7	80/20
Industrial municipalities (53)	96/4	92/8	83/17	67/34	61/39
Rural municipalities (30)	92/8	95/5	76/24	82/18	65/35
Other larger municipalities (31)	98/2	94/6	90/10	85/15	62/38
Other smaller municipalities (42)	97/3	90/10	83/17	75/25	57/ 43

The distribution of private providers is also uneven across regions and municipalities (Skolverket, 2014). Educational ownership is related to geographical place where private providers proportionally establishes upper secondary schools differently depending on municipality demographics and context (see Table 1). Geographically, the larger numbers of upper secondary schools and private schools are mainly concentrated to the metropolitan areas (see also Study I for a more thorough examination). Even though private schools make up almost half of all upper secondary schools in 2011, their presence is limited to less than half of the Swedish municipalities (Skolverket, 2018b). Geographical availability of education relates to the aforementioned definition of having access to local upper secondary schools (i.e., at least one school per municipality) (SOU 1993: 85, 85) but also to the ambitions of having different educational alternatives to choose from (Prop 1991/ 92: 95). The localities of educational ownership is thus important to consider as well

[6] The webpage no longer offers the possibility of sorting schools into categories of ownership in 2018.

as the actual numbers of upper secondary schools distributed across municipalities.

In the current dissertation, the concepts of private and public providers (and schools) are used as translations of "friskola/ enskild huvudman" and "kommunal skola/ offentlig huvudman". This translation is problematic in an international sense, where they would not be considered as private schools per se. In an international context, Sweden only have three elite fee-paying private schools, where children of the royal families and from the cultural and political elite attend (Beach, 2018). A more common translation for the Swedish 'private' schools are either "free schools" and/ or "independent providers/ schools". However, these concepts were not used in the studies. Instead, an upper secondary school organized by either an association, a foundation or a corporation is defined as a private school (Skolverket, 2014). Private providers of education is not a homogenous group, as schools are run by parents, companies, educational conglomerates, educational foundations, charitable organizations, and groups of teachers and so on – even though all of them are state funded and tax-financed in Sweden, not all are organized for profit (Skolverket 2014; Myrberg, 2006). However, a large quantity of the markets shares of upper secondary education are retained by a small number of private suppliers usually in the form of educational conglomerates (Skolverket, 2014). An upper secondary school organized by a municipality or a county is defined as a public school (Skolverket, 2014). During a brief period "independent/ private public schools" were initiated in a few municipalities, where public schools became self-governed (without municipal steering) to improve both teachers' and parents' influence over education (Lärarnas tidning, 2005). However, the interest remained low and the municipalities govern most of these previously 'independent/ private' public schools anew (Holmberg, 2014). Another important distinction between public and private providers of education relates to the Public Access to Information and Secrecy act ('offentlighetsprincipen'). Previously, private providers were not included in this act, which stipulates among other things, the right by the public to obtain official documents contained or produced by authorities (see 2009:400, OSL). An inquiry recently recommended that private suppliers of education should likewise be encompassed by the regulations in the act, which is predicted to be actualized in 2019 (SOU 2015:82; U2018/00617/GV).

Chapter 3. Theoretical framework

A socio-spatial framework is the theoretical foundation of the dissertation. The following chapter contains a description of the socio-spatial perspective and its central concepts (i.e., space, mobility and power-geometry) are outlined together with a discussion on how they are employed in the exploration of the spatialities of the Swedish choice. First, the spatial turn and the role of space as a concept in education is briefly discussed. Second, conceptualizations of space and mobility are presented. Finally, the last section positions the contribution of the dissertation in a discussion on the premise of social and spatial justice.

Space, education and power

The spatiality of social relations is making a comeback in the social sciences as new geographies and mobilities are created, forced and enabled by technology, education and policies (Urry, 2007). The so-called 'spatial turn' (Sheller & Urry, 2006) has put space and mobility on the agenda as: "[…] recent decades have witnessed a more critical and reflexive engagement with such assumptions and their methodological implications." (Jessop, Brenner & Jones, 2008, 398). The ongoing trend of market-oriented governance in Western education systems has created an interest for contemplating the influence of space and geography in education (Rowe, 2015; Gulson & Symes, 2007; Taylor, 2009). Through these marketized policies, that is, school choice, vouchers and private providers, geographical uneven developments of educational supply are politically constructed when the private sector capitalize on deregulation and increased demand (Hanson Thiem, 2009, 155). A socio-spatial framework addresses how space is socially and politically organized (Massey, 2009) and can contribute valuable knowledge on the spatiality of these market processes and outcomes when spaces of education are afflicted by neoliberal restructuring (Ball, 2007).

Several theorists, for example Harvey, Lefebvre and Massey but also Bourdieu have conceptualized the social production of space. However, Bourdieu's

concept of social space is not focused on geographical space and instead views space as a social structure and individuals' positions within the structure as a result from their accrued capital (1985). Harvey defines space as absolute (fixed and geographical), relative (non-Euclidean) and relational (as a process) space (2004) and approaches it as a singular concept or as a combination or all three: "Space is neither absolute, relative or relational in itself, but it can become one or all simultaneously depending on the circumstances." (Harvey, 1973). Similar to Harvey, Lefebvre proposes a conceptual triad: spatial practice, representations of space and representational spaces for understanding the multitude of relations embedded in how social space is a (social) product (Lefebvre & Nicholson-Smith, 1991, 33-34).

The theoretical framework of the current dissertation relies mainly on how Doreen Massey conceptualizes space and mobilities (e.g., Massey, 1991; 2005). The reason for this is that although sharing theoretically similar Marxist roots as Harvey and Lefebvre, Massey emphasizes the meaning and mediation of gender and race, as opposed to centering foremost on capital, in the experience of movement. She criticizes specifically Harvey for excluding feminist ideas when conceptualizing the relationship between space and society and outright calling "The condition of Postmodernity" anti-feminist (1991, 32). Masseys main argument highlights how these men construct an "exclusively masculine modernism" (1991, 40) and conceptualize the struggles and marginalization of women and ethnic minorities singularly through "[…] the geography of the *mode of production*. " (1991, 37). When these men put forth their arguments on the spatiality of power relations (briefly mentioning racism and sexism) they center on a white, male, heterosexual, Western and 'universal' experience while ignoring important feminist and diverse scholarly literature central to the discussion (Massey, 1991b). In the end, that is an insufficient conceptualization of the social production of space when analyzing the spatialities of the Swedish school choice and the experience of movement for a diverse student population in a marketized school system.

Space as a product of interrelations

The point of departure for the section is: "Space is an ongoing production." (Massey, 2006, 90). Important and foundational assumptions are further, how space is a dynamic process, how space is socially (and continuously) produced

and how space is politicized (Massey, 1992; 1992; 2005). While space has a physical and geographical outcome, it is also socially produced (Soja, 2010). The social production of space is the basis for understanding the spatial differences in educational provisions and social interactions in the Swedish quasi-market setting. In the dissertation, the educational school market (structure) is defined as the intersection between national policy, students' choices and accessible educational provisions (see Study I, cf., Lund, 2008). The school market is therefore explicitly examined as the material constitution of space where students' choices (to move within the market) are conceptualized as the social production of that space. Analyzing how spaces are organized help us understand who belongs there (Massey, 2004). Correspondingly, analyzing the spatial process and outcomes of "market-making" (Berndt, 2015), that is, the new interrelationships between schools, municipalities and regions emerging post-reform, the concept of space facilitates further understanding of the consequences of market adjustment on a system level.

Massey proposes several specificities of space, first, the co-constitutive relationship between space and multiplicity (2005; 2006). Second, space as a product of interrelations and third, space "[…] as always under construction" (Massey, 2005, 9). The continuing restructuring process in the market place is thus conceptualized in not only how educational provisions develop over time but also through the social practices in the mobilities of students. The regenerative qualities of space intrinsically ties it together with time (Massey, 2006). A relational approach to space views the school market - the material constitution of space - as ever changing, which contributes to a better understanding of the process and outcomes from market adjustment over time since the "place" of analysis is not a static territorial container. Thinking about space relationally has implications for a conversation on politics (Massey, 2004). Massey argue space is a product of relations of power but also how "[…] power itself has a geography" (2009, 17), that is, the power-geometry of space. If the spatialities of school choice reshape and restructure the power-geometry (the social formations) of the educational market, it becomes important to ask; who is being mobilized?

Power-geometry and differentiated mobility

A question of who is being mobilized brings forth a need to conceptualize the relationship between space, power and mobility. While our modern world is arguably characterized by movement, both by capital, material and bodies – the opportunity to be mobile is not available to everyone (Sheller & Urry, 2006; Urry, 2007; Massey, 1991a). The social production of mobility is entrenched by the relationships between social groups (Cresswell, 2006; Urry, 2007). For example, mobility (as in traveling) is often considered part of a privileged and modern lifestyle, whereas for others it is unavoidable and obviously not a choice (e.g. migrants and refugees) (Duncan, Cohen & Thulemark, 2015). Migratory movements' initiated by asylum seekers out of war-stricken provinces are instead increasingly stigmatized and portrayed as illegal (Esses, Medianu & Lawson, 2013). Initiation of and control over mobility is thus closely connected to power (Massey, 1991a; 1993).

Cresswell conceptualizes differentiated mobilities as material geographical acts captivated by relations of power (2001, 22). He further argues, "To think of mobilities as produced is to think of them not only as differentiated but interrelated." (Cresswell, 2001, 21). The concepts of power-geometry and differentiated mobility captures the interconnectedness and distinctness of social relationships in space and mobilities (Massey, 1991a; 1993; 2012). Power-geometry describes the relationship to the time space-compression (i.e., Harvey, 1989[7]) for different kinds of groups, specifically, how the new flows of technology and bodies across space can be differentiating and immobilizing:

> This point concerns not merely the issue of who moves and who doesn't, although that is an important element of it; it is also about power in relation to the flows and the movement. Different social groups have distinct relationships to this anyway differentiated mobility: some people are more in charge of it than others; some initiate flows and movement, others don't; some are more on the receiving end of it than others; some are effectively imprisoned by it. (Massey, 1991a, 26).

[7] Harvey (1989) conceptualizes these speed up effects of modern life as the time-space compression, where time and space is accelerated and made closer through mainly faster economic activities, industrial production and new modes of flexible capitalist production – that is facilitated through advanced communication and transportation technologies. Our understanding of space is shaped by how these processes influence modern life perceptions of distance, borders and movement.

Therefore, when asking who is on the move, who is not on the move should be part of the question. Mobility and immobility are essentially joined; the interrelationship between the two is an elementary feature of understanding the interactions of mobility (and space) (Massey, 1991a; 1993). Therefore, while the implementation of school choice in the Swedish educational system renders new possible mobilities and mobilizes large flows of students, between schools, neighborhoods, municipalities and regions – analyzing the shifting power-geometry that characterizes them is essential to understanding who is being mobilized or immobilized.

Educational, social and spatial justice

It is important to explore how a school system promotes educational justice, both in policy and practice. Our well-being, self-development, job opportunities, incomes and involvement in society are strongly connected to educational inclusion, participation and success – furthermore, education is a fundamental right (Berhanu, 2016b). How justice is conceptualized in empirical research is a normative endeavor and should be motivated (Strietholt, 2014). In addition, the operationalization of inequalities matters for how inferences and conclusions on justice are constructed.

The relational conceptualization of social justice by Sharon Gewirtz (1998; 2006) that is based on Iris Marion Young's concept of structural injustices is an important concept in the dissertation. While studies frequently operationalize justice as outcomes of distributive patterns (e.g., allocation of material goods, resources or income), Gewirtz argue for an analysis of justice that focuses the system that create and maintain these distributional differences: "Thus, it refers to the practices and procedures, which govern the organization of political system, economic and social institutions. These things cannot unproblematically be conceptually reduced to matters of distribution." (1998, 471). Young (2011) argues that injustice as a concept involve more than measure of distributions and that the social structures behind these patterns that enable, support and constrain them must be evaluated. Injustices through systematic restrictions on specific groups and through social processes where institutions enable these structural relations are important to discuss: "Thus an explanatory account of why a particular group is oppressed in the ways that it

is must trace the history and current structure of particular social relations." (Young, 2011, 65).

How the Swedish choice and quasi-market function in terms of providing equality of educational opportunity is both interesting and important and is a reasonable starting point for the analysis. While the foci in the empirical studies is partly on distributions (e.g., spatial differences in actualized school choices and access to upper secondary education) the analysis further asks if and how the process of market adjustment (i.e., how access to education is re-distributed) in our educational system reproduces and maintains inequalities over time. The role of the educational policies of marketization and to what extent they: " […] support, interrupt and subvert …exploitative relationships (capitalist, patriarchal, racist, heterosexist, disablist. etc.) within and beyond educational institutions?" (Gewirtz, 1998, 482) are crucial. How the power-geometry of educational space is continually (re-)organized over time in a marketized school system has to be related to what inequalities are reproduced through the process.

The concept of spatial justice unites the organization of space with the concept of social justice (Soja, 2010; Harvey, 1992). Social justice and spatial justice inherently relate to each other, where spatial justice can be considered as another dimension of justice (Dikec, 2001, 1788). The spatiality of justice translates to an emphasis on the process that produces space and how it organizes through social, economic and political relations (Dikec, 2010). First, recognizing, "All social processes have geographically uneven effects." (Soja, 2010, 63) means that while geographical variation and inequality are always present – at what point, do we decide they are unjust (?): "How great must the disparity be, between regions and neighborhoods, or parts of the world, before it is absolute necessary to intervene?" (Soja, 2015). In the studies, empirically, inequalities are thus not operationalized by an individual variable or measurement. The concept of spatial justice will rather focus and guide the integrated discussion in the last chapter of the dissertation; if and how the market adjustment produces and reproduces differences between spaces, places, regions, municipalities and market segments but also between groups of students and foremost these processes' simultaneous interaction in our educational system. The focus will thus not be solely whether differences exist and are present in the data material (which they inevitable are) rather are they

maintained, reproduced and who is affected, disadvantaged and marginalized? These potential unjust geographies are produced by us (not nature) and problematizing the process of their production needs to frame and direct a political discussion as well as future interventions on how to promote educational, social and spatial justice in our school system (e.g., Soja, 2010; Dikec, 2010).

Chapter 4. Educational markets, school choice and mobilities: a literature review

In the current chapter, research studies on school choice and school markets are described and discussed. Given the socio-spatial theoretical framework in the dissertation, as well as the integrated educational – geographical perspective, the relationship between 1) choice and markets and, 2) space and mobilities is specifically in focus. Choosing education in a quasi-market setting is based on choice practices and a 'strategic' navigation of the school market. It is also contingent on reachable educational opportunities and available school supply in addition to how these are regulated and financed. In this, the behavior of private suppliers of education and factors behind school survival is significant for an examination of the regulation of educational supply in a marketized school system. Furthermore, market segmentation and the socioeconomic inequalities of these market segments (e.g., residential segregation) matter in who ends up where. The first section of the chapter is focused on quasi-markets and how they are regulated. This section specifically discusses the components of market adjustment, such as choice practices, school survival, school market navigation and private suppliers of education. The second section of the chapter gives attention to the intermingling of geographical locales, residential segregation, choice, mobilities and drivers behind choosing and commuting.

Quasi-markets in education

In neoclassical economics, the concept of market is generally used to describe a specific type of governance or steering through market forces or "an invisible hand" (Smith, 1817; Friedman, 2017). An underlying assumption is that of market equilibrium, which competitive price theory conceptualizes as supply and demand being regulated through 'perfect' competition (Friedman, 2017). The self-regulation of a supply and demand phenomenon relies on a

representation of consumers and providers as fully informed, aware and adaptive in relation to service provided and goods being bought (Kirzner, 1997). Politically however, it is important to conceptualize the market as non-sentient, as a phenomenon or a 'force' cannot be ascribed responsibility, be controlled or be subjected to political reform (Massey, 2004).

The ideas behind quasi-markets (organizing and producing welfare services) are derived from the economic market concept. The concept of a quasi-market describes a market setting implemented and maintained by the public sector (Bartlett & Le Grand, 1993). While bearing some resemblance to the economical idea of a 'free market', such as some sort of competition exist between providers and a choice mechanism allowing individuals to 'choose' (i.e. making a purchase) a service (e.g., healthcare or education), their distinguishing features are: being regulated through public policies, rules and jurisdictional authorities and laws (Kähkönen, 2010). Ball and Youdell describe educational quasi-market as established by the public sector and containing a school choice mechanism (2009). The idea of competition making schools more responsive to students (consumers) and benchmark information on schools being presented as market information to families and students are also typical of a quasi-market setting (Ball & Youdell, 2009). In this sense, choosing a school corresponds to making a purchase.

The portrayal of students and families as customers and education as a service or a product is another characteristic trait of quasi-markets (Le Grand, 1991; Ball & Youdell, 2008; Waslander, Pater & Weide, 2010). However, individual students do not actually 'purchase education' directly from schools; more correctly, the state does so with municipalities as intermediaries. Similarly, to a free market, the neoliberal conceptualization of choice in and function of a quasi-market setting implies assumptions as flexible and knowledgeable students choosing 'good' schools over 'bad' schools (Burch, 2009). The proposed and projected process of a successful quasi-market is typically a competitive setting where students' choices' affect school survival and eradicates sub-standard educational alternatives faster and more effectively than the public sector (Burch, 2009).

Quasi-market operations and inequalities

Frequently, Sweden and Chile are argued to be extreme cases of market oriented school systems (Valenzuela et al., 2014; Dahlstedt & Fejes, 2018). To what degree educational system in different countries are to be considered 'marketized' and what reforms have been implemented differ. The practicalities of 'market-making' (Berndt, 2015) also vary because of different historical, political and cultural backgrounds related to the specific country (Lundahl, 2017; Waslander, & Thrupp, 1995). The functionality of school markets relies on the choice of parents and students, what schools are accessible and available and how these are financed. However, studies on marketization and quasi-markets have recognized several important commonalities related to implementing deregulation, school choice, educational vouchers and bringing in private suppliers of education - that is, the consequences of 'market-making' and market adjustment (e.g., Ball, 2017; 2009; Verger, Lubienski & Steiner-Khamsi, 2016; Beach et al., 2018). School segregation grounded in socioeconomic and demographic characteristics is for example a well-known component of school market settings (Ball, 2017; Ball, 2003b; Rangvid, 2007; Trumberg, 2011; Taylor, 2009). Social differentiation and school segregation in education are not exclusively linked to an implementation of market settings, though; privatization, school choice, decentralization and deregulation are often proposed as a solution to these issues (Whitty & Powers, 2000; Ball, 2007; Burch, 2009). For that reason, examining how successful market-settings and market governance are in solving these problems in education is important.

Quasi-markets are prominent outside of education as a type of governance organizing public services in the welfare sector, for example health care and elderly care. Common problems in quasi-market settings consist of regulatory, formation and organization issues (Kähkönen, 2004; 2005; 2010). These issues are usually argued to be related to imperfect competition and different kinds of market failure, for example, preference error, cream skimming or private monopolies (Le Grand & Bartlett, 1993; Lowery, 1998; Kähkönen, 2004). These types of market failures are visible in other Swedish quasi-markets such as the health care market, where decreased rural availability of health care services has been tied to market governance and policies together with unregulated establishment patterns of private suppliers (Fokati, 2011;

Kullberg, Blomqvist & Winblad, 2018). While quasi-market theorists conceptualize equity as a relation between need and production services (e.g., Le Grand & Bartlett, 1993), practical difficulties in measuring this is acknowledged: "Some of the criteria (like 'equity') as a part of allocative effectiveness are impossible to measure and may be realized in a long time period." (Kähkönen, 2005, 95).

Difficulties pertaining to market-like solutions in education is exposed in parental choice preferences relating to social class or choice allowing avoidance behaviors and the subsequent consequences for school segregation and school survival. In Chile, analysis of longitudinal developments between socioeconomic-based school segregation and market mechanisms indicated important (growing) effects related to educational providers, municipal context and school level after controlling for residential segregation and municipal characteristics (Valenzuela et al., 2014). Chile has one of the highest rates of private suppliers of primary and secondary education, compared to the rest of the OECD (Quaresma & Valenzuela, 2017). The presence of fee-paying private schools in municipalities was significantly tied to a larger socioeconomic school segregation. Additionally, the ownership of the educational provider was connected with socio-economic status, as segregation was most pronounced for low SES-students in private schools compared to public ones. Similarly, these types of students were more segregated in primary schools than secondary schools and school segregation were more prevalent in rural regions (Valenzuela et al., 2014). In contrast, when analyzing the impact of decentralization in Argentina on educational quality, these reforms were found to be positively associated with better test scores. However this specific effect was heterogeneous with respect to the financial stability of the region where the schools resided – that is, the economically robust regions were the ones that benefitted (Galiani et al., 2002).

These results are not specific to Chile and Argentina as European studies on quasi-market governance exhibit similar results. Kučerová, Bláha & Kučera (2015) studied the development of the spatial distribution of education and school catchment areas in Czech elementary education. They conclude two significant findings: 1) a significant and large reduction of education in rural areas, 2) a functional significance of or towns, which they attribute to the

implementation of a market economy introducing elements of competition into educational policy as well as parental choice (Kučerová, Bláha & Kučera, 2015). Utilizing data from PISA 2006, a secondary analysis on a majority of the participating countries fails to find a link between quasi-market regulations (such as competition between schools) and effectiveness (Dumay & Dupriez, 2013). Instead, the authors find a troubling effect of quasi-market regulation furthering a stronger association between the social composition of schools and the achievements of students (Dumay & Dupriez, 2013). Analyzing new modes of regulation resulting from market settings in a sample of French schools in an urban context, the presence of varied competition interdependencies between schools were observed together with a lack of coordination between public and private schools (Maroy & Zanten, 2009). These competitive interdependencies were reaching over the boundaries of both administrative territories and institutional organizations: "[…] the authorities in charge of intermediate regulation have jurisdiction only rarely match the real contours of "competition spaces" between schools and families "circuits of schooling". (Maroy & Zanten, 2009, 77). Structural limitations in the shape of student population segmentation and fragmented multi-regulation were also observed. These were attributed to when national and local regulations fail to take the far-reaching geographical and institutional interdependencies into consideration (Maroy & Zanten, 2009). The authors conclude that an implementation of "meta-governance" would be beneficial to resist and prevent the segregation and segmentation caused by the varied competition effects between the schools (Maroy & Zanten, 2009, e78). Comparable effects that relate to conditions of varied competition are observed in Swedish school leaders (mainly in public schools) that communicate difficulties operating equitably amongst other school providers in local school markets (Lundström, Holm & Erixon Arreman, 2017).

School survival in a quasi-market

The quasi-market setting also poses complex and specific challenges for schools trying to attract and retain students. School survival is intrinsically a part of the market adjustment process but also has implications for equity on multiple levels in the educational system. School survival (through school choice) is tied to several other important and worrisome factors outside of a theorized influence of educational quality, for example student body

composition, neighborhood context and geographical position as well as spatial proximities (e.g., Burgess, Greaves & Vignoles, 2017; Barthon & Monfroy, 2010). In all of these, ethnicity and class are dominant features of the choice practices and strategies operating in the educational market place (Ball, 2003b; Kosunen, 2016; Gulson, 2007; Bunar & Ambrose, 2018; Mampaey & Zanoni, 2014, Kallstenius, 2010). Lubienski (2009) argues that these effects are expected since how schools would respond to competition was theorized rather simplistically because there are practical difficulties with the intended flexibility, as schools lack the ability and resources to adjust their organization for the needs of parents and students (e.g., Waslander et al., 2010).

In the Dutch-speaking region of Belgium, ethnically diverse schools utilize different strategies to appear legitimate and remain attractive to the ethnic majority population (Mampaey & Zanoni, 2014). Successful strategies include the presence of formal and strict disciplinary policies to counteract assumptions of undisciplined behavior being associated with an ethnically diverse student population as well as formally excluding ethnic minority students' cultures in school policies (while including them informally in the educational sphere) (Mampaey & Zanoni, 2014). Comparable observations can be found in Swedish schools, where principals and school leaders conceptions of a 'good' school is tightly connected to 'Swedishness' and pervades how the school is run, what study programs is carried and how the schools is presented and is found to on occasion affect the chosen localities of the schools (Voyer, 2018).

School survival and choice practices are further interrelated with inequalities and racist structures. To analyze how school choice has influenced stratification in Dutch primary schools Karsten et al., (2003) utilized cohort data, survey data and interviews with principals. It was concluded that the ethnicity of student populations did play a role in the choice process and that native Dutch parents emphasized a match between home and school as most important (compared to ethnic minority Dutch parents who did not). When asked to evaluate alternative school options (in the nearby residential area) non-white schools were deemed unsuitable to a higher extent than white schools (by both ethnic minority and native Dutch parents) (Karsten et al., 2003). In an American context, studies also indicate a relationship between

school choice and avoidance behaviors afflicting schools with diverse student populations. Saparito (2003) observed that when the ratio of non-white and poor students increase in schools, application rates for white students were significantly lowered. Parents further rationalized choosing 'white high status' schools by equating children of color and minority students with low academic achievements, thus arguing that their children would not be challenged in that academic environment (Holme, 2002, 195). Parallel parental preferences in school choices have been observed both in Finland and Chile (Kosunen & Carrasco, 2016). Pursuing schools other than those with minority student populations was also viewed as a decision in their children's best interests (Holme, 2002).

Navigating the school market

Rumors, informally acquired information and 'grapevine knowledge' correspondingly seem to be important drivers when choosing schools in contrast to expectations on decisions being founded on official information of school outcomes or school rankings (Kosunen & Carrasco, 2016; Ball & Vincent, 1998; Kosunen, 2013; Saparito, 2003). Additionally, possibilities of accessing this informal knowledge are embedded in social group belongingness (Ball & Vincent, 1998; Kosunen & Carrasco, 2016). Brown (1995) further points to the implications and dangers of choice, transforming the educational area from a meritocracy to a parentocracy, as it influences on how choice is structured and practiced:

> As a consequence, educational selection is increasingly based on the wealth and wishes of parents rather than the individual abilities and efforts of pupils. Here, the question 'ability+effort=merit' has been reformulated into 'resources+preference=choice'. (44)

Navigating the Swedish quasi-market through school choice, students emphasize difficulties with sorting through educational marketing information (Lidström, Holm & Lundström, 2014; Holm, 2013). They ended up making pragmatic decisions largely embedded by their social background and motivated by rumors and advice from trusted people – rather than informed and calculating choice decisions (Lidström, Holm & Lundström, 2014). Macleod & Urguiola (2015) argue that it is unavoidable a part of educational markets, as the actual quality of the product (what kind of education the schools will provide) is not discernible prior to choosing and not possible to

return if defective. Instead, parents will have to rely on the expected quality of the service: "[…] in other words the reputation of the school they consider." (Macleod & Urguiola, 2015, 14). A study utilizing large-scale country level data, found no link between school choice and school effectiveness, thus questioning neoliberal ideas on parents being able to choose the most effective school (Dronkers & Avram, 2010). Additionally, in the study, no effect of higher educational success could be attributed to the included private schools: "In fact, in a number of countries parents chose to send their children to a private-dependent school despite the lower success of this type of school in raising achievement" (Dronkers & Avram, 2010, 172).

With intentions of strengthening parental and student calculativeness of school markets, means of navigation are often offered when choosing education, for example market devices such as benchmarking websites (e.g., Gobby, 2016). Hastings & Weinstein (2008) investigated the effects of benchmarking in an American context through an experiment providing disadvantaged families with information on schools test scores and found that these families gravitated more towards choosing high-performing schools. It is further supported by Allen & Burgess (2013), that demonstrated significant differences between families considering school performance information when choosing schools compared to parents making 'uninformed' choices, relative the students' performance.

In Chile, SIMCE (System of Measurement of the Quality of Education) was introduced to counteract parents choosing low performing schools, which was theorized as an effect of them "lacking information" (Quaresma & Valenzuela, 2017, 529). Unexpectedly, a side effect of SIMCE was a map of large territorial inequalities in educational opportunities across municipalities. It was revealed that over half of the country's municipalities did not have a good performing school. Additionally, it was discovered that only 10 % of the highest achieving schools were publically owned (Quaresma & Valenzuela, 2017). One of the positive effects that can be attributed to SIMCE was a more effective delivery of information on schools; however, these positive effects were limited to parents and students with large social and cultural capital (Quaresma & Valenzuela, 2017). Common countermeasures outside of providing benchmarks are various strategies trying to increase parental participation and promoting 'active and informed choices' (Burgess, Greaves

& Vignoles, 2017). However, a study on choice in the UK context concluded that although disadvantaged and minority families participated actively in the choice process together with the other groups of parents, they still ended up in lower performing schools (Burgess, Greaves & Vignoles, 2017). An accessible and good school in the local neighborhood seems in some cases to be more important than being able to choose.

Outside of access to benchmarks and active participation in the choice process other factors such as social group belongingness and domicile are influential in navigating the school market. For example, the experiences of minority students residing in disadvantaged neighborhoods are mediating how their choices are perceived and utilized (Ambrose, 2016). While studies demonstrate how many Swedish students are opting out of underperforming schools in minority and disadvantaged neighborhoods, a significant group of students is staying in these schools. For these youngsters, choice is not exclusively related to a lack of access to school information, social status, minority background or ideas on appropriate and strategical navigation of the quasi-market (Bunar, 2010b). Rather, choosing and moving to a more 'Swedish" school is (and leaving a community where they belong and feel at home) interpreted as having to face racist prejudice, othering, exclusion, stigmatization and being reduced and categorized to a " […] status as a minority, 'blackheads' with 'strange' accents and as newcomers and outsiders, is frightening" (Bunar, 2010b, 153). The youths are well aware of the stigmatized position of their school, their neighborhood and how they themselves are perceived as a group by Swedes and Swedish society (Bunar, 2010b, 150-151). Even though deliberations on possibilities of choosing a "better" school was considered by them and mostly pushed by their parents, the youths emphasize the importance of friends, community, cultural recognition and proximity for staying in their local schools on top of the risk of facing a situation of being 'the only immigrant' and being bullied in a more 'Swedish' school (Bunar, 2010b, 153).

Similar results were found in an ethnographic study of three schools in Stockholm where minority students articulated negative characterizations by outsiders labeling them as "immigrant students", "ghetto students" and "students from disadvantaged homes" (Ambrose, 2016). Ambrose conclude that these negative stereotypes risk branding these students views on what

future opportunities and possibilities are open to them (2016). The effects of territorial stigmatizing and alienation in segregated urban regions were similarly observed in a dissertation analyzing minority students attending higher education (Widigson, 2013; see also Sernhede, 2002). While pursuing higher education, these students ventured out of their local neighborhood in Gothenburg and were forced to deal with how their identity and background from this stigmatized place was perceived negatively outside of that environment. Widigson conclude that there is a 'geography of opportunity' and that "[…] freedom of choice is structurally conditioned by class, otherization and place." (2013, 3).

Private suppliers of education and selection effects

The question of private providers in a market setting being more socially selective compared to public providers but also in relation to the neighborhoods where they establish themselves is important. Schools need to take responsibility for achieving a comprehensive and balanced mix of student intakes that is representative of the localities where they operate (Morris, 2015). This is also important in terms of what market effects can be expected from differentiated and selective intakes inherent to tax-financed educational institutions run privately. Politically, ideas on private providers being able to raise education standards and helping disadvantaged residential areas afflicted by schools closures and low performing schools can be found in a British context as well as in a Swedish (e.g., Morris, 2014; Allen & Higham, 2018). Nevertheless, an analysis of British free schools applications show that contrast to the beliefs and hopes of private providers supporting and prioritizing disadvantaged communities, few are actually interested in and motivated by supporting poor and working class families and their local communities (Higham, 2014).

In UK, results on the social selection of private schools also show complex connections between organizational level, type of provider, neighborhood compositions and school population representativeness. The analyses indicate an establishment of free schools in disadvantaged residential areas, however, compared to the neighborhood composition and nearby schools they are socially selective (Green, Allen & Jenkins, 2015). Primary and secondary free schools are found to be establishing themselves in above average ethnically

diverse neighborhoods and being representative of the residential population in that aspect (Green, Allen & Jenkins, 2015; Allen & Higham, 2018). However, in terms of FSM eligibility[8] the schools are not representative to the national average or the local residential neighborhoods where they are established, instead the proportions are lower (Green, Allen & Jenkins, 2015; Allen & Higham, 2018). These effects can however not be linked to free schools run by academy chains and also differ in extent between secondary and primary schools (where the latter has lower proportions with FSM comparatively) (Green, Allen & Jenkins, 2015; Allen & Higham, 2018).

There is some evidence on selection effects in schools run by private providers in Sweden, where studies indicate certain types of students choosing and attending private schools together with skewed locational tendencies in what type of areas private schools can be found in (Edmark, 2018). Private providers are found to have a strong preference for establishing schools in population dense and high-income municipalities with higher proportions of students with well-educated parents (Edmark, 2018; Hinnerich & Vlachos, 2016, 21). A propensity amongst private providers to establish schools in areas where higher total earnings are expected is also observed (Angelov & Edmark, 2016). However, this tendency varies with demographic context. Private schools are linked to an "indirect cream-skimming" where the location of private schools in selected neighborhoods causes them to have more 'native' student populations (Böhlmark, Holmlund & Lindahl, 2015, 58). These locational patterns of private schools together with residential sorting are also argued to be important drivers behind school segregation concerning ethnicity (Böhlmark, Holmlund & Lindahl, 2015). Asymmetries in choices related to ethnical background of students are found to be associated with student achievements, where an established predisposition for choosing lower-performing private schools by lower achieving native students cannot be found amongst students with an immigrant background and similar GPA:s (Hinnerich & Vlachos, 2016). The authors conclude: "One possible interpretation of our result is therefore that higher educational aspirations lead this group of students to avoid less ambitious voucher schools (Hinnerich & Vlachos, 2016, 30).

[8] Estimations of students eligible for free school meals (FSM) at school level are commonly used in studies as an indicator of disadvantage (see Hobbs & Vignoles, 2010).

School choice, mobilities and residential segregation

School choice and mobility are related with each other as they facilitate avoidance and selective behaviors when families and students are choosing schools (Ball, 2003; Rowe, 2015; Barthon & Monfroy, 2010; Andersson et al., 2012). Arguably, educational choice strengthens processes of social exclusion (Reay, 2004; Bunar, 2005; Bunar & Sernhede, 2013). One of the theorized functions of choice was benefitting and empowering disadvantaged students through choice and alleviating the effects of residential segregation that previously limited access to popular and high quality schools outside of the local neighborhood. Furthermore, the relationship between domicile, choice practices and student achievements are indicating an expanding level of segregation and a reproduction of inequalities in schools and disadvantaged neighborhoods. A counterfactual analysis can contribute valuable information on differences in residential segregation and choices between an observed dataset and a counterfactual dataset. In UK, estimating the impact of school choice on stratification in secondary education by using data from the National Pupil database, students were allocated into schools based on proximity (counterfactual) and then compared to their actual school choices and placements (observed) (Allen, 2007). Comparatively, both FSM and ability based segregation are higher in the observed than the counterfactual, relative residential segregation, suggesting that choice policies theorized to benefit disadvantaged families and students choosing popular schools outside of their residential areas is not working (Allen, 2007).

In the UK, Dobson investigated the choices for a specific student group: those who start or move between schools at non-standard times, what generates their mobility and the choices retained within that (2008, 300). She categorizes mobility into four types: (1) international migration, (2) internal migration (national mobility), (3) institutional movement (changing schools but not address) and (4) individual movement (individual children moving without their parents') (2008, 305). Dobson find that international migration contributes to high mobility rates in urban schools in London and that institutional movement represented few cases in the study. In addition, internal migration and children moving between their parents (after divorce) was dominant specifically in one of the participating LEA:s (Dobson, 2008).

Dobson conclude that the parents and the students in the study were limited in their choices and had to find schools, that had available spots, admitted children of their sex and was willing to prioritize them. Students with behavioral problems or who had been excluded from a school had a hard time finding a school in the LEA:s and had the least choice of all the students (2008, 310). Dobson concludes that the main form of mobility (in the study) was not the ideal type of choice: an informative decision based on 'hard facts' of the schools - rather it was restricted by what was available and if it was accessible. A differentiation in student distributions across school were also found, in that the number of students with reduced achievement levels and/ or was eligible for free school meals were higher in schools with high mobility rates (2008, 312). Also operating in a British context, Reay (2004) problematizes choice in her study and finds that some of the participant middle-class families used different exclusionary strategies to benefit their children in gaining entrance to 'better' schools, for example relocating, putting down a different more beneficial address (after for example a parent separation) or appealing the schools decision in the application process despite not living in the catchment area. The participants in the study express concern in ensuring the better options for their children and these options were often articulated as searching for more homogenized middle class populations, looking for where "there are people like me" (Reay, 2004, 549).

Choice, residential location and segregation

Swedish school segregation has increased after 1990 and it has been determined to be larger in regions with populations of higher proportions of visible minorities (Lindbom, 2010; Andersson, Östh & Malmberg, 2010). In Stockholm, an increase in visible minorities could be related to processes of school segregation and differentiation (Andersson, Östh & Malmberg, 2010). Further, Lindbom (2010) argues that these increases in school segregation might be connected to an expanding residential segregation although he also concludes that private schools could contribute with a segregating effect and that disadvantaged areas may be more negatively affected by school choice. Residential segregation is prevalent in the Swedish metropolitan areas as well as generally a problem afflicting Swedish neighborhoods, cities and municipalities to different extents (Andersson, Bråmå & Holmqvist, 2010;

Skans & Åslund, 2010). In this, socio-economic segregation is interwoven with ethnic residential segregation:

> […] where almost all poor neighbourhoods are immigrant dense, although not all of the country's 1.2 million foreigners (13 per cent of the total population) live in poor neighbourhoods." (Andersson et al., 2010, 242).

While residential segregation is found to be related to native Swedes displaying avoidance behaviors rather than white flight tendencies (e.g., Bråmå, 2006; Andersson, 2013), there is evidence that these white flight inclinations can be found in the educational sphere. Yang Hansen & Gustafsson (2016) investigated the connection between school choice and the development of school segregation across municipalities between 1998 and 2011. They found that the quantity of school segregation varied a lot between different kinds of municipalities, however, choice (not residential segregation) was found to be a determining factor in school segregation (Yang Hansen & Gustafsson, 2016). Schools in metropolitan regions were found to be the most segregated, specifically regarding students' achievement and migration background, which was caused by an interlinking between residential segregation, white flight and school choice:

> Increasing school segregation with respect to migration background in the later part of the studied period may suggest a 'White flight' scenario, namely, school choice based on the proportion of students with a foreign background at the school." (Yang Hansen & Gustafsson, 2016, 38).

Growing ability and ethnically based disparities between schools were accredited to the implementation of school choice that enabled new mobilities in the Stockholm region (Söderström & Uusitalo, 2010). Similarly, the relationship between school choice and travel-to-school-distances for Swedish students was found to be partly determined by student background and neighborhood composition. An immigrant background was associated with shorter distance compared to students with a Swedish background, as well as girls travelling further than boys (Andersson, Malmberg & Östh, 2012). A significant characteristic for students traveling longer distances was having parents with post-upper secondary education. Swedish students were significantly inclined to choosing schools outside of their housing area if it retained a higher proportion of either minority students or students from families with social assistance (Andersson, Malmberg & Östh, 2012). These studies indicate problematic consequences of segregation being tied to the

choice mechanism that facilitate new avoidance based mobilities for students. However, while school choice seem to be reinforcing segregation with respect to social class, ethnicity and achievement there is also certain evidence that support heightened mobilities for minority students in disadvantaged areas in Stockholm. These students circumvented residential segregation through school choice and chose more 'Swedish' schools in 'better' neighborhoods (Kallstenius, 2010). While these results indicated choice could be counteracting residential segregation, these effects were specifically tied to certain individuals rather than a general pattern.

School choice and student achievements are further intermingled with geographical locales. Growing differences in student achievements have been found to be embedded in residency and choice of school (Gustafsson & Hansen, 2011; Gustafsson, Cliffordson & Erickson, 2014; Skolverket; 2009). Between-school differences in students' performance were deemed higher in urban regions with large proportions of visible minority shares compared to regions with lower proportions (Andersson, Östh & Malmberg, 2010). Using a counterfactual approach differences in performance were compared between observed school (actual schools student choose) and hypothetical schools (students were allocated to the nearest school in their residential area) for 2000, 2003 and 2006 in Sweden (Östh, Andersson & Malmberg, 2013). Larger grade variance could be attributed to the observed schools compared to counterfactual ones, hence school choice were found to determine the largest share of variance in performance, not residential segregation (Östh, Andersson & Malmberg, 2013, 417). Similarly, in East London, neighborhood characteristics were estimated to be related to differences in students' attainments as: "Where pupils live is an important predictor of success." (Hamnett, Ramsden & Butler, 2007, 1277).

Reflections

The idea of quasi-market equilibrium is founded on the premise of families and students making rational choices and private suppliers adjusting to the needs of these 'consumers' and that the outcome of this process is an equitable access of good schools. However, research studies observe several issues retained within 'market-making' and market adjustment. First, market governance suffers from imperfect competition where the participators (i.e.,

parents, families and students) do not behave the way the policies foresaw or make the 'right' choices (i.e., being motivated only by pedagogical qualities when selecting schools). Rather, both ethnicity and class are dominant features of the choice process where being able to choose schools are enabling selective avoidance behaviors. These avoidance behaviors displayed in students and families' choices are also furthered by mobilities and grounded in circumventing minority students and schools in disadvantaged schools. Second, the public operators of the market (i.e., schools and educational providers) are forced to conduct and organize education in relation to these conditions and choices (e.g., to remain popular to white, middle class and 'native' choosers) while competing with private suppliers of education. The private providers are seemingly practicing cream skimming both in terms of student capture but also through preferring to establish themselves in population dense and high-income areas. The consequences of how these complexities interact in the market-making process and the possibility of equitable choices in a market-setting need to be examined. Sweden is an extreme case of a market oriented school system and analyses of the outcomes of marketization in this context have the potential of contributing valuable knowledge on longitudinal consequences from instituting market governance. Likewise, the implications of market adjustment for an equitable access to schools in the Swedish educational system *should* be investigated. An important gap of knowledge is noted – what are the long-term effects and consequences of Swedish market adjustment on educational supply? How is the Swedish educational quasi-market actualized in the post-reform years? What kind of longitudinal geographical availability of upper secondary education is retained within this 'market-making'?

Chapter 5. Methodology

The chapter is structured as follows: the first section presents the origin, structure and preparation of the data used in the three empirical studies included in the dissertation, the second section describes and discusses the analytical methods used for each specific study, followed by a section on validity and limitations of the statistical techniques. A special emphasis is also put on statistical bias and representation issues in relation to modifiable areal unit problem (MAUP), and potential outcomes in a counterfactual framework and missing data. Finally, ethical considerations are treated in a separate section.

Data

Study I-III are based on data from the Gothenburg Educational Longitudinal Database (see Figure 2). The GOLD database is constructed from register data collected by Statistics Sweden and contains all individuals born between 1972 and 1995 (N = 2 665 315). The database includes information on, for example, individuals' family background, school achievement, adult education, higher education, study finances, the Swedish scholastics aptitude test, employment, income, residential locations for each individual[9]. Register data is essentially a Nordic occurrence and is characterized by being population data and defined at low levels of aggregation (Mellander, 2017). In Sweden, each citizen is traced across multiple administrative population-based registries through their unique personal identification number, which enriches the valuable information provided through register data.

The individuals in Study I-III were students aged between 15 and 19 attending a national program in their first year of upper secondary education in Sweden between 1997 and 2011, although they did not necessarily attend year 1 for the first time. Six cohorts of such students were chosen for Study I (see Figure 2). Study II and Study III is comprised of further selections from the first study. Study II focused on a regional sample where upper secondary students

[9] https://ips.gu.se/forskning/forskningsdatabaser/GOLD.

residing in and/ or living within one specific rural school market were chosen for a case study.[10] Study III focused on a metropolitan sample where students residing in and/ or in either of three metropolitan school markets (i.e., Stockholm, Gothenburg and Malmö) were selected.[11]

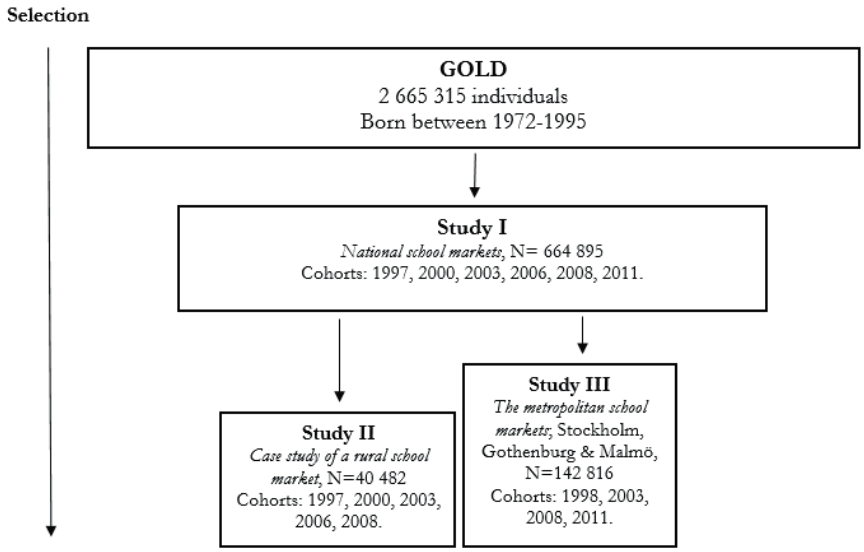

Figure 2. Data selection for Study I-III from the Gothenburg Longitudinal Database.

Variables

In the three empirical studies, a variety of individual, school and municipal level variables was included (see Table 2). The individual-level variables are about student family background and their school achievement (i.e., grades) for compulsory education. The student background variables included gender,

[10] Study II consisted only of five cohorts (i.e., 1997, 2000, 2003, 2006 and 2008) because of data delivery issues. The 2011 cohort was added to the other studies in a later stage; however, since Study II was already published it was not possible to supplement it.

[11] Severe issues with missing on the school ownership-variable for the 1997 cohort made it unfit for analysis and thus it was replaced by the 1998 cohort in Study III. Analysis and testing revealed the differences were small between these cohorts in terms of market structure and for the student background variables.

migration background, parental educational level, residential location, upper secondary school location and upper secondary program choice.

Table 2. Variable selection for the empirical studies

	Study I	Study II	Study III
Individual level			
Gender			x
Migration background			x
Parental educational background			x
Residential location	x	x	x
Upper secondary school location	x	x	x
Upper secondary national program			x
Grades (compulsory education)			x
School level			
Educational provider	x	x	x
Municipality level			
Municipality groupings	x	x	
Student commuter rates	x		

The other school- and municipal-level variables included the educational provider of each upper secondary school, a classification of municipality groupings and student commuter rates for each municipality.

Gender is based on the listed sex for each individual at age 16 and it is constructed as a binary variable with two categories: girl and boy. Because of the binary construction, the inclusion of non-binary identities or self-assigned gender identities is not possible in an analysis with this type of data. *Parental educational level* is constructed by the parents' occupational status. It consists of categories of educational level of parents, namely, the parents' position in the labor market and the education that is usually required for that position. In the GOLD-database, three versions of this variable is available: with either 12, 6 or 3 categories. Both the variable with 6 categories (ranging from secondary education to Ph.D. education) and 12 categories (ranging from secondary education to higher education: 4 years or more) were used in Study III. *Migration background* is constructed by the migration history of both the child and the parents. Students who were born in Sweden and had at least one Swedish parent and those who were adopted by Swedish parents were

categorized as Swedish. Students who were born abroad and had at least one parent born abroad, or those who were born in Sweden with both parents born abroad were categorized as non-Swedish (coded as foreign in the database technical report). These categories were renamed as Swedish with a native background (previously called Swedish) and Swedish with a foreign background (previously coded as foreign) in Study III.

Table 3. Frequencies of students by upper secondary programs between 1997 and 2011

	1997	2000	2003	2006	2008	2011
Natural science & Technology program: NV/TE	22060	23210	18895	21678	20672	22770
Social science program: SP	25237	25824	23416	28883	25541	30335
Natural resource use program: NP	2272	2122	2752	3252	3057	2997
Restaurant management and food program: LP	621	385	449	509	490	9
Electricity program: EC	4448	4493	5779	7087	7436	1475
Energy program: EN	810	559	691	934	1136	5048
Building and construction program: BP	1757	2380	3002	3971	4680	5525
Vehicle and transport program: FP	3592	2785	3625	4556	4296	3696
Industrial technology program: IN	2060	1615	1655	2468	2710	1882
Handicraft program: HV	1100	1435	1657	2387	2951	3557
Media program: MP	2917	4010	4554	5365	4907	67
Healthcare and social care program: OP	2904	2965	2925	3654	3945	3036
Child and recreation program: BF	4935	3574	3976	4546	3414	3346
Hotel and restaurant program: HR	4258	4123	4463	4817	4043	4083
Business and administration program: HP	4553	3769	3956	5778	4915	3037
Arts program: ES	4949	4853	5813	7219	6471	9349
International Baccalaureate: IB	297	549	631	800	666	967
Individual program: IV	6845	9877	7110	9459	9096	9414
Others	3432	575	5334	3335	3887	368
Total	99047	99103	100683	120698	114313	110961

Grades consisted of grades from compulsory education and these are assessed when individuals finish grade nine in secondary education. The measure is a sum of 16 subject grades and this sum ranges between 0 – 320. Teachers give a subject grade on a scale of pass (G=10), pass with distinction (VG=15) and pass with special distinction (MVG=20). The grades are the basis for gaining entry to upper secondary education. *Upper secondary national* program is constructed by each individual's field of study for their first year in upper secondary education. It consists of 19 categories, which denotes the upper secondary national programs (see Table 3). The recruitment patterns of upper secondary programs is significantly tied to social class, gender and ethnicity (Mellén, 2017; Svensson, 2006; SOU 2010: 99). Additionally, patterns in upper secondary program selection relate to geographical place as the availability of these programs varies between regions and municipalities in Sweden (Skolverket, 2017).

Table 4. Classification of municipality groups

Municipality types	**Municipalities**	**Category criteria**
Metropolitan municipalities	3	No of inhabitants >200 000
Suburban municipalities	36	>50 % of inhabitants commute for work in neighboring municipality (most common; a metropolitan area)
Larger cities	26	50 000 – 200 000 inhabitants, <40 % of them work in the industry sector
Medium sized cities	40	20 000 – 50 0000 inhabitants, urban area population density >70 % and <40 % of inhabitants work in the industry sector
Sparsely populated municipalities	29	<5 inhabitants/ km² and total population <20 000 inhabitants
Industrial municipalities	53	>40 % of inhabitants work in industry sector and do not fulfill population criteria for a sparsely populated municipality
Rural municipalities	30	>6,4 % of inhabitants work in agriculture, urban area population density <70% and do not fulfill population criteria for a sparsely populated municipality
Other large municipalities	31	15 000 – 50 000 inhabitants
Other small municipalities	41	<15 000 inhabitants
Total	290	

Educational provider is categorized into two categories of upper secondary school ownership: Public and Private. The original variable consisted of three categories: State, Municipal and Independent (school) and was recoded into a binary variable (where the first two categories of State and Municipal were merged into the category of Public). *Municipality groups* is a variable comprised of nine classifications of each municipality in Sweden. The Swedish Association of Local Authorities and Regions created these nine homogenous municipality groups to assist statistical comparison (e.g. Gustafsson and Yang Hansen, 2011). The municipality groups are categorized by criteria on population density, number of inhabitants and business sector structure (Statistics Sweden, 2015; see also Table 4).

Residential location and *Upper secondary school* location are constructed by geographic unit codes for Individual residential municipality and Upper secondary school municipality. The geographic unit codes consists of a four-digit municipality code (e.g., 1480 Gothenburg) and these codes have been adjusted for over time changes in municipality categorization. These two location variables are prominent in all the studies as they were used in the demarcation of the functional regions (i.e., the school markets) and to create a binary treatment variable for the propensity score analysis in Study III. The treatment variable was categorized as commuting (i.e., attending an upper secondary school outside of the individuals' residential municipality) versus or not- commuting (i.e., attending a school within the residential municipality). *Student commuter rate* is a continuous variable that was used as a dependent variable in the spatial analyses for Study I. It is calculated for each municipality according to the following formula:

$$\text{Student commuter rate} = \frac{number\ of\ inflow\ students + number\ of\ outflow\ students}{residential\ student\ population}$$

Methods of analyses

Study I focused on a national analysis of the Swedish school market structures in upper secondary education and relied mainly on a functional regions model with both global and local measures of spatial autocorrelation. The results in Study I highlighted a specific and interesting case: a rural market that displayed regional and spatial characteristics that was unique outside of the metropolitan school markets (see Figure 2). These distinctive geographical

characteristics (i.e., Taylor, 2009) and spatial multiplicities (i.e., Massey, 2005) provoked further inquiry that resulted in Study II. The important need for empirical studies investigating educational outcomes in rural areas further motivated the study (Rosvall, Rönnlund & Johansson, 2018; Thelin & Solstad, 2005).

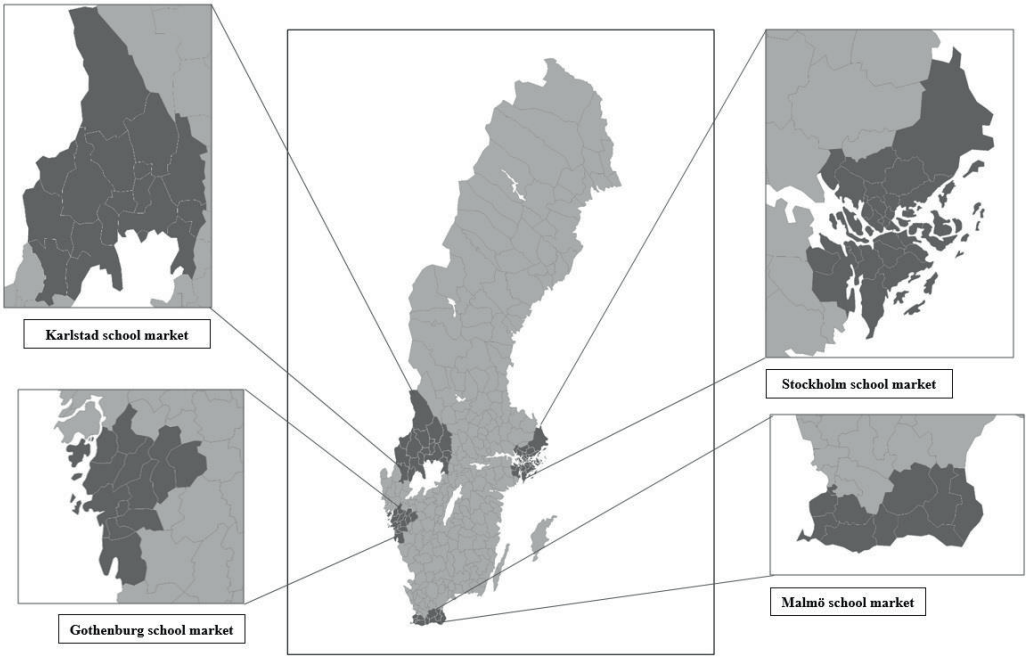

Figure 2. The selection of school markets in Study II and Study III (for 2011).

Study II is foremost a regional study, but offers detail to the intermunicipal spatial interactions developing over time and brings forth knowledge on market expansion outside the urban zones. Study III focused on the three main metropolitan regions (see Figure 2) and important within-market mobility drivers in these expanding market areas. Study III utilized a propensity score analysis to create a conditional probability outcome variable (i.e., the propensity for commuting within these school markets, given students' choices of program at upper secondary education), which was then used as a dependent variable in several multiple linear regression analyses.

Exploring school markets with the functional regions model

Taxonomies of regions have traditionally consisted of two perspectives on territorial categorization, namely homogeneity or heterogeneity (Brown and Holmes, 1971). The homogeneity approach views regions as composed of areas or geographical units, which in some specified aspect, for example attributes or characteristics, are homogenous (Brown and Holmes, 1971). The heterogeneity approach views regions as composed of interactions between areas, geographical units or entities, where similarity in characteristics are not important, rather the focus is on the interaction between them. The operationalization of (market) space as (functional) regions based on spatial interaction (that is, commuter statistics) is fundamental in relation to the dissertation's theoretical perspective viewing space as relational and as socially produced by bodies (e.g., Massey 2005; 2004). Compared to other regions (e.g. formal, nodal or equitable) the classification of functional regions lacks universal agreement (Noronha & Goodchild, 1992). Traditionally, functional regions have most commonly been used to demarcate labor market areas (Östh, 2007).

In a Swedish context, this type of regional interaction model (i.e., heterogeneity approach) has also been used to analyze school markets for two national cohorts (Skolverket, 2011; 2013). The regional classification criteria from these school market studies have served as the baseline for the new regional market model utilized in Study I. However, several adjustments were made to the original model. The implemented changes were motivated by two reasons, 1) intentions to use the model in analysis over time instead of in a cross sectional study and 2) an interest in illustrating and visualizing longitudinal changes more noticeably in the market structures. An initial hypothesis was articulated that as seen in labor markets, rapid change could be expected (and thus visualizing the change over time was of particular interest). The presence of rapid change in relation to the restructuring of local school markets was confirmed in an early pilot study (see Fjellman & Yang Hansen, 2014). While the original model had stricter boundaries for regional classification, it was deemed important to alter these as longitudinal changes were hidden behind the strictness of the municipal categorization. Modeling changes included mainly alterations in municipality categorization to facilitate

capturing change over time (i.e. recognizing the process of change during transformation as opposed to only recognizing the outcome). Originally, only two types of municipalities, (1) Core municipality and (2) Commuter municipality, were included in the model. Baseline model criteria (i.e., Skolverket, 2011; Statistics Sweden, 1992) for classifying a core municipality were:

1. Total student migratory commuter flows cannot exceed 20 % of residential student population
2. The largest student commuter flow cannot exceed 7, 5 %

These studies handled categorization of municipalities strictly. If a municipality did not fulfill the criteria, it was classified and labelled as a commuter municipality, that is, not self-sufficient or independent, instead rather a type of dependent municipality. One of the issues in previous studies was how to handle municipalities where neither model criteria was 100 % fulfilled. This was exemplified by for example previous independent core municipalities that gradually lost their independence in stages. For example, where more than 20 % of their residential students would progressively commute to a neighboring municipality *or* if one of the migratory commuter flows would grow in size (>7,5 %). While these occurrences denote a change in movement and municipal self-sufficiency (and thus position in the market structure), unless fulfilling or failing both model criteria the municipality would not be re-labelled and change category (Skolverket, 2011). This loss of self-sufficiency was deemed important to visualize in the analysis considering what these changes represented in student movement patterns paired with how the geographical availability of upper secondary education was completely transformed during the observed years (see Study I). Analyzing if a municipality would start losing either 20 % of its residential students or start having a large student commuter outflow started to exceed 7, 5 % (of its residential student population) could provide further information on structural changes in the school markets. However, this aspect was not analytically pursued in either of the studies but could potentially be a future avenue for further research.

The spatial organization of the functional regions is classified based on the aforementioned cut-off points for flows of students moving between municipalities (that is, 20 % and 7,5 %). While these have been tested in previous studies and were considered plausible approximations of functional regions (Karlsson & Olsson, 2006; Statistics Sweden, 1992), it is important to recognize that changing these could alter the outcomes. Another possible path for future research might be an analysis of how changes in these criteria and estimates of mobility flows relate to longitudinal changes in the school markets.

Further alterations to the model made in this dissertation included how the original concepts of 'local' and 'regional' markets were replaced with the concept of a multi-core market containing two market levels: 'primary market level' and 'secondary market level'. The name signifies that although each market is organized around a core municipality there can also be substantial interaction between two other commuter municipalities, approximating association and interrelationships resembling the interaction in the primary market. The secondary market level is integrated in the primary market level (see Study I, Figure 1 on page 7). The benefits of integrating the secondary level into the market is highlighting the secondary market places (and especially their increasing presence and relation to the transitions municipalities) as important developments in the restructuring of the school market. Incorporating them in a joint structure was an attempt to capture market expansion simultaneously on more than one level together with visualizing municipality interdependencies in cases where a center municipality (i.e. market core) could not be defined according to the original model criteria. The positioning of municipalities in the market model indicates organizational changes in terms of whom municipalities are providing education for, that is, the proportions of commuters in the student populations. Where some municipalities keep large quantities of their residential population, others compete directly with neighboring municipalities drawing in commuters and some ended up having to deal with large migratory streams of commuting students. For other municipalities this is not only a matter of schools competing with each other, but also a competition between municipalities in as new spatial interrelationships is formed.

Mapping patterns and detecting clusters in space

Whilst inquiring on spatial relationships and organization between spatial objects, that is, the nature of space (Tieseldorf, 1998), detecting patterns is crucial. As with statistical techniques in general, tests are needed to secure knowledge that a pattern actually exist. Traditionally, the Moran's I statistic is used to determine the presence of spatial autocorrelation (null hypothesis being that the spatial autocorrelation is zero) in spatially organized data (Ord & Getis, 1995; Griffith, 1992). Spatial autocorrelation as a concept can represent different meanings. In the dissertation (and specifically Study I), the main interest is relating spatial autocorrelation to the presence of market formation, that is, the close proximity and concentration of similar values compared to values further apart. In addition, examining if this is significantly similar for a specific location, essentially, if a variable (in this case, the measurement of commuter rates) is correlated with location (see Griffith, 2005; Tieseldorf, 2002). Normally, testing for spatial autocorrelation is a normality test performed when analyzing georeferenced data as the existence of spatial autocorrelation can create bias in relation to sampling representativeness (Griffith, 2005). However, in Study I the analysis was used to confirm significant relationships between location and commuter rates to support the claim of market formation and concentration. Both Global Moran's I and Hot-spot analysis were performed in Study I to confirm the presence of spatial autocorrelation in the market structures.

The analyses were performed in ESRI ArcGIS Desktop and based on a polygon structure as the feature class consisted of the municipality division of Sweden. Global Moran's I was used to determine if the distribution of values across the feature class (in this case, student commuter movement between municipalities) are spatially auto correlated. The Global Moran's I statistic is helpful in determining and evaluating if the spatial pattern found are clustered, dispersed or random (ArcGIS, 2017a). Getis and Ord (1992) however demonstrate that the global statistics can fail to find areas of significant clustering with no global spatial pattern, where instead a focused and local test can uncover significant areas of clustering. Because of this, the Global Moran's I was supplemented with Hot-spot Analysis in Study I. The main purpose of Hot-spot Analysis (Getis-Ord Gi*) was identifying "statistically significant spatial clusters of high values (hot spots) and low values (cold

spots)." (ArcGIS, 2017). When performing the Hot-spot Analysis, the polygon contiguity conceptualization together with row standardization was used. Polygon contiguity emphasizes the spatial relationship as increasing spatial interaction between polygons sharing a boundary. In the analysis, a cluster would consist of gatherings of municipalities with similar high (hot spot) or low rates (cold spot) of student mobility flows, denoting a specific collection of them with significant spatial interactions through these flows. That particular feature enabled detecting both locations with higher commuter outflows as well as lower outflows, thus separating between municipalities with large streams of commuters and municipalities with low streams of commuters (highlighting for example market cores). In Study I, this specific feature contributed to valuable information on where important transformations of local school markets could be found. For example, the Stockholm school market was observed to transform from a cold spot to a hot spot between cohorts as student mobility flows changed size and directions.

Propensity score analysis

Growing interest in evaluating and estimating effects of educational programs, practices or policies of a school system set demand for valid causal inferences in educational research. The availability of large-scale datasets, like the ones in GOLD database have in part made such statistical analyses possible in answering the questions like 'what works (?), for whom (?) and under what conditions (?)' in a school system. However, it is challenging to produce valid causal inferences concerning effects of any system action based on cross-sectional data (Saw & Schneider, 2016).

To study the effect of school choice, for example, ideally an experimental design is applied where students are randomly selected and assigned into a group that school choice is not allowed (i.e., the control group, in which students attend local schools within their residential municipality) and a group that students can choose schools both within and outside their residential municipality (i.e., the treatment/experimental groups). However, such an experiment are rarely possible within a school system, since any educational policy should be applied to all students. Moreover, studies with observational/cross-sectional data usually have to deal with two specific

problems (Chalmers et al, 1981). First, that individuals are not randomly assigned into treatment and control groups and second, that only one outcome (i.e. treated or not treated) can be observed for each individual. Because of these issues, comparing outcomes between individuals who received treatment (e.g., choose a school) and those who did not receive treatment (e.g., do not choose a school) using observational data is not valid or generalizable due to systematic differences between the two groups of individuals not originating entirely from the treatment but rather compositional variances at group level (Caliendo & Kopeinig, 2008).

Propensity score analysis overcomes some of the concerns and is suited for handling selection bias in observational data and for achieving comparability of subgroups of individuals (e.g., Guo & Fraser, 2014). The counterfactual represents a theoretical assumption of there being two potential outcomes of a treatment for each individual (He, Hu and He, 2016). The propensity score is the probability of an individual being treated (z=1) given the observed covariates (x), which is defined by Rosenbaum & Rubin (1983) as:

$$\text{Propensity score} = \text{pr}\,(z = 1 \mid x)$$

The purpose of utilizing propensity score analysis in Study III was to control for students' program preferences (educational pathways, see e.g., Mellén, 2017) when comparing differences in background characteristics between commuting and stationary students. Thus, students' choices of program for their upper secondary education (i.e., educational pathways) are covariates (x) in estimating propensity scores for each individuals in Study III. Utilizing the propensity score analysis made it possible to visualize differences in propensity to commute, given each students' program preferences, that is, their educational pathways. One of the fundamental assumptions is of similarity:

> How can we find individuals who are similar on all observable characteristics in order to match treated and non-treated individuals (or plants, or firms...) with a single measure, we can readily compute a measure of distance between a treated unit and each candidate match. With multiple measures defining similarity, how are we to balance similarity along each of those dimensions? (Baum, 2013, 4)

The included covariates that were chosen for the propensity score analysis were upper secondary program choices (i.e. the students' educational pathways). Stuart (2010) stipulates that one of the key concepts when utilizing matching methods (i.e., propensity score analysis) is strong ignorability ('unconfoundedness'), which presumes no associations (unmeasured variables) between treated and non-treated units based on another variable (2010; see also, Stuart et al., 2011). Assumptions on no associations relates to 'overlap', which means we also assume the distributions of covariates are similar between treated and non-treated (Stuart, 2010).

Relationships between educational pathways and social background are well established. Swedish students' socioeconomic background and their choice of upper secondary education, particularly the divide between choosing a theoretical or vocational upper secondary program, is strongly related to each other (Erixon Arreman & Dovemark, 2017; Mellén, 2017; SOU 2010: 99; Skolverket, 2017; Svensson, 2006). The beliefs, which presupposes the propensity score analysis in Study III, are that there is a reasonable distribution of upper secondary programs across upper secondary school and educational providers in the metropolitan markets. Given the reasonable assumption of accessible provisions in these school markets, the conditional probability of commuting is used in multiple regressions models to explore the hypothesis of differences in who is mobilized (and who is not). So, the assumptions and conditions for propensity score analysis is somewhat violated, if the interest would be analyzing treatment effects between treated and non-treated units. However, as a precursor to analyzing mobilizing of students, while controlling for educational pathways, it is deemed as a reasonable approach, which deals with some of the selection effects between programs, schools and geographical residence in the markets.

The propensity score analyses (PSA) were performed in STATA using the pscore suite (Becker & Ochino, 2002). The pscore suite estimates the propensity score and tests the balancing hypothesis by first fitting a probit model (which is a regression where the outcome variable is binary, in this case the treatment is the dependent variable: 1=treated, 0=not treated). Following this, the sample is divided into intervals ('blocks' or 'strata's') where STATA tests if the characteristics of the treated and the non-treated units differ, if yes, the interval is split into half and retested until balancing properties can be

satisfied for each interval. If balancing properties are not satisfied with the selected covariates, STATA will automatically specify this in the output and notify the user "that a less parsimonious specification […] is needed" (Becker & Ochino, 2002, 360). The common support condition (comsup option) was used in all the PSA analyses, a restriction which was argued by Becker & Ochino to improve matches (2002).

Validity and limitations

Inferences based on statistical techniques translates to drawing conclusions from data. Therefore, validity of statistical inferences is related to a representation of population, subgroups, probability, operationalizing constructs and missing data (Cook, Campbell & Shadish, 2002). The first part of the chapter covers important concerns related to internal, external and construct validity as well as the presence of potential bias. Issues of bias in spatial analysis are specifically discussed through the concept of modifiable areal unit problem (Manley, 2014). Similarly, matters of validity in a counterfactual framework working with potential outcomes are highlighted in relation to utilizing a propensity score analysis (Guo & Fraser, 2014). The subsequent part of the chapter accounts for how missing data was handled in the studies and finishes with a description of ethical considerations.

Statistical bias in spatial analysis

It is always import to audit the underlying assumptions of a study but more so when the study involves a spatial aspect. Spatial analyses in general are highly affected by the modifiable areal unit problem (MAUP), which focuses on two issues, 1) scale effect and 2) zonation effect (Dark and Bram, 2007). Outcome results will depend upon the spatial scale of the units of analysis, as studies have demonstrated that changing spatial scales influences outcome results significantly with different levels of aggregation (Anselin, Murray & Rey, 2013; Manley, 2014). Results are also highly dependent on area partition, which means that division of space creates arbitrary areal units whose division has boundaries that will influence the statistical outcome of the study (Manley, 2014; Griffith, 1992). MAUP is a well-known issue for studies using spatial data organized in administrative areal units such as regions, counties, municipalities and so on.

Recognizing this, both the estimation of school markets by a functional regions model (in Study I, II) and the estimates of within-market mobility (in Study III) could potentially be problematic. Utilizing municipalities and regions as data units relates to issues of scale and partition. However, operationalizing schools markets as functional region is also a question of construct validity and a questioning of the potential of generalizability (e.g., Östh, 2007). The modern municipal partition was created 1971. Previously, the municipalities of Sweden were divided in 816 units; the municipal reform in 1971 created a new partition of 282 municipalities (Svanström, 2018; Prop 1978/ 79: 61).The partition was based on the central place theory, meaning each municipality would have an urban city as a "capital" where administration services, political organization and welfare functions would reside (Wångmar, 2013). While MAUP probably is an issue, these historically established municipal boundaries most likely have affected both infrastructural developments and geographical placement of education - therefore the movement between them has value and meaning.

The school market structures used in all three studies are operationalized through mapping out aggregated commuter flows in and around these municipalities. Further, these relationships are classified as either dependent or independent (self-sufficient). The classifications are the basis for the delineated functional regions. The assumption is that these regions serve as plausible market approximations, which is then used as a unit of analysis in the studies. Reinforcing robustness of the market estimations, the mainly descriptive functional regions model in Study I was supplemented with tests of statistical significance through performing multiple analyses of spatial autocorrelation (see Article I). Pairing Global Moran's I with Hot spot analysis lowered the risk of missing significant changes and presence of clustering through probability testing (Cook, Campbell & Shadish, 2002; see also Getis & Ord, 1992). When trying to capture the changing nature of space and spatial relationships, analyzing developments over time strengthens the possibility of portraying their shifting characteristics and outcomes. To problematize market adjustment it is important to recognize market adjustment as a process. However, defining and analyzing change over time is a complex challenge that entails several difficulties. Both assessing reliability and validity of the utilized statistical techniques is important. It is also important to recognize significant

historical and political changes during the time a specific phenomenon is observed (Hargreaves & Goodson, 2006).

Additionally, difficulties with subpopulation representation (how well does the functional regions model represent commuting behaviors for all groups?) in the computations of labor markets using the functional regions model have been observed before (Östh, 2007; see also, Karlsson & Olsson, 2006). Östh (2007) argued that the delineation of regions, with a core and identifying border crossing commuting streams between municipalities might suffer from both selection bias and failure of being representative of all subpopulations. The results in Study III do indicate some differences in propensities to be mobile are present between boys and girls, and between students with a Swedish background vs. a foreign background. A future analysis could investigate this by outlining the functional regions (that is, the market structures) separately for these particular subpopulations and compare the differences. Changing the categorizing criteria in the regional model to facilitate analyses over time spurred interesting results; however, these results are also potentially a feature of the new model rather than of change (Cook, Campbell & Shadish, 2002). The criteria estimations have been tested before and deemed reasonable and credible (see e. g., Karlsson & Olsson, 2006). However, arguably, this was not done on data from an educational context, and therefore other estimates might be more representative of the specificities of educational commuter flows. Testing and comparing different estimates in the model criteria for educational commuter flows is another potential avenue for future research.

A binary treatment variable is a necessity when performing a propensity score analysis. However, the binary nature of this variable (to commute or not) excludes the rich real life behavior and structure of students' commuting practices by summarizing it into a binary action. The geographical placement of the municipal borders in relation to the distance between border and home residence, infra structure and public transportation influences the decision or necessity to cross them through each individual's spatial proximity to these (i.e., Anselin, Murray & Rey, 2013). What is deemed more attractive also relates to the desirability of each place in the eyes of the students (e.g., Larsson, Elldér & Vilhelmson, 2014). The students' mobilities in the quasi-market and over geographical space are far more complex and dynamic than

what can be analyzed in the studies or can be captured by this type of data. However, the aim of Study III is not to analyze the dynamics of individual students' mobilities on a micro-level or details on mobilities in their local surrounding area or estimating differences in distance travelled. Rather, it focuses on aggregated patterns signifying choice consequences and market adjustments through spatial interactions between municipalities. The specific within-market mobility has strategic value in the Swedish upper secondary school market, where market segmentation is prevalent both socially and geographically (Fjellman, Yang Hansen & Beach, 2018; Bunar & Ambrose, 2018; Ambrose, 2016). Analysis of the movement between the segments (municipalities) can contribute valuable knowledge on choice practices and market adjustment despite being a less than perfect mobility measure. It still captures interesting longitudinal market adjustments and is very relevant in discussions on equity, justice and market outcomes in the Swedish educational system.

A counterfactual framework – potential outcomes and possible bias

A source for potential bias in a counterfactual framework involves the relation between the estimated counterfactual (i.e., hypothetical event absent of treatment) and the observed (i.e., treated event) (Guo & Fraser, 2014). The certainty of inferences is strongly related to the accuracies of the results from the propensity score analysis in Study III. The motivations behind using a propensity score analysis to create the dependent variable (the conditional probability to commute for upper secondary education outside of one's residential municipality i.e., probability of school choice given student's educational pathways) were driven by intentions of dealing with overt bias in the dataset (Rosenbaum, 2002; Stuart, 2010). Analyzing background characteristics between commuting students and stationary students without controlling for the geographical dispersion of educational provisions in their local neighborhood would lead to systemic error in the estimates due to residential segregation and unequal distribution of upper secondary schools. The availability of the upper secondary programs also matter significantly in a comparison like that. The national programs in upper secondary education were therefore used as proxies for educational pathways and included as covariates as a possible solution to handle the overt differences between

individuals. Covariate inclusion were in relation to the selection process motivated foremost by theory and previous research (Pan & Bai, 2015).

Connections between choice of educational pathways, school dropout rates and student background characteristics further motivated including all the students in the analysis. Pilot testing on datasets blocked by upper secondary achievements demonstrated differences related to commuting for upper secondary education and finishing upper secondary education, most likely mediated by socioeconomic status and residence. Including all the students regardless of these differences were important in relation to selection bias and generalizability (e.g., Guo & Fraser, 2014; Rosenbaum, 2002). Nevertheless, there still lies a possibility of hidden bias and systematic differences related to boundary proximities, infra- structural possibilities and unobserved heterogeneity in the dataset (Arellano, 2003; Rosenbaum, 2002). In Study III, for example, the variables explain the variation in the regression models to different extents depending on regional specificities. Especially the case of the Malmö school market, where a majority of the independent variables are non-significant and particularly in the models for private providers. This persisted even after including several interaction terms. Data availability limited the inclusion of other variables that might have theoretical effects in the models (e.g., Stuart, 2010; Pan & Bai, 2015). An exploration of the Malmö school market could provide interesting data for another in depth study in the future.

Data strengths and limitations

Population data strengthens generalizability through good representation (Cook, Campbell & Shadish, 2002). The selection of first year students was motivated by examining change over time more distinctly; however, this choice could affect the inferences and conclusions based on the empirical studies. While register data is comprised of important demographic information and individuals' background characteristics and actions in terms of for example education, domicile and labor routes, it lacks information on underlying motivations behind these decisions and events. Limiting factors includes that the data is not collected for research purposes and neither is the format optimized or designed for statistical analysis. The construction and categories of the variables can be limiting in terms of what analytical techniques are possible to complete. Availability of variables (for example

lacking supplementary individual background variables) and large missing rates (especially in older cohorts) can also be an obstacle. However, the rich nature of the data and the large dataset sizes makes large-scale analysis possible and provides important knowledge and information on societal developments over time (Mellander, 2017; Registerforskning, 2018).

Missing data

Missing data can cause bias in the inferences and outcomes generated in a study (Cook, Campbell & Shadish, 2002). Register data frequently suffers missing data and a majority of it is caused by registry error, collection difficulties but could also be related to specific groups of students in the population. For example, student dropouts who do not finish school, students that move several time, students who are absent large periods of school and students who are placed in foster families or institutions are often subjected to multiple school transfers and therefore more difficult to track across the administrative registries the data is based on (although these should not represent a large percentage of each cohort). Because of this, it is highly improbable the missing in the data used in the current dissertation is missing completely at random (Schafer & Graham, 2002); nevertheless, the rates of missing were deemed to be of reasonable proportions for most variables. Those with larger proportions of missing was subjected to improvement procedures when possible. The cohorts that contained higher rates of missing on several important variables were excluded completely from analysis (see for example Study I & III).

The variables and categories used in the dissertation that were specifically vulnerable to registry error were those covering immigration background, school ownership and geographical location. The variables *Residential location* and *Educational ownership* (used in Studies I-III) suffered from large missing rates and they were supplemented in different ways to increase accuracy. The older cohorts (<2000) was the most afflicted by missing data. *Residential location* was improved by matching between cohorts, where information was carried over between years (i.e., if an individual lived in the same municipality for year 1998 and 2000 but had a missing value for the year in between, the information in the surrounding years was carried over to the year 1999). *Educational ownership* was improved by Mellén (2017, see also Study II) by

manual cross-data matching that decreased missing rates vastly. The improvement procedure were performed for the years: 1997, 2000, 2003, 2006 and 2008. Comparatively, the 2011 cohort had the lowest missing rates on either variable and did not need to be improved.

The functional regions are dependent on matching individuals' residential municipality with the municipality where they attend upper secondary education, so individuals missing a value for any of these variables (that could not be improved by carrying over information as described above) were listwise deleted. No imputation procedures were performed. It was motivated by the nature of the variables making it difficult to generate plausible values (for example, geographical codes that could not be estimated only matched between years). When running the pscore suite in STATA, no missing data on treatment and covariates variables can be included and individuals with missing values were listwise deleted before the procedure (see Becker & Ochino, 2002). Although listwise deletion is the most common strategy for dealing with the missing data problem (Cox, McIntosh, Reason & Terenzini, 2014) – the complete case analysis is not unbiased (Li, Stuart & Allison, 2015). However, the full case analysis can yield acceptable levels of accuracy (Cox et al., 2015) and I recognize these data limitations and need to be cautious with some of the conclusions. Still, the strategies and decisions described above actively addresses the issues with missing data while maximizing data usability.

Ethical considerations

Sweden has a long tradition of keeping population-based registers with personal data and its national data registers are unique in many respects due to the system of unique personal identity numbers that allow data for a specific individual to be linked between different registers (Mellander, 2017). This provides excellent sources for register-based research in Sweden and population-based register data have been extensively used to examine a number of important areas in education research that could be difficult or even unethical to research with other study designs (SOU 2014: 45). However, this does not mean that registry-data research is free from ethical dilemmas and challenges. There is a difficult balancing act involved in many senses. On the one hand, the right to privacy is a basic right and everyone have a right to know and have control over the information that is collected and stored about

him or her, for what purpose and how it is used and safeguarded (SOU 2014: 45, 20-22). On the other hand, the use of personal identification codes has led to a large number of administrative data that have been found to be very useful for research purposes that may benefit society as a whole (SOU 2014: 45, 21). The value of longitudinal research and studying patterns in populations have been acknowledged in multiple government bills as an important and unique way for developing knowledge on social and economic conditions in the Swedish society (Prop. 2008/09:50; Prop. 2012/13:30).

Register-data based research is subject to the same ethical legislation as other forms of research are and require the same formal approvement from the national research ethical committee when incorporating sensitive data or materials (Swedish Research council, 2011). Moreover, it is always important to be cautious when receiving a dataset without partaking in its collection, as there is a serious need to think about how the data was obtained, and for what purpose, as well, as how its uses may be circumscribed by these processes (Gardenier, 2011). The point here is that although registry data is usually compiled with informed consent, the ways in which it can become appropriated in research and matched with other data through personal identification numbers of students and teachers for instance, might not have been subject to the same standards (SOU 2014:45, 25-30). However, every possible precaution has been taken in the present case to adhere to the strictest possible standards for the protection of the integrity of those who have provided the data and given access to it.

The data analyzed in the studies is acquired from the Gothenburg Longitudinal Database, which is comprised of register data bought from Statistics Sweden. Registry data contains data from multiple administrative registries and Statistics Sweden provide the data to researchers and research projects after rigorous data de-identification procedures to insure complete anonymity (Registerforskning, 2018; CODEX, 2018). Restrictive rules on data management and data structure further enforce security and ensure anonymity by forbidding for example matching individual data with SAMS-units through map structures (since it could reveal individuals' addresses in small units). Further precautions taken during the research process included safe storage (including electronically) of both data and results together with limited exposure to people outside of the research project.

Generally, the choices made during data management and analytical procedures ties ethical considerations together with concerns of validity and reliability (Carrig & Hoyle, 2011). Choosing measurement instruments or analytical procedures whose consistency have been demonstrated in previous research is advisable (Carrig & Hoyle, 2011). Although modifications were made to both data and procedures, these were motivated in relation to other studies or validity/ reliability concerns (see each study). Another ethical aspect is that of communication: "Ethics demands consideration of the intended reader(s)."(Gardenier, 2011 26). When communicating quantitative results the focus should be on accounting for the underlying assumptions and implications of the analysis so that the reader can accurately understand them. Additionally, the technical procedures (and modifications) are described in transparent, structured and concise manner in the previous section (and in each study) to allow for possible replications of the empirical analysis (Rosnow & Rosenthal, 2011).

Chapter 6. The empirical studies

The current dissertation aimed at studying the spatialities of school choice in the Swedish educational system. The empirical studies focused on three analytical levels: national, regional and individual level. The analytical process was both data-driven and directed by theory, in the sense that the selection for Study II and Study was derived from the results from Study I but also directed by a theoretical aspiration to understand the multiple outcomes of the (re)organization of (market) space. Consequently, the studies relate to each other as the data samples originated from Study I. The results from the first study also motivated a majority of the decisions in how the analyses in the following studies were designed. In this section, the selection procedure and process of analysis pertaining to each specific study design are summarized and discussed. Each study (i.e., Article) is also summarized separately focusing on aim, concepts, analytical results and main conclusions.

School choice and implications for equity: the new political geography of the Swedish upper secondary school market

In Article I, the main purpose was to analyze the spatial dimensions of the restructuring of the Swedish upper secondary school market between 1997 and 2011, which occurred as a result from choice directed reforms implemented in the beginning of the 1990s. A socio-spatial framework with central concepts such as space and mobility (Massey, 2004; 2005; 2006; Soja, 2010) was employed together with concepts of quasi-market, market adjustment and the 'concrete' market (Berndt, 2015). Further, the objective was to contribute important knowledge on the post-reform educational system and future implications of the educational restructuring after 1992. Utilizing an adjusted functional regions approach, based on student commuter flows, the spatial interactions between municipalities (Brown & Holmes, 1970; Skolverket, 2011; 2013) and the distribution and volume of educational provisions in the quasi-market were analyzed.

Six cohorts of students attending the year 1 of upper secondary education were included in the analysis. The decision to include only individuals attending year 1 was motivated by an interest in visualizing developments over time and by the proportionally low rates of school transfers in year 2 and year 3. Additionally, the contextual setting of choosing was important. The presences of educational fairs, educational commercial materials, directed school marketing, difficulties navigating these and so on are specific to choosing and applying to an upper secondary school after finishing compulsory education. Proportionally, the selection consisted mainly of 16-year olds, although individuals starting year 1 between ages 15 and 19 were included.[12] Several reasons affect early or late admissions to upper secondary education, for example: program transfers, expulsion, sickness, family difficulties, reapplying for a national program after attending a preparatory program and so on. It was determined too difficult to sort out individuals based on these reasons since no information was available on why specific individuals would start earlier or later in the provided datasets.

The analysis looked into changes in the Swedish educational quasi-market for the six cohorts by:

1. Delineating the (primary and secondary) market structures through a modified functional regional model,
2. performing a pattern and cluster analysis of spatial interrelationships (i.e., student commuter rates) and finally,
3. scrutinizing educational provisions based on dimensions, locality and a comparison of school closures and establishments between public and private providers.

A process of decline in municipal self-sufficiency over time was uncovered with features such as a significant clustering in the growing intermunicipal student commuter flows. These spatial flows also had urbanized directions. The transformation of independent (self-sufficient) to dependent municipalities was mostly one-directional as municipalities outside of urban and metropolitan regions had increasing difficulties with retaining large parts of their local upper secondary student population. In relation to market

[12] See Table 5 in Appendix.

structure, the trends of increasing primary markets and decreasing secondary markets visualized a market concentration surrounding a group of declining self-sufficient municipalities with a growing student body travelling greater distances for upper secondary education. A differentiating effect from the intensifying spatial interactions between municipalities was found to be reproducing inequalities spatially (i.e., Massey, 1991b; 2005; 2006).

Concretely, the educational supply expanded vastly in the observed years. However, when analyzing the spatial dimensions of this expansion an uneven geographical development of educational provisions in upper secondary education was revealed. The geographical availability of upper secondary education related to geographical location. In the metropolitan and urban markets the number of educational alternatives exploded as private providers are increasingly establishing schools in these attractive and population dense regions. The reverse development is indicated in non-urban and rural school markets where public school closures and a lack of private providers starting schools limited the educational provisions for local students. Comparatively, an important result is how twelve rural municipalities lose all their local educational alternatives (between cohorts) when all the previous upper secondary schools are closed and how this worrying development transpired during meager fourteen years. The results demonstrated how school choice possibilities are increasingly suffering from geographical variation, as market adjustment is damaging upper secondary educational availability outside the urban zones. Conditions for market adjustment and competition is deemed to vary across municipalities.

The main conclusions are first, that the market setting and choice mechanism are furthering uneven geographical development by reinforcing disparities between municipalities (based on population density, resources and municipal context). Second, those educational provisions are found to be progressively geographically segmented in the school market. Third, how the consequences of the current market failure affect and limit future students' access to educational opportunities as these are continually spatially redistributed disproportionally across the Swedish upper secondary school market. These conclusions were problematized in relation to educational legislation guaranteeing equal access to education regardless of geographical location.

Differentiation through regulated market adjustment– emergence of a regional school market.

Article II delivered some insight into the restructuring of a specific rural upper secondary school market in a descriptive regional study of "The Karlstad school market". The school market was chosen because of its remarkable and expansive geographical growth over time (discovered in Study I) and to illuminate market adjustment in rural contexts outside of the urban and metropolitan regions. The main purpose was examining the consequences of the school choice mechanism in a demarcated rural educational market space between 1997 and 2008. These consequences were then framed in a discussion on equity implications over space and time.

The theoretical framework conceptualized the school market through spatial interactions between municipalities and available educational provisions (operationalized as the same modified functional regions model from Study I). The main theoretical concepts included school market, quasi-market and market adjustment (Ball & Youdell, 2008; Le Grand & Bartlett, 1993). The characterizing features of and conditions for a functional and successful quasi-market was associated to the concept of market failure, which was defined as either 1) market concentration or 2) (failure in) market formation (Lowery, 1998). Although Lowery (1998) has conceptualized other forms of market failure, these two were chosen as the most pertinent as the study focused on describing the spatial configuration of the rural school market over time. The spatial configurations of the market was examined through describing municipalities self-sufficiency, municipal type categories, distribution of educational offerings and a comparison of student commuter patterns between public and private providers. The spatial interactions and commuter statistics for the region and the school market were also compared. The student flows directed towards the market core were visualized and emphasized in a detailed description of the school market.

The study was carried out as a regional case study as the chosen geographical region displayed remarkable market expansion. The expansion characteristics were similar to the growth patterns of the metropolitan school markets albeit in a rural context. The selection included students attending year 1 in an upper

secondary school residing within 'The Karlstad school market' between 1997 and 2008. An important motivation behind performing the study was the idea of how market effects and consequences could be highly dependent on municipal context, demography and place. The conditions for market restructuring between rural and metropolitan contexts seem to vary (in terms of student population, available educational offerings, infra-structure enabling movement and so on), which made it important to investigate why the spatial interactions and expansion in this particular school market were comparatively similar to its metropolitan counterparts.

The main results from the analysis demonstrated how more students commute outside of their residential municipality and for longer distances. The study observed that the student target groups were different between educational providers. It was also found how schools establishment patterns develop at different rates and locations between private and public providers. Based on the results it is argued for the presence of market failure. This is motivated by how school market is unsuccessful in functioning as an improvement measure (Fredriksson, 2010; Ball, 1993; Prop 1991/ 92: 95) in relation to the development of educational supply and how access to these educational opportunities were related to place. The results were framed in the conceptualizations of market failure (Lowery, 1998; Le Grand & Bartlett, 1993). First, regarding the market formation: there were inadequate conditions for competition, as the educational supply is not distributed equally between municipalities and within the school market. Second, the market structure is continually concentrated as the locations of educational provisions shift towards the main urban municipality through increasing student capture in the market core (Lowery 1998, Kähkönen 2004). The school market expansion and geographical growth were explained by increasing intermunicipal spatial interactions, which were associated with the asymmetrical establishment of private upper secondary schools in the market core. This was further linked with closures of public upper secondary schools in municipalities surrounding the market core municipality.

The main conclusion is how school choice is progressively concretized differently between places (municipalities) over time. For some students the choice of school will entail a choice between a group of schools and providers, for other students the choice translates to a requirement to

commute as local public educational alternatives disappeared during the observed years. Additionally, the consequences of the choices being made and the unequal distributions of upper secondary educational supply (i.e., market adjustment) translates to the choices being made presently are limiting the choices of future students and reproducing inequalities in terms of access to educational supply. These results and effects were conceptualized as differentiation through regulated market adjustment.

School choice, private providers and differentiated mobilities in Swedish metropolitan school markets: exploring through a counterfactual approach

In Article III, the main purpose was exploring who was being mobilized in three upper secondary metropolitan school markets (Stockholm, Gothenburg and Malmö) between 1998 and 2011. The aim of the study was to explore the mechanism of educational choices in relation to student's social background and commuter flows within three Swedish metropolitan upper secondary school markets (Stockholm, Gothenburg and Malmö), controlling for their educational pathways (that is, their choice of upper secondary program) through a propensity score analysis for six cohorts between 1998 and 2011. Choice and movement within the quasi-market setting (producing 'market' space; Massey, 2005) were conceptualized through differentiated mobilities, defined as how the mobility of some can contribute to immobilizing of other groups (Massey, 1991). The influence of how choice and mobilities can reinforce inequalities (i.e., Manderscheid, 2009; Barthon & Monfroy, 2010) was emphasized and directed the two-step analysis of propensity score analysis and multiple linear regression analysis.

Four cohorts of students attending year 1 of upper secondary education in or residing in either of Stockholm, Gothenburg or Malmö school markets were included in the analysis. Students living within and/ or students attending a school in the school market were considered a part of it. Study I highlighted growing inflows and outflows of students in the metropolitan school markets. These were responsible for new spatial interactions expanding the geographical size of these markets. Wanting to capture the mobilizing

commuter flows and the expansion, the functional region for the market area in 2011 directed the selection. Principally, all the municipalities making up the final functional region in 2011 were the template for selecting students in all cohorts. The intention was on both analyzing changes in which students are being mobilized and contributing knowledge on the drivers behind the enlargement of the metropolitan school markets. The analysis was performed in several steps. First, a propensity score analysis was completed based on a treatment group (student commuters) and control group (stationary students) for each cohort. The propensity score analysis created a variable of conditional probability (i.e., propensity score) to commute for upper secondary education, given their educational pathways. Second, a separate multiple regression analysis was performed for each cohort. The propensity score was a dependent variable. Variables on gender, migration background, parents educational level, compulsory grades and interaction terms based on these variables were included as independent variables. Finally, the results from each model and metropolitan school market was compared and problematized in the discussion.

After performing the propensity score analysis for all the included cohorts, both control groups (stationary students) and treatment groups (commuting students) were partitioned into strata's by STATA. Initially, within-strata mean analyses between commuters and non-commuters revealed significant ability based differences in grades from compulsory education (i.e., the basis for selection when applying for upper secondary education). The students who are commuting outside of their residential municipality for upper secondary education seem to be retaining a higher grade point average (GPA) than their stationary peers are.[13]

However, in a select few of the strata's an opposite relationship was discovered. In the Gothenburg school market, only one stratum indicated a higher GPA for the stationary students. In Malmö school market; there were two strata's indicating the same differences. In Stockholm school market, seven of the strata's displayed higher GPA's for the stationary students. However, none of these within-strata differences was significant. The t-tests found that student commuters had significantly higher compulsory grades

[13] See Table 6, 7 and 8 in Appendix.

than their stationary peers do (albeit to different extents depending on strata belongingness). Exploring this further, Study III implemented blocking according to educational providers, where both models were executed by 1) public providers and 2) private providers for each metropolitan school market. This was motivated by a hypothesis of inherent heterogeneity bias along the lines of school ownership, as earlier studies indicate specific types of students choose and are retained within private schools in Sweden (Böhlmark, Holmlund & Lindahl, 2015; Hinnerich & Vlachos, 2016; also, e.g., Cook, Campbell & Shadish., 2002).

First, the choice of upper secondary program are related to gender, migration background and parental educational background in all the cohorts (confirming earlier research results indicative of these associations). Second, there are opposite trends in R^2 between public and private providers, where the variation is increasingly explained by background characteristics for students attending public schools but the opposite for their peers choosing private schools. The effect of compulsory grades on predicting commuting for education outside of one's residential municipality is positive for students choosing a public school and negative for students choosing a private school. The results further indicate a differentiated mobilizing between Swedish students with a native or a foreign background, but are also related to gender and the choice of educational provider emerging over time (given the students' educational pathways). However, the extent and degree of differentiated mobilities appear to differ between the three metropolitan school markets.

There is support of a mobilizing of some students while other groups of students are immobilized (i.e., Massey, 1991). This is especially noticeble when comparing Swedish students with a native or a foreign background (both boys and girls, but more so for foreign boys). These differences were most pronounced in the Malmö school market. These observations can be indicative of a white flight found in earlier studies (e.g., Bunar & Ambrose, 2018; Yang Hansen & Gustafsson, 2016; Söderström & Uusitalo, 2010). Notably, the reinforced differences are more particular to private providers, which is important. That the largest differences relating to migration background and gender are found in students choosing private schools, suggest (together with the varied effect of grades related to provider) how

commuting for specific upper secondary programs in private schools provide an alternative for low ability students – however, the alternative is not accessed equally by all students, with respect to migration background. This alternative is predominantly accessed by girls and native students, particularly so in the Malmö region. The role of these differentiated mobilizing in the intermunicipal spatial interactions being related to students' background characteristics and educational ownership, further indicates troubling effects related to the market adjustment of the Swedish educational system.

Chapter 7. Discussion

The aim of the dissertation was to investigate and analyze the spatialities of the Swedish school choice in upper secondary education through a socio-spatial framework applied to our marketized educational system. Further, trying to provide knowledge on the longitudinal developments and consequences of the geography of marketization was acknowledged as an integrated aim. A critical discussion problematizing school choice and market adjustments through concepts of social and spatial justice was also put forth as an additional important purpose of the dissertation. Two main research questions were articulated: (1) how has the ongoing restructuring process of the quasi-market been spatially materialized post-reform and, (2) who is mobilized within this new market setting?

Based on the aim and research questions, three main themes were formulated which structure the discussion in this chapter. The central results from each article are jointly discussed in the following sections: (1) Geographical characteristics of Swedish marketization; (2) School choice and differentiated mobilities, and; (3) Social and spatial justice in a quasi-market setting. The results and conclusions from each article are interrelated although the analytical level and focus differ between the three articles. The empirical results from Article I, II and III will be the heart of the integrated discussion under the two first themes. In the following section, the implications and consequences of these results are emphasized, and the discussion is outlined by concepts of social and spatial justice. After this, the limitations of the studies are discussed and recommendations are suggested for future research. In the final section, the conclusions together with the main contributions from this dissertation are summarized and their implications for policy and practice are discussed.

Geographical characteristics of Swedish marketization

The first article focused on an analysis of the spatial materialization of the upper secondary educational quasi-market. That materialization was defined as the geographical outcome from the interaction between national education policies, school choices made by students and the available offerings of upper secondary schools (e.g., Lund, 2008; Le Grand and Bartlett, 1993; Le Grand, 1991). The geography of marketization is therefore the product of this shifting and continuing process. One of the initial arguments was that analyzing the geographic characteristics of the Swedish quasi-market would contextualize what school choices could be made and by whom (e.g, Thiem, 2009; Taylor, 2009). The primary findings from the first two articles posit a shift in market space post-reform, where new spatial interrelationships are swiftly emerging between municipalities and how these are progressively homogenously organized in clustered patterns. Within these observations, several important features are embedded:

1. School market structures are transforming and concentrating rapidly
2. Educational supply of upper secondary schools has grown immensely
3. An increasing variation in geographical availability of upper secondary education is developing at municipal level
4. Regional specificities are embedded in 'market-making' as a redistribution of both student commuters and educational supply is associated with municipal context

The new spatial interrelationships are constructed by students seeking upper secondary education in other municipalities than their own. These interrelations have a significantly urbanized direction. Student commuter rates are related to municipal context, where larger outflows are observed in smaller, rural and sparsely populated municipalities and inflows are predominantly observed in metropolitan areas, larger and medium-sized cities.[14] A significant characteristic of the post-reform market space process is a reinforcement of differences between municipalities, through a growing loss of self-sufficiency amongst a majority of the Swedish non-urban

[14] However, it is noteworthy, that while the Stockholm school market retains the largest student capture it also is characterized by both large in- and outflows of students.

municipalities whereas their urban counterparts flourish in terms of student capture and school establishments. In this process, population density and urbanized context seem to be pivotal in being successful (i.e., competitive) in retaining the residential student population, drawing in outside students and keeping local upper secondary schools. The value of opportunity is most likely influential, where attending a school in a city or an urban region can be a more attractive choice for students even when similar schools are locally available (i.e., Larsson, Elldér & Vilhelmsson, 2014).

The school market areas are concentrating in numbers and growing in size steadily over time as the loss of residential students appear to be permanent between cohorts for a large group of municipalities. This indicates that once the student population leaves their residential municipality, these inclinations and tendencies to seek education elsewhere persists. As a result, the quasi-market is spatially organized accordingly. Space is thus materialized as a process (Massey, 2005) where geographical segmentation is fortified when the interrelationships are organized around urbanized municipalities. The regional specificities of market adjustment are also highlighted in a comparison of the results in Article I and Article II (and further observed as related to mobilities in Article III). In the metropolitan regions, the considerable market growth (i.e., extensive spatial interrelationships) is characterized through large commuter rates and an expansive educational supply with a significant proportion of these offerings being provided by private suppliers. These regions proportionally retain the largest amount of upper secondary schools and residential student populations compared to all the other municipalities. For example, in 2011, 27 % of all Swedish private schools is located in the metropolitan school markets compared to 12 % of all public schools (see Article I). Upper secondary schools in the metropolitan school markets have increased by 144 %[15] between 1997 and 2011, while the residential student population grew by approximately 20 % in the municipalities of Gothenburg and Malmö and 27 % in Stockholm. In the rural region the similar geographical market expansion was mainly associated with a simultaneous decline in local education in the peripheral parts of the growing school market together with more private schools establishing themselves in the market core

[15] These over establishments of schools in metropolitan regions were predicted by a committee in Stockholm, see Prop 1992/ 93: 230; 45.

(see Article II). These private schools had a much higher proportion of commuter students (compared to the public schools) and was argued to be complicit in the formation of new spatial interrelationships in the rural school market.

Article I also reveals how the interrelationships of space are related with the spatial arrangements of upper secondary education. In the geographical segmentation process, urbanization and private suppliers of education play an important role. The school provisions of the educational system are being redistributed to population dense areas when urbanization tendencies are permeating choices that are made while private providers are targeting economically strong and population dense municipalities with an abundance of students. Evidence for the propensities of establishing schools in these types of areas in Sweden amongst private providers can be found in other studies as well (cf. Edmark, 2018; Hinnerich & Vlachos, 2016; Angelov & Edmark, 2016; Böhlmark, Holmlund & Lindahl, 2015). While these establishment patterns secure profits for providers by running schools in these regions, they are most likely also associated with an urbanization process encompassing a depopulation of rural and sparsely populated areas that is widespread in Sweden (cf. Boverket, 2018). However, while the rural and sparsely populated municipalities (i.e., n=50) were the most afflicted by school closures, their total residential student population only decreased with 4.5 % between 1997 and 2011. Nonetheless, from these patterns stem important consequences for the geographical availability of upper secondary education in metropolitan, urban and rural municipalities as well as for the market adjustment process.

Politically expressed beliefs and hopes of private suppliers of education inhibiting school closures in rural and sparsely populated areas (Prop 1991/92: 95) seem to be unrealized during the studied years (cf. Åberg-Bengtsson, 2009). Effects of an increased availability of education in rural and sparsely populated areas that were also anticipated in the propositions (Prop 1991/ 92: 95; Prop 1992/ 93: 230) are not supported by the results in this dissertation. Rather, it can be argued that the great expansion of upper secondary education that transpired between 1997 and 2011 in the urban areas occurred at the expense of impoverishing rural regions of schools. Similar difficulties in educational markets benefitting economically robust regions and

redistributing resources between urban and rural areas are also supported by previous research (i.e., Kučerová, Bláha & Kučera, 2015; Valenzuela et al., 2014; Galiani et al., 2002). Moreover, these developments of resources flowing out of rural areas is not unique to the educational quasi-market if providers are able to determine independently where to establish themselves (e.g., Kähkönen, 2004; 2010). The same trends are also visible in other Swedish welfare services that are organized by a quasi-market, for example healthcare, where rural accessibility has declined due to similar marketized policies and governance (e.g., Fokati, 2011; Kullberg, Blomqvist & Winblad, 2018).

School choice and differentiated mobilities

The first two articles analyzed the geographical characteristics of the ongoing spatial restructuring of upper secondary education quasi-market and discussed the subsequent limitations in educational opportunities between geographical locales. The third article positions these results in an analysis of what factors condition students' movement in the metropolitan school markets, given their educational pathways. These market areas are characterized by a large mobilizing (i.e., in- and outflows) of upper secondary students and retaining the biggest supply of upper secondary schools in Sweden. Article III tries to further answer the second research question, that is, who is actually being mobilized?

Article III identifies the power-geometry of market space (Massey, 1991; 2005; 2009) through analyzing differentiated mobilizing of students related to time, market place and choice of educational provider. The spatiality of the social relations in these segregated urban spaces have in earlier studies been associated with segregation, avoidance behaviors and white flight-inclinations amongst native Swedish students when choosing schools (Söderström & Uusitalo, 2010; Yang Hansen & Gustafsson, 2018; 2016; Bunar & Ambrose, 2018). The presence of these power relations is further supported and attributed to the market adjustment process by the results in the dissertation (i.e., Article III). The students' social backgrounds predict to different extents the conditioned likelihood to commute within the metropolitan school markets, mediated by whom provides the educational pathways they attend and the region where these schools reside. This is further exemplified in the

first cohorts, as an effect of earlier educational achievements (i.e., compulsory grades) on the conditioned likelihood to commute for upper secondary education. The effect is contingent on if a public or private school provided the students' educational pathways. The social relationships manifested in this power-geometry are thus further organized based on selection of schools. If students are pursuing identical educational pathways, the willingness to commute is affected positively by higher grades when choosing a public provider. However, in the Stockholm and Gothenburg school markets, this effect is negative when choosing a private provider. This can be an indication of private providers providing educational opportunities, through low-ability students accessing equivalent educational pathways as their peers in public schools, if willing to pursue them in a private school outside of their residential municipality (see Article III).

The temporal and regional changes in the effect of the predictors for each model indicate two things; first, that the conditioned likelihood to commute within the markets for students choosing private schools have changed character, and second, that those developments arguably seem to be related to the regional specificities of segregation in each school market area. For example, the biggest difference between two groups of students – those with native backgrounds and those with a foreign background - were found in the Malmö school market, when it comes to the propensity to commute for upper secondary education, given their educational pathways. Thus, the process of market adjustment in the metropolitan regions – 'market-making' - and the ongoing process of space (through growing in- and outflows of students) have a geography of power relations manifested through these differentiated mobilities (i.e., Massey, 2009, 17; Cresswell, 2001).

Social and spatial justice in a quasi-market setting

The Swedish educational marketization policies was promoted as a solution to social differentiation, issues of school closures in rural areas, as a means of decreasing public expenditure and raising educational quality and standards (Prop 1991/ 92: 95; Prop 1992/ 93: 230). Furthermore, the political arguments behind deregulation and school choice claimed effects of empowering parents and students through 'the freedom to choose', as

countermeasures to residential segregation and expressed a superior belief in private providers solving problems such as increasing rural availability of education (Prop 1991/ 92: 95; Prop 1992/ 93: 230; Berg et al., 2015). The pursuit of equity in education was politically re-formulated through concepts of market logic and market governance where it is conceptualized as a relation of allocative effectiveness between need and production services (cf. Kähkönen, 2005; Le Grand & Bartlett, 1993).

In a discussion on choice consequences and market outcomes, the concept of market failure becomes relevant. Early on, an evaluation of differentiation in market adjustment was conceptualized as the presence of market failure[16]. In article II specifically, one of the main concepts was that of market failure. The assumption in that study was originally, how a market can fail and, by extension, it was implied that a market could succeed (in being distributive fair and just in the outcomes of market adjustment). Failure was attributed to an outcome of differentiated access to education connected to place, that is, 'the market' failed in redistributing public and private upper secondary schools equally across the municipalities that made up the rural school market. Because of this, the market formation was increasingly concentrated around the municipality that was categorized as the market core. Even if the main purpose (and limitation) of that study can be interpreted as an analysis of "equality of opportunity" – how access to upper secondary education is restructured – social justice should not (as previously stated) be conceptualized as a question of distribution only (Gewirtz, 1998; Young, 2011).

The continuing and shifting process of marketization is instead a key aspect in how justice is promoted in the Swedish educational system. The spatial and temporal aspects of market adjustment are highlighted in the articles. However, the question is not whether a market has failed (or not). The question is whether educational policies and the marketization process support structures, which "produce and reproduce" power relations socially and spatially. In this, the uneven developments of mobilities and educational supply in the geography of marketization between urban and rural settings (i.e., Article I-II) and the differentiated mobilizing of student groups

[16] In article II, this is discussed as differentiation through regulated market adjustment and attributed to choice consequences in a market setting.

according to regional dwelling, gender and migration background (i.e., Article III) are important.

In the Swedish quasi-market, both space, mobilities and choices are interrelated (i.e., Article I-III). Students' choices and their movements between municipalities together with establishment patterns of educational providers condition how the educational supply of upper secondary education is regulated and how the upper secondary quasi-market is materialized, that is, these are prominent features of the market adjustment process. Therefore, how school choice was expanded spatially after the initial political proposals is particularly important to questions on how injustices can be structurally (and spatially) produced (Soja, 2010; Dikec, 2010). Though initially, the proposition on implementing school choice stipulate that choosing schools outside of the residential municipality should be available only in limited cases, it also cautions against creating a situation where larger quantities of students are on the move in other municipalities and out-competing local students in their neighborhood schools (Prop 1991/ 92: 95, 9). Fifteen years after this bill another important change is proposed that further ties school choice together with mobility – namely, the implementation of "Frisök" (Prop 2006/7: 71). This political initiative permitted students to apply unrestrictedly for national programs in other municipalities even if that program was available at a local school in the residential municipality (Prop 2006/7: 71). That initiative expanded the scope of the school choice mechanism significantly. In Article I, the largest changes in the availability of educational supply is manifested between the two last cohorts (i.e., after 2008) and a majority of upper secondary school closures occur during this time (see Article I).

The analysis of the spatialities of school choice expose the spatially unjust effects within the marketized educational system that is supported and maintained by these policies and the process of their implementation (Young, 2011; Gewirtz, 1998; Soja; 2010). Ultimately, instituting a school choice in a segregated educational landscape where educational provisions are socially and residentially segregated (e.g., Bunar & Ambrose, 2018; Bunar & Sernhede, 2013; Forsberg, 2018) has reinforced hierarchies between students based on migration background and gender through marketization and choice practices (see Article III). The results in the dissertation give support on the disparities in the conditioned likelihood to move within the metropolitan school markets.

Student mobilities to and within the metropolitan markets are differentiated, where students with native background are mobilized and students with a foreign background are immobilized. These power-geometries develop differently between regions in multiple ways (i.e., Massey, 1991; 2005) and seem to be specifically related to disparities in educational pathways and the choices of educational providers. Urban segregation and territorial stigmatization permeate the perceived possibilities of choosing education for marginalized groups (e.g., Beach, 2010; Beach et al., 2018; Bunar, 2010; Ambrose, 2016; Bunar & Ambrose, 2018) that is evidently immobilized compared to the other students groups in the metropolitan schools markets. Theoretically, in a situation where upper secondary schools would be equally available geographically - socially they will not be perceived as worthwhile or realistic alternatives for *all* students as societal segregation is reproduced and maintained within the urban educational sphere (e.g., Bunar & Ambrose, 2018; Ambrose, 2016, Bunar & Sernhede, 2013; Kallstenius, 2010; Forsberg, 2018).

Political measures focused on improving information to families and students on what choices to make or to encourage them to 'actively' choose (education), disregard this inherent marketization process in the educational system and its spatial outcomes. Providing families with obligatory choices might not counteract an urbanized restructuring of upper secondary education in the quasi-market and further discount the struggles and difficulties of rural and sparsely populated regions such as depopulation, decreasing school enrolment and school closures. Students retained within these areas are facing additional difficulties when choosing upper secondary education, where economic resources differentiate between those who have the possibility of relocating to pursue the program and school of their choice and those who do not (e.g., Rosvall, Rönnlund & Johansson, 2018; Holm, 2013). Moreover, the experiment with private suppliers in education has done nothing to alleviate these rural struggles other than allowing them to commute or move long distances for non-local education. The possibilities to do this is however also associated with difficulties when some student groups are privileged with resources to choose and move and some are not (e.g., Holm, 2013; Söderström & Uusitalo, 2010; Andersson et al, 2012; cf. Article III). The result is a differentiated choice where motivations based on pedagogical qualities are intermingled with avoidance behaviors (cf. Yang Hansen &

Gustafsson, 2016; Söderström & Uusitalo, 2010). In a competitive system, differences between schools and neighborhoods are reproduced as parents and families are choosing 'whiter', 'better' and more 'Swedish' schools and opting out of unwanted neighborhoods (e.g., Bunar & Ambrose, 2018; Ambrose, 2016; Andersson et al., 2012; Söderström & Uusitalo, 2010) while other students do not have the opportunity to choose at all. Systematically, unjust geographies are thus manifested where educational provisions and 'choices' are re-distributed between spaces and over time (i.e., Soja, 2010; Young, 2011; Massey, 1991; 2009; Dikec, 2010).

Limitations and further research

Changes over time in the educational supply in upper secondary education were mainly analyzed as the geographical presence of local schools retained within municipalities and in school market areas. An analysis of the educational supply at program level could have facilitated detailed information on longitudinal market adjustments, although that would have increased the analytical complexity significantly. Investigating program availability in relation to educational ownership (public versus private upper secondary schools) and in places with low educational supply (rural regions) could have contributed information on what kind of educational pathways are available. It could also be worthwhile to investigate subgroups of private suppliers of education for an exploration of differences between them.

Comments on the use of variables when analyzing very complex phenomenon, experiences and decisions would be valid, as register data contains no information on individuals' motivations. Assumptions on choices and decisions (to be mobile, to be stationary, to choose specific schools and so on) being crudely summarized in binary variables or conceptualized through border-crossing mobility between municipalities can be problematic. The geographical placement of municipal borders and with what ease individuals may cross these (i.e., availability of infrastructure, resources and public transport) on their way to school will influence the motivations behind the decision to move over these. The actual decision to do so might not be explicit, conscious or a strategic move but rather of convenience. The ambition of the dissertation was however to discuss effects and structural consequences on different levels in the Swedish school system, rather than

being conclusive about individuals' personal lives, motives and experiences. The temporal and spatial changes in 'market-making', the power-geometries of market space and differentiated mobilities are embedded with social relations and meaning (cf. Massey, 1991; Cresswell, 2001) and are valuable in a discussion on market consequences. To study initiation and control over movement in the market together with more in depth studies of the structuring features of mobility, for example, class, ethnicity, and gender for different regions would also further progress the discussion on spatial justice.

This dissertation brought a socio-spatial perspective to the discussion on consequences of the choice and market directed school reforms implemented in Sweden during the 1990s utilizing statistical analysis of population data. The results in the dissertation pose several challenges for future research and there are several interesting alternatives to pursue to build on this contribution. For example, it could inspire a statistical challenge for quantitative large-scale studies in education where developing and incorporating different geographical scales or variables on regional or neighborhood qualities could be helpful to further disentangle choice effects and market outcomes. The regional specificities need to be analyzed for other school markets than the areas chosen for the dissertation. For example, choice consequences in the northern regions, other rural regions and medium-sized municipalities could be explored further. Studying the Malmö school market in a case study could provide valuable information that would supplement the results of the analysis in Article III. There are also validity and reliability implications that could inspire studies that are more methodologically oriented. For example, assessing the influence of different flow estimations in the delineation of the functional regions or exploring the fit of the market model for an educational context or comparing market approximations for different subpopulations and surveying other types of spatial analysis more suitable to the more homogenous intermunicipal spatial interactions found in newer cohorts. Another suitable endeavor would be to analyze differentiated trajectories and probabilities between mobilized and immobilized students in the metropolitan school markets.

Conclusions

The current dissertation contributes knowledge on the spatalities of the Swedish school choice and the restructuring process of the upper secondary quasi-market in Sweden. Furthermore, it contributes knowledge about the consequences of educational market reforms in terms of spatial justices and injustices in education. While there are individual benefits of choosing education for some students and families, however, collectively, the freedom of choice is selective (e.g., Ambrose, 2016; Rowe, 2015) and this inherent selectiveness has repercussions for market-marking in the Swedish educational system. In the examination of the materialization of the Swedish quasi-market, both processes of reduction and concentration are discovered. Educational supply has expanded vastly but is found to be developing unevenly between municipalities and the geographical availability of upper secondary schools has declined in rural municipalities. Rural municipalities are thus (over time) made dependent on the educational supply of other urban municipalities when new spatial interrelationships are strengthening the functional significance of urban municipalities and metropolitan regions in the concentrated quasi-market. The quasi-market is continuously geographically segmented and important long-term implications for equity are developing from this market adjustment in our school system.

The ongoing process of spatial restructuring and the resulting presence of variation in the geographical availability of upper secondary education can be argued to determine the actualities of what choices are possible to make and by whom. In relation to the social, educational and residential segregation of the market segments, that is regions, municipalities, neighborhoods and schools (Yang Hansen & Gustafsson, 2018; 2016; Trumberg, 2011, Lindbom, 2010), the process have significant consequences for the national goals of providing students with an equitable access to (a good) upper secondary education regardless of geographical location (e.g., Lundahl, 2016). Likewise, an actual market place is not geographically realized. The intended strategic navigation of the school market with an all-encompassing choice between public and private schools (i.e., Prop 1991/ 92: 95, 7) has no possibilities of being realized equally for all Swedish upper secondary students in a geographically segmented quasi-market. The theorized school choice as an actual choice between several schools is still fundamentally an urban and

metropolitan phenomenon (i.e., Lundahl, 2017) and the process of the ongoing geography of marketization in our educational system has no indication of fundamental change in that direction.

An important conclusion is consequently further support for earlier research that has associated quasi-markets, privatization and school choice with reproducing segregation and inequalities (e.g., Ball, 2017; 2009; 2007; Verger, Lubienski & Steiner-Khamsi, 2016; Beach, 2018; Lundahl et al., 2014; Ambrose; 2016; Kallstenius; 2010; Forsberg, 2018; Trumberg, 2011). This dissertation builds on this knowledge by revealing the differentiated geography of Swedish marketization and the differentiated student mobilities retained within the long-term Swedish market adjustment process. Politically, the geographical characteristics of the Swedish upper secondary quasi-market have been given little attention in political documents and government bills in relation to discussions on choice practices, school segregation and differences in student outcomes. Nevertheless, these characteristics are important in how choices are actualized and how educational provisions are made accessible to upper secondary students. The structural and spatial consequences of this process need to be considered in political conversations and decisions on how equity in upper secondary education should be pursued and safeguarded. The longevity of the Swedish school choice mechanism *should* be questioned. In a democratic society, all students should have equitable access to high quality education. Nevertheless, by pursuing choices, privatization and marketization as types of governance and measures organizing welfare services such as education both disadvantaged places, rural regions and minority students are abandoned at the expense of providing particular families and students in urban areas with plenty of school choices and a large selection of schools to choose from.

Svensk sammanfattning (Swedish summary)

Inledning

I början av 1990-talet genomfördes flera utbildningsreformer som förändrade det svenska skolsystemet genom införande av skolval, skolpeng samt privata aktörer inom utbildning (Prop 1991/ 92: 95; Prop 1992/ 93: 230). Svenska skolsystemets förvandling från ett centraliserat skolsystem med statlig och ekonomisk styrning till ett decentraliserat dito där ansvar och styrning förskjutits från statlig nivå till lokala nivåer efter kommunaliseringen representerar ett viktigt utbildningspolitiskt brott i svensk historia (Gustafsson, Hörlin och Vlachos, 2016; Berg m. fl., 2015). Marknadiseringen som skett i en svensk kontext definieras som införandet av en kvasimarknad, introduktionen av privata skolaktörer som konkurrerar med kommunala diton om elever samt införandet av en skolpeng med möjligheten att ta ut vinst på densamma (Lundahl m. fl., 2013; 2014; Fejes, Runesdotter & Wärvik, 2016).

Marknadiseringens ideologi brukar definieras som en övertygelse om privata aktörers överlägsenhet i att tillhandahålla utbildning och hur deras affärsstrategier bör anammas av statliga och kommunala aktörer inom offentlig regi (Whitty & Powers, 2000; Burch, 2009). Marknadisering och privatisering ger konsekvenser för hur utbildning organiseras men utgör också en social förändring i hur vi ser på utbildning och vad det betyder att verka som lärare och vara elev (Ball, 2007; Fredriksson, 2010). Sverige har anammat inre och yttre marknadisering, det vill säga, både införandet av privata aktörer inom utbildning men också en import av deras strategier och koncept (elever är ”kunder” och skolor tillhandahåller en ”tjänst/ produkt”) i skolsystemet (Lundahl m. fl., 2013). När marknadisering används som begrepp i avhandlingen åsyftas både den utbildningspolitiska historiska förvandling som det svenska skolsystemet genomgått och det nuvarande marknadiserade tillståndet det befinner sig i.

Marknadsmässig styrning, skolval och privata aktörer har politiskt ramats in som viktiga lösningar på skolsegregation, bostadssegregation och bristande utbildningstillgänglighet ute på landsbygden (Prop 1991/ 92: 95). Likvärdighet har historiskt sett varit ett viktigt ledord i svensk utbildningspolicy (Börjesson, 20016) och lika tillgång till utbildning oberoende sociala och ekonomiska förutsättningar samt geografisk plats är stipulerat i svenska skollagen (SFS 2010:800). Hur likvärdigheten fullföljs i ett marknadsutsatt skolsystem är viktigt att undersöka i relation till dessa.

Efter avskaffandet av närhetsprincipen öppnades möjligheten upp för elever att genom skolval söka utbildning och skolor över hela Sverige (Andersson, Malmberg & Östh, 2012). En ökad mobilisering av svenska medelklasselever från utsatta områden och ökad skolsegregation är effekter som brukar tillskrivas skolvalet i tvärsnittsstudier och undersökningar av enskilda regioner (Söderström & Uusitalo, 2010; Böhlmark, Holmlund & Lindahl, 2015; Trumberg, 2011; Andersson, Malmberg & Östh, 2012). Den geografiska tillgängligheten av utbildning regleras på den svenska kvasimarknaden genom skolvalsmekanismen och var kommunala och privata aktörer etablerar skolor. De rumsliga effekterna av skolvalet och hur lika geografisk tillgång till utbildning regleras över tid i den svenska kvasimarknaden är viktiga att analysera och undersöka och kommer vara huvudsaklig fokus i den här avhandlingen.

Syfte

Avhandlingens huvudsakliga syfte är att undersöka, analysera och skapa en forskningsförankrad förståelse av de rumsliga effekterna från det svenska skolvalet i vårt marknadiserade skolsystem utifrån ett socio-spatialt teoretiskt ramverk. Marknadiseringens karaktär och konsekvenser är tätt sammankopplade med ett lands historiska, kulturella och politiska utveckling och effekterna behöver problematiseras i relation till dessa (Lundahl, 2016; Waslander & Trupp, 1995). Skolvalets selektiva natur hör ihop med hur elevers rörelse över geografiska rum möjliggör undvikande av minoritetselever eller skolor i utsatta områden (Rowe, 2015; Kosunen, 2016). Dessa kopplingar mellan skolval, rörlighet och valstrategier återfinns även i svensk kontext (Bunar & Ambrose; 2018; Forsberg, 2018; Ambrose, 2016; Andersson m. fl., 2012; Bunar & Sernhede, 2013; Kallstenius; 2010). Ett sekundärt syfte består

av att bidra med en kritisk diskussion och problematisering av skolvalskonsekvenser och marknadisering utifrån begreppen rumslig och social rättvisa (Gewirtz, 1998; Young, 2011; Soja; 2010; Dikec, 2010). Flera svenska studier har fokuserat skolvalskonsekvenser och marknadseffekter (se Ambrose, 2016; Forsberg, 2015; Lundahl m. fl., 2014; Bunar & Sernhede, 2013; Trumberg, 2011). Avhandlingen har en möjlighet att bidra med kunskap till den här viktiga debatten främst genom dels den typen av populationsdata som använts som möjliggör att följa den nationella kvasimarknadens marknadsjustering över tid men även dels det socio-spatiala teoretiska ramverket som möjliggör en analys av hur geografiska ojämlikheter reproduceras över tid av rumsliga processer i det svenska utbildningssystemet.

Marknadisering, skolval och privata aktörer inom utbildning: en bakgrund

Det utbildningspolitiska skiftet som skedde i slutet av 80-talet och början av 90-talet som ledde till de marknadsinriktade utbildningsreformerna mellan 1991 och 1993 är resultatet av en längre politisk utveckling (Richardsson, 2010). Historiskt sett har den ”svenska modellen” förknippats med ett starkt socialdemokratisk arv där en enad, jämlik och statlig utbildningsorganisation varit viktigt (Rojas, 1991). Under 70-talet började det dock höras kritiska röster kring välfärdsstatens misslyckande att realisera en likvärdig skola och önskningar och krav på ökat inflytande för skolor, lärare och familjer ställdes (Lindblad & Lundahl, 1999). En önskan om att öka individuell autonomi låg bakom den socialdemokratiska kommunaliseringsreformen där ansvaret för och finansieringen av skolväsendet försköts från statlig nivå till kommunal nivå (Isaksson, 2011). Kommunaliseringens implementeringsmisslyckande har argumenterats att vara starkt bidragande till stora geografiska och ekonomiska skillnader i utbildning mellan kommuner (Jarl, 2012). I ett decentraliserat skolsystem spelar kommunerna en stor roll i hur den geografiska tillgängligheten av gymnasieutbildning regleras och påverkas (SOU 1993: 85; Larsson, Elldér och Vilhelmsson, 2014). Efter kommunaliseringen följde införande av flera borgerliga utbildningsreformer såsom skolval, skolpeng och privata skolaktörer (Berg m. fl., 2015; Prop 1991/ 92: 95; Prop 1992/ 93: 230). De förutspåddes motverka bostadssegregation, social differentiering i skolor samt effektivisera och kostnadsreducera utbildningsplanering.

Hur utbildning skulle tillhandahållas och organiseras samt hur likvärdighet kunde uppnås i det svenska skolsystemet formulerades om politiskt sett till att dessa mål skulle uppfyllas genom skolval och marknaden utan direkt statlig inblandning (Arreman-Erixon & Holm, 2011; Gustafsson, Hörlin & Vlachos, 2016). Förfarandet för att garantera och sträva efter jämlikhet och likvärdighet förändrades alltså från tankar och idéer om ett enhetligt statligt skolsystem till differentierat, individualiserat och marknadsstyrt skolsystem. I början var både elevers användning av skolvalet och förekomsten av privata friskolor blygsamma men allt eftersom ökade båda frekvent. Gruppen privata friskolor har ökat massivt sedan början på 2000-talet, dock så är deras geografiska expansion tydligt snedvriden. År 2011 är nästan hälften av alla svenska gymnasieskolor drivna av privata aktörer men dessa skolor är fördelade över mindre än hälften av de svenska kommunerna (Skolverket, 2018b). Privata friskolor är, nästan 20 år efter privatiseringsreformen genomfördes, huvudsakligen fortfarande ett urbant fenomen och förekommer i mycket låg utsträckning på gles- och landsbygden (Lundahl, 2016), se Studie I och II).

Teoretiskt ramverk

Avhandlingens socio-spatiala teoretiska ramverk utgår främst från Doreen Masseys rumsliga teorier och begrepp (Massey, 1991a; 1993; 2009; 2005). Liksom flera andra rumsteoretiker med marxistiska rötter (exempelvis Harvey och Lefebvre) så definierar Massey rummet som en socialt producerad och relationell verklighet (Massey, 1991a; 2005). Den rumsliga verkligheten konceptualiseras som en dynamisk och politisk process där rummet är en produkt av maktförhållanden men också av hur dessa markrelationer har en geografi (Massey, 2004; 2009). Masseys begrepp maktgeometri ('power-geometry') beskriver hur maktförhållanden realiseras i rummet genom de geografiska flödena av kroppar som möjliggörs genom globalisering, policy och teknologi (Massey, 1991a). Maktförhållanden realiseras i gruppers rörlighet genom att vissa har möjligheten att ha kontroll över sin rörlighet, genom att vissa grupper mobiliseras och vissa grupper görs orörliga samt att ibland sker denna rörlighet på bekostnad av andra gruppers orörlighet. Dessa relationer betecknar hon som differentierad rörlighet (Massey, 1991a). Hon argumenterar även för att i dessa flöden påverkas även individers upplevelse och möjlighet av rörelse av kön och etnicitet, något som skiljer hennes teoretiska rumsbegrepp från andra rumsteoretiker såsom Harvey (1989) och

Lefebvre (1991). I avhandlingen används dessa rumsliga begrep som ett sätt att förstå de spatiala interaktioner, elevflöden och geografiska effekter som uppstår i marknadsjusteringsprocessen. Vidar så definieras den svenska kvasimarknaden som förhållandet mellan utbildningspolicy, elevers skolval och det utbildningsutbud som är tillgängliga (se Lund, 2008; Massey, 2005; Le Grand, 1991). De rumsliga effekterna av det svenska skolvalet relateras därmed till och förstås igenom mönster i elevers geografiska rörlighet mellan och inom kommuner.

Hur ett utbildningssystem främjar likvärdighet och social rättvisa, både ur policysynpunkt men även rent praktiskt är viktigt att undersöka då utbildning är en central del av människors liv där utbildningsframgång är avgörande för demokratiska processer, samhällelig inkludering och påverkar individers möjligheter att försörja sig själv och sin familj (Berhanu, 2016b; se även Young, 2011). Utifrån det är begreppen social och rumslig rättvisa centrala i en diskussion om skolvalskonsekvenser. Avhandlingen utgår från relationella och strukturella begrepp av rättvisa och orättvisa (Gewirtz, 1998; Young, 2011) där de policys, samhällsinstitutioner och sociala strukturer som skapar, underhåller och bibehåller orättvisa relationer mellan grupper fokuseras analytiskt sett i en kritisk diskussion. Hur det svenska marknadiserade skolsystemet bidrar till ojämna fördelningar av utbildningsmöjligheter, utbildningsutbud och möjligheter till skolval och rörlighet är viktigt att analysera men framförallt den pågående differentieringen inom marknadjusteringen som process kommer fokuseras.

Metod

För att uppfylla avhandlingen syfte har flera analysmetoder använts. Skolvalskonsekvenser och marknadiseringens effekter återfinns på flera nivåer inom utbildningssystemet och därför har olika analytiska metoder använts på nationell, regional och individuell nivå. Tre empiriska studier har genomförts. Den första studien fokuserade på de nationella skolmarknaderna medan den andra studien analyserade en kraftigt expanderande skolmarknad ute på landsbygden. Den tredje studien fokuserade vilka elever som mobiliserats över tid inom storstadsskolmarknaderna (dvs., Stockholm, Göteborg och Malmö).

Data

Data i avhandlingen består av registerdata från Gothenburg Longitudinal Database (GOLD). Sammantaget är 664 895 individer uppdelat på 6 årskohorter (1997, 2000, 2003, 2006, 2008, 2011) inkluderade i de empiriska studierna. Endast studenter mellan 15 och 19 år som påbörjade sitt första år i gymnasiet för varje specifik årskohort inkluderades i analyserna.

Variabler

Variabler som använts i de tre empiriska studierna består av elevernas hemkommun, elevernas skolkommun samt olika bakgrundsvariabler (kön, migrationsbakgrund, föräldrars utbildningsbakgrund, val av gymnasieprogram samt betyg från grundskolan). Utöver det har även variabler om skolägandeskap och kommungruppsindelning som är baserat på befolkningsstorlek och näringslivsstruktur använts (Statistics Sweden, 2015). I äldre registerdata är det vanligt att variabler saknar värden, vilket även förekom i avhandlingens studier. Manuella strategier såsom matchning av data mellan kohorter och variabler användes för att förbättra hemkommuns- och skolägandeskapsvariabeln som var särskilt drabbad i de äldre kohorterna (se Mellén, 2017; Studie II).

Analysmetoder

En geografisk funktionell regionmodell har använts för att analysera skolmarknadernas strukturer för varje årskohort (Skolverket, 2011; 2013; Östh, 2007). Regionmodellen justerades för analys över tid och användes för att definiera de svenska skolmarknadern i varje kohort. Spatiala analysmetoder såsom Moran's I och Hot spot analysis användes även för att bekräfta närvaron av rumsliga korrelationer i rörlighetsflödena mellan kommunerna och geografisk plats (se Ord & Getis, 1995; Griffith, 1992). Analyserna genomfördes i ArcGIS. Dessa mönster av förändringar i rumsliga interaktioner mellan kommuner användes för att stärkta resultaten från den justerade men huvudsakligen beskrivande skolmarknadsmodellen. Denna modell och dessa analyser förekom främst i studie I och studie II.

'Propensity score analysis' (PSA) (se Rosenbaum & Rubin, 1983; Becker & Ochino, 2002) användes huvudsakligen i studie III. Syftet i studien var att analysera sannolikheten för rörlighet inom storstadsmarknaderna givet

studenternas val av gymnasieprogram. PSA användes för att kontrollera för programutbud och geografiska plats av skolor. En direkt jämförelse mellan pendlande och orörliga elever hade gett partiska resultat eftersom pendling inom de urbana skolmarknaderna är starkt förknippade med dessa. Analyserna genomfördes i STATA för att skapa en beroende variabel: 'the propensity score', där elevernas sannolikhet av rörlighet inom skolmarknaderna i storstadsregionerna är villkorat av deras val av gymnasieprogram. Den beroende variabeln användes sedan i flera multipla regressionsanalyser med elevernas bakgrundsvariabler som oberoende variabler. Regressionsmodellerna sorterades vidare på skolägandeskap (kommunala skolor vs. privata skolor), där modell 1 inkluderade huvudeffekter och modell 2 inkluderade interaktionseffekter.

Resultat

De empiriska studiernas analysförfarande samt resultat presenteras separat i tre avsnitt nedan.

Studie I

I studie I var syftet att analysera de rumsliga dimensionerna av den utbildningsmässiga omstruktureringen av gymnasieskolmarknaden som skedde mellan 1997 och 2011, som ett resultat av de marknadsinriktade skolreformerna som infördes i början av 1990-talet. Utifrån sex gymnasieskohorter och den geografiska skolmarknadsmodellen (Skolverket, 2011; 2013) analyserades marknadsstrukturernas formation över tid. Inom dessa undersöktes den geografiska fördelningen och placeringen av kommunala och privata gymnasieskolor. Studiens resultat visar på ökande elevflöden mellan kommuner när marknadsstrukturerna koncentreras runt befolkningstäta och urbaniserade kommuner medan mindre, instabila och landsbygdsregioner drabbas av stora utflöden av studenter. Simultant med den spatiala utvecklingen så omfördelas även gymnasieskolorna mellan kommunerna. Trots att gruppen gymnasieskolor ökar kraftigt (främst genom etableringen av privata friskolor) så sjunker antal skolkommuner efter 2006. Slutsatserna inbegriper hur dessa rumsliga interaktioner och utbildningsmässiga omstrukturering på kvasimarknaden påverkar hur skolvalet konkretiseras beroende på geografisk plats där vissa elever har flera skolor i sitt lokala närområde att välja mellan medan andra elever har inga eller väldigt

få skolor och tvingas att vara rörliga utanför sin hemkommun för att få tillgång till gymnasieutbildning. Utfallet av den här marknadiseringprocessen relateras till framtida begränsningar av skolvalsmöjligheter för framtida gymnasieelever.

Studie II

Studie II är främst en fallstudie där en särskilt intressant region i Värmlandsområdet fokuserades, nämligen Karlstad skolmarknad. Fallstudien av skolmarknaden motiverades av resultaten från Studie 1 som visade på en kraftig geografisk expansion av den skolmarknaden mellan 1997 och 2008. Expansionen visade samma egenskaper som storstadsskolmarknaderna men skedde i mitten av Sverige där kommunerna är mycket mindre befolkningstäta. Marknadens egenskaper var därför väldigt värdefulla för att förstå skolvalskonsekvenser och marknadseffekter utanför urbaniserade regioner och kommuner. Studiens detaljerade beskrivning av de spatiala interaktionerna (studentflöden) och den geografiska utvecklingen av utbildningsutbud gav viktig information om förutsättningar för marknadsexpansion på glesbygden och landsbygden.

Studie III

Syftet med studie III var att undersöka skolvalsmekanismen i relation till vilka gymnasieelever som mobiliserats inom tre storstadsskolmarknader mellan 1998 och 2011, givet deras val av gymnasieprogram utifrån en kontrafaktisk analys (dvs., propensity score analysis). Studiens resultat visar hur students skolvalsbaserade rörlighet inom marknaden delvis förklaras av students backgrundsvariabler men effekten av det beror på val av skola (kommunal vs. friskola) samt inom vilken storstadsregion valet genomföras. Effekten av betyg är också avhängig skolägandeskap – där högre betyg har en positiv effekt på rörlighet för elever inom kommunala gymnasieskolor och en negativ effekt på rörlighet för elever inom friskolor. Analysen identifierar vidare maktgeometrins egenskaper inom marknaderna där svenska elever (både flickor och pojkar) mobiliseras i en liten större utsträckning än elever med utländsk bakgrund. Effekten av denna är starkt relaterat till geografisk plats, där skillnaderna är minst i Göteborgsregionen men störst i Malmöregionen.

Diskussion

Avhandlingen huvudsakliga syfte var att undersöka och analysera de rumsliga effekterna av skolvalet på den svenska gymnasieskolmarknaden. Avhandlingens kunskapsbidrag är främst gällande utfallet från skolsystemets marknadsjustering såsom marknadseffekter, skolvalskonsekvenser och aktualiserandet av den svenska marknadiseringens geografi. De huvudsakliga resultaten visar på ökande elevrörlighet mellan kommuner som främst är riktad mot urbaniserade och populationstäta kommuner. Förändringar i utbildningsutbudet på kommunnivå visar också på en omstrukturering av gymnasieskolor på nationell nivå från landsbygden som drabbats av skolstängningar medan utbudet av gymnasieskolor har exploderat i storstadsregionerna. Kvasimarknadens geografiska egenskaper präglas av differentiering genom marknadsjustering baserat på plats. Urbaniseringens effekter har förstärkts inom skolmarknaderna över tid. Resultaten visar även på närvaron av geografiska variationer och en differentierad rörlighet i främst storstadsområdena. Dessa viktiga komponenter i en pågående marknadiseringsprocess visar på att skolvalet konkretiseras olika beroende på geografisk plats samt tidpunkt. Både rumsliga och tidsmässiga aspekter påverkar vilka elever som kan välja, vad de kan välja och hur dessa val ger konsekvenser för vilka slags val som är tillgängliga för framtidens gymnasielever.

I en diskussion om skolvalskonsekvenser och marknadsutfall är begreppet marknadsmisslyckande centralt. I studie 2 är särskilt det här begreppet fokuserat och relateras till ett misslyckande inom den specifika regionen gällande en (orättvis) omfördelning av gymnasieskolor mellan skolmarknadens kommuner. Men det begreppet grundas i ett antagande om att en kvasimarknad kan vara rättvis i sin marknadsjustering (Le Grand & Bartlett, 1993; Lowery, 1998). Men frågan är inte huruvida ett marknadsmisslyckande har skett eller inte. Frågan är istället huruvida utbildningspolicys och samhällsinstitutioner som har möjliggjort, bevarar och upprätthåller marknadiseringsprocessens reproduktion av ojämlikheter socialt och rumsligt sett inom den svenska kvasimarknaden (se Gewirtz, 1997; Young, 2011; Dikec, 2010). Diskussionen visar på hur orättvisa geografier manifesteras genom hur utbildningsmöjligheter, utbildningsutbud och valmöjligheter omfördelas mellan rum och platser (Young, 2011; Massey, 1991a; 2009; Soja,

2010). Marknadsjusteringen över tid reproducerar orättvisor över tid som påverkar och drabbar främst gles- och landsbygden, skolor i utsatta områden samt begränsar val och rörlighet för minoritetsstudenter som försöker navigera de svenska storstadsskolmarknaderna. En viktig slutsats är att kvasimarknadens geografiska egenskaper är ojämlika, därför är skolvalet ingen lösning på social differentiering utan endast en åtgärd som förstärker dessa skillnader över tid och rum.

Begränsningar och framtida forskning

Avhandlingens begränsningar rör främst i hur utbildningsmöjligheter samt utbildningsutbud operationaliserats, där mer detaljerade analyser av exempelvis programutbud, skolprofiler och skillnader i dessa mellan utbildningsaktörer skulle kunna bidragit med mer kunskap kring marknadsjustering och geografisk tillgänglighet av gymnasieutbildning. Dock hade analysens komplexitet blivit svårare att genomföra på nationell nivå samt att hantera longitudinellt. Kritik gentemot den statistiska operationaliseringen av skolval och rörlighet genom korsandet av kommungränser skulle även den vara motiverad och den relaterar till individers faktiska beslut, val och livsbana. Framtida forskning skulle kunna fokusera på dessa metodologiska utmaningar, såsom att utveckla och inkludera olika geografiska skalor i statistiska analyser eller undersöka vidare anpassningar av skolmarknadsmodellen och hur dessa påverkar analytiska resultat. Värdefull kunskap skulle även kunna komma från undersökningar av hur den geografiska konkretiseringen av skolvalet är relaterat till egenskaper och kvalitéter specifikt för andra kommuner och områden än de som fokuserats i avhandlingen. Ytterligare fallstudier, av exempelvis Malmö skolmarknad skulle komplettera avhandlingens resultat och bidra till en större förståelse för de avvikelser som upptäcktes i studie 3 när storstadsområdena jämfördes.

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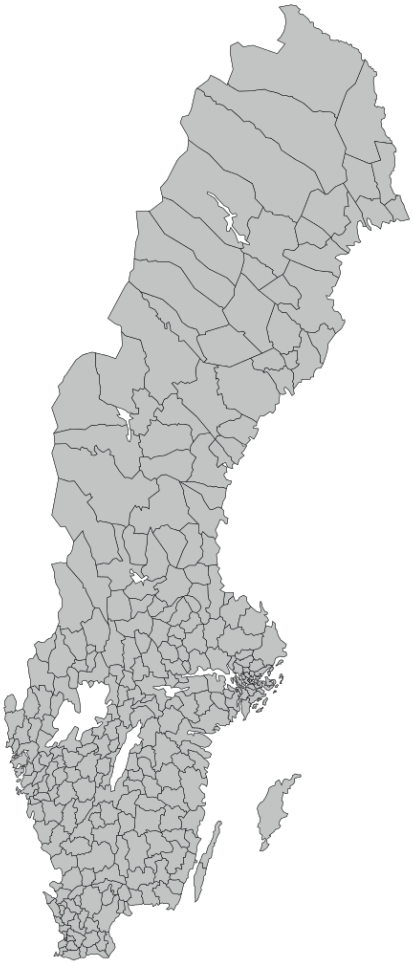
Appendix



Municipal divisions.

Table 5. Frequency of age in upper secondary students

	Age			
	=<16	17	=>18	Total
1997	92674 (94,63)*	4865 (4,97)	392 (0,4)	97931
2000	94281 (95,04)	4572 (4,61)	349 (0,35)	99202
2003	104152 (95,17)	4886 (4,46)	400 (0,37)	109438
2006	120126 (95,29)	5543 (4,39)	395 (0,31)	126154
2008	114776 (94,67)	6071 (5,01)	396 (0,33)	121243
2011	90754 (82)	13095 (12)	7078 (6)	110927

*Percentages in parentheses

Table 6. Within- Stratum differences in Compulsory grades between commuters (t1) and non-commuters (t0) for Gothenburg school market

	T_0			T_1			
Stratum	**N**	**M**	**SD**	**N**	**M**	**SD**	**t-value**
y1998							
1	909	116.27	58.78	56	128.66	59.01	-1.53
2	4650	226.04	42.58	612	232.98	48.03	-3.73***
3	452	191.81	39.87	161	200.19	46.39	-2.19**
4	989	197.43	38.92	486	197.25	43.05	0.08
5	99	187.07	45.95	91	198.46	45.81	-1.71
6	22	212.96	34.46	37	199.32	27.11	1.69
y2003							
1	540	85.08	52.67	81	112.84	59.56	-4.35***
2	1579	252.77	44.56	370	259.42	48.78	-2.54**
3	1988	232.37	44.85	604	243.74	43.81	-5.49***
4	1027	185.85	38.89	385	190.09	34.60	-1.88
5	305	198.39	61.47	154	199.77	58.58	-0.23
6	1055	199.12	52.57	810	205.91	48.51	-2.86***
7	71	195.85	44.95	87	209.14	40.81	-1.95
8	55	191.18	57.54	144	206.46	44.83	-1.98**
y2008							
1	464	85.83	54.39	67	97.01	62.91	-1.54
2	4079	238.99	49.93	1850	244.93	47.04	-4.32***
3	1311	191.99	43.50	760	197.28	39.55	-2.76***
4	837	209.47	55.34	719	216.72	49.15	-2.72***
5	166	189.37	54.53	236	207.75	39.88	-3.91***
6	48	184.27	66.24	182	198.52	45.86	-1.73
y2011							
1	483	81.07	55.27	104	103.75	60.11	-3.74***
2	1627	236.11	62.37	753	241.34	59.97	-1.93*
3	2916	226.83	46.49	1546	235.8	43.77	-5.97***
4	187	217.03	57.1	129	226.36	59.94	-1.4
5	1137	194.8	55.59	906	197.48	51.15	-1.12
6	126	160.99	51.8	141	177.98	54.91	-2.59***
7	30	196.67	36.16	50	206.18	40.88	-1.05
8	46	195.76	50.4	168	194.97	46.95	0.09

*** $p<0.01$, ** $p<0.05$

Table 7. Within- Stratum differences in Compulsory grades between commuters (t1) and non-commuters (t0) for Malmö school market

	T_0			T_1			
Stratum	**N**	**M**	**SD**	**N**	**M**	**SD**	**t-value**
y1998							
1	398	101.43	53.96	41	120.61	52.82	-2.17**
2	1125	217.54	37.14	264	222.46	34.93	-1.96**
3	1082	225.49	51.14	308	225.71	47.13	-0.07
4	524	187.52	37.47	305	189.57	32.75	-0.8
5	145	170.34	31.23	133	183.43	42.44	-2.98***
6	18	288.89	23.98	50	281.90	26.46	0.98
7	5	177.00	47.51	124	212.94	46.01	-1.71
y2003							
1	451	79.36	48.91	35	118.57	55.30	-4.53***
2	1426	236.99	44.39	386	249.73	41.91	-5.06***
3	300	174.73	40.32	113	186.15	35.47	-2.65***
4	786	195.66	43.32	404	197.41	43.46	-0.66
5	155	195.87	70.88	117	206.28	64.20	-1.25
6	130	170.46	55.62	151	191.03	42.94	-3.49***
7	15	186.67	64.55	144	231.15	46.53	-3.39***
y2008							
1	397	91.80	58.03	46	76.52	67.06	1.66
2	1511	247.74	43.68	426	253.15	44.24	-2.25**
3	232	182.91	47.21	94	194.79	40.17	-2.15**
4	562	205.25	43.32	258	210.64	48.99	-1.59
5	514	203.57	42.90	311	205.29	46.56	-0.54
6	239	190.84	55.68	169	200.56	53.07	-1.77
7	63	145.95	47.97	90	167.72	42.10	-2.97***
8	51	210.39	40.51	81	215.00	46.04	-0.59
9	16	210.31	69.29	129	236.82	55.71	-1.75
y2011							
1	435	88.07	53.15	104	95.91	52.12	-1.36
2	796	255.42	47.39	298	259.33	50.8	-1.19
3	1330	224.03	48.18	652	235.93	47.25	-5.2***
4	469	173.68	42.7	377	182.15	43.04	-2.86***
5	371	189.76	57.66	468	197.19	55.02	-1.9
6	22	182.96	44.55	173	211.53	43.41	-2.9***

*** p<0.01, ** p<0.05

Table 8. Within- Stratum differences in Compulsory grades between commuters (t1) and non-commuters (t0) for Stockholm school market

	T_0			T_1			
Stratum	**N**	**M**	**SD**	**N**	**M**	**SD**	**t-value**
y1998							
1	1192	96.22	52.31	107	100.89	57.47	-0.88
2	7929	223.65	42.47	1725	235.38	47.72	-10.16***
3	476	168.35	35.35	135	173.33	32.18	-1.47
4	867	204.27	46.82	352	221.08	48.61	-5.62***
5	648	167.42	34.66	351	170.80	35.45	-1.47
6	683	194.47	43.98	560	199.88	43.85	-2.16**
7	488	193.62	39.10	565	212.03	40.47	-7.48***
8	10	148.50	53.13	21	169.05	45.54	-1.11
9	38	203.03	53.61	223	201.64	44.64	0.17
y2003							
1	1039	82.02	52.84	160	95.09	60.52	-2.86***
2	3015	252.36	43.84	848	257.55	45.90	-3.01***
3	4543	224.49	49.37	1491	226.49	51.19	-1.35
4	172	171.66	48.58	73	176.30	43.68	-0.71
5	1378	173.44	41.92	777	182.75	44.99	-4.82***
6	2069	208.75	54.86	1494	219.41	50.51	-5.92***
7	38	184.87	31.18	42	182.86	29.82	0.3
8	118	198.09	35.74	198	206.24	41.64	-1.77*
9	54	216.48	51.97	230	213.78	48.66	0.36
y2008							
1	1369	91.49	55.14	282	110.04	62.17	-5.03***
2	3381	263.99	43.66	1715	261.62	44.52	1.82
3	5169	237.71	47.84	3212	237.29	46.33	0.4
4	1865	186.70	43.35	1651	192.01	41.70	-3.69***
5	1353	208.03	54.30	1535	218.67	49.23	-5.52***
6	246	190.98	43.04	455	209.42	41.10	-5.58***
7	81	214.88	59.73	328	225.05	50.55	-1.56
y2011							
1	1001	90.85	58.99	305	102.3	60.65	-2.95***
2	2565	272.67	42.52	1647	275.2	41.6	-1.9*
3	6410	226.88	51.44	5426	227.19	50.61	-0.33
4	750	172.18	56.94	822	184.23	50.17	-4.46***
5	1226	214.98	54.81	1583	221.41	50.2	-3.23***
6	243	163.79	59.32	424	185.13	50.8	-4.91***
7	93	189.36	58.1	337	213.44	55.34	-3.68***
8	16	185	85.44	74	195.73	41.29	-0.76

*** p<0.01, ** p<0.05

Studies I-III