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Grades in the School Market

Socioeconomic Background, Provider Structure, and Final Grades in Compulsory School in Sweden, 1998–2022

Summary:

Betyg på skolmarknaden

Socioekonomisk bakgrund, huvudmannastruktur och slutbetyg i svensk grundskola, 1998–2022

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Abstract

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This dissertation examines associations between socioeconomic background, provider structure, local school-market context, and final merit ratings in compulsory school in Sweden, 1998–2022. Merit ratings are treated as educational outcomes and institutional signals used for selection into upper-secondary education in a system shaped by school choice, independent-school expansion, and criterion-referenced grading.

Using Swedish register data complemented by longitudinal cohort data, the studies combine descriptive and correlational analyses, fixed-effects regression, observed–predicted models, and propensity score matching. The studies examine changes over time, local school markets and provider structures, and variation across school subjects.

First, between 1998 and 2020, correlations of merit ratings with parental education and municipal median income strengthened over time and varied across local school-market contexts. The parental-education correlation was consistently strongest in municipalities with larger independent-school sectors, with a similar overall pattern for municipal income. Second, between 2014 and 2022, for-profit independent schools generally had observed merit ratings that lay further above model-predicted levels than municipal schools, after adjustment for student composition and local context. In most municipalities, the for-profit–municipal gap was positive and positively correlated with the local share of students in for-profit independent schools. Larger gaps were also associated with larger merit-rating advantages for students from socioeconomically advantaged households. Third, subject-level analyses combined longitudinal patterns from 1998–2017 with later comparisons under the curriculum and grading system introduced in 2011. English and Technology stood out for grade growth, socioeconomic differentiation, school-market differences, and observed–predicted subject-grade discrepancies. Practical-aesthetic subjects also showed strong grade growth and widening socioeconomic differences. Final grades and national test scores in Swedish, English, and Mathematics were positively related in both school types in the matched 2014 cohort, with broadly similar slopes. Between 2014 and 2022, non-profit independent schools showed larger positive subject-grade discrepancies than for-profit independent schools in all six examined subjects, although for-profit provider groups varied substantially.

The dissertation concludes that final grades in compulsory school should be understood as stratified institutional signals. They remain linked to demonstrated performance, but their distribution, comparability, and selection value also vary with social background, local school-market structure, provider organization, and differences between school subjects. These findings have implications for grade comparability, educational equity, and the governance of grading in a marketized school system.

Keywords: sociology of education, grade inflation, school grades, school marketization, socioeconomic background, independent schools, compulsory education, merit ratings, grade comparability, provider structure, educational equity, Swedish schools.

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Preface

Several years before beginning my doctoral studies, while working as an upper-secondary teacher, I was in contact with Donald Broady about the possibility of pursuing research in Sociology of Education. I had fond memories of him as a teacher at the Department of Education at Uppsala University, and his teaching had left a lasting impression on me. More than a decade later, I find myself writing the foreword to this dissertation. Some years after those initial contacts, I began corresponding with Mikael Börjesson, and later with Esbjörn Larsson, about the possibility of a doctoral position. I remain grateful to all three for taking my early interest in research seriously and helping to make this path possible.

Many people have contributed to this journey. First, I would like to thank my supervisors, Håkan Forsberg, Maria Rasmusson, and Andreas Alm Fjellborg, for their generous support, patience, and guidance throughout the process. I am deeply grateful for everything you have done. I owe a particular debt to Håkan, my main supervisor, for helping me make the difficult transition from a background in the humanities to the craft of quantitative social science, for his help in securing access to the SCB data used in the dissertation, and for his continued support and guidance in an academic world that is not always easy to navigate. Maria, thank you for your encouragement and for the many insights you have shared about testing, grading, and assessment. Andreas, thank you for all your help with the analyses and for the many discussions of methodological and technical solutions whenever problems arose.

I owe a great deal to my research school, ASSESS, and to the University of Gothenburg. Both were central to my methodological development and to my growing familiarity with large-scale educational data, database management, quantitative analysis, and research on grading. I especially want to thank Jan-Eric Gustafsson, Alli Klapp, Stefan Johansson, and the late Monica Rosén. I am particularly grateful to Jan-Eric for his help with access to the GOLD data and to Alli for her help with the UGU data. I am grateful as well to Anna-Maria Fjellman and Linda Borger for rewarding collaboration and many valuable exchanges, and to Anna Soloveva and Daniel Bolander Blomberg, fellow doctoral students in the research school who, like me, worked within Sociology of Education.

My doctoral studies were further enriched by opportunities beyond Uppsala and Gothenburg. I am grateful to Erasmus+ for making possible my research stay

at the Fondation Maison des Sciences de l'Homme in Paris, and to Sigtunastiftelsen for a writing week that gave the dissertation new momentum at a critical stage of the work. I am also grateful to the Department of Education at Uppsala University for enabling me to attend and present my work at several QRM conferences and at Sociologidagarna, and, above all, for the opportunity to present my research at the American Sociological Association's 2025 Annual Meeting in Chicago.

Three research environments have provided particularly important intellectual and collegial contexts for the dissertation: BUS, under the leadership of Håkan Forsberg and Andreas Alm Fjellborg; SHED, under the leadership of Esbjörn Larsson; and QRM Uppsala, under the leadership of Nils Kirsten. I have benefited greatly from the seminars, discussions, and academic exchanges in all three environments.

At different stages of the process, the dissertation benefited from formal seminar readings. I am grateful to Andreas Alm Fjellborg, Andreas Melldahl, and Stefan Johansson for their careful readings and constructive comments on the manuscripts presented at my 10, 50, and 90 percent seminars, respectively. I also want to thank the members of my reading group, especially Emil Bertilsson and Esbjörn Larsson, for careful readings, constructive criticism, and generous advice at a crucial stage of the work. I am grateful, too, to the many fellow doctoral students who, over the years, have generously read and commented on parts of the dissertation. I would also like to thank Laura Machat-From for her careful language review of the manuscript. My thanks also go to Andreaz Fagerberg, a long-standing friend and fellow academic who has been a valued sounding board over the years. I am grateful to my friend and fellow author Gunnar Ardelius for his steadfast support.

Teaching has been another important part of these years, and I am grateful to the students I have met at Uppsala University for the questions, discussions, and perspectives they have brought with them. I would also like to thank David Sjögren, my director of studies, for his support in my work as a teacher.

My years as chair of UDR, the doctoral council for educational sciences at Uppsala University, were important in shaping me as an academic. I would therefore like to thank the secretaries and vice-chairs who made that responsibility manageable: Emma Nilsson-Tysklind, Fredrika Nyström, and Caitlin McEvoy. Caitlin, I am especially grateful for your collegiality and generosity, the many conversations over the years, and your willingness to step in and provide a final language review at such a late stage of this work. I am also grateful to Esbjörn Larsson, former dean of the Faculty of Educational Sciences, and Jonas Almqvist, head of the Department of Education, as well as to the many colleagues with whom I served on boards,

committees, and working groups. The constructive collaboration in these settings gave me valuable insight into the workings of the university.

At one point, we were nearly sixty doctoral students across Sociology of Education and the ASSESS research school. I cannot mention everyone individually, but I remain grateful to all of you for the collegiality, conversations, and shared experiences that marked those years.

Many people in my private life have been central to my ability to complete this dissertation. First and foremost, I want to thank my loving wife, Felicia, whose love, encouragement, and unwavering faith in me have sustained me throughout these years. Together with our sons, Liam and Thor, she has given me a safe harbor beyond academic life. I am grateful to her as well for creating the cover image for this book. Thank you, my love. I could not have done this without you.

I also want to thank my parents, Jan and Jeanette, for their constant and unconditional support and for the values they instilled in me. Finally, I wish to acknowledge my late maternal grandparents, Tommi and Solbritt, who nurtured my love of books, museums, and culture.

This dissertation is the result of many years of hard work, and I hope that readers will find something of value in it.

Uppsala, September 2026
Tommie Rappe Petersson

Abbreviations

CI	Confidence interval
CPI	Consumer Price Index
FE	Fixed effects
GOLD	Gothenburg Educational Longitudinal Database
IFAU	Institute for Evaluation of Labor Market and Education Policy
Lgr11	Swedish compulsory-school curriculum introduced in 2011
Lpo94	Swedish compulsory-school curriculum introduced in 1994
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary least squares
PISA	Programme for International Student Assessment
PSM	Propensity score matching
SALSA	Swedish National Agency for Education's tool for local association analyses (Skolverkets arbetsverktyg för lokala sambandsanalyser)
SCB	Statistics Sweden (Statistiska centralbyrån)
SD	Standard deviation
SE	Standard error
SEK	Swedish krona
SES	Socioeconomic status
SMD	Standardized mean difference
SOU	Swedish Government Reports (Statens offentliga utredningar)
TIMSS	Trends in International Mathematics and Science Study
UGU	Evaluation Through Follow-Up (Utvärdering genom uppföljning)

CHAPTER 1

Introduction

In Sweden, final grades in compulsory school carry considerable weight. They are used to rank students when they apply to upper-secondary education, and they can affect which programs and schools become available to them (Skolverket, 2010, 2012). Grades therefore matter not only because they summarize school performance but also because they help distribute educational opportunities.

This makes grade comparability in a common national selection system the central problem. If grades are used to rank students across classrooms, schools, municipalities, and cohorts, the same grade must carry a reasonably similar meaning across these contexts. A high grade from one school should not mean something substantially different from the same grade from another school. If it does, selection risks being based not only on students' demonstrated mastery but also on where and under what conditions their grades were produced.

The same issue also has a social-stratification dimension. Students' socioeconomic background is strongly associated with school outcomes (Boudon, 1974; Sirin, 2005), and Swedish research shows that the association between parental education and final grades has strengthened over time (Skolverket, 2012; Yang Hansen & Gustafsson, 2019). If grades become less comparable across contexts, the consequences may therefore not be socially neutral. Grade comparability matters both because grades are used for selection and because they may shape how socioeconomic advantage is converted into educational credentials.

The question is especially important in Sweden because final grades are teacher-assigned rather than produced by fully external examinations (SOU 2020:43). National tests provide a shared reference point, and since 2018, teachers have been required to give particular weight to test results when assigning final grades. However, available evidence suggests that this reform has not had any clearly measurable effect on grading comparability (Prop. 2017/18:14; Riksrevisionen, 2022). Grades are therefore linked to demonstrated performance, but they are also produced within local assessment environments.

These local environments have changed substantially since the late 1980s. Municipalization shifted responsibility for schooling to municipalities (SOU 2014:5). School choice and publicly funded independent schools (*fristående*

skolor in Swedish) changed student flows and provider structures (Prop. 1991/92:95; SOU 2020:28). Goal- and criterion-referenced grading changed the logic through which teachers assign grades (SOU 2020:43; Utbildningsdepartementet, 1994). Together, these reforms formed the institutional setting in which grades are produced, interpreted, and used for selection under more socially and locally varied conditions (SOU 2014:5; SOU 2020:28; SOU 2020:46).

The dissertation examines this question by following final merit ratings in compulsory school (*meritvärde* in Swedish) in Sweden between 1998 and 2022. The central question is how these grade-based signals are patterned by socioeconomic background and by the local school-market contexts in which grades are produced, and what these patterns imply for educational equity, grading validity, and grade comparability.

Concerns about grade comparability have also become visible in public debate and institutional practice. In 2023 and 2024, the Stockholm School of Economics explicitly raised concerns about overly generous grades (*glädjebetyg* in Swedish) and introduced an additional admissions-test requirement for applicants competing by upper-secondary grades (Stockholm School of Economics, 2024; Strannegård, 2023). Similar concerns about the reliability and portability of grades appear in audits, agency reports, and professional contexts where grades are used as signals of readiness (Hedin Hirasawa, 2025; Riksrevisionen, 2022). These examples do not establish that grades have risen faster than knowledge, but they illustrate why grade comparability has become a practical challenge for selection, instruction, and governance.

These concerns are visible in Swedish educational developments. A substantial body of research has documented the strong and persistent association between students' socioeconomic background and school outcomes (Boudon, 1974; Sirin, 2005). In Sweden, average grades have continued to rise while large-scale knowledge indicators have shown stagnation or decline, including further declines in mathematics and reading performance between PISA 2022 and PISA 2025 (OECD, 2023, 2026; Skolverket, 2026b). At the same time, the share of students completing compulsory school who do not qualify for upper-secondary education has increased (Skolverket, 2026b), and the association between parental education and students' final grades has grown stronger over time (Skolverket, 2012; Yang Hansen & Gustafsson, 2019). There is no single agreed-upon explanation for these developments, but they make the meaning and comparability of grades an empirical question rather than only a technical one.

These trends should not be read as a direct metric comparison between grades and PISA scores. Final merit ratings are administrative credentials based on teacher-assigned subject grades for entire cohorts, whereas PISA uses externally

administered assessments in sampled cohorts at three-year intervals. The comparison is therefore diagnostic: diverging trends raise questions about grade comparability and the stability of the grade signal, but they do not imply that the two measures should move identically.

The rest of this chapter clarifies the institutional background and the evaluative lenses used in the dissertation. It first describes the main governance, provider, and grading reforms that have changed the conditions under which grades are produced. It then explains how equity and validity are used to interpret grade comparability across social and local contexts. Finally, it briefly connects the introductory question to the empirical sequence that is specified in Chapter 2 and operationalized in Chapter 5.

Institutional Shifts and Understanding Grades

The following sections describe the institutional changes that condition how grades are produced and read. From the late 1980s through the 2010s, Sweden's school system underwent three broad shifts that reshaped the structure, governance, and logic of compulsory education. These shifts included decentralization of governance and responsibilities; provider diversification and expanded parental choice through the growth of publicly funded independent schools; and the transition to goal- and criterion-referenced grading (Prop. 1991/92:95; SOU 2014:5; SOU 2020:43; Utbildningsdepartementet, 1994). Goal- and criterion-referenced grading refers here to teachers judging demonstrated mastery against stated goals and criteria, rather than against relative rank distributions. Together, these changes altered how grades are produced, interpreted, and used across educational contexts.

The formal grading system is part of this institutional background. Under the 1980 curriculum for compulsory school (Lgr80), teachers assigned grades on a norm-referenced scale from 1 to 5, with 1 as the lowest grade and 5 as the highest (Skolöverstyrelsen, 1980). From 1998 to 2012, final grades in compulsory school were assigned under the 1994 curriculum for the compulsory school system (Lpo94), which used the passing grades Pass [*Godkänd*, G], Pass with distinction [*Väl Godkänd*, VG], and Pass with special distinction [*Mycket Väl Godkänd*, MVG] (Skolverket, 2020b; Utbildningsdepartementet, 1994). Unlike in upper-secondary school, the Lpo94 scale for compulsory school did not include a separate fail grade such as IG. A student who did not meet the requirements for G could instead leave a subject without a grade; in such cases, the school was required to provide a written assessment of the student's knowledge development (Grundskoleförordning [1994:1194], chap. 7, § 9). From 2013 onward, students

leaving compulsory school received final grades under the 2011 curriculum for compulsory school (Lgr11), using the alphabetic scale F to A, where F denotes failure and E through A denote passing grades (Skolverket, 2011, 2020b). A key difference from the Lpo94 scale is that Lgr11 includes the intermediate passing grades D and B (Skolverket, 2011; SOU 2020:43). Revised curricula and grading provisions were introduced through the 2022 curriculum for compulsory school (Lgr22) after the dissertation's main longitudinal endpoint, while a further reform planned for 2028 is intended to replace the A–F scale with a ten-step scale and to connect merit values more directly to national final tests (Prop. 2025/26:197; Skolverket, 2022).

For this reason, shifts in grading regimes and grading scales need to be considered when interpreting the outcome measures and the patterns observed over time. The methodological handling of merit-rating and subject-grade scales is explained more fully in Chapter 5.

Municipalization, Governance, Local Capacity, and Comparability

The municipalization reform in Sweden was decided in 1989 and implemented in 1991. The decentralization of compulsory schooling to the municipal level was framed as a way to align accountability with those closest to service delivery (SOU 2014:5). Later evaluations emphasize that moving operational and financial responsibility to 290 municipalities affected leadership pipelines, recruitment, and monitoring routines, with heterogeneous administrative capacity emerging across municipality types (SOU 2014:5). These differences matter because moderation, local calibration, and the local implementation of criteria are the mechanisms through which comparability is achieved in a criterion-referenced system. In small or fiscally constrained municipalities, principals reported difficulties maintaining stable staffing and time for joint assessment work, while large urban municipalities faced coordination challenges tied to size and provider mix, both of which can shape how identical descriptors are interpreted in practice (SOU 2014:5).

While municipalization and choice reforms defined the 1990s, the 2010s and 2020s brought new challenges, most notably school segregation, uneven local capacity, and renewed debate about the state's responsibility for schooling, issues documented in policy inquiries and national monitoring (Skolverket, 2025; SOU 2020:28; SOU 2020:46; SOU 2022:53). With the governance context in view, I now turn to how choice and provider diversification shaped the local environments in which grades are produced.

School Choice, Provider Diversity, and Grade Comparability

School marketization refers here to the institutional shift through which decentralization, school choice, and the growth of publicly funded independent schools altered the organization of Swedish schooling (Prop. 1991/92:95; SOU 2020:28). This shift did not produce identical local conditions across Sweden. In some municipalities, most students continued to attend municipal schools. In others, families encountered a denser landscape of municipal, non-profit independent, and for-profit independent providers. I use local school-market context to refer to these municipal settings. Market saturation refers more specifically to the municipal share of students enrolled in independent schools, while provider structure refers to the distribution of students across municipal, non-profit independent, and for-profit independent providers.

The expansion of school choice and provider diversification did not affect all municipalities in the same way. Student flows were rerouted and the range of school profiles widened, but these changes were unevenly distributed across the country. School-choice opportunities and provider density are unevenly distributed across the urban–rural landscape, with rural settings often offering more limited practical choice than urban settings (Fjellman, 2019b). This means that school choice is not only an individual family decision. It is also a local institutional condition that varies with provider density, settlement structure, and the practical availability of alternatives.

In municipalities with relatively high independent-school saturation, schools operate in environments where intake, reputation, and perceived value are more visible parts of everyday organizational life. This does not mean that principals or teachers simply manipulate grades. The more cautious claim is that grading takes place in institutional settings where competitive pressures may affect borderline judgments, expectations, and the perceived value of grades at the margins (SOU 2020:28; SOU 2020:46; Wikström & Wikström, 2005). For a dissertation concerned with comparability, the issue is whether the information carried by grades remains stable across such settings.

Policy inquiries link school choice to increasing between-school differences and argue for measures to reduce segregation and strengthen compensatory funding (SOU 2020:28; SOU 2020:46). This matters because student composition, local capacity, and provider structure form part of the everyday context in which teachers interpret criteria and schools organize assessment work. Grades are still teacher-assigned judgments under national criteria, but those judgments are made in schools with different intakes, provider profiles, and local market positions. The issue is therefore not individual intent, but whether local institutional conditions affect how well the same grade label travels across contexts.

These provider changes interacted with the criterion-referenced grading regime described above. Because grades are no longer tied to a fixed norm-referenced distribution, average grade levels can rise even when underlying mastery does not, and identical grade labels may conceal differences in local assessment practice (Wikström & Wikström, 2005). Relatedly, Hjorth-Trolle et al. (2022) show that grading practices can affect the socioeconomic gradient in GPA. The point is not that market exposure determines grading, but that decentralization, provider diversification, and criterion-referenced assessment together make grade comparability an institutional question. The next section therefore sets out the two evaluative lenses used in the dissertation, namely equity and validity.

Equity and Validity: Stakes and Interpretation

Two questions follow from this institutional framing. The equity question is whether comparable demonstrated mastery is translated into comparable grades across social and local contexts. The validity question is what grades represent when they are produced under different governance, provider, and assessment conditions, and how stable that meaning remains when grades are used for selection. I use these as evaluative lenses rather than as separate theories. Equity concerns the fairness of the translation of mastery into grades, while validity concerns the defensibility of the grade signal once it travels across contexts.

In the Swedish debate, *likvärdighet* is commonly used to refer to comparable opportunities and fair conditions across school contexts, including the fair translation of demonstrated mastery into comparable grades (Skolverket, 2025; SOU 2020:46).

In this dissertation, the equity issue is not whether grades can remove all social differences in educational opportunity. They cannot. The more specific issue is whether comparable demonstrated mastery is translated into comparable grades when students are assessed in different social and local contexts. If two students demonstrate similar mastery but receive different grades because assessment practices, moderation routines, or local expectations differ, they enter the same admissions competition with credentials that are not fully comparable (Coleman et al., 1966). If the association between parental education and grades strengthens over time, grade-based selection may also become more closely tied to social background.

Under parental choice, schooling also becomes a family-level decision because families' resources and preferences interact with local market structures in ways that can shape grade comparability (Brandén & Bygren, 2022; Fjellman, 2019a). This matters for program eligibility, school admission, and other threshold-based

selection decisions. Over time, small systematic divergences may compound. A single slightly higher grade can change a student's rank order in competitive admissions, and a cluster of such divergences within a municipality can tilt opportunities for entire cohorts.

Equity, Gradients, Segregation, and Compensatory Resources

From an equity perspective, policy proposals to reduce segregation and redesign admissions and funding instruments are explicitly motivated by *likvärdighet* concerns (SOU 2020:28; SOU 2020:46). The equity problem is that students are assessed within schools and municipalities that differ in student composition, staffing stability, provider structure, and compensatory capacity. Even when the formal grading criteria are national, the local conditions for interpreting and applying those criteria may differ.

This does not mean that every difference in grades reflects unfair grading. Schools serve different student populations, and students arrive with different prior knowledge, resources, and needs. The equity issue is narrower. It concerns whether schools have the capacity to translate demonstrated mastery into grades in comparable ways across contexts. If some schools have stronger routines for feedback, joint assessment, and moderation, while others struggle with staffing, turnover, or limited time for collegial calibration, then the same national descriptors may be applied under different practical conditions.

Segregation matters in this context because student composition affects the everyday setting in which assessment takes place. When students with different socioeconomic backgrounds are increasingly sorted between schools, teachers and departments may come to work with different intake profiles, peer environments, and local expectations. This can affect how criteria are discussed, how borderline cases are handled, and how schools organize assessment work. For this reason, policy inquiries that address segregation, admissions, and compensatory funding are also relevant to the question of grade comparability (SOU 2020:28; SOU 2020:46).

Compensatory resources matter for the same reason. A criterion-referenced grading system depends not only on written criteria, but also on schools' capacity to support students, interpret criteria, and maintain assessment routines. Recent national monitoring documents sustained between-school differences and calls for strengthened compensatory efforts, which is the empirical backdrop for focusing on parental-education gradients and provider composition in this dissertation (Skolverket, 2025). The empirical question is therefore not only whether average grades differ between groups, but whether the translation of demonstrated mastery into grades becomes more socially or locally patterned over time.

In sum, equity here is evaluated not only across group averages but in terms of whether the same demonstrated mastery is translated into similar grades across contexts. In this sense, equity concerns comparability in the translation of mastery into grades. I now turn to validity, understood as what grades represent and how they travel across contexts.

Validity: Construct Interpretation and Consequential Use

Validity concerns what grades represent and how defensible that interpretation remains when grades are used beyond the classroom. In this dissertation, the validity problem is not treated as a simple question of whether grades are "true" or "false." Grades are teacher-assigned judgments made within a goal- and criterion-referenced system. They are expected to reflect demonstrated mastery, but they are also produced through classroom practice, local moderation routines, and institutional conditions.

Two aspects of validity are especially important here, following the broader view that validity concerns the interpretation and use of assessment-based inferences rather than only technical reliability (American Educational Research Association et al., 2014; Cronbach & Meehl, 1955; Kane, 2013; Messick, 1989). The first is construct interpretation, meaning what a grade represents once national criteria have been translated into classroom assessment, local practice, and final grading decisions. The second is consequential use, meaning how stable and defensible that signal remains when it is used for selection across schools, municipalities, and cohorts. Neither question implies that grades are flawed as such. The point is that institutional features may shape what grades mean.

This is why national tests and moderation routines matter. National tests provide a shared assessment reference, but they are not fully external examinations: during the period studied, the rules did not specify who had to mark them, and the student's regular teacher was the most common original marker (Riksrevisionen, 2022; Skolinspektionen, 2018a). The grading inquiry proposed alignment measures and moderation-oriented supports (SOU 2020:43), and the 2018 amendment to the Education Act required that national test results be particularly taken into account in grading (Prop. 2017/18:14). Audit evidence indicates that these state interventions, taken alone, did not reduce grade-test discrepancies at scale (Riksrevisionen, 2022). This suggests that formal rules are not sufficient if local assessment environments differ.

If the level and distribution of grades are shaped by governance, incentives, and assessment regimes, conclusions drawn from them must be cautious and context-aware (Espeland & Sauder, 2007). The central issue is not whether grades are useful. They are central to selection, instruction, and governance. The issue is how

stable their meaning remains when they are produced in different local and institutional conditions. For example, if local resources allow more targeted support in one municipality than another, a similar grade may reflect different instructional histories (Holmlund et al., 2014). If the degree of market saturation is higher in one area than another, guardians' expectations can enter the assessment environment in ways that shift thresholds without explicit policy change (Wikström & Wikström, 2005). This is why the empirical analysis is organized across periods, provider contexts, municipal settings, and subject domains.

The empirical chapters examine the same overarching problem from three angles. Chapter 6 traces longitudinal change in final merit ratings in compulsory school and their association with parental education, municipal income, independent-school attendance, and local market saturation. Chapter 7 examines provider-patterned grade divergence in local school markets during the later Lgr11 period. Chapter 8 breaks down the aggregate merit rating into subject domains and examines how subject-grade patterns contribute to social and institutional differences in the merit-rating signal.

At this stage, the important point is not the technical periodization, but the analytical sequence. The dissertation first maps longitudinal social and local patterning in merit ratings, then examines local provider divergence, and finally studies the subject composition of the aggregate grade signal. The detailed coding, periodization, standardization, and model specifications are presented in Chapter 5 and in the empirical chapters.

The overarching problem examined here is therefore how a grade-based selection measure can remain comparable, equitable, and valid when it is produced in a school system where student composition, provider structure, and local market conditions differ. Chapter 2 translates this problem into the dissertation's research questions.

CHAPTER 2

Research Questions

Building on the introduction, this chapter specifies the aim of the dissertation and formulates the questions that guide the empirical analyses. Chapter 1 identified the overarching problem: final grades in compulsory school are used for selection, but they are produced in social, institutional, and local contexts that differ across students, schools, municipalities, and provider structures. This chapter translates that problem into three empirical questions and briefly explains how the empirical chapters answer them.

Aim

The aim of this dissertation is to examine how socioeconomic background and local school-market context are associated with final merit ratings in compulsory school in Sweden between 1998 and 2022. The dissertation treats merit ratings not merely as educational outcomes but also as institutionally shaped signals produced under changing conditions of governance, provider diversification, and competition. Empirically, it analyzes three connected dimensions: longitudinal SES gradients in merit ratings, composition-adjusted grade divergence across provider contexts within municipalities, and subject-domain patterns in the construction and comparability of merit ratings. The broader purpose is to clarify what these patterns imply for educational equity, validity, and the governance of grades in a marketized school system.

The empirical chapters cover different periods within this overall timeframe. Research question 1 covers 1998–2020, research question 2 covers 2014–2022, and research question 3 is addressed through longitudinal subject-domain analyses for 1998–2017, a grade–test analysis of the 1998 birth cohort graduating in 2014, and observed–predicted subject-grade analyses for 2014–2022.

Research Questions

To operationalize the aim, the dissertation addresses the following questions:

- How did the longitudinal relationships between final merit ratings in compulsory school, parental education, municipal median income, school-market saturation, and independent-school attendance develop in Sweden between 1998 and 2020?
- To what extent do more marketized municipalities exhibit greater grade divergence between municipal and for-profit independent schools, and is the grade advantage associated with students from more socioeconomically advantaged backgrounds larger where such divergence is greater?
- How does the subject-domain composition of final merit rating in compulsory school vary over time, and how are subject-domain grade patterns related to socioeconomic background, local school-market saturation, grade–test alignment, and provider-patterned subject-grade discrepancies?

Grade divergence refers here to the difference between a school's observed mean final merit rating and its model-predicted mean for the same graduation year, given measured student composition and local context. In Chapter 7, the main comparison concerns the local sector gap between municipal and for-profit independent schools within the same municipality and graduation year. This formulation avoids treating local provider differences as national sector averages detached from their municipal context.

The three questions address areas in which existing research remains fragmented. These gaps are discussed more fully in Chapter 3. First, Swedish research has documented associations between socioeconomic background, school segregation, and grades (Gustafsson & Yang Hansen, 2018; Yang Hansen & Gustafsson, 2019), but fewer studies trace longitudinal grade-based patterns across changing grading regimes and differentiated local school-market contexts within one analytical design. Second, research on school choice and independent schools has identified provider differences (Edmark & Persson, 2021; Tyrefors Hinnerich & Vlachos, 2016), but fewer studies examine whether local provider divergence is linked to larger grade advantages for students from more socioeconomically advantaged backgrounds. Third, previous Swedish research has shown that grade development differs between subjects (Gustafsson & Yang Hansen, 2009), but less attention has been given to how the subject-domain composition of merit rating varies by socioeconomic background and local

school-market saturation, and to how subject grades align with national test scores or diverge from intake-based expectations across provider contexts.

Taken together, these questions translate the dissertation's aim into a sequence of related empirical analyses across time, institutional contexts, and analytical levels. Chapter 9 also includes an illustrative simulation with a policy focus, but this is treated not as a separate research question but as an applied extension of the empirical findings from Chapters 6–8.

Organization of the Investigations

The empirical core of the dissertation consists of three chapters that answer these questions in sequence.

Chapter 6 answers the first research question. It establishes the longitudinal descriptive baseline by tracing how final merit ratings in compulsory school, parental education, municipal median income, school-market saturation, and independent-school attendance relate to one another between 1998 and 2020. The chapter also examines whether these longitudinal patterns differ across low-, medium-, and high-saturation municipal contexts.

Chapter 7 answers the second research question. It focuses on 2014–2022 and examines whether local school markets differ in composition-adjusted grade divergence between municipal and for-profit independent schools. It then tests whether the merit-rating advantage associated with high SES is larger in municipalities and graduation years where this local sector divergence is greater.

Chapter 8 answers the third research question. It adds subject-domain resolution by examining the subject-domain composition of merit ratings, baseline-standardized subject-grade growth, socioeconomic and market-saturation differences across subject domains, grade–test alignment in Swedish, English, and Mathematics, and observed–predicted discrepancies for selected Lgr11 subject grades across ownership sectors and provider groups.

Chapter 9 draws together the broader theoretical and policy implications of the findings and includes an illustrative simulation based on the empirical analyses in Chapters 6–8, rather than an independent empirical study.

With the research questions now established, Chapter 3 turns to the research literature that frames the dissertation's central concepts and empirical focus.

CHAPTER 3

Literature Review

This chapter reviews previous research on how socioeconomic background relates to school outcomes and how institutional arrangements shape that relationship in Sweden and in comparable systems. The purpose is to assemble a body of evidence relevant to the dissertation's research questions, key measurement choices, and longitudinal analyses of final merit ratings in compulsory school between 1998 and 2022. The focus is not on comprehensive coverage but on studies, syntheses, and conceptual contributions that clarify three connected issues: first, how socioeconomic background is associated with achievement and grades over time; second, how competition and school marketization may affect grading practices and comparability; and third, how school choice, segregation, geography, and school composition shape differences between students, schools, providers, and municipalities.

The review is thematic rather than systematic. Studies have been selected because they clarify the dissertation's central empirical and conceptual problems: socioeconomic gradients in school outcomes, grading and comparability under market conditions, and the spatial and compositional consequences of school choice. Priority is given to meta-analyses, register-based studies, Swedish research, and international studies that offer clear comparative leverage. Qualitative and policy-oriented studies are used more selectively when they help clarify institutional mechanisms or contextual conditions.

The chapter is structured around three thematic areas. Theme 1 synthesizes research on socioeconomic background and achievement, providing a baseline for interpreting long-term patterns in final merit ratings and evaluating the use of parental education as the main SES indicator. Theme 2 examines evidence on grading, the introduction of marketized features on both the demand and supply sides, and provider structures, with particular attention to validity and comparability under competition. Theme 3 turns to school choice, segregation, and geography, with attention to differences between schools, providers, municipalities, and urban–rural contexts. The chapter now turns to the first theme, focusing on studies that examine the relationship between socioeconomic background and achievement.

Socioeconomic Background and Achievement

The first theme reviews previous research on the relationship between socioeconomic background and school outcomes. Here, socioeconomic status (SES) is used in a narrower methodological sense, referring to the operationalization of socioeconomic background through indicators such as parental education, income, and occupation. The section begins with international studies, then turns to Swedish research, and finally draws out a small set of implications for how socioeconomic background and school outcomes are operationalized in the empirical chapters.

Cross-National Research on Socioeconomic Inequality in Education

The landmark Coleman Report (Coleman et al., 1966) remains a classic reference point in research on educational inequality, demonstrating a strong and persistent link between family background and academic outcomes. Contrary to the initial hypothesis, most of the variance was found to stem from home environments rather than from differences between schools. Simultaneously, questions were raised about the validity of standardized tests used for grading, with scholars like Cronbach and Meehl (1955) and Messick (1995) noting that such tests might reflect parental background more than actual student knowledge or ability.

Later syntheses provide more current benchmarks for the relationship between SES and achievement, although the estimates depend on how SES and achievement are defined. White's (1982) widely cited meta-analysis synthesized almost 200 studies and estimated an average association between parental background and academic performance that ranged from weak to moderate.

Hattie's (2023) second-order synthesis draws on 22 meta-analyses encompassing about 1,346 primary studies. It reports a moderate-to-strong association between parental SES and student achievement and a stronger association than in Hattie's earlier synthesis (Hattie, 2009). Because the included studies use several SES measures—including parental education, income, and occupation—and several outcomes, including merit ratings, subject grades, and standardized-test results, the estimate should be interpreted as broad rather than tied to any single operationalization. Among the hundreds of influences Hattie reviews, parental SES ranks alongside structured memory training and targeted pedagogical strategies in its predictive strength. He also notes that student-reported SES measures were significantly less strongly correlated with student achievement than SES measures constructed from register data. While this does

not establish causality, it confirms that SES remains one of the most consistent predictors of academic performance.

A more specific and still frequently cited contribution is Sirin's (2005) meta-analysis of research conducted primarily in the United States. Although the review is now dated, it remains useful because it shows how the SES–achievement relationship varies with measurement and context. Across the three most common SES components, the mean correlations were very similar for parental education, income, and occupation, and the pairwise differences between these components were not statistically significant. The association was somewhat stronger for mathematics than for verbal achievement. School location also mattered: the mean association was strongest in suburban samples, followed by urban and then rural samples. By school level, the association increased from kindergarten to middle school, while the high-school estimate was similar to the elementary-school estimate. For the present dissertation, the study is useful mainly because it highlights the importance of indicator choice, subject-specific variation, and contextual differences in how socioeconomic gradients are expressed.

Heyneman and Loxley (1983) provide an important comparative reference point. The pattern commonly called the Heyneman–Loxley effect describes two broad tendencies: in poorer countries, school and teacher quality account for more variation in student outcomes, whereas in richer countries, including the post-industrial Nordic welfare states, parental socioeconomic background accounts for more variation than school quality. The study therefore serves as a reminder that socioeconomic gradients in achievement must be interpreted in relation to institutional and national context.

Further insights come from research on international large-scale assessments (LSAs) such as PISA and TIMSS. These programs administer standardized achievement tests across countries, aiming to compare student knowledge in mathematics, literacy, and science. Chmielewski (2019) combines 30 international large-scale assessments spanning 1964–2015 and representing 100 countries and about 5.8 million students. For each of the three socioeconomic measures examined—parental education, parental occupation, and books in the home—achievement gaps increased in a majority of countries, although there was substantial cross-national variation. Sweden is among the high-income countries in which sizable increases are observed. More recent PISA results show that Sweden's mean performance in reading, mathematics, and science recovered between 2012 and 2018 to levels similar to those observed in the earlier PISA assessments (OECD, 2019).

Relatedly, Steinmann and Olsen (2022), using TIMSS data from Nordic and other European countries, show that schools with more socioeconomically advantaged student compositions consistently had higher achievement levels in

mathematics and science. However, these differences were generally not reflected in stronger added-year effects, suggesting that higher achievement levels should not in themselves be interpreted as evidence of greater school effectiveness.

One limitation of international assessments, from a sociological perspective, is their reliance on student self-reports to estimate parental SES. Proxy measures such as book counts or access to a private study space can capture broad cross-national patterns, but they are less precise than administrative indicators of parental education and income. One OECD study reported that SES, defined as parental education, was accurately self-reported by students in 69% of the cases reported in PISA, which indicates both that the measure contains useful information and that it is less precise than register-based alternatives (Avvisati & Wuyts, 2024). An independent German study similarly showed that inaccuracies in self-reported parental education were largest among weaker-performing students, which may bias estimates of the SES–achievement relationship (Kreuter et al., 2010). For the present dissertation, the implication is not that SES measures from international large-scale assessments are invalid as such. It is that register-based indicators are preferable when the purpose is to analyze socioeconomic gradients within one national system over time.

Recent OECD evidence on intergenerational social mobility provides a broader comparative backdrop. Using the 2023 Survey of Adult Skills, Causa et al. (2026) show that parental education remains associated with adult skills, earnings, and educational attainment across OECD countries, although the strength of these associations varies substantially between countries. For the present dissertation, the study is useful mainly as contextual evidence: even in comparatively mobile Nordic welfare states, parental background remains relevant, while Swedish register data make it possible to examine such stratification earlier, at the level of final grades in compulsory school.

Because Sirin's (2005) review is largely U.S.-based and Hattie's (2023) broad synthesis is not designed specifically to map longitudinal research on educational inequality in Europe, a more geographically focused reference point is useful. Campos et al. (2025) map 161 longitudinal K–12 studies of educational inequalities in Europe published between 1986 and 2024. Socioeconomic inequality was the most frequently investigated dimension in the review, while geographical and intersectional inequalities were much less common. The studies also used a wide range of data sources and analytical designs, including surveys, standardized assessments, and administrative records. For the present dissertation, the review is useful mainly because it shows that SES remains a central dimension of longitudinal inequality research in Europe while also highlighting substantial methodological and geographical variation.

In summary, the international literature points to several conclusions. First, parental education remains a robust SES indicator across time and settings. Second, subject- and geography-specific patterns are meaningful and warrant separate analysis. Third, SES operationalization matters, and register-based indicators are preferable where such data are available. Fourth, cross-national achievement patterns need to be interpreted in relation to institutional and national context. These insights provide a useful backdrop as the review now turns to Swedish research on socioeconomic background and achievement.

Research on Socioeconomic Background and Achievement in Sweden

Turning more specifically to Swedish research on socioeconomic background and achievement, an important starting point is the older stratification tradition. Swedish research has long emphasized how social background and institutional selection shape unequal educational trajectories. Work by Erikson and Jonsson, as well as Härnqvist's analyses of social selection within the school system, is important in this regard and is taken up more fully in Chapter 4 (Erikson & Jonsson, 1993, 1994; Härnqvist, 1994).

A central Swedish contribution is the work by Gustafsson and Yang Hansen (2018), who examine the development of the association between parental education and merit ratings in compulsory school in Sweden between 1988 and 2014, using total population data from Statistics Sweden. One of their findings is that finer-grained measures of parental education tend to yield larger effect sizes than more aggregated categorizations. They also percentile-equate the 0–320 merit-rating scale to a 0–100 scale in order to reduce the influence of shifts in the grading distribution over time (Svensson & Nielsen, 2008). Their results show a clear strengthening of the association between parental education and merit rating during the period. The study is primarily useful as a Swedish longitudinal benchmark, while the present dissertation extends the empirical scope through the later Lgr11 period. Unlike Gustafsson and Yang Hansen's percentile-equating strategy, the dissertation retains the institutional merit-rating structure. This means that merit rating is followed as the grade-based selection measure actually used in schools and admissions, rather than being fully transformed into a rank-equated outcome. Baseline-standardized changes are used in selected analyses to make the direction and relative size of grade-based changes easier to compare across grading regimes.

A closely related study by Yang Hansen and Gustafsson (2019) seeks to identify the mechanisms behind this strengthening. Their main conclusion is that the development is driven largely by increasing between-school variance, which

makes school-level differences more important for how strongly socioeconomic background predicts merit ratings in different parts of the Swedish school system. In their interpretation, this pattern is linked to growing differences in school composition and to urban local school markets in which students from more highly educated families are increasingly concentrated in high-performing schools. This development can be read in relation to the "Heyneman–Loxley" discussion introduced above: rather than treating family background as the only relevant source of inequality in a high-income country, the Swedish case suggests that between-school differentiation has become increasingly important within the system itself.

This interpretation is developed further in Yang Hansen and Gustafsson (2016), who examine the rise in between-school variance in Sweden and discuss possible explanations, including residential segregation, school segregation, and the consequences of school choice reforms. They show that the association between SES and grades is particularly strong in urban regions and suggest that the emergence of local school markets may be part of the explanation. At the same time, they are cautious about strong causal claims, noting that the Swedish school system underwent several major reforms within a relatively short period, making it difficult to isolate the effects of any single reform.

Other Swedish studies point in a similar direction. Böhlmark et al. (2015) show that between-school variance and school segregation tend to increase in urban areas with a more extensive provider mix, while Edmark (2019) shows that independent schools have become established primarily in urban municipalities and in municipalities with politically favorable local conditions. Similar tendencies are documented in later statistical monitoring (Skolverket, 2025).

Taken together, this body of Swedish research points to three conclusions of direct relevance for the dissertation's empirical studies. First, the association between socioeconomic background and grades has strengthened over time (Gustafsson & Yang Hansen, 2018). Second, increasing between-school variance appears to account for a growing share of educational inequality, which in turn links the SES gradient to broader processes of school segregation and compositional differentiation (Yang Hansen & Gustafsson, 2016, 2019). Third, these developments are unevenly distributed across municipalities and are especially pronounced in urban school markets (Böhlmark et al., 2015; Edmark, 2019). For the purposes of this dissertation, these studies support an analytical design that traces SES gradients in merit ratings over time while relating them to between-school variation, provider diversification, and local school-market context, rather than treating socioeconomic background solely as an individual-level characteristic. The next section therefore turns to research on grading,

independent schools, and the expansion of school markets and their implications for grading practices and equity.

Grading, School Marketization, and Provider Structures

The previous section showed that socioeconomic background remains strongly associated with school outcomes, both internationally and in Sweden. A key implication for this dissertation is that any longitudinal analysis of merit ratings must also address what grades actually measure.

In a decentralized and marketized school system, grades function not only as indicators of learning but also as signals in school competition and as instruments of selection and accountability. This raises questions of validity and comparability: to what extent can merit rating be treated as a stable and comparable outcome over time and across schools, and how might grading practices be shaped by the incentives created by school choice and provider diversification?

Provider diversification refers here to the shift from a mainly municipal provider structure toward local mixes of municipal, non-profit independent, and for-profit independent schools. In the Swedish case, this diversification followed from the independent-school reform and the expansion of publicly funded school choice, but it was unevenly distributed across municipalities (Prop. 1991/92:95; SOU 2020:28).

The research reviewed in this section points to several recurrent patterns. International studies of private provision and school quasi-markets suggest that apparent provider advantages are often sensitive to student composition and are not consistently accompanied by stronger achievement outcomes (Austin et al., 2019; Lubienski & Lubienski, 2006). Swedish studies similarly show that grades and external benchmarks do not always move together (Petersson et al., 2025; Tyrefors Hinnerich & Vlachos, 2016), and that grading patterns may differ systematically between municipal and independent providers (Edmark & Persson, 2021). Taken together, this literature is relevant for the present dissertation because it frames grades not solely as neutral reflections of knowledge but as outcomes produced within institutional settings marked by choice, competition, and uneven local market conditions.

International Research on Grading, School Choice, and Private Providers

International research on grading, school choice, and private provision has largely developed in systems where public funding is combined with varying degrees of

parental choice, private provision, and accountability pressures. Much of this literature is framed in terms of educational quasi-markets, in which schools compete for students while remaining publicly funded and regulated (Butler & van Zanten, 2007; Friedman, 1955; Le Grand, 1991). For the purposes of this dissertation, the main relevance of this literature lies in its analysis of how competition may affect grading practices, sector differences, and the relationship between measured achievement and underlying learning.

An early and often cited contribution is that of Neal (1997), who examines the effects of Catholic school attendance in the United States. Although the study predates the later wave of charter and voucher reforms and concerns a partly fee-based private sector without a close Swedish equivalent, it has remained a reference point in debates on sector differences in educational outcomes. Its relevance here is therefore mainly comparative and historical, rather than as a direct analogue to the Swedish system.

It is also important to note that the American private-school sector differs institutionally from the Swedish independent-school sector. Sweden relies on publicly funded but privately owned schools, whereas the United States largely relies on schools that are both privately funded and privately owned. This limits the direct transferability of U.S. findings to the Swedish context, but the comparison is still useful because it helps delineate what is distinctive about the Swedish case.

Later U.S. research takes a broader view of private provision. Using data from the National Assessment of Educational Progress, Lubienski and Lubienski (2006) show that once students' socioeconomic backgrounds are taken into account, the apparent performance advantages of private schools largely disappear and, in some models, even favor public schools slightly. This is an important reminder that sector comparisons are highly sensitive to student composition and to the level at which variation is modeled.

A similar pattern appears in later research on voucher and charter systems. Austin et al. (2019), examining school switching under the Indiana voucher system, find that students who move from public to private schools perform worse in mathematics and English, while students already enrolled in private schools are largely unaffected. Larsen et al. (2023) report comparable results from Australia: once socioeconomic background is taken into account, there are no systematic achievement differences between public and private school students. Other studies, such as Chen and Harris (2023), report marginally positive associations between charter reforms and student achievement, but without corresponding evidence of stronger underlying knowledge. Taken together, this literature suggests that apparent private-school advantages are often driven more by student sorting than by systematically stronger academic outcomes.

At the same time, the transferability of these findings to Sweden is limited by institutional differences. In the United States, private schools are often privately funded and operate in a system where standardized testing plays a stronger role in accountability and evaluation. Sweden, by contrast, relies on publicly funded but privately owned independent schools, and national tests are intended to support teacher grading rather than replace it. Even so, the international literature remains useful because it identifies a recurring pattern that is directly relevant to this dissertation: In market-oriented systems, competition may weaken the alignment between grades, test-based achievement, and later performance.

Most studies that directly link grading patterns to school competition and provider diversity come from the United States, where voucher-like funding and charter schools provide a particularly clear form of educational quasi-market. Important contributions also come from Britain and Australia, but under somewhat different institutional arrangements. For this reason, U.S. research is used here mainly as a reference point for how competition may shape grading, while non-U.S. studies are used to assess whether similar patterns appear in other settings. With this international backdrop in place, the review now turns to Swedish research on grades, tests, and independent schools.

Swedish Research on Grades, Tests, and Independent Schools

Research on grades, tests, and independent schools in Sweden must be read against the background of several closely sequenced reforms: municipalization in 1991 following the 1989 decision, the independent-school reform in 1992, and the introduction of goal- and criterion-referenced grading in 1994 (Prop. 1991/92:95; SOU 2014:5; Utbildningsdepartementet, 1994). This clustering makes strong causal claims difficult, since several institutional changes unfolded within a relatively short period. Even so, the Swedish literature points to a fairly consistent pattern in which grade inflation, sector differences, and school-market competition increasingly appear as interconnected issues (Vlachos, 2010; Wikström & Wikström, 2005).

An early contribution is Cliffordson (2004), who examines the predictive value of criterion-referenced upper-secondary grades by relating students' grade averages to subsequent study success in engineering and medical programs. Comparing graduation cohorts and students with and without supplementary grades, she finds that average grades increased without corresponding improvement in later higher-education performance and interprets the resulting decline in predictive value as evidence of grade inflation. The study does not use national test scores; its external benchmark is later educational performance. This

makes it relevant here as an early Swedish example of evaluating whether rising grades continue to carry the same meaning for later educational outcomes.

Gustafsson and Yang Hansen (2009) provide a broader Swedish benchmark for this issue. In their chapter on result changes in Swedish compulsory school, they analyze grade development using standardized mean differences, or *d*-values, in order to compare grade outcomes across grading systems and subject areas. Their results show that the national mean merit-rating level increased after the introduction of the criterion-referenced grading system, and that the increase was not evenly distributed across subjects. Practical-aesthetic subjects displayed particularly clear upward movements, while the development in core subjects and theoretical subject groups was more moderate. The study is important for the present dissertation because it shows both the usefulness and the limits of describing grade growth in standard deviation units. Such measures make relative grade development visible across time and subjects, but they do not by themselves establish whether the observed changes reflect improved knowledge, changed grading practices, or shifts in student composition.

A related strand of Swedish assessment research emphasizes that grading comparability cannot be reduced to formal criteria alone. Tholin's work on local grading criteria and Lundahl's historical and policy-oriented research on assessment show that grading criteria, teacher judgment, and assessment systems are interpreted and enacted within institutional settings rather than simply applied mechanically (Lundahl, 2006; Tholin, 2003). Teacher judgment is shaped by interpretations of knowledge requirements, local moderation practices, and the relationship between national tests and final grades. This is important for the present dissertation because it clarifies why grade divergence may arise even within a formally national and criterion-referenced grading system. Since identical criteria do not automatically guarantee identical enactment across schools and municipalities, comparability must be treated as an empirical and institutional question.

One of the earliest studies to connect these issues to the independent-school sector is Wikström and Wikström (2005). Using upper-secondary data from the late 1990s, they relate merit ratings to results on the Swedish Scholastic Aptitude Test (*högskoleprovet*) and find that independent schools, especially those located in urban and highly competitive school markets, tend to award higher grades relative to test performance. The study is necessarily time-specific, given how early it is in the Swedish reform period, but it remains important as an early indication of possible tension between grades and test-based achievement in market-exposed settings.

Böhlmark and Lindahl (2007) evaluate the first decade of the independent-school reform using within-municipality changes in private-school enrollment.

They find that a ten-percentage-point increase in the private-school share is associated with an increase of almost one percentile-rank point in average pupil achievement. Their decomposition suggests that the direct private-school attendance effect accounts for only a small part of this association, with the larger part attributed to competitive effects on the school sector. Importantly for the present discussion, a comparison with test data suggests that the estimated achievement gains are not driven by differential grade-setting standards between private and public schools. They also report higher school costs and some evidence of sorting along socioeconomic and ethnic lines. The study therefore illustrates that early Swedish marketization research did not produce a uniform picture of either achievement gains or grading distortions.

Two studies published in 2010 reinforce this broader picture. Vlachos (2010), comparing grades with national test performance, finds no large general difference in grading standards between independent and municipal schools, but reports that stronger school competition appears to have contributed to some grade inflation. Lindbom (2010) reports generally modest effects on student performance and school costs and concludes that independent schools may have contributed somewhat to school segregation, alongside the stronger effect of residential segregation. Edmark et al. (2014) similarly examine Sweden's school choice reform in relation to equality of opportunity, making the study relevant for interpreting school choice as both an efficiency reform and a stratification reform. Read together, these studies point to a mixed empirical picture in which modest achievement effects, grading incentives, and segregation need to be considered separately rather than collapsed into a single marketization effect.

Later studies point in a similar direction. Tyrefors Hinnerich and Vlachos (2016), comparing internally and externally assessed performance on the same national tests, find that students in independent schools receive higher grades but perform worse on the external assessments than students in public schools. Edmark and Persson (2021), using data on upper-secondary school applications to condition on students' preferences for independent versus public schools, find strong indications of more lenient grading standards in independent schools, especially in for-profit schools and schools with a low share of qualified teachers.

Geographical variation is also visible within this research on grades and tests. Using school-level data on final course grades and national test results in the social sciences in grade 9 between 2015 and 2017, Molin and Alm Fjellborg (2021) find that average differences between municipal and independent schools were small after measured background factors were taken into account, but that grade–test discrepancies varied geographically. Schools in metropolitan areas were more likely to award final grades that were higher relative to national test results, whereas schools in surrounding municipalities were more likely to display the

opposite pattern. The study therefore connects grading comparability to the spatial organization of local school markets.

A similar pattern appears in more recent work on later educational trajectories. In Petersson et al. (2025), using structural equation modeling on total population data from the Gothenburg Educational Longitudinal Database, we analyze a cohort of students graduating from compulsory school in 2014 and follow their pathways into upper-secondary education and higher education. The results show that students from independent schools receive significantly higher grades than students from public schools, but tend to perform less well in later stages of education even after adjustment for parental education, migration background, gender, and geographical context. Policy evaluations from Swedish government agencies point in the same direction. Furusten et al. (2024) report that former independent-school students tend to underperform in higher education relative to former public-school students with similar entry qualifications.

Swedish research also suggests that grades are institutionally consequential rather than merely descriptive. Using the introduction of grading in grade 6 as a quasi-experimental setting, Klapp et al. (2016) find no general effect of grading on later achievement, but do identify differentiated effects across student groups, particularly by cognitive ability. Jönsson and Klapp (2021), in turn, show that even after the policy change requiring teachers to take national test results particularly into account, the relationship between test results and final grades remains interpretively complex, which underlines that questions of comparability cannot be assumed to be resolved by policy alone.

Taken together, Swedish research on grades, tests, and independent schools points to a recurring pattern. Independent schools often award higher grades than municipal schools, but not in ways that are consistently matched by stronger test performance or stronger later outcomes (Petersson et al., 2025; Tyrefors Hinnerich & Vlachos, 2016). In this respect, the Swedish case resembles the broader international literature reviewed above, while also reflecting the particular institutional features of a fully publicly funded but strongly marketized system. The main implication is that merit ratings cannot be treated as neutral indicators of achievement alone. They must also be analyzed as institutionally shaped outcomes whose meaning depends on student composition, provider structure, and the incentives created by local school markets. The next section therefore turns to school choice, segregation, and geography.

School Choice, Segregation, and Geography

This section turns from grading and provider structure to the relationship between school choice, segregation, local geography, and school composition. School marketization is used here as an umbrella term for the institutional package of decentralization, parental choice, and publicly funded independent schools. The reviewed studies vary in terminology and emphasis. They concern school choice, competition, privatization, quasi-markets, or decentralization, but address overlapping parts of this reform bundle (cf. Lundahl et al., 2013).

International Research on School Choice and Segregation

As discussed in the previous theme, charter and voucher reforms implemented in school systems around the world have been influenced by broader neoliberal currents that emphasize parental choice, competition, and the role of the family as the primary unit of society. A key intellectual reference point in this development is Milton Friedman's (1955) seminal essay *The Role of Government in Education*, which argued that public funding should follow the student rather than the provider, thereby promoting efficiency and responsiveness through market-like mechanisms. The dictatorship in Chile under Augusto Pinochet even brought in economists from Friedman's "Chicago school" to work on economic reforms, and the Chilean case has generated several studies with potential relevance for Sweden. Chile and the United States are emphasized here because they provide some of the clearest large-scale cases of voucher-based and charter-based school choice, while the later European studies are used to clarify how similar sorting processes interact with geography and local intake patterns in more publicly regulated systems.

Hsieh and Urquiola (2006) study Chile's nationwide voucher reform, introduced in 1981, by exploiting the fact that private-school enrollment subsequently expanded much more in some communities than in others. Using panel data for roughly 150 municipalities, they compare changes in educational outcomes across communities with different degrees of private-sector expansion. They find no evidence that greater exposure to school choice improved average outcomes as measured by test scores, repetition rates, or years of schooling. They do, however, find increased sorting, with higher-performing and more socioeconomically advantaged students disproportionately leaving the public sector for private schools. The reform's uneven local impact provides leverage for examining how expanded choice affected achievement and stratification.

Similar tendencies in English-speaking countries suggest that the Chilean pattern is not unique. U.S. charter-school research also documents sorting effects,

although the relevant dimensions are not always socioeconomic. Monarrez et al. (2022), for example, examine the expansion of charter schools and racial segregation in U.S. public-school systems. Using between-grade differences in charter expansion and an instrumental-variable design based on charter-school openings, they find that charter schools modestly increase racial segregation for Black, Hispanic, Asian, and White students, while also identifying countervailing between-district effects in metropolitan areas. The result is therefore best read as evidence that school-choice expansion can reshape student sorting, rather than as a finding about voucher systems or socioeconomic segregation specifically.

Epple et al. (2017) review the theoretical and empirical economics literature on school vouchers, including evidence from both small-scale programs and large-scale systems. Their central conclusion is cautious: the evidence is not sufficient to recommend vouchers for widespread adoption, and the effects on achievement vary substantially across programs, subgroups, and outcomes. Small-scale voucher studies do not show a systematically reliable achievement benefit, while some studies report positive and others detrimental effects. In the large-scale programs reviewed, student sorting is a recurring result, although its magnitude differs across settings. For the purposes of this dissertation, the review is useful because it shows that school-choice effects are highly context dependent and that sorting is a more consistent feature of large-scale voucher systems than broad improvements in average achievement.

A useful British example is Allen and Higham (2018), who examine the case of free schools in England to assess whether these schools recruit student intakes that are representative of their local neighborhoods and whether their opening affects neighboring schools. Using National Pupil Database data for all 325 free schools established between 2011/12 and 2015/16, they compare school intakes with neighborhood composition in terms of socioeconomic disadvantage, ethnicity, and prior attainment, while also distinguishing between different provider categories. They find that free schools are often located in disadvantaged areas, but that the students they admit are, on average, more affluent than the neighborhoods from which they recruit; this pattern is especially pronounced among primary free schools, which also enroll students with higher prior attainment. They also report that the opening of a free school tends to reduce enrollment in the nearest school, but without materially changing the student composition of neighboring schools. For the purposes of this dissertation, the study is useful because it shows, in a British quasi-market setting, how publicly funded school choice may widen the gap between neighborhood composition and school intake even when the reform is framed in explicitly egalitarian terms.

A relevant Dutch contribution is Boterman (2019), who examines the relationship between school segregation and residential segregation in a highly

choice-based but publicly funded primary-school system. Drawing on individual register data for all primary-school pupils in the ten largest Dutch cities, he analyzes segregation by ethnicity and social class and then compares observed school enrollment patterns with a hypothetical allocation based on the nearest school. The results show that school segregation is generally high, but also that it varies substantially between cities, and that a large share of the observed segregation would remain even in the absence of active school choice. Boterman therefore argues that residential patterns, and especially urban processes such as gentrification, are central to understanding school segregation even in an educational system characterized by extensive parental choice. For this dissertation, the study is useful because it places school choice within a broader socio-spatial structure and thereby strengthens the argument that school-market sorting should not be analyzed in isolation from housing and urban geography. Taken together, these studies suggest that school choice is filtered through local geography rather than operating independently of it.

Meta-analytic evidence also addresses how SES and school choice interact. Jheng et al. (2022) combine a meta-analysis with a systematic review to examine how family SES shapes school-choice decisions. Their meta-analysis includes 22 studies, with family income and parental education as the central SES measures. The results indicate that higher-SES parents, especially those with higher levels of education, are more likely to exercise school choice. The authors interpret this pattern as one mechanism through which school choice can contribute to segregation and stratification. For the purposes of this dissertation, the study underlines that analyses of school choice need to consider how opportunities and constraints differ across socioeconomic groups, not only average effects on achievement.

Swedish Research on School Choice, Segregation, and Geography

In this section, I focus on three aspects that are directly relevant for the empirical chapters: (a) how school choice relates to achievement and grades, (b) how within- and between-school variation is measured and interpreted as an indicator of segregation, and (c) how these patterns have changed over time. The Swedish studies reviewed below use different data sources and methods, but they all speak in different ways to these three questions.

Lundahl et al. (2013) provide a broad synthesis of the early Swedish school-choice and marketization literature. Their contribution is useful here mainly as an interpretive entry point into the reform period. They describe how school choice, decentralization, and independent-school expansion were associated with differentiation in student intake and with a more market-oriented school landscape. The article should not be read as a single register-based test of these

processes but as a synthesis of a research program and its institutional interpretation of the early reform period.

More directly register-based evidence is provided by Östh et al. (2013), who investigate between-school differences in student performance, measured by grades, using geocoded register data to decompose variation within and between schools across municipalities. They find that between-school variance increased over time and that this increase was closely linked to the growth of independent schools and parental choice. The presence of school choice appears to exacerbate school segregation (Östh et al., 2013). In other words, when families can choose schools, differences in residential and socioeconomic background are more likely to translate into uneven school intakes across the local school system. A strength of their approach is the combination of geocoded residential data with school registers, which makes it possible to distinguish within- and between-school variation across municipalities, although the design is essentially descriptive and cannot, by itself, identify causal effects of the reforms.

Böhlmark et al. (2015) analyze more than 20 years of register data to study the evolution of school segregation after the 1992 voucher reform and assess the roles of neighborhood sorting, parental choice, and the location of independent schools. Their estimates suggest that the increase in school segregation attributable to choice 15 years after the reform was relatively small, while Sweden nevertheless remained a country with low-to-moderate school segregation by international standards. Yang Hansen and Gustafsson (2019) use hierarchical models on national data from 1998 to 2014 to separate variation at the individual, school, and municipal levels and to track how between-school variance evolves over time. Their analysis identifies a rise in between-school differences that signals intensified school segregation and student sorting, especially in urban regions. Fjellman et al. (2019), using register data for 664,895 upper-secondary students from 1997 to 2011, examine how the Swedish upper-secondary school market was spatially restructured after the school-choice reform. They find that commuting became more oriented toward urban schools and that school-choice opportunities grew more differentiated within and across municipalities. The study is particularly useful here because it shows that formal school choice is filtered through geography and mobility rather than being equally available across local contexts.

Related processes are visible before compulsory schooling. Fjellborg and Forsberg (2022) show that travel to preschool in metropolitan Stockholm is socially and geographically patterned, while Alm Fjellborg and Forsberg (2023) identify systematic gaps between preschool and neighborhood segregation across Swedish municipalities. These studies extend the spatial perspective by showing that institutionally mediated sorting is already present in preschool.

Brandén and Bygren (2022) use population register data covering the 2000s to study how variation in school choice opportunities is related to segregation. They operationalize school choice through measures such as the local supply of independent schools and the diversity of providers within municipalities, and they capture segregation using standard indices of between-school differences in social and migration-related composition. A key strength of their design is the combination of total population data with detailed information on both schools and families, which allows them to distinguish residential patterns from school-based sorting more clearly than many earlier studies, even if the observational nature of the data still limits strong causal claims. Their findings are consistent with the register-based evidence from Östh et al. (2013) and Böhlmark et al. (2015). Greater school choice is associated with higher levels of school segregation, especially with regard to parental education and immigrant background. Local school areas with a wider array of school choice options display a nontrivial build-up of segregation in student composition (Brandén & Bygren, 2022).

A more recent Swedish contribution is Fjellman and Yang Hansen (2025), who examine trends in socioeconomic, ethnic, and academic segregation in the Gothenburg school market between 1998 and 2020. Using register data from the Gothenburg Longitudinal Database covering 1,662,166 observations, they estimate dissimilarity-based segregation measures at both the school-market and municipal levels in compulsory and upper-secondary education. Their results show that school segregation intensified over time, especially in the Gothenburg municipality and in upper-secondary education, with particularly clear increases in academic and ethnic segregation after the post-2011 reform period. The study also emphasizes the increasingly clustered geography of upper-secondary education after stricter qualification requirements were introduced. For the purposes of this dissertation, the study is especially useful because it updates the Swedish evidence base with a longitudinal urban case that links school-market expansion, spatial clustering, and changing school composition in a way that speaks directly to municipal context and uneven local opportunity structures.

Extending this longitudinal perspective, Fjellman et al. (2026) examine the Stockholm upper-secondary school market between 1995 and 2023. They find that residential segregation remained comparatively stable while school segregation increased, and that changes in market characteristics, including the number of schools and program composition, were associated with segregation levels. The study strengthens the evidence that changes in school segregation cannot be inferred from residential segregation alone.

Qualitative and mixed-method research adds an organizational and field-analytic perspective to these register-based patterns. Forsberg (2015, 2018) shows

how Stockholm's upper-secondary sector developed into a stratified school market and how schools' responses to competition varied with their position in the field. Schools at the elite pole were relatively insulated from market pressures, whereas schools in more socially dominated positions were more directly exposed to the market's stratifying effects. Fjellman (2019a, 2019b) adds a socio-spatial dimension by examining how school choice and marketization reshape educational space, including differentiated mobility and access across Swedish school markets. These tendencies of increased school segregation following the market-oriented reforms of 1992 are also documented in government-sponsored reports (Skolverket, 2025; SOU 2020:28). For the empirical analyses in later chapters, these findings justify focusing on between-school variance, municipal context, and the urban–rural profile of local school markets when interpreting trends in merit ratings and segregation from 1998 to 2022.

Conclusion

This chapter has reviewed three strands of research that frame the dissertation's empirical analyses. The first concerns socioeconomic background and achievement. International and Swedish research consistently shows that parental education is strongly associated with achievement and grades, while also showing that the strength and meaning of this association depend on measurement choices, subject domains, and institutional context (Gustafsson & Yang Hansen, 2018; Sirin, 2005). This supports the dissertation's use of parental education as the main longitudinal SES indicator, complemented by income and contextual measures where the data allow.

The second strand concerns grading, school marketization, and provider structure. International research suggests that provider differences and competitive school environments often reflect student sorting rather than clear achievement gains. Swedish research points in a similar direction, while also showing that grades, national test results, and later educational outcomes do not always move together (Petersson et al., 2025; Tyrefors Hinnerich & Vlachos, 2016). For this dissertation, the implication is that merit ratings must be analyzed both as outcomes of schooling and as institutionally produced signals whose comparability may vary across provider and local market contexts.

The third strand concerns school choice, segregation, and geography. Research from Sweden and other market-oriented systems shows that school choice can interact with family resources, residential patterns, provider density, and local opportunity structures in ways that increase between-school differences (Böhlmark et al., 2015; Brandén & Bygren, 2022). The Swedish evidence is

strongest when broad syntheses of marketization are read together with register-based studies of between-school variance, school composition, and local choice structures. This motivates the dissertation's focus on municipal context, market saturation, and provider composition.

The literature therefore leaves a clear task for the empirical chapters. Existing research has often examined socioeconomic gradients, grading comparability, provider differences, and segregation separately. The dissertation brings these strands together by following final merit ratings in compulsory school over time, examining local provider divergence during the later Lgr11 period, and breaking down the aggregate merit-rating signal into subject domains. The next chapter develops the theoretical framework used to interpret these patterns as part of a broader process in which family resources, school-market organization, and local educational geography shape grades as stratified institutional signals.

CHAPTER 4

Theoretical and Analytical Framework

This chapter develops the theoretical and analytical framework used to interpret the empirical patterns examined in the dissertation. While Chapter 3 reviewed previous research, the present chapter asks why the patterns described there are sociologically plausible. It explains why socioeconomic background can remain strongly associated with grades, why grading may become unstable when schools operate under market conditions, and why these processes are unevenly distributed across municipalities and local school markets.

The framework combines three linked perspectives. The first is a class-analytic and stratification perspective, used to interpret how family resources, especially parental education and income, are converted into educational credentials. The second draws on political economy and economic sociology to interpret school marketization, provider competition, and grades as institutional signals. The third is a spatial perspective, used to understand how segregation, school choice, and provider diversification unfold unevenly across municipalities and local school markets. Together, these perspectives connect the dissertation's three empirical concerns, namely socioeconomic gradients in merit ratings, grade divergence under market conditions, and the spatial organization of educational inequality. They are used as complementary lenses rather than as separate explanations.

Class, Socioeconomic Background, and Educational Credentials

This section develops the class-analytic and stratification perspective used to interpret the relationship between socioeconomic background and educational credentials. Socioeconomic background is treated as a broad conceptual term for family-level resources and positions, while socioeconomic status refers more narrowly to the operationalization of that background through indicators such as parental education, income, and, where relevant, occupation. The central theoretical question is how such resources are converted into grades and merit

ratings within a compulsory-school system where credentials regulate later educational opportunities.

In Wright's class-analytic work, class positions are defined by people's locations within relations of production and distribution (Wright, 1997). His framework emphasizes how unequal positions in production shape access to resources and the means of acquiring further resources, and how credentials help organize such inequalities in late capitalist societies (Wright, 1997, 2015). Ownership of productive assets, authority over others' work, and control over valued skills and qualifications form key axes. Education, in this view, is not only about learning; it is also a mechanism for allocating individuals to positions in the division of labor.

Classic sociology of education fits into the same broad picture. Bowles and Gintis argue that schooling helps legitimize inequality by presenting unequal outcomes as meritocratic while its internal organization reproduces class relations (Bowles & Gintis, 1976). Coleman's equality-of-opportunity study similarly showed that much of the variation in achievement could be traced to family background and peer environments rather than to school-level resource differences (Coleman et al., 1966). Collins, in his analysis of the credential society, emphasizes how modern schooling creates and maintains hierarchies of formal qualifications that structure access to jobs and statuses (Collins, 1979). Together, these perspectives point to the same basic problem: grades matter because they are converted into later educational opportunities and, eventually, into positions in the social structure. Wright's class analysis provides a framework for specifying the positions and relations through which this conversion is structured.

The present study does not attempt to reconstruct Sweden's class structure in Wright's terms. Instead, parental education and income are treated as coarse indicators of families' positions in class relations and of their access to resources embedded in labor markets, credential systems, and status hierarchies. This supports an interpretation of associations between SES and merit ratings as evidence of how class-related resources are translated into educational credentials, rather than treating SES as a neutral background label (Bowles & Gintis, 1976; Wright, 1997, 2015).

This interpretation also connects to Swedish stratification research on education and to Boudon's (1974) distinction between primary and secondary effects. Erikson and Jonsson's (1993, 1994) work on educational selection shows how class background shapes both school performance and educational choices, while Härnqvist's (1994) analysis of social selection in the Swedish school system highlights how formally common schooling can still generate unequal trajectories. In the present dissertation, this tradition is used mainly to situate parental education as a durable indicator of family resources and educational

orientation, while the empirical focus remains on how these resources are translated into final merit ratings in compulsory school under changing institutional conditions.

The next section therefore turns to the two resource dimensions that matter most for the empirical analyses: parental education and income.

Channels of Advantage: Parental Education and Income

Within this class-analytic frame, the choice of SES measures becomes part of the theoretical argument rather than a purely technical decision. Wright stresses that class relations are reproduced not only through direct inheritance of property but also through control over skills and credentials that secure access to desirable jobs (Wright, 1997, 2015). Bowles and Gintis make a similar point when they argue that the structure of schooling and the structure of the labor market are closely aligned, such that schools transmit the kinds of dispositions and qualifications that employers reward (Bowles & Gintis, 1976).

Parental education can be read in this light as an indicator of a family's position within the credential hierarchy. Higher levels of parental education tend to be associated with more secure positions in professional or managerial occupations and with forms of cultural and informational capital that matter in school. In line with this, Bourdieu's analysis of cultural capital and Lareau's account of "concerted cultivation" both show how middle-class parents are often better equipped to decode school language, to communicate effectively with teachers and administrators, and to map out educational pathways (Bourdieu, 1979/1984, 1983/1986; Lareau, 2003). These resources make it easier to interpret grading criteria, monitor progress, and intervene when problems arise. Empirically, this is consistent with meta-analyses that find parental education to be one of the strongest single SES correlates of achievement (Hattie, 2023; Sirin, 2005). This reading resonates with earlier work that links parental education to differential returns in achievement and educational transitions across cohorts and systems (Coleman et al., 1966; Collins, 1979; Gustafsson & Yang Hansen, 2018).

Household income, in turn, captures command over economic resources in housing, labor, and credit markets. It shapes which neighborhoods are affordable, which municipalities are realistic options, and what range of school choices and commuting patterns can be sustained. Massey and Denton demonstrate how income differences are translated into distinct residential patterns that, in turn, structure access to school quality and peer environments (Massey, 1994; Massey & Denton, 1993). In a system with formal school choice, these differences become directly relevant for how families use the available options. Higher-income families are better placed to move to municipalities with attractive

schools, to finance daily commuting to more distant schools, or to absorb the short-term risk of changing schools in search of a perceived better match (Jheng et al., 2022; Massey, 1994; Massey & Denton, 1993).

The empirical choices in this dissertation follow from these theoretical considerations. For longitudinal mapping of social gradients, parental education is grouped into relatively coarse categories that can be followed consistently from the late 1990s onward. This favors comparability over fine distinction and is consistent with using relatively coarse class categories when they capture robust differences in life chances (Wright, 1997). For more focused analyses, a more finely graded parental education variable is used alongside measures of disposable household income and, in some specifications, a composite indicator that combines the two. The coding details are presented in Chapter 5. These approaches share the view that families mobilize cultural and economic resources together when they navigate school, and that these resources reflect their positions in class relations (Lareau, 2003; Wright, 2015).

In this sense, SES is not treated as a single latent trait. It is understood as a set of overlapping indicators of families' locations in a stratified order. Coarse parental education categories are useful for tracing broad, long-term tendencies. Fine-grained education measures and income highlight more subtle distinctions when questions about market exposure and segregation are at stake. The class-analytic lens ensures that these variations are interpreted as different windows into how advantage is organized and reproduced, rather than as arbitrary measurement choices (Bowles & Gintis, 1976; Wright, 2015).

The next step is to connect these resources to educational selection and credential formation.

SES and Educational Selection

Within this framework, the strong associations between SES and achievement documented in previous research can be interpreted as manifestations of educational selection in a class society. Collins describes contemporary schooling as part of a "credential society," in which formal qualifications become the main socially recognized basis for allocating people to jobs and positions (Collins, 1979). When credentials carry high value in the labor market, families who are better positioned in class relations have both stronger incentives and greater capacity to secure favorable educational trajectories for their children.

From this perspective, the associations between SES and final merit ratings reported in international meta-analyses and Swedish register-based research are sociologically expected rather than merely statistical regularities (Gustafsson & Yang Hansen, 2018; Sirin, 2005). They are consistent with a situation in which

education has become increasingly central to class relations while remaining unequally accessible and navigable. Wright's class analysis emphasizes how positions in systems of social production shape people's interests, life chances, and capacities (Wright, 2015). Schooling is one of the key institutional settings through which these positions are shaped, and grades are one of its central outputs.

The empirical chapters therefore treat SES variables as central constructs rather than as background controls. The analyses ask not only whether SES is associated with final merit ratings, but also how these associations vary across market contexts, provider structures, and municipal settings. The theoretical claim remains modest, but it is precise. When SES gradients in final merit ratings change over time or differ between school markets, this is read as a sign that the translation of class-related resources into credentials has been reconfigured under new institutional conditions (Bowles & Gintis, 1976; Wright, 2015).

Throughout, the framework is used as an interpretive lens rather than as a set of hypotheses to be tested in a narrow sense. This is consistent with the use of class-analytic and political-economy perspectives in empirical studies in the sociology of education (Ball, 2003; Collins, 1979; Wright, 2015).

The translation of class-related resources into educational credentials does not occur in an institutional vacuum but is shaped by the organization of schooling. The next section therefore turns to school marketization and the institutional conditions under which grades are produced.

School Marketization, Valuation, and Grades

The second theme concerns school marketization, valuation, and grading. Over the past three decades, Swedish compulsory schooling has been reshaped by decentralization, parental choice, voucher-based funding, and the authorization of publicly funded independent schools owned by private actors. Together, these reforms have introduced market principles into an area that was previously governed more strongly by administrative and professional logics (Lundahl et al., 2013).

Polanyi's analysis of political economy offers concepts for thinking about such developments. He argues that modern capitalism depends on the creation of markets for what he calls fictitious commodities, notably labor, land, and money. These are not produced for sale, yet they are treated as if they were, with far-reaching social consequences (Polanyi, 1944/2001). At the same time, Polanyi insists that markets are always embedded in social and political institutions. Efforts to organize core social functions according to pure market logic generate tensions and are typically met by counter-movements aimed at protecting society from the most disruptive effects (Polanyi, 1944/2001).

Schooling fits this pattern in important ways. Swedish independent schools are funded through municipal vouchers but owned and governed by private actors, including large school corporations. Municipal vouchers follow students rather than being tied to specific schools. Parents are formally allowed to choose schools across municipal borders. The empirical analyses in this dissertation concern this publicly funded compulsory-school system, where municipal and independent providers operate under national regulation and voucher-based funding. There is no pure education market in the sense of unregulated exchange. Instead, schooling is organized within a hybrid institutional order where competitive incentives, legal frameworks, and professional values coexist and sometimes clash (Lundahl et al., 2013; Polanyi, 1944/2001; Vlachos, 2019). In line with economic-sociological work, I treat markets as arenas where actors orient to prices, competition, and mutual expectations under shared institutional rules, a definition that fits the combination of vouchers, free establishment, and competitive framing in Swedish schooling (Aspers, 2011; Swedberg, 2005).

Economic sociology offers a complementary way of defining this hybrid order. Aspers describes markets as social structures that organize repeated exchanges through stable roles, shared understandings of what is being traded, and agreed-upon valuation principles (Aspers, 2011). Swedberg similarly emphasizes that markets are embedded in networks, norms, and formal rules and that one cannot understand their operation by price mechanisms alone (Swedberg, 2005). From this perspective, the Swedish school reforms after 1989 can be read as creating and stabilizing a new type of education market, one where municipalities, independent providers, and families interact within a rule-bound arena shaped by vouchers, inspections, curricula, and reputational hierarchies.

This hybrid character is not unique to education. Electricity markets combine private firms with large state-owned companies such as Vattenfall, while competition operates alongside extensive regulation of networks and infrastructure. Telecommunications similarly combine private providers with partly state-owned firms, such as Telia, within dense regulatory frameworks. Banking and housing likewise remain shaped by public supervision, intervention, ownership, planning, and taxation. These sectors are not quasi-markets in the specific sense of publicly funded service arenas in which competition and user choice are introduced (Le Grand, 1991; Le Grand & Bartlett, 1993). They nevertheless illustrate the broader pattern whereby marketization produces new combinations of competition and public steering rather than a simple retreat of the state (Levi-Faur, 2005). From this perspective, it is more precise to speak of degrees and modalities of marketization, and of how states actively shape markets, than to posit a sharp boundary between “real” and “quasi” markets in a late capitalist welfare state (Aspers, 2011; Swedberg, 2005).

Lloyd and Penn make a similar point for childcare, showing how child-care provision in England operates through a mix of public subsidies, private providers, and regulatory controls that together form a market in social welfare services rather than a simple public–private divide (Lloyd & Penn, 2014). Comparative work on the privatization of education and school choice likewise stresses that education markets are regulated and politically constructed, not natural or frictionless arenas (see Chapter 3).

In this dissertation, however, I use the terms "school marketization" and "school markets" because they better capture degrees and modalities of market organization, rather than drawing a sharp boundary between "real" and "quasi" markets (Aspers, 2011; Swedberg, 2005). Recurrent inspection findings about fair and comparable grading, compliance, and quality assurance in a landscape with relatively easy entry and exit underscore this point (Skolinspektionen, 2018b, 2024, 2025; see also Riksdagen, 2019).

Throughout the dissertation, I therefore use the terms school marketization and school markets. School marketization refers to the institutional shift toward decentralization, parental choice, and publicly funded non-municipal provision in compulsory schooling. School markets denote the local arenas in which families, schools, and municipal authorities interact under these rules. Since municipalities are territorially bounded and hold the main fiscal-administrative responsibility for schooling, municipal-level indicators capture an important part of the relevant market context (SOU 2014:5). Most choice dynamics also play out within municipal borders, except in specific cross-municipal cases (Fjellman, 2019a, 2019b).

Grades as Institutional Outputs and as Currency

Within this marketized setting, grades play a double role. They are institutional outputs of teachers' assessment practices, anchored in curriculum and grading criteria. At the same time, they function as a kind of currency in the school market. Final merit ratings regulate access to upper-secondary programs. Grades from upper-secondary school structure access to higher education. For families, grade profiles are key indicators when evaluating schools. For providers, average grades are part of the symbolic "offer" presented to current and prospective students. The currency metaphor is not only rhetorical. It refers to the way grades are standardized enough to circulate across institutions while remaining locally produced and therefore vulnerable to differences in assessment cultures, student composition, and competitive pressure.

Validity theorists such as Cronbach and Messick have long argued that test scores and grades cannot be evaluated solely in terms of technical reliability. They

must also be interpreted in light of the uses and decisions they support (Cronbach & Meehl, 1955; Messick, 1989, 1995). In a marketized school system, these uses are deeply intertwined with competition. As Ball has argued in his work on performativity, performance indicators can come to dominate how institutions are judged, sometimes in ways that distort the practices they are supposed to reflect (Ball, 2003). On this account, performative pressures may encourage schools to prioritize favorable indicators, such as average grades, over substantive pedagogical considerations (Ball, 2003).

From a political-economy perspective, it is therefore plausible to expect that grades may drift or diverge across sectors and markets even if formal grading criteria remain unchanged. When funding follows students and schools compete for enrollments, there is an incentive to appear successful, especially in environments where parental demand is sensitive to grade outcomes. Polanyi's notion of commodification is helpful here. When education is partly reorganized as a market, the outputs of schooling, including grades, risk becoming partially detached from the underlying social good they are intended to represent, while still being constrained by legal rules and professional norms (Ball, 2003; Polanyi, 1944/2001). Classical critiques of capitalism have long noted how social relations and statuses that were once treated as protected or "sacred" risk being redefined in terms of exchange value when market principles are extended into new domains. In a school market, grades are one manifestation of this tension.

The Swedish research discussed in Chapter 3 can thus be re-read through this lens. Evidence of grade inflation, stronger increases in grades than in national test scores, and systematic differences between independent and municipal schools when grades are compared with external anchors or later outcomes all suggest that grading practices are responsive to institutional context (Cliffordson, 2004; Edmark & Persson, 2021; Petersson et al., 2025; Tyrefors Hinnerich & Vlachos, 2016; Vlachos, 2010; Wikström & Wikström, 2005). The theoretical framework does not depend on any single estimate. It depends on the more general insight that grades are institutionally produced outputs in a marketized system and that they cannot be treated as context-free measures of learning.

In the empirical chapters, national tests and intake-based prediction models are therefore used as contextual checks rather than as definitive standards of "true" knowledge. Chapter 5 describes how these benchmarks are constructed. Conceptually, they rest on a simple idea derived from this theoretical discussion. If grades are shaped both by student characteristics and by institutional conditions, then systematic observed–predicted differences across school markets and provider types can be interpreted as descriptive signals of institutional variation in credential production, without identifying the mechanisms responsible (Ball, 2003; Polanyi, 1944/2001).

These institutional dynamics, however, do not unfold in a socially or geographically neutral setting. They are embedded in local educational geographies in which residential patterns, school choice, and provider diversification shape both the composition of school intakes and the competitive conditions under which credentials are produced.

Space, Sorting, and Segregation

Swedish research on school-choice reforms and provider diversification associates these processes with greater between-school differences and more socially homogeneous school intakes (Böhlmark et al., 2015; Brandén & Bygren, 2022; Lundahl et al., 2013; Östh et al., 2013; Yang Hansen & Gustafsson, 2019). Spatial theory helps explain why such outcomes are plausible.

Massey and Denton (1993) describe segregation as a multidimensional form of spatial separation between social groups and show how residential segregation is shaped by institutional and structural forces. Harvey, in his work on urban political economy, emphasizes that capitalist development is inherently uneven. Capital flows produce landscapes of investment and disinvestment, and these spatial patterns in turn shape access to resources and opportunities (Harvey, 1973, 2006). Space is not a neutral backdrop; it is actively produced through social and economic processes.

School segregation can be viewed as a specific instance of this broader logic. When families differ in their SES and in their capacity to use housing and school markets, and when schools differ in their incentives and reputational positions, the distribution of students across schools becomes a spatial expression of the underlying structure of inequality. High-SES families are more likely to be in positions that enable them to choose schools that signal high quality. Low-SES families face tighter constraints and often have fewer realistic options, even when formal choice rights are universal (Jheng et al., 2022; Massey & Denton, 1993). In that sense, school segregation can be understood as a spatial crystallization of the same class and market processes discussed in the previous sections, rather than as a separate phenomenon that requires a wholly different explanatory logic (Harvey, 2006; Massey & Denton, 1993).

The processes reviewed in Chapter 3 fit this picture. Studies of voucher and charter reforms in countries such as Chile and the United States show that extended school choice is associated with increased sorting, with higher-achieving and higher-SES students concentrating in some schools and lower-achieving and lower-SES students concentrating in others (Epple et al., 2017; Hsieh & Urquiola, 2006; Zancajo, 2019). Jheng et al. (2022) systematize these findings

by showing, across multiple contexts, that high-SES families are more likely to exercise school choice and to enroll their children in higher-status schools. These empirical regularities resonate with the argument developed by Massey and Denton (1993) that segregation is fundamentally a process of sorting and separation that concentrates resources and opportunities in some institutions while depleting them in others.

In this theoretical frame, the Swedish patterns of rising between-school variance and more homogeneous school intakes are interpreted as consistent with an interaction between school marketization, housing markets, and class relations in a spatially uneven national context (Epple et al., 2017; Harvey, 2006; Massey & Denton, 1993).

Municipal Context and School Markets

Spatial perspectives also highlight that these processes are not uniform across the country. Harvey describes capitalist development as "uneven" in the sense that regions and cities occupy different positions within a broader division of labor and differ in their capacity to attract capital, population, and institutional resources (Harvey, 2006). In schooling, municipalities can therefore be understood as local contexts with distinct opportunity structures. The point of introducing municipal context in this dissertation is to make these differences analytically visible, since they condition both the feasible set of schools available to families and the intensity of competition under school choice.

In this dissertation, municipalities are grouped into low-, medium-, and high-saturation categories within each graduation year, with the coding described in Chapter 5. These categories are not intended as fixed essences but as analytically useful distinctions between local school-market environments that differ in provider density, practical availability of school choice, and vulnerability to changes in provider structure. In the analyses, these categories are used as relative indicators of local market saturation. They should not be interpreted as direct measures of the number of practically available school alternatives, the intensity of competition, or families' effective capacity to exercise school choice.

As a complementary continuous indicator of these broader contextual differences, I also use median municipal income, measured for each municipality and graduation year. Municipal median income is used here as a parsimonious indicator of the local socioeconomic context. It is not treated as a direct measure of school resources, housing-market strength, provider diversity, or the practical breadth of school choice.

Incorporating municipal context in this way serves two purposes. First, it makes it possible to interpret variation in final merit rating in compulsory school,

provider composition, and market exposure against the backdrop of uneven spatial development rather than as context-free relationships. Second, it highlights that stratification is not only a matter of how students are sorted between schools within municipalities but also of how municipalities themselves differ in the local conditions they offer for schooling, competition, and access.

The next section briefly clarifies the measures used to describe sorting within municipalities.

Segregation Measures and Interpretation

To summarize how students are sorted within municipalities, the empirical chapters focus on sectoral and provider-based clustering rather than on a single summary index of unevenness. The aim is to describe how students from different socioeconomic backgrounds are distributed across municipal schools, independent schools, and major provider groups, and how these distributions shift with local market exposure and provider composition. The technical details are presented in Chapter 5.

Provider-based measures capture whether particular student groups are overrepresented or underrepresented in specific sectors or school groups relative to the municipality-wide composition. This aligns with a class-analytic and spatial perspective concerned with sorting between schools within local municipal markets. In Massey's terms, the emphasis is on segregation as unevenness, understood as the extent to which groups are distributed differently across units within a larger area, here schools and provider categories within municipalities (Massey & Denton, 1993).

At the same time, no single measure captures all dimensions of segregation. Sectoral and provider-based clustering describes institutional sorting, but it does not by itself identify the mechanisms producing the pattern. For that reason, the empirical chapters interpret provider-based sorting alongside evidence on socioeconomic gradients in final merit rating in compulsory school, market exposure, and municipal context, rather than treating any segregation statistic as definitive in isolation.

The closing section draws the three theoretical strands together and clarifies how they guide the interpretation of the empirical chapters.

From Theoretical Framework to Empirical Interpretation

I interpret the empirical patterns through three linked processes: class-based resource conversion, marketized grading incentives, and spatial sorting.

First, class-analytic perspectives help explain why SES remains strongly associated with school outcomes. Parental education and household income are treated as indicators of families' locations in class relations, and schooling is understood as a central institution for producing and allocating credentials (Bowles & Gintis, 1976; Coleman et al., 1966; Collins, 1979; Wright, 2015). Associations between SES and merit ratings are therefore treated not as arbitrary correlations but as central objects of interest that reveal how class-related resources are translated into grades under different institutional conditions.

Second, political-economy perspectives clarify why grades might drift under school marketization. When schooling is reorganized along market lines, grades become both institutional outputs of assessment practices and a kind of currency in competition for students. Polanyi's notion of embedded markets and Ball's account of performativity suggest that such arrangements may generate tensions between pedagogical and competitive logics, with potential effects on grading cultures and grade distributions (Ball, 2003; Polanyi, 1944/2001). Differences in grade inflation and grade–test discrepancies across school markets and provider types are therefore treated as substantively meaningful rather than as purely technical noise.

Third, spatial perspectives help explain why school segregation may increase under school choice and provider diversification and why these processes may unfold unevenly across municipalities. When housing markets, school markets, and class relations intersect, it is plausible that students will become more unevenly distributed across schools, particularly in urban areas with dense provider mixes and strong reputational hierarchies (Epple et al., 2017; Harvey, 2006; Massey & Denton, 1993). Between-school variance and measures of sectoral and provider-based sorting are therefore treated as indicators of how inequality becomes structured within local school markets, rather than as ancillary description.

The explanatory ambition is deliberately limited. The framework does not claim to capture every relevant mechanism, nor to separate them sharply from one another. Its purpose is to provide a coherent set of concepts for interpreting changes in final merit ratings in compulsory school and associations between SES and final merit ratings across the periods covered by the empirical chapters. The broader analytical perspective is sensitive to class relations, institutional incentives, and spatial organization.

The next chapter describes the data sources, coding strategies, and modeling choices used to operationalize SES, market exposure, and segregation in ways that are consistent with the theoretical orientation set out here. It also links these choices directly to the dissertation's research questions and empirical chapters.

CHAPTER 5

Methodology

This chapter explains how the dissertation's research questions are translated into an empirical design. It describes the data sources, the operationalization of key concepts, and the main comparison strategies. The aim is to make the analytical choices transparent and show how the different parts of the design fit together.

Chapter 2 formulated three empirical questions. Methodologically, these require three linked comparisons: a longitudinal descriptive analysis of socioeconomic gradients and local context in merit ratings; an Lgr11-period analysis of local sectoral grade divergence; and a subject-domain analysis that combines longitudinal subject-grade patterns, grade–test alignment, and intake-based subject-grade discrepancies. This chapter explains the data sources, operational definitions, and statistical approaches used for these comparisons.

The overall strategy is longitudinal and comparative rather than causal. The analyses map patterns in how socioeconomic status (SES), school markets, and geography relate to grades across time and space, and compare these patterns across providers and subject domains. Fixed-effects models, propensity score matching, and intake-based prediction models sharpen these comparisons and reduce bias from observed covariates.

The chapter proceeds in five steps. I begin with an overview of the analytical strategy and describe how the research questions, data, and methods are linked. I then motivate and describe the three data infrastructures used in the study. The next section defines the key measures, including merit rating, SES, income, and school marketization. I then discuss data handling, ethical considerations, and missing data. The final section introduces the main modeling approaches and explains how they are used in the empirical chapters.

Research Design and Analytical Strategy

The empirical design follows three analytical tasks, corresponding to the dissertation's three empirical chapters.

The first task is to establish a longitudinal descriptive baseline. Chapter 6 uses GOLD to follow final merit ratings in compulsory school, parental education, municipal median income, independent-school attendance, and local school-market saturation between 1998 and 2020. The purpose is to show how socioeconomic and local contextual patterns in merit ratings developed over time, using descriptive statistics, correlations, and simple regression models.

The second task is to examine local grade divergence during the later Lgr11 period. Chapter 7 uses SCB extracts for 2014–2022. It first estimates expected merit ratings from student intake and local context. It then compares observed and expected school means, and aggregates these differences within each municipality and graduation year. This produces local sector gaps between for-profit independent and municipal schools. The final step links these gaps to student-level models in order to examine whether the high-SES advantage is larger where local sector divergence is greater.

The third task is to break down the aggregate final merit rating into subject domains. Chapter 8 uses GOLD to examine longitudinal subject-grade growth and subject-domain differences by socioeconomic background and local market saturation. It then uses data from Evaluation Through Follow-Up (*Utvärdering genom uppföljning*, UGU) to compare grades and national test scores in Swedish, English, and mathematics for one cohort. Finally, SCB extracts are used to estimate observed–predicted discrepancies for selected Lgr11 subject grades across ownership sectors and provider groups.

The strategy is therefore sequential. Chapter 6 maps longitudinal grade-based stratification, Chapter 7 examines local provider divergence, and Chapter 8 studies the subject-domain structure of final merit ratings. The statistical approaches are introduced below because they serve these empirical tasks, not because they form a separate methodological toolkit.

Data Sources and the Need for Three Infrastructures

The empirical analyses draw on Swedish register and register-linked data, but no single data infrastructure contains all the variables needed for the dissertation. GOLD provides the longitudinal backbone for merit ratings, parental education, school identifiers, and municipality codes from 1998 to 2020, as well as subject grades for the 1998–2017 analytical window. The SCB extracts provide the later-period individual, household, provider, and municipal-context variables needed for the 2014–2022 analyses. UGU provides subject-specific national test scores for the 1998 birth cohort. The three sources are therefore used for different but connected analytical purposes.

GOLD: The Longitudinal Backbone

The first data source is GOLD, a research infrastructure at the University of Gothenburg that compiles register data on Swedish students' educational careers. For this study, GOLD provides information on all students who completed grade 9 between 1998 and 2020. For each student, GOLD contains final merit ratings in compulsory school, subject-specific final grades, demographic characteristics (such as gender, birth cohort, and migration background), parental education, school identifiers, and municipality codes. Descriptive statistics for the GOLD merit rating backbone (selected years) are reported in Table 5.1.

GOLD is crucial for two reasons. First, it provides harmonized variables over a long period, making it possible to follow the parental-education gradient in merit rating year by year. This directly serves the first research question. Second, it contains subject-level grade information over many cohorts, which is needed for the decomposition of merit ratings in Chapter 8. Descriptive statistics for selected subject grades in GOLD are reported in Table 5.2.

At the same time, GOLD has limitations. For this dissertation, it does not contain all income and contextual measures in the form needed for the 2014–2022 provider analyses. This limitation concerns the available analytical extract and the harmonization choices made for the present project, rather than the existence of the underlying Swedish registers. GOLD is therefore complemented with SCB extracts that provide the later-period variables required for Chapters 7 and 8.

SCB Extracts: Recent Years and Richer SES and Market Measures

The second data source consists of custom cross-sectional extracts from Statistics Sweden. These cover all students who completed grade 9 between 2014 and 2022. For each year, the SCB extracts provide final merit ratings in compulsory school and subject grades, detailed parental education, disposable household income, municipality of residence, school identifiers, provider type, and demographic controls. Descriptive statistics for the SCB extracts (selected years) are reported in Table 5.3.

There are two main reasons for using separate SCB extracts rather than relying only on GOLD. One is that disposable household income is not available in GOLD in the flexible form needed for this dissertation. The other is that the SCB extracts can be enriched with contextual variables directly from SCB's own statistics, such as municipal median disposable income and indicators of local population structure. These contextual variables are linked to individual students by municipality and graduation year.

In practice, this means that the SCB extracts allow SES to be operationalized with both parental education and income, and they make it possible to describe local school markets with more detail. This is particularly important for the second research question, where the interplay between school marketization, SES, and geography is central. It also allows for comparisons between household-level and municipal-level indicators of economic conditions.

UGU: Subject Grades and National Test Scores for the 1998 Cohort

The third data source is UGU, which combines survey data, national test scores, and register information for nationally representative cohorts. For the purposes of this dissertation, UGU is used for the cohort born in 1998, observed in grade 9 in 2014. For these students, UGU provides subject-specific national test scores in core subjects alongside final grades and background information.

UGU serves one specific purpose: it makes it possible to compare subject grades with external test scores for the same students. GOLD and the SCB extracts do not contain national test scores in the same unified, subject-specific form. Without UGU, it would be difficult to address the third research question's validity component in any systematic way.

UGU has its own trade-offs. The number of students is smaller than in the full population extracts, and the cohort coverage is limited. However, the combination of test scores, grades, and background variables makes it uniquely well suited for examining how subject grades track test performance across SES groups and provider types in a single, well-defined cohort.

Bringing the Data Sources Together

Using three infrastructures raises the question of coherence. The data sources are not treated as one merged individual-level analysis file. Instead, coherence is maintained through common register logic, comparable variable definitions, overlapping populations, and a shared focus on final outcomes from compulsory school. GOLD provides temporal depth; the SCB extracts provide richer SES, provider, and municipal-context measures for the later period; and UGU provides grade–test comparisons for one cohort.

The three data sources should therefore be understood as complementary windows into the same school system. Each is used for the empirical task it is best suited to carry: GOLD for longitudinal grade and subject-grade patterns, the SCB extracts for later-period provider and contextual analyses, and UGU for grade–test comparisons in one cohort.

With the three data infrastructures in place, the next section defines the core variables used across them.

Descriptive Overview of the Analytical Samples

The three data infrastructures differ in temporal scope, variable coverage, and analytical purpose. Tables 5.1–5.3 therefore summarize the dissertation's main analytical samples and provide methodological reference points for the operational definitions and empirical chapters. They report the scale, composition, and main tendencies of the data, including final merit ratings in compulsory school, parental education, demographic background, market exposure, income measures, and selected subject grades. Final merit ratings are reported on the 0–320 scale used for the 16 best subject grades in the years shown. Standard deviations are given in parentheses for continuous variables to describe within-year variation.

Table 5.1

Descriptive Statistics for the GOLD Merit-Rating Data, Students Graduating in 2000, 2010, and 2020

Variable	2000	2010	2020
n	97,677	112,038	112,070
Merit Rating (16 best grades)	203.33 (60.45)	209.36 (63.15)	220.02 (71.89)
Share of Students in Independent Schools (%)	2.73	11.66	19.61
Girls (%)	48.77	49.01	48.24
Born in Sweden (%)	86.50	83.23	74.76
Parental Education – Compulsory School Only (%)	13.72	9.76	12.58
Parental Education – Upper Secondary (%)	50.54	50.90	37.79
Parental Education – 2–3 Years of University (%)	23.98	24.91	27.06
Parental Education – 4+ Years of University (%)	11.75	14.43	22.57
CPI-adjusted Municipal Median Income (SEK, 1000s)	170.21 (13.80)	228.84 (21.86)	306.54 (31.17)

Note. n is reported in the table for each displayed graduation year. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

Table 5.1 shows the longitudinal structure of the GOLD merit-rating sample. The selected years illustrate several trends that are important for the dissertation's design: average merit ratings increase over time, the share of students enrolled in independent schools grows substantially, and the parental-education distribution changes as the share of parents with long tertiary education increases. At the same time, the share of students born in Sweden declines, indicating that the longitudinal analyses cover a changing student population. The table therefore illustrates why the dissertation treats the 1998–2020 period as a longitudinal trend window rather than as a period with fully stable composition.

Subject grades are reported on the 0–20 merit-point scale used in the dissertation's harmonized subject-grade analyses. A value of 0 corresponds to a non-passing grade, while passing grades are represented by their merit-point values. Standard deviations are reported in parentheses and show how much variation there is among students within each subject and year.

Table 5.2

Mean Subject Grades (M) and Standard Deviations (SD) for Selected Subjects in the GOLD Database. Students Graduating in 1998, 2007, and 2017

Subject	1998 *M (SD)*	2007 *M (SD)*	2017 *M (SD)*
Swedish	12.33 (4.68)	13.79 (4.44)	14.10 (4.44)
Swedish as a Second Language	10.87 (4.30)	11.57 (4.60)	11.34 (4.70)
English	12.73 (4.40)	13.83 (4.34)	14.33 (4.47)
Mathematics	11.30 (4.84)	11.70 (4.86)	11.76 (4.80)
Science	11.92 (4.71)	12.78 (4.61)	13.04 (4.64)
Social Science	12.09 (4.62)	13.25 (4.41)	13.61 (4.38)
Physical Education	12.19 (4.63)	13.83 (4.42)	14.40 (4.36)
Aesthetics	12.23 (4.61)	13.72 (4.40)	13.89 (4.35)
Crafts	12.40 (4.58)	13.82 (4.37)	14.14 (4.30)
Home and Consumer Studies	12.70 (4.53)	14.49 (3.98)	14.70 (3.88)
Modern Languages	11.59 (4.68)	12.48 (4.84)	12.99 (4.96)
Total (Mean Across Subjects)	12.18 (4.49)	13.51 (4.28)	13.86 (4.25)

Note. *M* = mean; *SD* = standard deviation. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

Table 5.2 differs from Table 5.1 because it does not describe the aggregate merit rating, but the subject-grade components from which merit rating is constructed. The table shows that mean subject grades generally rise between 1998 and 2017, but not uniformly across subjects. Some subjects display stronger increases than others. This supports the dissertation's decision not to treat merit rating only as

an aggregate index. Chapter 8 therefore examines how different subject grades contribute to broader merit-rating patterns and to questions of comparability over time.

Table 5.3

Descriptive Statistics for the SCB Extracts: Graduation Years 2014, 2018, and 2022; Shares in Percent and Means With Standard Deviations in Parentheses

Variable	2014	2018	2022
N	96,258	108,654	119,711
Share of Girls (%)	48.41	48.31	48.56
Share of Students with Swedish Background (%)	78.14	75.02	73.97
Share High Education (%)	16.94	19.39	22.63
Share in Independent Schools (%)	21.90	22.33	21.42
Merit Rating	212.61 (65.31)	218.38 (72.00)	217.12 (73.39)
Mathematics Grade	12.30 (4.83)	12.23 (5.13)	12.18 (5.28)
Swedish Grade	13.88 (4.00)	14.26 (4.11)	13.84 (4.37)
English Grade	14.42 (4.64)	14.50 (5.23)	14.90 (5.03)
History Grade	13.49 (4.43)	13.79 (4.89)	13.73 (4.96)
Technology Grade	13.40 (3.90)	13.91 (4.39)	13.92 (4.51)
Music Grade	14.21 (3.91)	14.69 (4.17)	14.78 (4.23)

Note. High education refers to students with at least one parent with long tertiary education, defined as four years or more of tertiary education. High income is used in later analyses as a cohort-relative indicator for students in the top quartile of the disposable-household-income distribution; because it is defined as a quartile, it is not reported as a descriptive share in the table. Swedish background refers to students born in Sweden with at least one Swedish-born parent. Students who are foreign-born or born in Sweden with two foreign-born parents are coded as having foreign background. Author's calculations based on Statistics Sweden register extracts.

Table 5.3 summarizes the richer SCB extracts used for the later analyses. Compared with the longitudinal GOLD backbone, these data provide more detailed measures of household income, provider structure, and local school-market context. The selected years fall within the Lgr11 grading regime and therefore provide a more institutionally comparable setting for the analyses of grade divergence and provider context. The table also summarizes the main SES-related and provider-context measures used in the 2014–2022 analyses. The high-income indicator is defined separately as a cohort-relative top-quartile measure and is therefore described in the note rather than reported as a descriptive table row.

Key Measures and Operational Definitions

The descriptive overview above summarizes the main analytical samples and selected key variables. The present section defines the measures used across the empirical chapters and explains how they are operationalized. The core measures are final merit rating in compulsory school, parental education, household and municipal income, demographic background, market saturation, provider structure, and subject grades. The goal is to be concrete enough to make the analyses transparent without turning the chapter into a full codebook.

Final Merit Ratings in Compulsory School and Subject Grades

The main outcome variable is final merit rating in compulsory school (*meritvärde*), the summary index of final subject grades used for admission to upper-secondary education. In the statistical analyses, merit rating is treated as an approximately continuous outcome. This does not mean that individual subject grades are continuous in a strict measurement sense. Rather, the aggregated merit-rating scale combines several subject grades and contains sufficient variation to support descriptive, correlational, and regression-based analyses. Coefficients should therefore be interpreted as differences in the merit-rating index, not as direct estimates of latent learning on an interval-scale psychometric measure.

The analyses span two criterion-referenced grading scales: the Lpo94 scale used for cohorts graduating from 1998 to 2012 and the Lgr11 scale used from 2013 onward. The two scales are not identical. The later scale includes more passing grade steps and an explicit F grade, while the earlier scale used three passing grades and zero merit points for non-passing performance. Longitudinal comparisons are therefore interpreted as comparisons of grade-based outcomes within a changing institutional grading regime, not as psychometric comparisons of identical scales. Where relevant, the analyses are interpreted separately by period or treated descriptively to avoid overclaiming continuity across grading systems.

In some longitudinal figures, changes in merit ratings and subject grades are expressed as baseline-standardized differences from 1998. This means that the 1998 value is set to zero and later values are expressed in units of the 1998 standard deviation. The approach follows a Swedish precedent in research on grade development. Gustafsson and Yang Hansen (2009) use standardized mean differences, or *d*-values, to describe changes in compulsory-school grades across grading systems and subject areas, precisely because grades from different systems are not expressed on the same scale. In this dissertation, the same general logic is used descriptively: baseline standardization makes changes easier to compare by expressing them relative to the amount of variation in the baseline year. The 1998

values therefore provide a descriptive baseline, while the Lpo94 and Lgr11 scales remain psychometrically distinct.

Subject grades enter in two ways. First, they are the building blocks of merit ratings. The distribution of subject grades helps interpret patterns in the overall index. Second, in Chapter 8, subject grades are analyzed directly, by subject or subject group, to examine how subject-specific patterns relate to merit-rating gaps between SES groups and provider types. For these purposes, subject grades are treated as ordered categories but are summarized using means and shares at the school or municipal level to keep the presentation tractable. Descriptive statistics for selected subject grades used in these profiles are reported in Table 5.2.

Socioeconomic Status, Parental Education and Income

Socioeconomic background is used in this dissertation as a broad conceptual term for the family-level resources and positions that shape educational trajectories. Socioeconomic status (SES) is used in a narrower methodological sense to refer to the operationalization of such background through indicators such as parental education and income. Parental education is the main longitudinal SES indicator in the dissertation, while income-based measures are used where the data allow a more differentiated analysis of economic resources. This choice is consistent with previous research showing that parental education is a stable and analytically useful indicator of socioeconomic background in studies of school outcomes, including Swedish research on parental education and merit ratings (Gustafsson & Yang Hansen, 2018; Sirin, 2005).

Parental education is operationalized in three ways. First, for most cross-sectional and subject-level analyses, it is grouped into four ordered categories: compulsory schooling only, upper-secondary education, short tertiary education, and long tertiary education, defined as four years or more of tertiary education. The four-category measure is used because it balances sociological differentiation with longitudinal comparability. The highest category is defined as four years or more in order to distinguish longer academic and professional degrees from shorter tertiary programs. This distinction is substantively relevant in the Swedish context, where many common welfare-state professional degrees are three-year programs, while longer university degrees more clearly mark extended academic credentials. A more detailed six-category measure would preserve additional distinctions, but the four-category measure is preferred here because it provides a more stable and transparent classification across cohorts and data sources. It separates the main educational thresholds relevant to the Swedish context while avoiding a level of detail that would be difficult to interpret consistently over the full period studied.

Second, for the longitudinal analyses in Chapter 6, parental education is collapsed into a binary indicator that separates students with at least one parent with three years or more of tertiary education from all other students. This binary measure is used to trace broad longitudinal differences between students from higher-educated households and other students. It should be interpreted as a stable and deliberately simplified contrast, not as a full representation of socioeconomic background. It should also not be read as identical to the four-category measure's long-tertiary category, which is defined as four years or more of tertiary education. The cutoff at three years or more of tertiary education is used because it captures a broad and stable contrast between households with substantial tertiary educational resources and other households across the full longitudinal period. It should therefore be read as a sociological contrast in educational resources, not as a precise class boundary.

Third, in some analyses, especially those focusing on the upper end of the SES distribution, parental education is combined with disposable household income into a composite high-SES indicator. Students are coded as high SES if they have at least one parent with long tertiary education, defined here as four years or more of tertiary education, and belong to the top quartile of the disposable-household-income distribution in their cohort year. This identifies a group where both educational and economic resources are strong, while students with mixed or lower positions on these indicators are grouped into the reference category.

At the same time, parental education is not a distributional constant over the period studied. Educational expansion means that the share of students with highly educated parents increases over time, while the share with parents in the lowest educational categories declines. This matters because the same educational category may not occupy exactly the same relative position in the parental-education distribution in 1998 as in later cohorts. This observation is consistent with Swedish stratification research emphasizing how educational expansion changes both selection processes and the distributional meaning of educational credentials (Erikson & Jonsson, 1993, 1994; Härnqvist, 1994). The longitudinal analyses therefore trace associations across substantively defined educational categories whose relative position changes over time, whereas the 2014–2022 analyses provide a more institutionally and compositionally comparable setting within one grading regime and with richer contextual measures. Descriptive statistics for parental education across the main analytical datasets are reported in Tables 5.1 and 5.3.

Disposable household income is obtained from Statistics Sweden's income register for each student's registered household. It captures total post-tax income for all members of the registered household and is measured annually. This provides a useful measure of the financial resources available in the registered

household, but it does not fully capture the situation of students with separated parents whose other parent does not belong to the registered household. In the analyses, disposable household income is used both as a continuous indicator and as a cohort-relative grouped measure. When grouped, disposable household income is divided into cohort-specific quartiles. This helps account for inflation, secular income growth, and changes in the overall income distribution across years.

At the municipal level, Statistics Sweden provides official statistics on median disposable income. These indicators are merged to the individual-level data by municipality and graduation year and are used as contextual measures of local economic conditions. To improve comparability over time, municipal median disposable income is adjusted for inflation using the Consumer Price Index (CPI) and expressed in constant 1998 prices. This means that the measure captures changes in real municipal income levels rather than nominal price-level changes. Municipal median income should not be interpreted as a direct measure of school resources, municipal spending on education, or school quality. The relationship between local income levels and school resources is mediated by municipal tax rates, equalization systems, political priorities, and local budget decisions. In this dissertation, municipal median income is therefore used cautiously as an indicator of the broader socioeconomic context and local opportunity structure within which school markets operate. Descriptive statistics for municipal median income are reported in Table 5.1.

Demographic Background and Locality Measures

Demographic background variables are used as controls in several analyses. Gender is coded as a binary register variable. Migration background is used as a broad term for students' own and parental country-of-birth background. In the longitudinal GOLD analyses, the available demographic indicator is primarily whether the student was born in Sweden. In the SCB extracts, the main measure is a binary distinction between students with Swedish background and students with foreign background. Swedish background refers to students born in Sweden with at least one Swedish-born parent, while students who are foreign-born or born in Sweden with two foreign-born parents are coded as having foreign background.

In the UGU-based analysis, where more detailed information is available, migration background is separated into more specific categories, including Swedish background, second-generation immigrant background, foreign-born background, and foreign adoptive background. This more detailed classification is used only for the matched UGU-based comparison and should therefore not be read as the general coding strategy across the dissertation. Across analyses,

migration-background variables are used as controls and descriptive indicators, not as the main explanatory focus of the dissertation.

Population density is used to capture variation in settlement structure and urbanization across municipalities. It refers to the number of residents per square kilometer at the municipality level. It is used as a contextual indicator of municipal settlement structure and urbanization, not as a direct measure of school quality, school resources, or educational effectiveness.

Chapter 7 uses a continuous municipal urbanization-degree measure obtained directly from Statistics Sweden without further transformation. Each student is assigned the value of the municipality in which the school is located. The variable therefore represents a contextual attribute of the school municipality rather than an individual indicator of whether the student lives in an urban locality. The original Statistics Sweden scale is retained in the analysis. This measure is distinct from the binary individual-level indicator In Urban Locality used in Appendix D.

School Marketization and Local School Markets

Chapter 4 conceptualizes school marketization as the combination of decentralization, parental choice, and the establishment of publicly funded independent schools under a voucher system. To bring this concept into the empirical analysis, the dissertation uses three types of indicators.

The first indicator is market saturation, defined as the share of grade 9 students in a municipality who are enrolled in independent schools in a given year. This share is treated primarily as a continuous measure that captures how far a local school system has shifted from a purely municipal provider model to a mixed one. In the empirical analyses, market saturation is used both descriptively and as a contextual indicator of local market exposure. In Chapter 6, it is used to classify municipalities into low-, medium-, and high-saturation contexts; in Chapter 7, it enters the analyses of local sectoral grade divergence.

The second indicator is market composition. This refers to the relative shares of municipal and independent school students within each municipality and graduation year and, where data permit, finer-grained distinctions between types of independent providers. Market composition matters because two municipalities can have similar levels of saturation but very different mixes of providers. In Chapter 7, market composition helps differentiate contexts where independent schools are a small supplement from contexts where they are a major alternative to municipal provision.

The third indicator is a threefold classification of municipalities into low-, medium-, and high-saturation contexts. For each graduation year, market saturation is calculated for each municipality as the number of grade 9 students

attending independent schools divided by the total number of grade 9 students in the municipality. Municipalities are then ranked within that year's distribution and divided into three percentile-rank groups representing Low, Medium, and High market saturation. The resulting municipality-year classification is linked to the student-level records. The grouping is recalculated separately for each graduation year, so the cut-points change as the annual distribution changes. In the observed data, Low consists of municipalities with no independent-school attendance, whereas High contains those with the largest shares in a given year. The categories therefore represent relative annual contexts rather than fixed sets of municipalities or fixed percentage-point thresholds.

Because the categories are based on municipalities' annual percentile ranks rather than on the size of their student populations, municipalities within similarly sized rank groups may represent very different numbers of grade 9 students. A simple count of municipalities in each category would therefore provide little information about the number of students represented. Table 6.1 instead reports pooled student observations by category.

The labels are analytical rather than administrative and are used to distinguish municipalities by degree of local market exposure. Because market saturation overlaps with geography, population density, and provider diversity, high-saturation municipalities are typically more urbanized and contain denser provider landscapes, whereas low-saturation municipalities more often have smaller populations, fewer providers, and more limited school-choice opportunities. Medium-saturation municipalities fall between these poles. The classification therefore acknowledges that school marketization does not unfold in a homogeneous space: the same national rules can generate different opportunity structures depending on the local density of students, providers, and school-choice options. Descriptive statistics for the low-, medium-, and high-saturation classification are reported in Chapter 6. For the residual divergence analyses, observed-minus-predicted differences are aggregated into local sector gaps between municipal and for-profit independent schools within the same municipality and graduation year. Descriptive evidence on the sector-gap distribution across municipalities is reported in Chapter 7.

These indicators do not attempt to reduce school marketization to a single number. Instead, they describe how market features are expressed in local contexts in ways that can be related to SES, grading patterns, and segregation.

Because market exposure is only one part of the local context, the next section briefly clarifies how sorting and spatial distribution are described alongside it.

Segregation and Spatial Distribution

To capture how students from different SES backgrounds are distributed across schools within municipalities, the dissertation uses provider-based measures of sorting rather than entropy indices. The focus is on sectoral and organizational clustering: how student composition differs between municipal and independent schools, between municipal and for-profit independent providers, and, where relevant, across major school groups. In line with the unevenness dimension of segregation, the emphasis is on whether groups are distributed differently across units within a larger area—here, schools and provider categories within municipalities (Massey & Denton, 1993). These measures are interpreted alongside market exposure and municipal context rather than treated as definitive in isolation.

Data Handling, Ethical Considerations, and Missing Data

The analyses use pseudonymized individual-level register data subject to strict confidentiality. The data contain personal and administrative information about students, families, schools, and municipalities, but the dissertation does not use direct identifiers and does not report results that can identify individuals, specific schools, or corporate entities.

The research project was submitted to the Swedish Ethical Review Authority (case no. 2023-01434-01). Owing to the nature of the study, the Authority determined that the project did not involve either interventions or the categories of personal-data processing covered by Sections 3–4 of the Swedish Ethical Review Act (SFS 2003:460) and therefore did not require ethical review. The application was consequently dismissed rather than approved. In its accompanying advisory opinion, the Authority stated that it had no ethical objections to the project. Data access and processing nevertheless take place in secure environments that comply with Swedish legislation on personal data and with Statistics Sweden's confidentiality procedures.

In practical terms, personal identity numbers and other direct identifiers are replaced with encrypted keys before analysis. Results are reported only in aggregated form. When provider types or school markets are discussed, they are grouped into broad analytical categories. The dissertation therefore treats the data as confidential register data requiring strict protection, while also making clear that the analyses do not use sensitive personal data in the legal sense as substantive analytical variables.

Generative AI tools were used selectively as supplementary aids for Swedish–English translation, programming-code review, and refinement of the notation

and presentation of statistical equations. All final wording, code, and equations were reviewed by the author.

Missing data are handled using pairwise deletion in correlation analyses and listwise deletion in regression analyses, unless otherwise stated in the relevant empirical chapter. Cases with missing values on key variables such as merit rating, parental education, household income, school identifier, or municipality code are excluded from the models in which those variables are required. In population registers, missing data are generally less frequent than in survey data, but certain variables, especially parental education and income in earlier years, do have missing values. Tables 5.1–5.3 report sample sizes and descriptive statistics for selected key variables. Missingness is handled within each analysis and discussed where it affects the relevant empirical comparison.

The choice not to use imputation is deliberate. Imputation procedures introduce additional modeling assumptions about why data are missing. In a setting where the register coverage is high and the analytic samples are large, the costs of added complexity and potential misspecification were judged to outweigh the benefits (Rubin, 1987). Instead, the strategy has been to keep the handling of missing data simple and transparent and to rely on overlapping analytical windows and complementary measures as a main form of robustness check. For example, the longitudinal correlations in Chapter 6 are complemented by the more detailed fixed-effects analyses in Chapter 7 and by the UGU-based PSM comparison in Chapter 8.

For the PSM analysis in Chapter 8, missingness plays a particularly important role because the matching depends on observed covariates. Students must therefore have complete data on the variables used to estimate the propensity score and on parental education, which is used for exact matching. Appendix B reports matched-group covariate distributions and descriptive balance checks.

Taken together, these procedures are intended to uphold ethical standards, preserve the integrity of the data, and make the limitations of the empirical material explicit. The analyses rely on high-quality register data and established modeling approaches, but the interpretation remains explicitly associative.

Statistical Approaches

The dissertation uses several statistical approaches, each chosen for a specific purpose. The aim is not to pursue technical complexity for its own sake but to use established tools in ways that match the research questions and the structure of the data.

Descriptive and Correlational Analyses

The starting point in all empirical chapters is descriptive analysis. Simple distributions of merit rating and subject grades are examined by SES, provider type, and municipal context. Means, medians, proportions, and, where relevant, standardized mean differences (Cohen's *d*) are used to summarize differences between groups and over time. Pearson and Spearman correlations between merit rating and key SES and market indicators provide a first, transparent picture of the strength and direction of associations.

Given the population coverage and large numbers of observations in the register data, the interpretation of correlations emphasizes their magnitude, direction, and development over time. Conventional significance tests can yield small *p*-values even for weak associations.

In Chapter 6, year-by-year correlations of merit ratings with parental education and municipal median income are used to trace socioeconomic gradients over time. This follows the descriptive logic used in earlier Swedish register-based work on educational equity, where correlations, variance decompositions, and related descriptive measures are used to follow changes in the relationship between family background, school context, and school outcomes across cohorts (Fjellman & Yang Hansen, 2025; Gustafsson & Yang Hansen, 2018; Yang Hansen & Gustafsson, 2019). In Chapters 7 and 8, descriptive profiles, simple cross-tabulations, and standardized mean differences help situate more complex models, for example by showing how student composition and grading patterns differ between municipal and independent schools across local market contexts.

Chapter 8 uses two distinct forms of standardization. For baseline-standardized grade growth, each subject's annual mean is compared with its 1998 mean and divided by that subject's 1998 standard deviation. For group gaps, annual mean differences are expressed as Cohen's *d* using the contemporaneous pooled standard deviation of the groups being compared, after which the corresponding 1998 value is subtracted to show change from baseline. Figure 8.5 additionally compares the parental-education gap between high- and low-saturation municipalities before removing the corresponding 1998 difference. Multi-subject domain values are unweighted arithmetic means of the constituent subject-specific statistics. These transformations place subjects with different grade distributions on a common descriptive scale, with the Lpo94 and Lgr11 grading regimes treated as distinct. The standardization formulas are presented in Appendix A.

These descriptive and correlational analyses do not, by themselves, support strong inferences. Their value lies in establishing the basic empirical patterns before

more elaborate modeling is introduced. The next subsection therefore moves from descriptive mapping to models designed to sharpen within-context comparisons.

Fixed-Effects Regressions

To examine whether SES–merit rating associations differ across contexts, the dissertation uses linear regression models with fixed effects for years and municipalities (and, in some specifications, schools), combined with interaction terms. The intuition is straightforward: fixed effects absorb all time-invariant characteristics of a municipality or school, such as long-standing institutional traditions, demographic profiles, or historical labor-market structures, so that the variation used in the analysis comes from differences over time within units or between groups within the same units.

Fixed-effects models are a standard tool in Swedish policy evaluation, and are used extensively in studies based on compulsory school reforms and later policy changes. The Institute for Evaluation of Labor Market and Education Policy (IFAU), for example, has used fixed-effects and difference-in-differences designs to analyze the consequences of the compulsory school reform and other major policy shifts (see, e.g., Tyrefors Hinnerich & Vlachos, 2016; Wondratschek et al., 2013). These studies show how fixed-effects models can help isolate policy-related variation in outcomes while controlling for unobserved, time-invariant heterogeneity.

In this dissertation, the purpose is more modest. Fixed effects are used primarily to sharpen associative comparisons, not to identify policy effects. In Chapter 7, municipality and year fixed effects are used to compare students within the same local and temporal context while absorbing time-invariant municipal differences and general year-specific shifts. The main student-level specification asks whether the high-SES advantage in final merit rating in compulsory school is larger in municipalities and graduation years where the local sector gap between for-profit independent and municipal schools is larger. The interaction term tests whether socioeconomic grading advantages covary systematically with local sector divergence after accounting for fixed municipal characteristics, year effects, and observed controls. School fixed-effects specifications are reported as conservative robustness checks to assess the extent to which this pattern is expressed within schools rather than through between-school and between-sector differentiation.

General model expressions for the fixed-effects specifications, including the covariate-vector and interaction structure, are presented in Appendix A; the empirical chapters report the specific controls used in each analysis.

Propensity Score Matching (PSM)

Because students are not randomly assigned to providers, crude comparisons between independent and municipal schools risk conflating grading patterns with intake differences. Propensity score matching is used as a supplementary comparison intended to assess robustness rather than as the main identification strategy. The purpose is to compare students in independent schools with observationally similar students in municipal schools in the UGU cohort born in 1998, where subject grades and national test scores can be compared for the same students.

Propensity scores are estimated using logistic regression with gender and migration background as covariates. Matching is performed using nearest-neighbor matching within a maximum allowed distance in the propensity score, often called a caliper. The matching procedure also imposes exact matching on parental education. The aim is to improve covariate balance and make the comparison more transparent, not to approximate a quasi-experiment. The propensity score matching formulas are presented in Appendix A, and balance diagnostics are reported in Appendix B.

This use of propensity score matching follows the broader methodological logic of comparing "like with like" on observed characteristics (Caliendo & Kopeinig, 2008). At the same time, PSM cannot address unobserved selection and is sensitive to modeling choices, including the choice of covariates, caliper, and matching procedure (King & Nielsen, 2019). The matched-sample results are therefore interpreted as conditional associations that complement the descriptive and fixed-effects results.

Matching addresses one comparison problem, but Chapters 7 and 8 also require a benchmark based on measured student intake and municipal context.

Composition-Adjusted Observed–Predicted Benchmark

Another component of the analytical toolkit, used in Chapters 7 and 8, is a composition-adjusted observed–predicted benchmark. In Chapter 7, the benchmark compares each school's observed mean final merit rating with the mean predicted from measured student composition, municipal context, and fixed effects. In Chapter 8, the same general logic is applied to selected subject grades during the Lgr11 period. The benchmark makes comparisons more interpretable when schools and providers serve systematically different student intakes and operate in different local contexts. Throughout the dissertation, predicted refers to the fitted value generated by the statistical model, whereas expected is used only as an interpretive shorthand for the outcome implied by the measured covariates. The observed-minus-predicted differences are therefore interpreted as model-dependent descriptive signals of divergence.

The observed-predicted benchmark is conceptually similar to the Swedish National Agency for Education's SALSA model (*Skolverkets arbetsverktyg för lokala sambandsanalyser*). SALSA compares schools' observed outcomes with model-based values using a limited set of background factors: parents' average education level, the share of boys, and the share of newly arrived students, including students with unknown background in the current model (Skolverket, 2026a). SALSA reports both mean merit rating and the share of students passing all subjects. Its purpose is to support local analysis rather than to rank schools.

The dissertation does not use SALSA estimates. It applies the same general observed-predicted logic to Statistics Sweden register extracts and uses a broader composition model. Each observation is one school in one graduation year. The outcome is the school's mean final merit rating. School-year composition is measured by the shares of female students, students with migration background, students in the specified parental-education categories, and students in household-income quartiles. The model also includes the continuous urbanization-degree value of the school municipality, obtained directly from Statistics Sweden, as well as municipality and graduation-year fixed effects.

The model is estimated by weighted ordinary least squares, with the number of students in each school-year observation used as the weight and standard errors clustered by municipality. The fitted value is the predicted mean merit rating for that school and graduation year. Grade divergence is the observed mean minus the predicted mean. These school-year differences are then aggregated with student weights within sector, municipality, and graduation year. The local sector gap is the weighted mean for for-profit independent schools minus the weighted mean for municipal schools within the same municipality and year.

In the empirical chapters, these observed–predicted differences are interpreted descriptively in relation to provider type and local market context. A systematic pattern may be consistent with differences in grading practices, instructional organization, unmeasured student composition, peer context, or other institutional conditions. Their interpretation is therefore developed together with subject-level patterns and the UGU grade–test comparison.

The empirical specifications are documented in Chapters 7 and 8, while Appendix A provides compact expressions of their general model structure, including interaction terms where applicable.

Linking Methods to the Empirical Chapters

Each empirical chapter uses the methods that correspond to its research task. Chapter 6 uses GOLD to trace longitudinal associations between final merit

ratings in compulsory school, parental education, municipal median income, school-market saturation, and independent-school attendance from 1998 to 2020. Descriptive statistics, correlations, and simple regression models examine how these associations develop across cohorts and how they vary across low-, medium-, and high-saturation municipal contexts. The chapter provides the dissertation's longitudinal descriptive baseline.

Chapter 7 focuses on the Lgr11 period, when provider landscapes vary strongly across municipalities. Using SCB register data for 2014–2022, the chapter first estimates residual grade-divergence values for schools in each graduation year. These residuals, defined as each school's observed mean final merit rating minus its model-predicted mean, are then used to compare for-profit independent and municipal schools within the same municipality and graduation year. The resulting local sector gaps are linked to student-level fixed-effects models of final merit rating in compulsory school in order to examine whether the high-SES advantage is larger where local sector divergence is greater.

Chapter 8 adds subject-domain resolution. It uses GOLD to examine the subject-domain composition of merit ratings, baseline-standardized subject-grade growth, and socioeconomic and market-saturation differences across subject domains. It then uses UGU to examine grade–test alignment in Swedish, English, and mathematics for the cohort born in 1998. Finally, SCB extracts are used to estimate observed–predicted discrepancies for selected Lgr11 subject grades across ownership sectors and provider groups.

Across the empirical chapters, the same methodological principle applies. The analyses rely on high-quality register data and established modeling approaches, but the interpretation remains explicitly associative. The emphasis is on describing and comparing patterns that speak to the equity and validity lenses introduced earlier and on stating clearly what the methods can and cannot support. Technical and supplementary material that would interrupt the narrative flow is collected in Appendices A–D. Appendix A reports statistical formulas and model expressions; Appendix B presents propensity-score matching diagnostics and the full UGU grade–test regression results; Appendix C documents the 84 municipalities included in the pooled municipality-level analyses and reports the association between pooled for-profit marketization and the pooled local sector gap; and Appendix D presents supplementary analyses and robustness checks for Chapter 7.

With these measures and comparison strategies in place, I now turn to the first empirical analysis and map longitudinal trends in the parental-education gradient in final merit rating in compulsory school.

CHAPTER 6

Longitudinal Patterns in Final Merit Ratings, Socioeconomic Background, and School Markets, 1998–2020

This chapter establishes the dissertation's longitudinal empirical baseline. It examines how final merit ratings in compulsory school developed between 1998 and 2020 and how their associations with parental education, municipal median income, independent-school attendance, and local school-market saturation unfolded over time. The chapter therefore follows final merit ratings as a grade-based selection signal across the period in which independent schooling expanded, local school-market contexts became more differentiated, and Sweden moved from the Lpo94 grading scale to the Lgr11 grading scale.

The analysis extends previous Swedish research on socioeconomic gradients in merit ratings by bringing local school-market saturation and independent-school attendance into the same longitudinal descriptive frame (Gustafsson & Yang Hansen, 2018; Yang Hansen & Gustafsson, 2019). The central issue is whether the association between merit ratings and socioeconomic background developed uniformly across Sweden, or whether it became more strongly connected to the local economic and institutional contexts in which students were assessed.

The chapter is organized around three connected levels of analysis. First, it examines merit ratings and parental education at the student level, asking how the family-level educational gradient in merit ratings changed over time. Second, it adds municipal median income as a contextual measure of local socioeconomic conditions. Third, it introduces school-market saturation and independent-school attendance in order to examine how merit ratings and socioeconomic gradients developed across different local school-market contexts. Together, these analyses show how family resources, municipal context, and the local presence of independent schooling became connected in the longitudinal development of final merit ratings in compulsory school.

Analytical Focus

This chapter addresses the dissertation's first research question: *How did the longitudinal relationships between final merit ratings in compulsory school, parental education, municipal median income, school-market saturation, and independent-school attendance develop in Sweden between 1998 and 2020?*

The chapter uses parental education as the main indicator in the longitudinal analysis of socioeconomic background. This follows previous research showing that parental education is a stable and substantively meaningful predictor of school outcomes, both internationally and in Sweden (Gustafsson & Yang Hansen, 2018; Hattie, 2023; Sirin, 2005). It can also be measured consistently across cohorts and captures resources connected to educational orientation, familiarity with the school system, and the capacity to navigate educational transitions. Here, parental education is not treated merely as a background control; it is used to trace how family-level educational resources are associated with final merit ratings in compulsory school over time.

Municipal median income adds a contextual dimension. It is not used as a direct measure of school resources, municipal school spending, or school quality. The relationship between municipal income and schooling is mediated by taxation, equalization systems, local priorities, and political decisions. Instead, municipal median income is used as an indicator of the socioeconomic environment in which schools, families, and municipalities are situated. Local economic context may shape residential patterns, student composition, the extent to which school choice is available in practice, and the conditions under which municipal and independent providers operate (Brandén & Bygren, 2022; Skolverket, 2018; SOU 2020:28; Yang Hansen & Gustafsson, 2016). Including municipal income therefore makes it possible to analytically separate the family-level association between parental education and merit rating from the wider municipal context in which educational opportunities are organized.

Market saturation refers to the municipal share of final-year students enrolled in independent schools. It is used as a contextual measure of local market exposure. Individual independent-school attendance identifies whether a student attended an independent school. Market saturation describes the local school-market environment in which all students in the municipality were assessed. This distinction follows research showing that school choice and independent-school expansion are unevenly distributed across municipalities and local opportunity structures (Böhlmark et al., 2015; Brandén & Bygren, 2022; Edmark, 2019; Fjellman, 2019a, 2019b).

The chapter combines three measures. Parental education captures family-level socioeconomic background. Municipal median income captures the wider

local economic context. Market saturation captures the local presence of independent schooling. Together, these measures make it possible to examine whether the association between socioeconomic background and final merit rating in compulsory school developed uniformly across Sweden, or whether it varied across local economic and school-market contexts. The analysis is longitudinal and descriptive. It maps how socioeconomic gradients, municipal income, independent-school attendance, and local market saturation moved together during the expansion and consolidation of the Swedish school market.

The three measures also operate at different analytical levels. Parental education captures family-level resources; municipal median income captures the local socioeconomic environment; and market saturation captures the institutional structure of the local school market. Keeping these levels analytically separate helps clarify whether a stronger association between parental education and final merit rating in compulsory school reflects changes in family-level educational resources, changes in municipal context, changes in provider structure, or some combination of these processes. The chapter therefore treats them as connected but distinct dimensions of the same longitudinal development.

This framing guides the interpretation of the figures that follow. If merit ratings increased over time, the central question is whether the increase was evenly distributed or socially patterned. If the parental-education gradient strengthened, the question is whether this occurred similarly across municipalities or was more visible in places with higher market saturation. If independent-school attendance became more common, the question is whether that expansion was evenly distributed or concentrated in particular local contexts. The chapter's task is to establish this longitudinal descriptive baseline before Chapter 7 turns to grade divergence within local school markets.

Measures and Interpretation

This chapter uses register data for students completing compulsory school between 1998 and 2020. The analyses are descriptive and consist of trend figures, group comparisons, and year-by-year correlations. Full information about data sources, variable construction, missing data, and ethical handling is provided in Chapter 5. The chapter relies mainly on line figures because the central task is to trace how associations change across cohorts.

The period covers final grades under both the Lpo94 and the Lgr11 grading scales. This transition is marked explicitly in Figure 6.1 and should be kept in mind throughout the chapter. Several associations change around or after the early 2010s. The Lgr11 transition is therefore treated as an important institutional marker when

interpreting the figures. The chapter traces grade-based outcomes across changing cohorts and grading regimes, and changes in merit ratings are interpreted in relation to grading practices, student composition, school-market structure, grading-scale change, and combinations of these processes.

Merit ratings are analyzed both in their original institutional scale and as baseline-standardized changes. Baseline standardization is used only to make changes over time easier to compare. It does not assume that grades measure identical underlying achievement across grading regimes. The formula is reported in Appendix A2.

Pearson's *r* is used for binary and continuous measures. Spearman's rho is used for the ordered parental-education measure because the categories represent a ranked educational hierarchy.

Municipalities are divided into annual low-, medium-, and high-saturation groups based on the municipal share of final-year students enrolled in independent schools. The grouping is recalculated for each graduation year, so the categories capture relative exposure to independent schooling within each year rather than fixed historical thresholds.

Final Merit Ratings and Socioeconomic Context Over Time

The empirical analysis begins by establishing how final merit ratings changed between 1998 and 2020. This provides the outcome trend against which the later socioeconomic and school-market associations are interpreted.

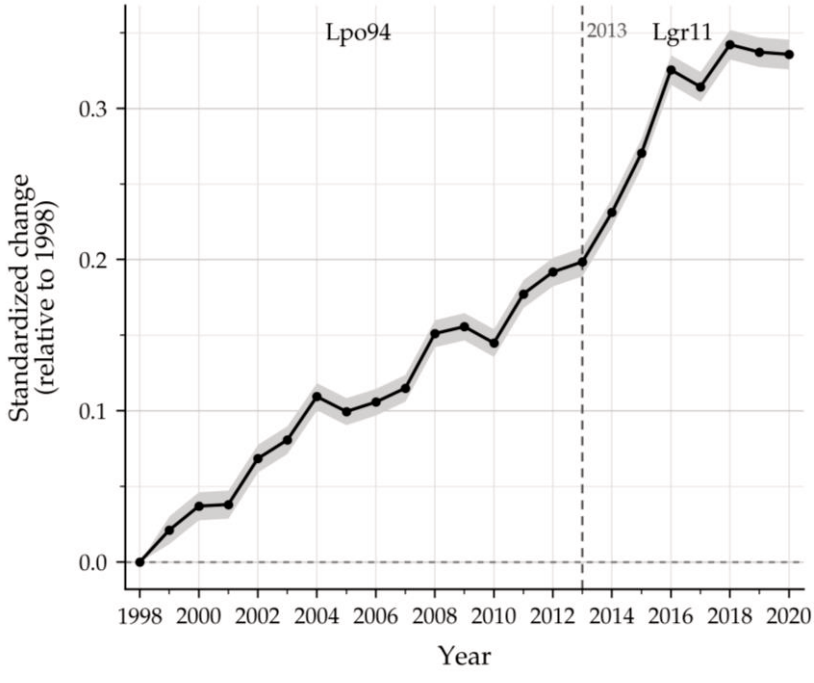
The section then introduces parental education as the main family-level indicator of socioeconomic background. The central question is not simply whether students with more highly educated parents receive higher merit ratings. That relationship is already well established in previous research. The more specific question here is whether the strength and form of this association changed across cohorts, and whether the parental-education gradient became more pronounced during the period in which the independent-school sector expanded and the grading system changed.

Municipal median income is then added as a contextual measure. This moves the analysis from family-level resources to the local socioeconomic environment in which schools and students are situated. The distinction is important because parental education captures resources within the household, while municipal income captures broader differences between local contexts. Examining both measures makes it possible to ask whether grade-based outcomes became more socially patterned only at the family level, or also more closely tied to the socioeconomic profile of municipalities.

The sequence of analyses in this section therefore moves from the outcome itself to two dimensions of socioeconomic context. First, Figure 6.1 establishes the longitudinal development of the annual mean final merit rating, expressed as standardized change relative to 1998. Figures 6.2–6.4 then examine parental education and its association with merit ratings. Figures 6.5–6.6 introduce municipal median income and its association with merit ratings. This prepares the ground for the later sections, where the same socioeconomic patterns are related to independent-school attendance and to low-, medium-, and high-saturation municipal contexts.

Figure 6.1 uses 1998 as the baseline year. The value for 1998 is therefore set to 0. Values above 0 show how far the mean merit rating in later years lies above the 1998 mean, expressed in units of the 1998 standard deviation. A value of 0.50 means that the mean merit rating is half a 1998 standard deviation higher than in 1998. The corresponding formula is reported in Appendix A2.

Figure 6.1
Standardized Change in Mean Final Merit Rating in Compulsory School, 1998–2020



Note. Values show the change in annual mean final merit rating relative to 1998, expressed in units of the 1998 standard deviation; 1998 is therefore zero by construction. The shaded band is a 95% confidence interval based on the normal approximation for the difference between independent annual means. The dashed vertical line marks the transition from the Lpo94 grading scale to the Lgr11 grading scale in 2013. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

Figure 6.1 shows a gradual but clear baseline-standardized increase in the annual mean final merit rating in compulsory school. The increase begins under the Lpo94 scale and continues after the introduction of the Lgr11 scale. The post-2013 increase should be read with caution because the grading scale changed and additional passing grade steps were introduced (Skolverket, 2011; SOU 2020:43). The upward movement is therefore not reducible to the scale transition, but the transition still needs to guide interpretation.

The shape of the curve is also informative. Merit ratings rise slowly during the first half of the period, level off in some years, and then increase more sharply after the early 2010s. The figure therefore shows a longitudinal rise in the grade-based selection measure, rather than a single abrupt break. It also shows that the later

analyses are conducted against a moving baseline. The question is not whether merit ratings changed, but how this change was tied to social and local contexts.

An apparently stable association may have a different substantive meaning when the outcome itself is rising and its institutional and compositional context is changing.

The standardized scale also helps clarify the chapter's descriptive task. The figure does not turn the Lpo94 and Lgr11 grading scales into identical measures of underlying achievement. Instead, it provides a common descriptive reference point for following the grade-based selection signal over time. The relevant question is therefore not only whether mean merit ratings increased, but whether the increase became increasingly connected to family educational resources, local economic context, and the local presence of independent schooling. This is the analytical sequence followed in the rest of the chapter.

Parental Education and Final Merit Ratings

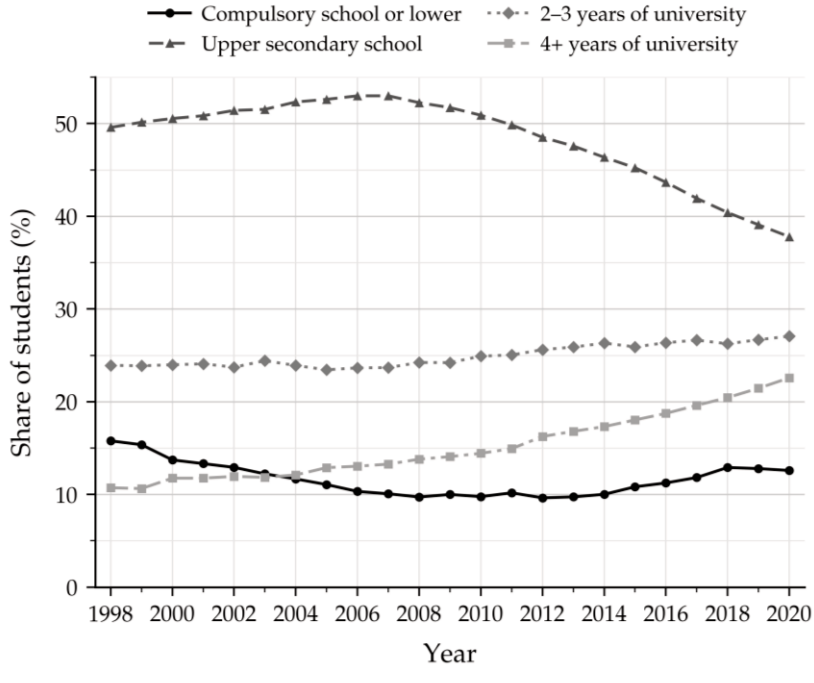
Having established the longitudinal increase in mean merit ratings, the analysis turns to parental education. The measure has already been introduced above in both its binary and ordered forms; the point here is not to define it again but to examine how the parental-education gradient developed over time. Previous research establishes parental education as one of the most stable predictors of school outcomes (Gustafsson & Yang Hansen, 2018; Hattie, 2023; Sirin, 2005). The question in this chapter is narrower and more historical: whether the association between parental education and final merit rating in compulsory school changed during a period marked by educational expansion, changing grading regimes, and growing local school-market differentiation.

Answering this question requires attention to the distribution of parental education itself. Parental education is a stable indicator in the sense that it can be measured consistently across cohorts, but it is not a fixed population characteristic. As tertiary education expanded, the parental generation changed. The share of students with highly educated parents increased, while the share with parents in lower educational categories declined. A category such as upper-secondary education or long tertiary education therefore does not occupy exactly the same distributional position in 1998 as in 2020, even though the substantive category remains meaningful.

Figure 6.2 describes this compositional shift before the chapter turns to the correlations between parental education and merit rating. This order matters. If the parental-education gradient changes over time, that change must be read against a moving background distribution. The later figures therefore ask not

only whether students with more highly educated parents receive higher merit ratings, but whether this association becomes stronger while the educational profile of the parental generation is itself changing.

Figure 6.2
Distribution of Final-Year Students Across Four Parental-Education Categories, 1998–2020



Note. Percentages are calculated within graduation year among students with valid four-category parental-education data and sum to 100 percent within each year. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

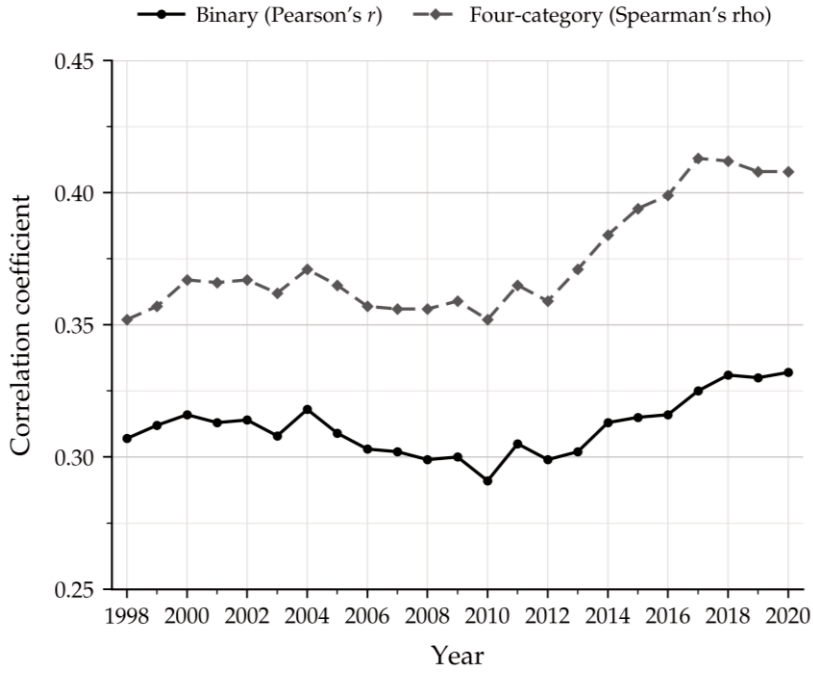
Figure 6.2 shows a clear shift in the educational profile of the parental generation. The share of students whose parents had only compulsory schooling declined from 15.78 percent in 1998 to 12.58 percent in 2020. The share with upper-secondary education also declined, from 49.58 percent to 37.79 percent. At the same time, tertiary education became more common. The share of parents with two to three years of tertiary education increased from 23.92 percent to 27.06 percent, while the share with four years or more almost doubled, from 10.72 percent to 22.57 percent.

This change matters for the interpretation of the parental-education gradient. The categories remain substantively meaningful, but their distribution in the student population changes over time. In 1998, long tertiary education marked

a smaller and more selective parental group than it did in 2020. The same is true, in the opposite direction, for the lower educational categories, which become smaller over the period. This is consistent with broader educational expansion in Sweden and changing links between education, labor-market position, and family resources (Börjesson & Dalberg, 2021).

The next step is therefore to examine whether the association between parental education and final merit rating in compulsory school also changed during this period. Figure 6.3 compares two ways of measuring parental education. The binary measure distinguishes students with at least one parent with three years or more of tertiary education from all other students. The ordered measure separates parental education into four ranked categories. Pearson's *r* is used for the binary measure. Spearman's rho is used for the ordered measure because it preserves the ranking between categories.

Figure 6.3
Annual Correlations Between Final Merit Ratings in Compulsory School and Two Measures of Parental Education, 1998–2020



Note. The binary parental-education measure distinguishes students with at least one parent with three years or more of tertiary education from all other students and is correlated with final merit rating using Pearson's *r*. The ordered four-category measure is correlated with final merit rating using Spearman's rho. Correlations use pairwise available cases. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

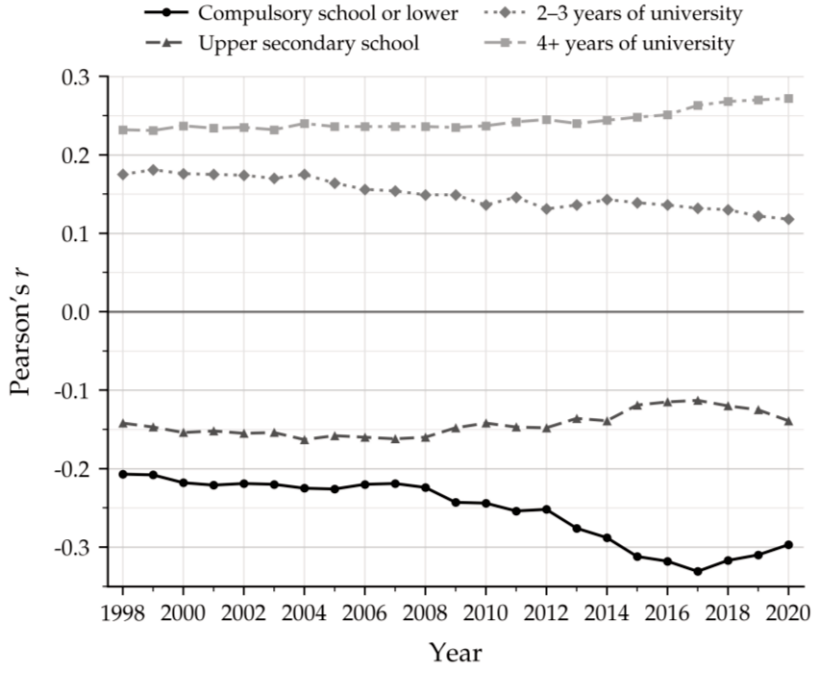
Figure 6.3 shows that both parental-education measures are positively associated with final merit rating in compulsory school throughout the period. The association is statistically significant in all years ($p < .001$), but the strength of the association differs depending on how parental education is measured. The binary measure produces a lower and more stable correlation, while the ordered four-category measure produces a higher correlation and a clearer increase after the mid-2010s.

This difference is expected. The binary measure captures a broad contrast between students with at least one tertiary-educated parent and all other students. It is useful because it is easy to interpret and stable over time, but it compresses variation within both groups. The ordered measure preserves more of the educational hierarchy and therefore captures differences between compulsory schooling, upper-secondary education, shorter tertiary education, and longer tertiary education. Its stronger

association with merit rating indicates that the gradient is not only a matter of whether tertiary education is present in the household, but also a matter of where parents are located within the educational hierarchy.

The time trend adds a second point. The correlations are relatively stable from the late 1990s to the early 2010s, with some year-to-year movement. After the introduction of the Lgr11 grading scale, the ordered measure increases more clearly. Because the introduction of Lgr11 coincided with continued educational expansion, changing student composition, and the further consolidation of independent schooling, the stronger association cannot be attributed to the grading reform alone. The figure nevertheless shows that the link between parental education and merit rating became more pronounced in the later part of the series, especially when parental education is measured as an ordered hierarchy rather than as a binary contrast.

Figure 6.4
Annual Pearson Correlations Between Final Merit Ratings in Compulsory School and Membership in Four Parental-Education Categories, 1998–2020



Note. Each series is the annual Pearson correlation between final merit rating and membership in one of four mutually exclusive parental-education categories. Negative values indicate lower merit ratings among members of the category relative to other students, while positive values indicate higher merit ratings. Correlations use pairwise available cases; all four series share the same annual analytic *N*. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

Figure 6.4 shows the parental-education gradient in a more differentiated form. The association with merit rating is not confined to a single divide between students with and without tertiary-educated parents. Instead, the pattern follows the educational hierarchy. Students whose parents have four years or more of tertiary education are consistently positioned at the advantaged end of the distribution, while students whose parents have compulsory schooling only are positioned at the disadvantaged end. The two intermediate categories fall between these poles.

This matters for the chapter's interpretation of socioeconomic background. The binary measure is useful because it gives a stable longitudinal contrast, but the four-category measure shows that the association between parental education

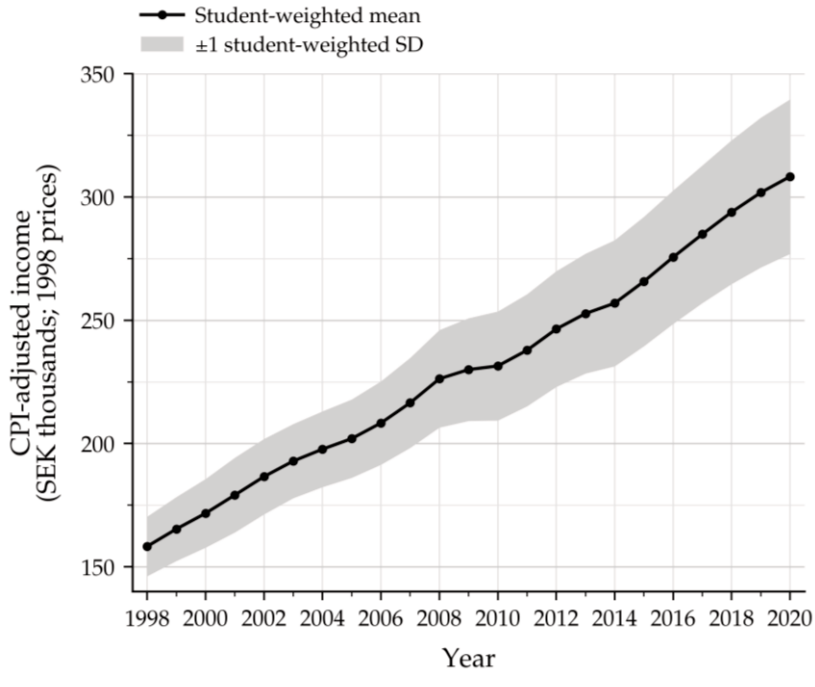
and merit rating is graded. Educational advantage does not appear only at one threshold. It is distributed across the parental-education hierarchy.

Figure 6.4 should also be read with the coding of parental education in mind. The category "compulsory schooling only" refers to students whose highest registered parental education is compulsory school. The correlations use pairwise available cases. In practice, all four series share the same annual analytic N. The figure therefore captures registered parental educational attainment, not migration background as such. Substantively, the clearest movement is found at the lower end of the hierarchy: the compulsory-school-only category becomes more negatively associated with merit rating over time. The high-education category remains positively associated with merit rating, but the widening gradient is partly driven by the increasing disadvantage associated with the lowest parental-education group.

Municipal Income and Final Merit Ratings

Having traced the parental-education gradient, the analysis now turns to municipal median income. This shifts the focus from family-level educational resources to the broader socioeconomic context in which students, schools, and local school markets are situated. The measure is CPI-adjusted, as noted above, so the trend should be read as a change in real municipal income rather than as nominal income growth.

Figure 6.5
Annual Student-Weighted Mean CPI-Adjusted Municipal Median Income With One Standard Deviation, 1998–2020



Note. Municipal median income is CPI-adjusted and expressed in thousands of SEK at constant 1998 prices. Municipality-year values are attached to student records; the line is therefore the student-weighted annual mean and the shaded band is plus or minus one student-weighted standard deviation, not a confidence interval. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD) and municipal contextual statistics from Statistics Sweden.

Figure 6.5 shows a marked increase in CPI-adjusted municipal median income between 1998 and 2020. The student-weighted annual mean rises from approximately SEK 158,000 in 1998 to approximately SEK 308,000 in 2020. The shaded one-standard-deviation band also shows substantial variation in the municipal values attached to students. The national increase therefore does not imply that all municipalities experienced similar socioeconomic conditions during the period.

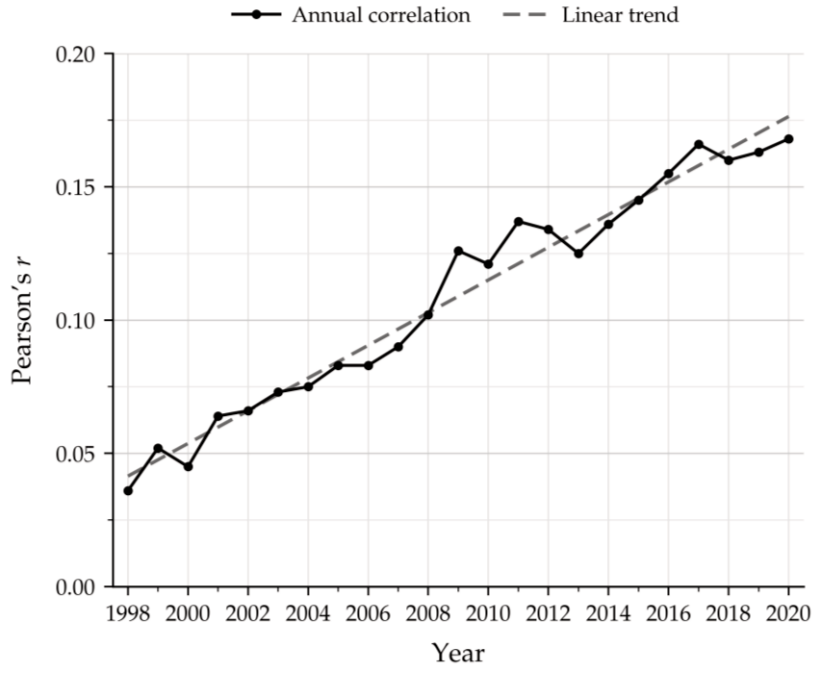
This distinction matters for the interpretation of merit ratings. Municipal median income is not a direct measure of school resources, municipal spending, or school quality. It is better read as a contextual indicator of local socioeconomic conditions. Higher-income municipalities may differ from lower-income municipalities in residential composition, parental resources, housing markets, provider density, and practical access to school choice. These dimensions are

closely related to the broader patterns of residential stratification, school composition, and local opportunity structures discussed in previous research (Brandén & Bygren, 2022; Skolverket, 2018; SOU 2020:28; Yang Hansen & Gustafsson, 2016).

The next question is whether this municipal socioeconomic context became more closely associated with final merit ratings in compulsory school over time. Figure 6.6 therefore examines the year-by-year correlation between CPI-adjusted municipal median income and merit rating.

Figure 6.6

Annual Correlations Between CPI-Adjusted Municipal Median Income and Final Merit Ratings in Compulsory School, 1998–2020



Note. Values are annual Pearson correlations between individual final merit ratings and CPI-adjusted municipal median income attached to student records, calculated using pairwise available cases. The coefficients are therefore student-weighted descriptive associations. The dashed line is a descriptive linear trend fitted to the displayed annual correlations. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD) and municipal contextual statistics from Statistics Sweden.

Figure 6.6 shows that the correlation between municipal median income and final merit rating in compulsory school increased over the period. The association is weak at the beginning of the series, with a correlation of 0.036 in 1998, but

rises to 0.168 by 2020. The relationship remains modest in size, but the direction of change is clear: municipal socioeconomic context became more closely associated with merit ratings over time.

This does not mean that municipal income directly produces higher grades. As noted above, municipal median income is a contextual measure, not a measure of school resources or instructional quality. The pattern is better interpreted as evidence that grade-based outcomes became more closely tied to broader local socioeconomic conditions. This is consistent with Swedish research linking municipal income differences, school composition, and local opportunity structures to differences in school outcomes (Böhlmark & Holmlund, 2011; Yang Hansen & Gustafsson, 2016).

The result also connects the family-level and municipal-level parts of the analysis. Parental education remains the stronger socioeconomic indicator, but the rising correlation with municipal income shows that merit ratings also became more closely tied to local socioeconomic context. Educational advantage is carried by households, but it is also situated in municipalities with different income profiles, housing markets, provider landscapes, and school-choice opportunities.

The chapter now turns from socioeconomic context to local market exposure. The key distinction is between independent-school attendance as an individual-level characteristic and the municipal share of students in independent schools as a contextual measure. This distinction makes it possible to examine whether independent schooling is associated with merit ratings only through individual attendance, or also through the broader local presence of independent providers.

School-Market Saturation Across Municipalities

To describe variation in local market exposure, municipalities are grouped into three descriptive contexts: low-, medium-, and high-saturation municipalities. For readability, these are referred to below as Low, Medium, and High. The grouping is based on the municipal share of final-year students enrolled in independent schools in each graduation year. The labels are analytical rather than administrative. They are used to distinguish municipalities by degree of local independent-school presence and to make differences in market exposure visible in the longitudinal descriptive analyses.

Table 6.1
Descriptive Statistics for the Three School Market Groups, 2003–2020

Variable	Low-Saturation Municipalities	Medium-Saturation Municipalities	High-Saturation Municipalities
Merit rating (calculated on the 16 best subject grades)	204.20 (61.91)	211.02 (63.21)	216.78 (65.80)
University-Educated Parents (%)	32.08	40.15	45.75
CPI-Adjusted Municipal Income (SEK, 1000s)	222.39 (34.38)	248.89 (41.15)	247.43 (43.34)
Born in Sweden (Migration Status, %)	88.36	85.44	76.66
Independent-School Attendance (%)	0.00	6.25	21.34
Population Density (inhabitants per km²)	53.03 (175.05)	137.22 (250.92)	1,041.40 (1,585.50)

Note. N refers to pooled grade 9 student observations across the 2003–2020 graduation cohorts used in Table 6.1: low-saturation municipalities, $N = 497{,}386$; medium-saturation municipalities, $N = 378{,}048$; and high-saturation municipalities, $N = 1{,}101{,}173$. Standard deviations for continuous variables are shown in parentheses, and binary variables are reported as percentages. Groups are recalculated annually from the municipal share of final-year students attending independent schools. Low includes municipalities with no independent-school attendance, whereas High includes those with the largest shares in a given year. As independent-school attendance expands and the national distribution shifts upward over time, the cut-point between Medium and High also changes; for example, a municipality with about 10 percent independent-school attendance could be classified as High early in the period but Medium later. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD) and municipal contextual statistics from Statistics Sweden.

The table shows that the saturation groups differ in several respects besides independent-school attendance. They differ in student volume, merit rating, parental education, municipal income, migration-related composition, and population density. These differences matter because later comparisons between the groups are comparisons between real municipal contexts, not between otherwise identical units.

The first difference is student volume. Across 2003–2020, the high-saturation group contains the largest number of students, while the low- and medium-saturation groups contain fewer. This reflects the inclusion of many larger urban municipalities in the high-saturation group. The groups should therefore not be read as three equally sized student populations. They represent three different types of local school-market environment.

Average merit rating also increases across the groups. The mean is 204.20 in Low, 211.02 in Medium, and 216.78 in High. Descriptively, students in more market-

exposed municipalities have higher average final merit ratings in compulsory school. This pattern should not be interpreted as an effect of market exposure itself. The same table shows that the groups also differ in socioeconomic composition, municipal income, demographic structure, and urbanization. The merit-rating differences are therefore best read as part of a broader contextual profile.

Parental education follows a similar gradient. The share of students with university-educated parents is 32.08 percent in Low, 40.15 percent in Medium, and 45.75 percent in High. This indicates that more market-exposed municipalities also have more socioeconomically advantaged student populations. Given the strong association between parental education and school outcomes documented in previous research, this difference is relevant for interpreting the higher merit ratings in the High group (e.g., Yang Hansen & Gustafsson, 2019). At the same time, the difference between groups corresponds to approximately 0.2 standard deviations, so it should be treated as meaningful but not overwhelming.

Municipal median income also differs across the groups, rising from 222.39 in Low to 248.89 in Medium and 247.43 in High. This means that both Medium and High have higher CPI-adjusted municipal income than Low. The slight decline from Medium to High is informative: high saturation is not identical to the highest municipal income. Some highly marketized municipalities are not the wealthiest municipalities in the table. The income differences remain moderate, around 0.5 standard deviations, and each group includes a broad mix of municipalities.

The demographic profile also varies. The share of students born in Sweden declines from 88.36 percent in Low to 85.44 percent in Medium and 76.66 percent in High. This pattern is consistent with the geography of the classification. High-saturation municipalities include many larger and more diverse urban areas. The difference should therefore be read as part of the wider municipal context captured by the saturation groups, not as a separate mechanism isolated from market exposure, urbanization, or local provider structure.

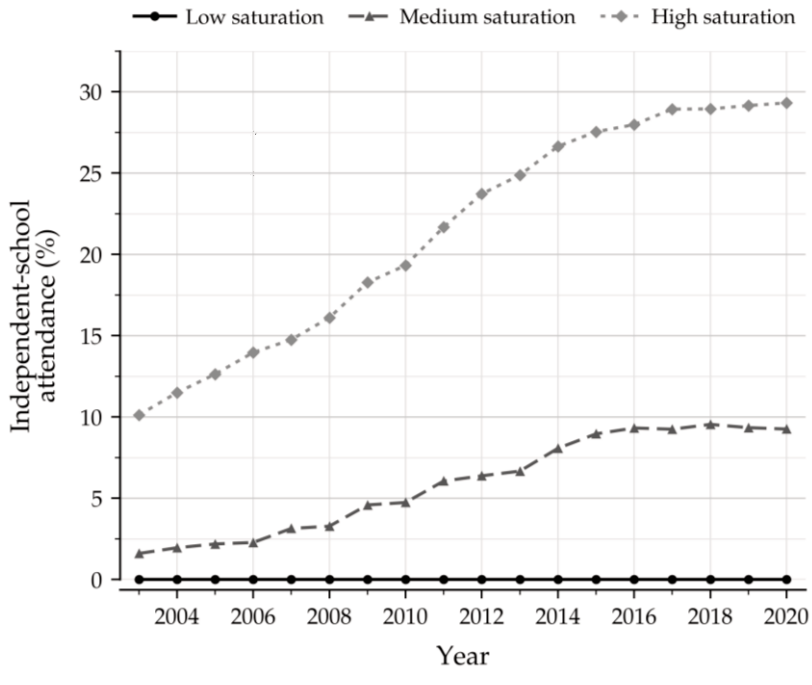
Independent-school attendance follows directly from the grouping strategy. It is 0.00 percent in Low, 6.25 percent in Medium, and 21.34 percent in High. This is not a separate result in itself, since the groups are defined by the municipal share of students enrolled in independent schools. What matters analytically is the scale of the difference. In High, independent schools form a visible part of the local provider landscape. In Medium, they are present but more limited. In Low, they are effectively absent for most students.

Finally, population density differs sharply across the groups. It rises from 53.03 inhabitants per square kilometer in Low to 137.22 in Medium and 1041.40 in High. This confirms that market saturation overlaps strongly with settlement

structure. High-saturation municipalities are generally more urbanized and contain denser provider landscapes, while low-saturation municipalities are more sparsely populated and have fewer realistic school-choice alternatives.

Taken together, Table 6.1 shows why the saturation groups must be interpreted contextually. They capture differences in independent-school presence, but also summarize broader differences in municipal composition, income conditions, demographic structure, and urbanization. Later comparisons among the low-, medium-, and high-saturation groups should therefore be read as comparisons between empirically distinct local school-market contexts. They do not isolate the effect of market saturation from all other municipal characteristics. Instead, they show how socioeconomic background, provider presence, and local geography are bundled together in the actual development of the Swedish school market. To make the group construction visible over time, Figure 6.7 plots the share of final-year students attending independent schools within the low-, medium-, and high-saturation groups.

Figure 6.7
Share of Final-Year Students Attending Independent Schools by Municipal School-Market Saturation, 2003–2020



Note. Values are the within-group percentages of final-year students attending independent schools. Low-, medium-, and high-saturation groups are recalculated annually from the municipal independent-school share and are therefore relative annual contexts rather than fixed sets of municipalities. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

Figure 6.7 shows the share of final-year students attending independent schools within low-, medium-, and high-saturation municipalities between 2003 and 2020. The figure clarifies the practical meaning of the market-saturation classification. The categories capture annually recalculated relative exposure to independent schooling, not fixed numerical thresholds. In Low, independent-school attendance is zero throughout the period. In Medium, it increases gradually. In High, it rises substantially.

The clearest change occurs in High. In these municipalities, the independent-school share increases from around 10 percent at the beginning of the period to almost 30 percent by 2020. This shows that the expansion of independent schooling was unevenly distributed across the municipal landscape. The increase in the group-level independent-school share was largest in the annually defined High group. Medium follows the same general direction, but at a lower level,

reaching roughly one tenth of students by the end of the period. Low remains at zero throughout the series.

This pattern matters for the interpretation of the later analyses. Low, Medium, and High are not arbitrary labels. They describe different local school-market contexts. In High, independent schools form a visible part of the provider structure and represent a realistic alternative for many families. In Medium, independent schooling is present but more limited. In Low, formal school choice may exist, but the practical availability of independent-school alternatives remains restricted.

Figure 6.7 therefore supports the use of market saturation as a contextual measure. It captures not only whether independent schools exist but also the extent to which they have become part of local school provision. This distinction is central to the chapter. The following analyses do not treat independent schooling only as an individual attendance variable. They also examine whether the broader local presence of independent schools is associated with differences in merit ratings, parental-education gradients, and municipal socioeconomic context.

The figure is descriptive and should be read together with the broader municipal differences shown in Table 6.1. As Table 6.1 also shows, high-saturation municipalities differ from low-saturation municipalities in socioeconomic composition, demographic structure, municipal income, and population density. Figure 6.7 should therefore be read as part of the chapter's broader mapping of how school marketization is distributed across local contexts.

The next part of the chapter therefore asks whether this socioeconomic patterning also becomes institutionally embedded in the school-market structure. This shift matters. Parental education and municipal income describe social and local context; independent-school attendance and municipal independent-school share describe how students and municipalities are positioned within the provider landscape. Bringing these dimensions together makes it possible to examine whether the longitudinal rise in merit ratings is accompanied not only by stronger socioeconomic gradients, but also by a closer connection between grades and the local organization of schooling.

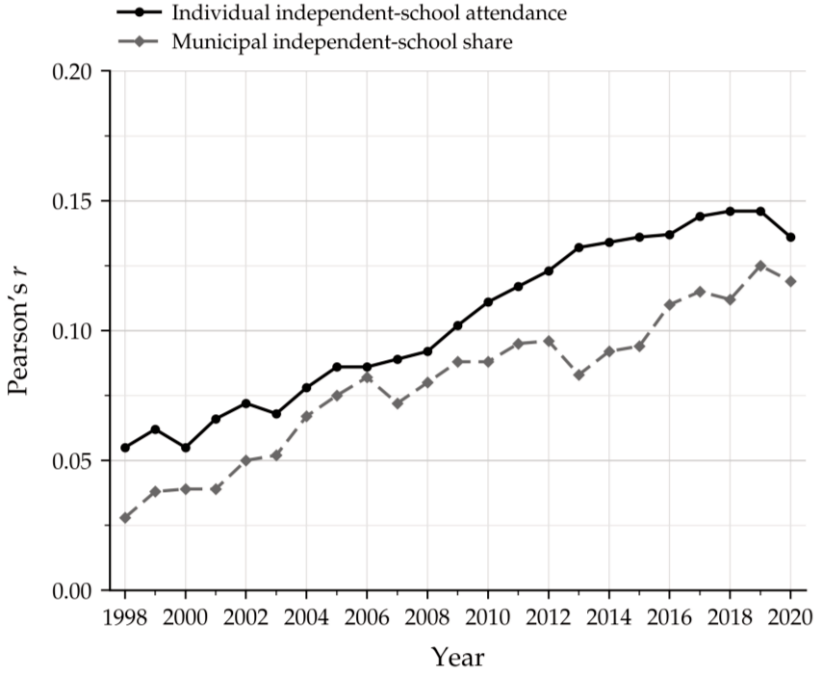
Independent Schooling and Final Merit Ratings

The analysis now turns to two school-market measures. The first is individual independent-school attendance. This is a student-level measure and shows whether the student attended an independent school. The second is the municipal independent-school share. This is a contextual measure and shows how large the independent-school sector was in the student's municipality.

School choice operates both through individual attendance and through the local availability of alternatives. Previous research shows that independent-school expansion and school-choice opportunities are unevenly distributed across municipalities, social groups, and local school markets (Böhlmark et al., 2015; Brandén & Bygren, 2022; Edmark, 2019; Fjellman, 2019a, 2019b; Trumberg & Urban, 2021).

Figure 6.8

Annual Correlations Between Final Merit Ratings in Compulsory School and Two Measures of Independent Schooling, 1998–2020



Note. Values are annual Pearson correlations calculated using pairwise available cases. Individual independent-school attendance is a binary student-level measure; the municipal independent-school share is a contextual measure of the proportion of final-year students attending independent schools in the municipality. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

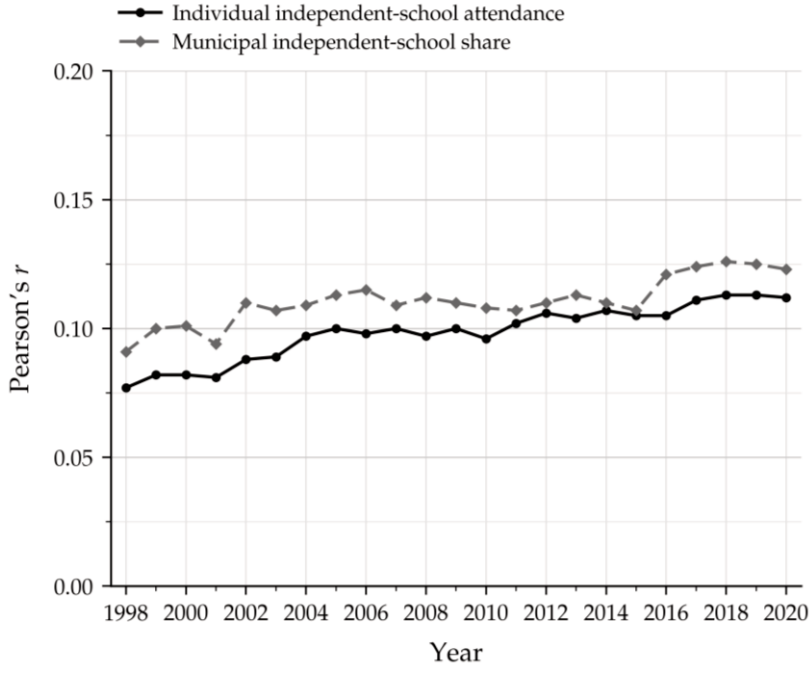
Figure 6.8 shows that both indicators became more strongly associated with final merit rating in compulsory school over time. The correlation between individual independent-school attendance and final merit ratings rose from .055 in 1998 to .136 in 2020, while the corresponding correlation for the municipal independent-school share rose from .028 to .119. The associations remain modest in size, but the direction is consistent across the period.

The stronger association for individual attendance is expected. Students in independent schools are not randomly distributed across the school system, and previous research shows that independent-school attendance is socially selective in several Swedish local school markets. The municipal-share measure captures a different pattern. It indicates that merit ratings also became more closely associated with the local prevalence of independent schooling, not only with individual enrollment in an independent school.

The correlations describe associations, not mechanisms. They show that, as independent schools expanded, merit ratings became more closely linked to both individual attendance and municipal market exposure. This is consistent with Swedish research showing that school choice, grade inflation, peer composition, and provider competition are intertwined in ways that complicate the interpretation of grades as neutral measures of achievement (Trumberg & Urban, 2021; Vlachos, 2010).

The next question is whether these school-market indicators are also socially patterned. Figure 6.9 therefore examines how individual independent-school attendance and the municipal independent-school share are associated with parental education.

Figure 6.9
Annual Correlations Between a Binary Measure of Parental Education and Two Measures of Independent Schooling, 1998–2020



Note. Binary parental education distinguishes students with at least one parent with three years or more of tertiary education from all other students. Values are annual Pearson correlations with individual independent-school attendance and with the municipal share of final-year students attending independent schools, calculated using pairwise available cases. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

Figure 6.9 shifts the focus from merit ratings to the social selectivity of independent schooling. It shows the year-by-year correlations between the binary parental-education measure and two school-market indicators: individual independent-school attendance and the municipal share of final-year students enrolled in independent schools. The binary parental-education measure distinguishes students with at least one parent with three years or more of tertiary education from all other students.

Both school-market indicators are positively associated with parental education throughout the period, and both associations increase gradually. The correlation between the binary measure of parental education and individual independent-school attendance rises from roughly 0.08 in 1998 to roughly 0.11 in 2020. The corresponding correlation with the municipal independent-school share rises from

roughly 0.09 to roughly 0.12. The associations are modest in size, but the direction is stable and the upward movement is visible across the period.

The substantive interpretation is that independent schooling became increasingly socially patterned. Students with more highly educated parents were more likely to attend independent schools, and they were also more likely to be located in municipalities where independent schools formed a larger part of local school provision. This matters because it links the expansion of independent schooling to the same family-level resource structure examined earlier in the chapter. Students with more highly educated parents are not only more likely to receive higher merit ratings; they are also more likely to be situated in more market-exposed parts of the school system.

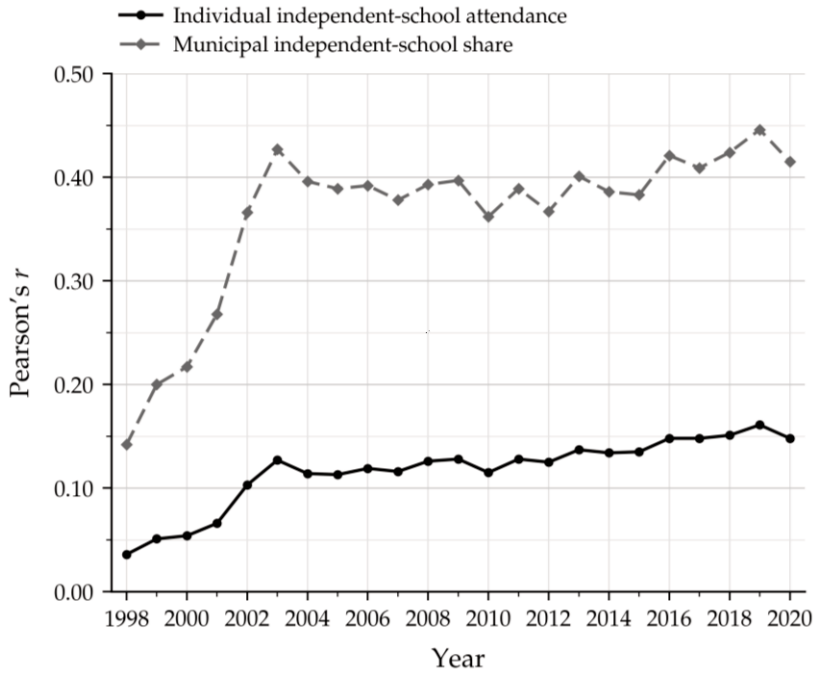
This pattern is consistent with Swedish research on school choice and segregation, which shows that school choice is used unevenly across social groups and that local provider landscapes are shaped by family resources, geography, residential patterns, and access to information (Brandén & Bygren, 2022; Fjellman, 2019a, 2019b; Trumberg & Urban, 2021). It also aligns with research showing that independent-school expansion and school-choice opportunities are unevenly distributed across municipalities and local school markets (Böhlmark et al., 2015; Edmark, 2019). The point is not that parental education alone explains independent-school attendance. Rather, the figure shows that the growth of independent schooling is socially patterned and should therefore be read in relation to broader processes of socioeconomic sorting, local opportunity structures, and access to school choice.

Municipal Income and Independent Schooling

The next step is to add municipal income to the analysis. Parental education captures family-level educational resources, while municipal median income captures the local economic context in which school choice takes place. This distinction matters because independent-school access may be socially patterned in two ways: through the characteristics of families who choose independent schools and of students who attend them, and through the municipalities in which independent schools are established and become widely available.

Figure 6.10 therefore examines the association between CPI-adjusted municipal median income and the two independent-school indicators. The individual attendance measure shows whether students in higher-income municipalities are more likely to attend independent schools. The municipal-share measure shows whether higher-income municipalities have a larger independent-school sector. Together, the two correlations distinguish individual participation from local provider concentration.

Figure 6.10
Annual Correlations Between CPI-Adjusted Municipal Median Income and Two Measures of Independent Schooling, 1998–2020



Note. Values are student-weighted descriptive Pearson correlations because municipal median income and the municipal independent-school share are attached to student records. Correlations use pairwise available cases. Conventional individual-level *p*-values should not be interpreted as municipality-level inference because contextual values are repeated for students within municipalities. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD) and municipal contextual statistics from Statistics Sweden.

Figure 6.10 shows that municipal income is more strongly related to the local concentration of independent schools than to individual independent-school attendance. The correlation between municipal median income and individual independent-school attendance increased from approximately .04 in 1998 to .15 in 2020. The correlation with the municipal independent-school share rose sharply from .14 in 1998 to .43 in 2003 and subsequently fluctuated between .36 and .45, ending at .42 in 2020.

Higher-income municipalities are more likely to have a larger independent-school sector, while the association between municipal income and individual attendance is weaker but increasing. Municipal affluence is therefore linked most clearly to where independent schools are concentrated, and more modestly to which individual students attend them. The result supports the chapter's

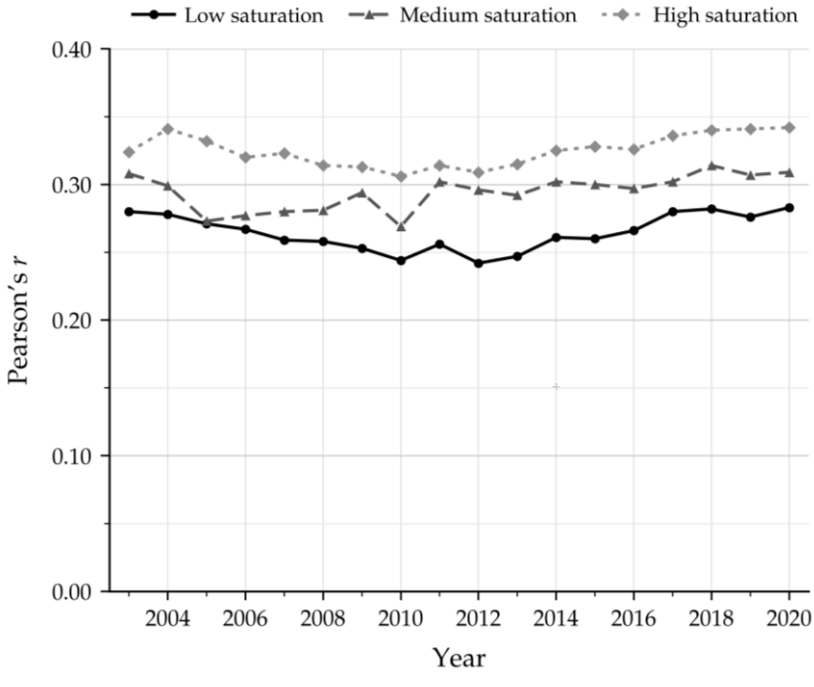
interpretation of independent schooling as both an individual attendance pattern and a local market context.

The analysis now brings merit ratings, parental education, municipal income, and independent schooling together by comparing socioeconomic gradients across low-, medium-, and high-saturation municipalities. The purpose is to examine whether the associations documented so far, between merit ratings, parental education, municipal income, and independent schooling, take the same form across local school-market contexts. The figures that follow compare gradients across empirical municipal contexts. They ask a more descriptive question: whether the parental-education and municipal-income gradients in merit rating are steeper in municipalities where independent schools form a larger part of local school provision.

Socioeconomic Gradients Across School-Market Contexts

The final empirical step in the chapter compares the association between merit rating and two socioeconomic indicators, parental education and municipal median income, across the three saturation groups introduced above. Figure 6.11 examines the parental-education gradient in low-, medium-, and high-saturation municipalities from 2003 to 2020. Figure 6.12 then examines the corresponding association between municipal median income and merit rating. The starting year reflects the availability of consistently coded municipal-level group data for this analysis.

Figure 6.11
Annual Correlations Between Binary Parental Education and Final Merit Ratings by Municipal Independent-School Saturation Group, 2003–2020



Note. Binary parental education distinguishes students with at least one parent with three years or more of tertiary education from all other students. Values are within-group point-biserial Pearson correlations calculated using pairwise available cases. Municipal independent-school saturation groups are recalculated annually and are not fixed sets of municipalities. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

Figure 6.11 shows that the association between parental education and final merit rating in compulsory school differs across the three saturation groups. The correlation is consistently strongest in High, weakest in Low, and generally intermediate in Medium. This ordering is visible across most of the period and becomes especially clear toward the later years of the series. The result indicates that the parental-education gradient in merit rating is not evenly distributed across municipal contexts. It is steeper where independent schools form a larger part of local school provision.

The three series also share a subtle U-shaped pattern. The correlations decline during the first part of the period and then increase again after the early 2010s. Because this pattern appears across all three saturation groups, it should not be read as specific to high-saturation municipalities. It is more likely to reflect period-wide changes in the grade distribution, student composition, parental-

education distribution, and grading regime. The key contextual result is therefore not the U-shape itself, but the persistent vertical ordering between the groups.

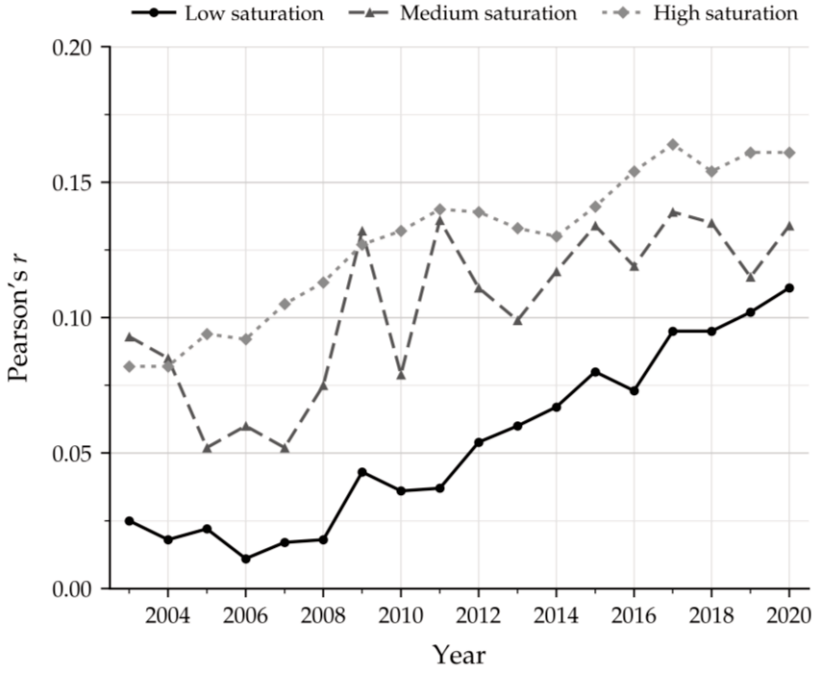
In High, the correlation remains at the highest level throughout the period. It fluctuates from year to year, but the overall pattern is stable: parental education is more strongly associated with merit rating in these municipalities than in the other two groups. The stable ordering should therefore be read contextually rather than as a single-factor market-saturation effect. As shown in Table 6.1, High also differs from Low and Medium in student volume, parental education, municipal income, migration-related composition, and population density. High-saturation municipalities are not merely municipalities with more independent schools. They are local school-market environments in which independent-school presence, urbanization, provider density, and social composition are bundled together.

Medium occupies an intermediate position. The correlation is generally below the level observed in High but above the level observed in Low. This is analytically useful because it suggests that the pattern is not simply a contrast between municipalities with and without independent schools. Instead, the strength of the parental-education gradient appears to vary with the degree of local market exposure. Medium therefore helps show that market saturation is not only a binary condition. It is a graded municipal context.

Low shows the weakest association between parental education and final merit rating in compulsory school. The correlation is not zero, and socioeconomic background remains relevant in these municipalities. The point is rather that the observed gradient is less pronounced than in more market-exposed contexts. This distinction matters. The figure does not show that social background matters only in urban or marketized municipalities. It shows that the strength of the association between parental education and merit rating differs by local context.

Figure 6.11 supports a contextual interpretation of the longitudinal parental-education gradient. The association between family educational resources and merit rating is present across all three groups, but it is strongest where independent schooling is most established. The result supports the chapter's main descriptive claim. Socioeconomic background, local income context, and independent-school presence became increasingly bundled in the grade-based selection measure.

Figure 6.12
Annual Correlations Between CPI-Adjusted Municipal Median Income and Final Merit Ratings by Municipal Independent-School Saturation Group, 2003–2020



Note. Values are student-weighted descriptive Pearson correlations between final merit ratings and CPI-adjusted municipal median income attached to student records, calculated using pairwise available cases. Municipal independent-school saturation groups are recalculated annually and are not fixed sets of municipalities. Conventional individual-level *p*-values should not be interpreted as municipality-level inference because contextual values are repeated for students within municipalities. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD) and municipal contextual statistics from Statistics Sweden.

Figure 6.12 adds municipal median income to the same comparison. The pattern resembles the one observed for parental education, but the separation between the three saturation groups is somewhat less pronounced. Across the period, the correlation between municipal income and final merit rating in compulsory school is generally strongest in High, weaker in Medium, and weakest in Low. This suggests that local socioeconomic context, like family educational background, became more closely tied to grade-based outcomes in more market-exposed municipalities.

In Low, the association between municipal income and merit rating starts at a low level but increases gradually over time. This shows that the link between

local socioeconomic context and grade-based outcomes is not confined to highly marketized municipalities. Even where independent-school presence is limited, municipal income becomes more closely associated with merit ratings during the period. The strengthening of socioeconomic differentiation is therefore broader than the school-market classification alone.

Medium again occupies an intermediate position. The correlation is usually higher than in Low but lower than in High, although the annual ordering is not perfectly linear. This is not surprising. Municipal median income captures a broad local economic context, while saturation groups also reflect urbanization, provider density, and student composition. The relationship between municipal income and merit rating is therefore expected to be less cleanly ordered than the relationship between parental education and merit rating.

In High, the association between municipal income and merit rating is strongest for most of the period. This reinforces the interpretation that highly market-exposed municipalities are also socioeconomically and spatially distinctive contexts. They tend to combine denser provider landscapes, higher population density, greater demographic diversity, and more differentiated student composition. The stronger income–merit rating association is best read as part of a wider pattern in which local school markets and local socioeconomic conditions develop together, rather than as a single-factor effect of market saturation.

Figures 6.11 and 6.12 bring the chapter's main descriptive strands together. Parental education captures family-level educational resources, while municipal median income captures local socioeconomic context. Both are more strongly associated with final merit rating in compulsory school in more market-exposed municipal settings. The strongest grade-based socioeconomic gradients are found in local contexts where independent-school presence, municipal affluence, provider density, and urban structure overlap.

Summary and Discussion

This chapter addressed the dissertation's first research question: *How did the longitudinal relationships between final merit ratings in compulsory school, parental education, municipal median income, school-market saturation, and independent-school attendance develop in Sweden between 1998 and 2020?*

First, the annual mean final merit rating in compulsory school increased between 1998 and 2020. In Figure 6.1, this development is expressed as change relative to the 1998 mean in units of the 1998 standard deviation. The increase began before the introduction of the Lgr11 scale and continued after it. The series should therefore be read as a development in the grade-based selection measure,

not as direct evidence of rising underlying achievement. The upward movement matters because the later analyses are not conducted against a stable outcome. They examine how a changing grade-based measure became differentiated by family background and municipal context.

Second, the association between parental education and merit rating remained positive throughout the period and became stronger in the later years. This supports earlier Swedish research showing a strengthening association between parental education and compulsory-school merit ratings over time (Gustafsson & Yang Hansen, 2018; Yang Hansen & Gustafsson, 2019). The chapter also showed that the association depends on how parental education is measured. The ordered parental-education measure captured a clearer gradient than the binary measure, which indicates that the relationship is not only a contrast between students with and without tertiary-educated parents. It is a graded association across the parental-education hierarchy.

Third, municipal median income became more closely associated with merit ratings. This association remained weaker than the parental-education association, but it shows that grade-based outcomes also became more connected to local socioeconomic context. This places the longitudinal merit-rating trend within a wider municipal context, rather than only within family-level socioeconomic background. For example, municipal income captures local differences in housing markets, provider density, and practical school-choice opportunities that are not captured by parental education alone.

Fourth, independent-school attendance and municipal independent-school share became more closely associated with merit ratings and socioeconomic context. Individual attendance and municipal independent-school share capture different dimensions of school-market exposure. Both became more relevant over time. Independent schooling therefore became associated with merit ratings both as an individual attendance pattern and as a local market context.

Fifth, the parental-education gradient was strongest in high-saturation municipalities and weakest in low-saturation municipalities. The same general pattern also appeared for municipal median income, although the separation between the saturation groups was less pronounced. The main empirical point is that the strongest grade-based socioeconomic gradients are found in local contexts where independent-school presence, municipal income, provider density, and urban structure overlap.

The chapter connects three lines of evidence that are often examined separately: rising socioeconomic gradients in grades, segregation related to school choice, and concerns about grade inflation and grading incentives in more market-exposed settings (Böhlmark et al., 2015; Gustafsson & Yang Hansen, 2018; Vlachos, 2010; Yang Hansen & Gustafsson, 2019). It shows that the longitudinal strengthening

of the association between SES and merit ratings is also patterned by municipal income and the local presence of independent schooling. The national trend is therefore spatial and institutional as well as temporal.

The main conclusion is that final merit ratings in compulsory school became more closely tied to parental education, municipal income, and local independent-school presence between 1998 and 2020. Family educational background remained the strongest socioeconomic marker, but municipal income and local school-market saturation also became more closely tied to grade-based outcomes. The chapter therefore establishes the first part of the dissertation's argument: merit ratings are not only individual educational outcomes, but grade-based selection signals produced within socially and spatially differentiated school-market contexts.

Chapter 7 builds directly on this baseline. It narrows the time window to 2014–2022, for which richer data on provider structure and student background are available, and shifts from descriptive correlations to grade divergence. Model-predicted merit ratings are estimated from student intake and local context for each school and graduation year. The observed-minus-predicted residuals are then compared across municipal, non-profit independent, and for-profit independent schools and used to construct local sector gaps.

CHAPTER 7

Grade Divergence in Local School Markets, 2014–2022

Chapter 6 established that final merit ratings became more closely associated with socioeconomic background and municipal context between 1998 and 2020. Chapter 7 shifts from longitudinal patterns to local provider comparisons during 2014-2022. It asks whether municipal and for-profit independent schools within the same municipality and graduation year differ in observed merit ratings relative to levels predicted from measured student composition and local context.

Swedish research has mainly relied on three strategies for assessing grading comparability. These involve comparing grades with national test results, with later educational outcomes, or with composition-adjusted expectations (Edmark & Persson, 2021; Petersson et al., 2025; Tyrefors Hinnerich & Vlachos, 2016). This chapter uses the third strategy. Its observed-predicted benchmark follows the general logic of SALSA while using the dissertation's own register-based model. Grade divergence is treated as a descriptive difference between observed and model-predicted outcomes, not as a direct measure of school quality or a single grading mechanism.

Restricting the analysis to 2014-2022 keeps the comparison within the Lgr11 grading regime and provides the provider, income, school, and municipal information required for local comparisons. The chapter addresses the dissertation's second research question: *To what extent do more marketized municipalities exhibit greater grade divergence between municipal and for-profit independent schools, and is the grade advantage associated with students from more socioeconomically advantaged backgrounds larger where such divergence is greater?*

The analysis first estimates predicted school-year merit ratings, then constructs local for-profit-minus-municipal sector gaps, and finally examines whether the high-SES merit-rating advantage is larger where those gaps are greater.

Definitions and Analytical Approach

To operationalize grade divergence within municipalities, the chapter follows the three-step logic introduced above. The first step constructs a benchmark for each school and graduation year. In this analysis, each observation represents one school in one graduation year. A model inspired by the Swedish National Agency for Education's SALSA approach is used to estimate the merit rating that would be expected for each observation, given measured student intake and local context. Grade divergence is then defined as the observed mean merit rating minus the model-predicted mean.

The outcome is the school's average final merit rating in compulsory school in a given graduation year. The model adjusts for measured differences in student intake and local context and includes fixed effects for cohort year and municipality. The student-composition controls are measured as shares for each school and graduation year and include the share of female students, the share of students with migration background, parental-education composition, and household-income composition. Migration background refers to the SCB-based foreign-background measure introduced in Chapter 5. The continuous urbanization-degree value of the school municipality is obtained directly from Statistics Sweden and retained on its original scale. It is a municipal contextual control and is distinct from the binary individual-level indicator In Urban Locality used in Appendix D.

The model is estimated using weighted ordinary least squares, with the number of students represented by each observation as weights. This gives observations based on larger student cohorts greater influence than observations based on very small cohorts. Standard errors are clustered at the municipality level. The fitted value from the model is the predicted mean merit rating for that school and graduation year, given its measured student composition, municipal urbanization context, cohort year, and municipality.

The second step turns these predictions into residuals. The residual is defined as the observed mean merit rating for a school in a given graduation year minus the model-predicted mean. A positive residual means that the observed mean merit rating is higher than expected given the model. A negative residual means that it is lower than expected. These residuals are then aggregated separately for municipal schools and for-profit independent schools within each municipality and graduation year, using the number of final-year students in each school as weights.

The local sector gap is then defined as the enrollment-weighted mean residual for for-profit independent schools minus the corresponding enrollment-weighted mean residual for municipal schools within the same municipality and graduation year. This is the chapter's key measure of within-municipality sectoral grade

divergence. It does not compare raw grades between sectors. It compares how far each sector's observed grades deviate from composition-adjusted expectations within the same local and temporal setting.

A positive local sector gap means that for-profit independent schools have higher observed-minus-predicted merit ratings than municipal schools in the same municipality and graduation year. A negative local sector gap means that municipal schools have higher observed-minus-predicted merit ratings than for-profit independent schools in the same municipality and graduation year.

The third step links these local sector gaps to individual students. Student-level regressions with year and municipality fixed effects are estimated with final merit rating in compulsory school as the outcome. The main explanatory variables are the local sector gap, the high-SES indicator, and their interaction. High SES refers to the composite indicator defined in Chapter 5: students with at least one parent with long tertiary education, defined as four years or more of tertiary education, and household income in the top cohort-specific quartile. In this setup, the sector-gap coefficient captures the association between local sectoral divergence and merit rating for students who are not classified as high SES. The interaction term indicates whether the high-SES advantage is larger in municipalities and graduation years where the for-profit-minus-municipal residual gap is larger.

The student-level models include year and municipality fixed effects and cluster standard errors by municipality. The estimates therefore compare variation within a common local and temporal frame. They address whether larger local gaps between for-profit independent and municipal schools are associated with a larger final-merit-rating advantage for high-SES students.

Complementary diagnostics and alternative specifications are reported in Appendix D. These analyses delimit the interpretation of the main results rather than replace the main specification. They include school fixed-effects versions of the student-level model, diagnostics of within-municipality variation in the marketization measure, and alternative SES-by-marketization specifications.

Descriptive Overview of School Sectors

Before turning to grade divergence, it is useful to describe the sectors that are compared in the chapter. The purpose is not to provide a full institutional history of municipal and independent schooling, but to clarify the resource and composition patterns that frame the interpretation of the residual results. If for-profit independent schools show higher observed-minus-predicted merit-rating residuals, one possible interpretation is more effective instruction. Another is

grading divergence. The descriptive evidence below cannot decide between these interpretations, but it indicates what kind of sectoral conditions the residual analysis must be read against. Table 7.1 shows differences in teacher qualifications and student–teacher ratios between municipal and independent compulsory schools from 2014 to 2022.

Table 7.1
Teacher Qualifications and Student–Teacher Ratios in Municipal and Independent Compulsory Schools (Grades 7–9), 2014–2022

School Year	Share of Certified Teachers (%)		Number of Students per Teacher	
	Municipal Schools	Independent Schools	Municipal Schools	Independent Schools
2014	73.7	59.5	12.0	12.7
2015	74.1	62.5	12.1	13.2
2016	72.6	62.3	11.8	13.3
2017	72.4	63.4	11.9	13.3
2018	71.5	63.1	11.9	13.3
2019	71.2	62.5	12.0	13.2
2020	72.2	63.5	12.0	13.2
2021	72.0	64.2	12.0	13.4
2022	71.8	63.9	11.8	13.3

Note. Teacher-qualification shares and student-teacher ratios are reported from the Swedish National Agency for Education's aggregate statistics. Student-teacher ratios refer to students per teacher in full-time-equivalent terms.

The table shows a persistent certification gap. Municipal schools have a higher share of certified teachers in every year. In 2014, 73.7 percent of teachers in municipal schools were certified, compared with 59.5 percent in independent schools. By 2022, the corresponding figures were 71.8 and 63.9 percent. The gap narrows somewhat over the period, but it does not disappear.

The student–teacher ratio points in the same direction. Independent schools have more students per teacher than municipal schools throughout the period. The difference is not large in absolute terms, but it is stable. This matters for the interpretation of sector differences in grades because teacher certification and staffing intensity are basic indicators of instructional capacity. They do not measure teaching quality directly, but they make it less straightforward to interpret higher residual grades in the independent sector as the result of more favorable staffing conditions.

These patterns are also consistent with differences in staffing and wage structures. Independent schools operate under the same voucher-based funding framework as municipal schools, but they may organize staffing, wages, and support functions differently. In 2022, municipally employed teachers earned a

mean monthly wage of SEK 39,200, compared with SEK 36,350 among privately employed teachers (Statistiska centralbyrån, 2024). This corresponds to a difference of SEK 2,850 per month, or SEK 34,200 per year. At the same time, Bergling (2024) reports that the seven largest school provider groups in Sweden had combined operating profits of more than SEK 2 billion in the fiscal year 2022/2023. The point here is not to infer motives from the descriptive data. It is to establish that the sectors differ in ways that are relevant when later residual differences are interpreted. Student-support resources provide a second part of that context.

Table 7.2

Disparities in Student-Support Resources Between Municipal and Independent Compulsory Schools (Grades 7–9), 2014–2022

School Year	Students per Guidance Counselor		Share of Teachers with a Degree in Special Education (%)	
	Municipal Schools	Independent Schools	Municipal Schools	Independent Schools
2014	461.5	867.9	5.6	3.0
2015	479.4	867.2	5.3	3.1
2016	480.9	847.1	5.1	3.3
2017	453.5	832.2	4.9	3.2
2018	444.5	746.1	5.1	3.5
2019	441.0	756.7	5.3	3.5
2020	442.7	723.1	5.8	3.6
2021	464.5	711.1	6.0	4.0
2022	443.6	687.8	6.1	3.9

Note. Guidance-counselor loads and special-education qualification shares are reported from the Swedish National Agency for Education's aggregate statistics.

Table 7.2 shows larger sector differences in student-support resources. Municipal schools have fewer students per guidance counselor in every year, while independent schools have substantially higher counselor loads. In 2014, municipal schools had 461.5 students per counselor in grades 7–9, compared with 867.9 in independent schools. By 2022, the corresponding figures were 443.6 and 687.8. The gap narrows over time, but independent schools still had markedly weaker counselor coverage at the end of the period.

The same pattern appears for special education qualifications. The share of teachers with a degree in special education is consistently higher in municipal schools than in independent schools. These differences are relevant because special education competence shapes schools' capacity to identify students in need of support and to adapt teaching and support accordingly (Skolinspektionen, 2023).

These indicators do not establish higher instructional quality in municipal schools, but they make a simple "higher residuals equal higher quality" interpretation too narrow. The same caution applies to student-support resources and access to school libraries. In 2022, just over 30 percent of students in public compulsory schools had access to a school library, compared with 18 percent of students in independent schools (Lärarstiftelsen, 2022). If independent schools' observed mean final merit ratings exceed their model-predicted values despite lower teacher certification levels, higher student–teacher ratios, weaker guidance-counselor and special-education coverage, and lower access to school libraries, those residuals need to be interpreted with caution. They may reflect instructional quality, grading practices, student composition not fully captured by the model, differences in student-support resources and access to school libraries, or some combination of these mechanisms.

The final descriptive step is therefore to examine student composition across provider groups. This matters because resource needs and grading patterns are shaped not only by staffing, but also by the students schools enroll.

Table 7.3
Student Composition by School Provider Group, 2014–2022

School Group / Type	Girls (%)	Swedish Origin (%)	Highly Educated Parents (%)	High-Income Household (%)
Municipal Schools (n = 621,208)	47.9	75.3	15.7	24.1
Independent Schools (n = 175,918)	50.8	76.5	17.3	35.0
Non-Profit Independent Schools (n = 32,100)	54.1	77.2	16.4	39.5
For-Profit Independent Schools (n = 143,818)	50.1	76.4	17.4	34.0
For-Profit Provider A	50.5	63.9	19.0	35.8
For-Profit Provider B	51.3	67.3	17.3	28.6
For-Profit Provider C	54.8	83.4	16.7	37.9
Total Population (N = 965,615)	48.4	75.5	16.0	25.0

Note. High-income household (%) denotes the share of students in the top quartile of the disposable-household-income distribution in the relevant cohort year. Highly educated parents (%) denotes the share of students with at least one parent with long tertiary education, defined as four years or more of tertiary education. Swedish origin (%) denotes the share of students born in Sweden with at least one Swedish-born parent. A small number of schools fall outside this ownership classification, including schools operated by county councils or regions, state-operated schools such as those in youth detention institutions, and private schools outside the publicly funded independent-school sector; observations from these schools were excluded from the sector- and provider-specific rows. The sector- and provider-specific n values refer to students with valid school-sector or provider-group classifications in this descriptive table. The total population row reports the broader analytical population used for the 2014–2022 chapter-level analyses and is therefore not the sum of the sector and provider rows. Author's calculations based on Statistics Sweden register extracts.

Table 7.3 shows that sector differences in student composition are moderate but meaningful. Municipal and independent schools have similar shares of students with Swedish background, but independent schools enroll a higher share of girls, a somewhat higher share of students with highly educated parents, and a much higher share of students from high-income households. The largest compositional difference concerns household income, suggesting that sector comparisons need to account not only for parental education and migration background but also for the economic selectivity of independent-school enrollment.

The income difference is central to the interpretation. The share of students from high-income households is 24.1 percent in municipal schools and 35.0 percent in independent schools. Non-profit independent schools have the highest

share, at 39.5 percent, while for-profit independent schools are also clearly above the municipal sector, at 34.0 percent. This means that independent schools, and not only non-profit independent schools, enroll more economically advantaged students than municipal schools.

The three anonymized for-profit provider groups also differ from one another. These groups represent large for-profit providers in the SCB extracts. They are reported anonymously because identifying individual corporate school providers in the dissertation would raise legal and confidentiality concerns. The analysis therefore treats them as provider groups A–C rather than as named corporate actors. Provider A has the highest share of students with highly educated parents among the three groups, while Provider C has the highest share of students with Swedish background and high-income households. Provider B has a lower high-income share than the other two for-profit provider groups, but it remains compositionally distinct from the municipal sector in several respects. These differences justify separating the aggregate for-profit category from selected large for-profit provider groups.

Taken together, Tables 7.1–7.3 show that the residual analysis begins from an uneven sectoral setting. Independent schools do not simply differ from municipal schools in ownership form. They also differ in staffing, student-support resources, and student composition. The benchmark used below adjusts for student intake and local context, including gender composition, migration background, parental education, household income, the urbanization degree of the school municipality, municipality, and year. Teacher certification, student–teacher ratios, guidance-counselor coverage, special-education qualifications, and school-library access are used descriptively rather than included as adjustment variables, because they describe sectoral organization and support capacity. Including them in the adjustment model would risk conditioning away organizational differences that are part of the interpretation of sectoral grade divergence. The next section therefore turns to the grade divergence model, which compares observed merit ratings for each school and graduation year with model-predicted expectations given measured intake and context.

The Grade Divergence Model

The residual analysis begins by estimating expected merit ratings for each school and graduation year. This model provides the benchmark used in the rest of the chapter. Each observation receives a predicted mean final merit rating in compulsory school based on its observed student composition, municipal

context, cohort year, and municipality. The residual is then calculated as observed mean merit rating minus predicted mean merit rating.

A positive residual means that the observed mean merit rating is higher than expected given the model. A negative residual means that it is lower than expected. The residual should not be read as a direct measure of school quality. It is a composition-adjusted difference from expectation. Such differences may reflect instructional conditions, grading practices, unobserved student composition, local assessment cultures, or other school-context factors. The value of the residual is therefore not that it identifies one mechanism, but that it gives a common metric for comparing observed and expected grade levels across sectors and local school markets.

Table 7.4
Composition-Adjustment Model for Grade Divergence, Weighted OLS, 2014–2022

Predictor	Estimate *(b)*	*SE*	*t*	*p*
Share of Female Students	25.143	2.147	11.71	< .001
Share of Students With Migration Background	-19.796	4.551	-4.35	< .001
Urbanization Degree of the School Municipality	-14.030	2.172	-6.46	< .001
Share with Higher Education in Household: Post-Secondary, < 4 Years *(vs. Lowest Edu. Group)*	54.219	3.448	15.72	< .001
Share with Higher Education in Household: University ≥ 4 Years *(vs. Lowest Edu. Group)*	71.727	4.052	17.70	< .001
Share in Income Quartile 2 *(vs. Quartile 1)*	33.614	3.329	10.10	< .001
Share in Income Quartile 3 *(vs. Quartile 1)*	63.972	3.799	16.84	< .001
Share in Income Quartile 4 *(vs. Quartile 1)*	93.344	4.067	22.95	< .001

Note. The outcome is mean final merit rating in compulsory school at the school-year level. The model is estimated using weighted ordinary least squares, with the number of students in each school-year observation used as weights. Graduation-year and municipality fixed effects are included, and standard errors are clustered at the municipality level. Share variables are expressed as proportions from 0 to 1; their coefficients therefore refer to a full-unit change in the relevant share, holding the other variables constant. The continuous urbanization-degree value of the school municipality is obtained directly from Statistics Sweden and retained on its original scale. No variables are standardized. The underlying student population and descriptive sample sizes are reported in Tables 5.3 and 7.3. Author's calculations based on Statistics Sweden register extracts.

Table 7.4 reports the composition-adjustment model used to generate predicted mean merit ratings at the school-year level. The coefficients are not treated as substantive findings in their own right. The model is reported for transparency because its fitted values provide the benchmark from which Grade Divergence is calculated in the analyses that follow.

The table is therefore best understood as a calibration step. It shows that the benchmark used in the residual analysis adjusts merit-rating expectations in ways that are consistent with the main patterns established earlier in the dissertation: gender, migration background, parental education, household income, and municipal context all matter for observed grade outcomes. The next analyses use the residuals from this model to ask a narrower question: after this adjustment, do municipal, non-profit independent, and for-profit independent schools still differ systematically in their observed-minus-predicted merit ratings?

This is where the chapter moves from the adjustment model to the substantive comparison. The residuals make it possible to compare sectors without relying on raw mean grades alone. They do not remove all possible sources of selection bias or unobserved difference, but they do reduce the risk that sector comparisons merely reproduce visible differences in student intake. The following section therefore examines whether grade divergence differs across ownership sectors and provider groups.

Overall Sector Differences in Grade Divergence

Table 7.5 reports the first substantive comparison based on the grade divergence model. For each ownership sector, and for selected large providers within the for-profit sector, the table shows three quantities: the observed mean final merit rating in compulsory school, the predicted mean from the composition-adjustment model, and the residual, defined as observed minus predicted. Positive residuals mean that observed merit ratings are higher than expected given measured student composition and context. Negative residuals mean that observed merit ratings are lower than expected. The three anonymized for-profit provider groups are major for-profit school groups selected to illustrate heterogeneity within the for-profit sector. They are not named because the analyses are reported at grouped provider level rather than as an evaluation of individual corporate actors.

Table 7.5
Observed, Predicted, and Residual Final Merit Ratings in Compulsory School by Ownership Sector and Selected For-Profit Providers, Pooled Data, 2014–2022

Ownership	Observed Mean	Predicted Mean	Residual (Observed – Predicted)
Municipal Schools	226.07	227.23	-1.16
Non-Profit Independent Schools	226.15	223.78	2.36
For-Profit Independent Schools	231.03	225.08	5.95
For-Profit Provider A	253.44	240.79	12.65
For-Profit Provider B	248.00	242.21	5.78
For-Profit Provider C	235.79	232.55	3.24

Note. Residual = Observed – Predicted (merit-rating points). Residuals were calculated from unrounded values; displayed components may therefore differ by 0.01 from the reported residual. Descriptive sample sizes by ownership sector are reported in Table 7.3. Author's calculations based on Statistics Sweden register extracts.

The pooled results show a sectoral ordering. Municipal schools have a small negative residual, at −1.16 merit points. This means that their observed mean merit rating is slightly lower than the model predicts. Non-profit independent schools have a modest positive residual, at +2.36 merit points. For-profit independent schools have a larger positive residual, at +5.95 merit points. The raw observed mean is also highest in the for-profit sector, but the more relevant result here is the residual: even after adjustment for measured student composition and local context, the for-profit sector remains above its predicted level.

The selected for-profit provider groups show that this pattern is not uniform within the for-profit sector. Provider A has the largest residual, at +12.65 merit points. Provider B is also positive, at +5.78, while Provider C is positive but smaller, at +3.24. This internal variation matters because it shows that the aggregate for-profit residual is not simply an ownership-category average in which all for-profit providers are positioned in the same way. The pooled for-profit estimate is partly shaped by differences between large provider groups.

Table 7.5 therefore gives two pieces of information at once. First, grade divergence differs by ownership sector: municipal schools are slightly below prediction, non-profit independent schools are modestly above prediction, and for-profit independent schools are further above prediction. Second, the for-profit sector contains substantial internal variation. This is why the analysis examines not only the broad distinction between municipal and independent schools, but also provider-group patterns within the for-profit sector.

The descriptive sector evidence makes a simple staffing-resource explanation too narrow as a full account. Independent schools, and especially for-profit independent schools, do not show stronger teacher-certification or student-support profiles than municipal schools. The residual pattern therefore cannot be reduced to the visible staffing and support-resource differences reported here.

The pooled sector comparison summarizes the average pattern across the whole period. The next step is to examine whether the for-profit-minus-municipal residual gap is present year by year, rather than only in the pooled 2014–2022 comparison.

Table 7.6

Annual Local Sector Gap Between Municipal and For-Profit Sectors Within Municipalities, 2014–2022

Year	Municipal Residual (Observed – Predicted)	For-Profit Residual (Observed – Predicted)	For-Profit – Municipal Residual Gap
2014	-1.276	5.497	6.773
2015	-0.969	5.507	6.476
2016	-1.124	6.277	7.401
2017	-1.181	6.483	7.664
2018	-1.222	6.157	7.379
2019	-1.247	6.567	7.814
2020	-1.193	6.790	7.983
2021	-0.962	7.007	7.969
2022	-1.033	6.929	7.962

Note. Residuals are student-weighted sector means within municipality-year cells. The for-profit-minus-municipal gap is calculated within the same municipality and graduation year. The underlying student population and descriptive sample sizes are reported in Tables 5.3 and 7.3. Author's calculations based on Statistics Sweden register extracts.

Table 7.6 reports the annual averages of the sector-specific residuals within municipalities and graduation years. In this table, municipal and for-profit refer to ownership sectors within municipalities, not to comparisons between different municipalities. The table therefore translates the pooled sector pattern into a year-by-year within-municipality contrast.

The municipal sector residual is negative in every year. It varies only modestly, from −1.276 in 2014 to −1.033 in 2022, and stays close to −1 merit-rating point throughout the period. This means that municipal schools are, on average, slightly below the model-predicted level given observed student composition, municipal context, cohort year, and municipality. The size of the municipal

residual is small, but its stability matters because it provides a relatively steady reference point for the sector comparison.

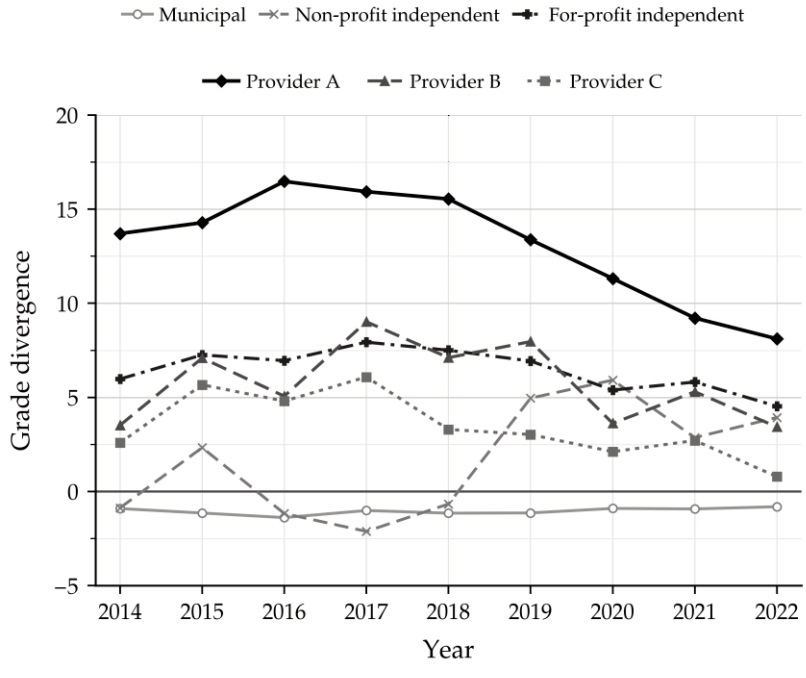
The for-profit sector residual is positive in every year. It starts at +5.497 in 2014 and +5.507 in 2015, rises above +6 from 2016 onward, and reaches +7.007 in 2021 before ending at +6.929 in 2022. The pattern is not a single-year spike. It indicates that for-profit independent schools remain above the model-predicted level throughout the whole period, with somewhat larger positive residuals in the later years than in the first two years.

The resulting for-profit-minus-municipal residual gap is therefore positive in every year. It ranges from 6.476 merit-rating points in 2015 to 7.983 in 2020, and remains just under 8 merit-rating points in 2021 and 2022. This is the annual version of the pooled sector gap reported above. Municipal schools are slightly below prediction, for-profit independent schools are clearly above prediction, and the distance between the two sectors is persistent across the full 2014–2022 window.

The size of the gap should be interpreted in relation to the merit-rating scale. A difference of roughly 6.5 to 8.0 merit-rating points is not large relative to the full 320-point scale, but it is not negligible in a competitive admissions system. It corresponds to a small number of grade-step differences distributed across the merit-rating portfolio; if concentrated in one subject, 7.5 points would correspond, for example, to a shift from E to B. The table therefore gives the residual gap a more concrete meaning: it is modest in scale, but large enough to matter when final merit ratings in compulsory school are used to rank students.

The next figure visualizes the same residual logic over time for ownership sectors and selected large for-profit provider groups. This makes it possible to see whether the annual for-profit advantage in Table 7.6 reflects a broad ownership-sector pattern, or whether it is especially concentrated among particular provider groups.

Figure 7.1
Annual Grade Divergence by Ownership Sector and Selected Major For-Profit Providers, 2014–2022



Note. Values are annual group means of grade divergence, defined as the observed mean final merit rating minus the composition-predicted mean and expressed in merit-rating points. The underlying prediction model includes year and municipality fixed effects. Provider identities are anonymized as A, B, and C. The underlying student population and descriptive sample sizes are reported in Tables 5.3 and 7.3. Author's calculations based on Statistics Sweden register extracts.

Figure 7.1 shows a stable sector-level pattern but greater differentiation within the for-profit sector. Municipal schools remain close to the predicted level throughout the period. Their residuals are small and negative in every year, without any marked trend. In the residual framework used here, the municipal sector therefore functions as a relatively stable reference point: observed mean merit ratings remain close to what the composition-adjustment model predicts.

For-profit independent schools are positioned above the predicted level throughout the period. Non-profit independent schools instead fluctuate around zero: their residuals are positive in five of the nine years and negative in four. Independent-school status alone therefore does not account for the full residual pattern. The larger and more persistent positive residuals are concentrated in the for-profit sector and, within that sector, especially among particular providers.

Provider A is the most pronounced case in the figure. Its residuals are higher than those of the other sectors and provider groups across the period. The gap is largest around the middle of the series and then declines after 2019, but the residual remains positive and above the other groups also in the final years. This decline should not be overinterpreted. It may reflect changes in grading practice, changes in student intake not fully captured by the model, organizational adjustment, changes in the set of schools included, local market shifts, increased public attention to grading comparability, or stronger inspection and quality-assurance pressure during the later part of the period. The available data do not allow these mechanisms to be separated.

Providers B and C show more moderate positive residuals. Both remain above the municipal sector throughout the period, but their positions relative to the non-profit sector vary: Provider B is higher in seven of the nine years, while Provider C is higher in five. The for-profit sector should therefore not be treated as internally uniform. Its pooled residual reflects a provider-structure pattern in which large provider groups occupy different positions within the same broader ownership category.

Non-profit independent schools occupy an intermediate position. Their residuals are generally positive, but smaller than those of the for-profit sector and closer to the municipal reference line. In this residual framework, their observed-minus-predicted merit ratings are therefore less strongly separated from municipal schools than those of for-profit independent schools.

Taken together, Figure 7.1 qualifies the sector comparison in two ways. First, grade divergence is persistent over time: the positive residuals in the for-profit sector are visible across the full 2014–2022 period, not only in a single year. Second, the pattern is uneven within the for-profit sector: Provider A is consistently the strongest case, while Providers B and C show smaller but still positive deviations. The figure therefore shows that the alignment between observed and predicted merit ratings differs systematically across both ownership sectors and provider groups.

Municipal Variation in Grade Divergence

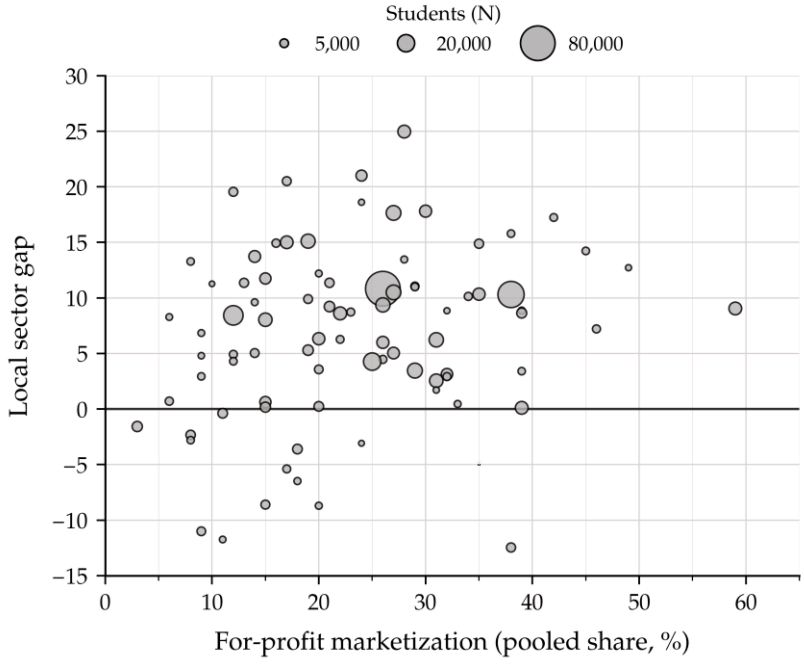
The previous section showed that grade divergence is visible at the sector and provider-group levels. The municipal analysis adds a further question: Is this divergence distributed broadly across local school markets or concentrated in a smaller number of municipalities? This matters because a national sector pattern may conceal substantial local variation. A positive average gap between for-profit independent and municipal schools could be driven by a few large municipalities,

by contexts where particular providers are heavily represented, or by a more widespread pattern across the included municipal school markets.

The analysis therefore uses the residuals from the composition-adjustment model and aggregates them within each municipality and graduation year using student weights. This produces sector-specific residuals within each municipality and year. The local sector gap is then defined as the residual for for-profit independent schools minus the residual for municipal schools. A positive value means that for-profit independent schools have higher observed-minus-predicted merit ratings than municipal schools in the same local context. A negative value means that municipal schools have higher residuals than for-profit independent schools.

Figure 7.2 places two municipal-level quantities on the same descriptive plane. The horizontal axis shows the pooled share of final-year students enrolled in for-profit independent schools over 2014–2022. The vertical axis shows the pooled for-profit-minus-municipal residual gap. Each point represents one municipality, and point area is proportional to the municipality's total grade 9 cohort size across 2014–2022. The size encoding conveys differences in municipality cohort size, but it does not by itself weight the municipality observations in the displayed point cloud.

Figure 7.2
Pooled For-Profit Marketization and Sector Gaps Across Municipalities, 2014–2022



Note. Each point represents one of the $N = 84$ municipalities meeting two inclusion criteria: a total grade 9 cohort of at least 2,000 students across 2014–2022 and at least one graduation year with both a for-profit independent and a municipal school sector. Point area is proportional to the municipality's total grade 9 cohort size across the period; this visual size encoding does not itself weight the municipality observations. For-profit marketization is the pooled share of grade 9 students enrolled in for-profit independent schools. The local sector gap is the pooled residual difference in final merit rating between for-profit independent and municipal schools (for-profit minus municipal), expressed in merit-rating points. The values in Appendix C, Table C1 yield an unweighted Pearson correlation of $r = .229$ and a student-weighted correlation of $r = .187$. Across the 84 municipalities, the mean sector gap is 6.823, the median is 8.160, and the student-weighted mean is 8.067. Seventy-one municipalities have positive gaps, accounting for 91.0% of the students in the included municipalities. The plotted coordinates reproduce the table values to two decimal places. Author's calculations based on Statistics Sweden register extracts.

The figure shows that positive sector gaps are the dominant pattern in the analytic sample. Most municipalities lie above the zero line. In numerical terms, 71 of the 84 included municipalities have a positive pooled sector gap. In student-weighted terms, the corresponding share is 0.910. Put differently, approximately nine out of ten students in the included municipalities are located in local school markets

where the pooled residual gap favors for-profit independent schools rather than municipal schools.

The size of the gap is also relevant. The mean pooled sector gap is 6.823 merit-rating points, the median is 8.160, and the student-weighted mean is 8.067. Although modest relative to the full merit-rating scale, a difference of roughly seven to eight points may matter in a competitive selection system in which relatively small differences can affect access to upper-secondary programs. The point is not that the sector gap alone determines educational trajectories; rather, it is large enough to matter when final merit ratings are used to rank students.

At the same time, the figure does not support a simple monotonic interpretation. Municipalities with modest for-profit shares can display large positive sector gaps, while some municipalities with relatively high for-profit marketization have smaller gaps. The relationship between for-profit presence and residual divergence is therefore better read as heterogeneous than linear. For-profit marketization is part of the local context, but it does not by itself determine the size of the residual gap.

This heterogeneity matters for interpretation. The size of the sector gap may depend on several local features not captured by the pooled for-profit share alone: which for-profit providers are present, how large they are within the municipality, how the municipal sector is organized, how students are distributed across schools, and how local competition is structured. Two municipalities with similar for-profit shares may therefore have different residual gaps because their provider landscapes and student flows differ.

The municipalities with the highest and lowest pooled gaps illustrate this variation. The largest positive gaps include Eskilstuna, Karlstad, Tyresö, Hässleholm, and Håbo. The lowest gaps include Östersund, Stenungsund, Skövde, Västervik, and Uddevalla, where the pooled gap is negative. These examples should not be read as a ranking of school quality. They show that grade divergence varies considerably across municipal contexts, even within the set of municipalities that meet the inclusion criteria for the analysis.

The negative gaps are especially useful for interpretation. They show that a positive for-profit-minus-municipal gap is not mechanically built into the measure. In a smaller group of municipalities, municipal schools have higher residuals than for-profit independent schools. This strengthens the interpretation of the overall pattern: the predominance of positive gaps is an empirical result, not a consequence of the way the residual gap is defined.

Figure 7.2 therefore adds two points to the sector-level analysis. First, positive for-profit-minus-municipal residual gaps are widespread across the included municipalities and cover the large majority of students in those contexts. Second, the magnitude of the gap varies substantially, and the variation is not reducible

to the pooled share of students attending for-profit independent schools. This supports a contextual interpretation of grade divergence: ownership sector matters, but the local provider landscape also matters.

The next step is to connect these local sector gaps to student-level socioeconomic differences. Figure 7.2 shows where residual divergence is located across municipalities, but it does not show whether students from more advantaged backgrounds benefit more in contexts where the for-profit-minus-municipal gap is larger. The final empirical section therefore turns to student-level fixed-effects models and examines whether the high-SES advantage in final merit rating in compulsory school increases with the local sector gap.

Local Sector Gaps and Differential Grading Advantages Across Socioeconomic Groups

The final empirical section connects local sector gaps to individual students. The preceding section showed that for-profit-minus-municipal residual gaps are widespread across the included municipalities, but it did not show how these gaps are related to socioeconomic differences among students. The question here is therefore not only whether sectoral residual divergence exists, but whether it is associated with a steeper advantage for high-SES students.

The analysis uses a student-level model with year and municipality fixed effects. Final merit rating in compulsory school is regressed on three main terms: an indicator for high SES, the local sector gap, and the interaction between high SES and the sector gap. High SES refers to the composite indicator defined in Chapter 5: students with at least one parent with long tertiary education, defined as four years or more of tertiary education, and household income in the top cohort-specific quartile. The local sector gap is calculated for each municipality and graduation year and merged to students by municipality and year. Higher values indicate a larger residual gap between for-profit independent and municipal schools in the same local context.

The model tests whether the high-SES advantage in final merit rating is larger in municipality-years with a larger for-profit-minus-municipal residual gap. Year fixed effects account for cohort-wide changes, municipality fixed effects account for stable municipal differences, and standard errors are clustered by municipality.

A possible alternative would be to estimate a separate SES–grade slope for each municipality and then model that slope as a function of marketization or sector divergence. That approach is useful for some purposes, but it targets a different estimate and adds an additional layer of modeling. The specification used here is more direct as it links the local sector gap to individual grades and estimates

whether the association differs between high-SES and other students within the same broad local and temporal frame.

The baseline specification is also aligned with the chapter's concept of grade divergence. The sector gap is built from residual grade-divergence values and summarizes between-school and between-sector divergence within municipalities. Adding school fixed effects would absorb stable differences between schools, including one of the main channels through which sorting and sectoral differentiation may operate. School fixed-effects versions are therefore reported as conservative robustness checks in Appendix D (Table D1, columns 2–3), rather than treated as the main specification.

Table 7.7 reports the student-level model underlying the final empirical step. The table is included in the main text to make the model behind the interaction figure visible before the predicted differences are interpreted. The model estimates whether the merit-rating advantage associated with high SES varies with the local sector gap between for-profit independent and municipal schools.

Table 7.7
Student-Level Fixed-Effects Model Predicting Final Merit Rating in Compulsory School, 2014–2022

Predictor	*b*	*SE*
High SES	36.48***	0.98
Local Sector Gap	-0.0956***	0.0202
High SES × Local Sector Gap	0.1366**	0.0445
Female	22.03***	0.47
Swedish Background	28.26***	0.87

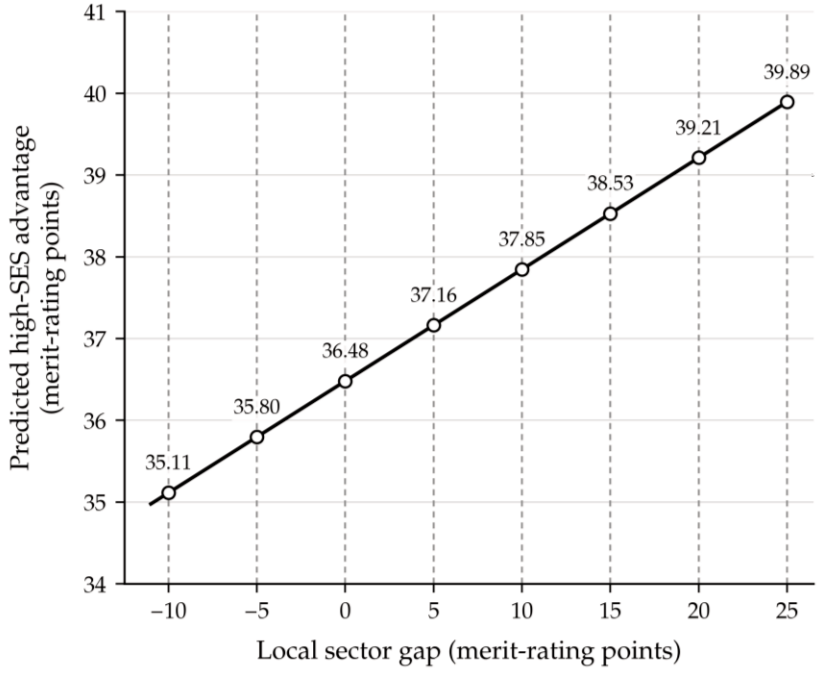
Note. N = 644,513 students. Outcome is final merit rating in compulsory school. The model includes year and municipality fixed effects. Standard errors are clustered by municipality. The local sector gap is calculated for each municipality and graduation year and merged to students by municipality and year. Higher values indicate larger within-municipality residual divergence between for-profit independent and municipal schools. High SES is coded 1 for students with at least one parent with long tertiary education, defined as four years or more of tertiary education, and household income in the top cohort-specific quartile. Author's calculations based on Statistics Sweden register extracts.
*p < .05. **p < .01. ***p < .001.

The table shows three points. First, high SES is associated with substantially higher merit ratings, net of year and municipality fixed effects. Second, the local sector gap is negatively associated with merit rating for students not classified as high SES. Third, and most central for the chapter's argument, the interaction between high SES and the local sector gap is positive. This means that the high-SES advantage is

larger in municipality–years where the residual gap between for-profit independent and municipal schools more strongly favors the for-profit sector.

Figure 7.3 translates this interaction into predicted differences. Instead of asking the reader to infer the substantive pattern directly from the coefficient, the figure shows how the predicted high-SES advantage changes across values of the local sector gap.

Figure 7.3
Predicted High-SES Merit-Rating Advantage by Local Sector Gap, 2014–2022



Note. The figure shows the model-implied difference in final merit rating between high-SES students and other students across values of the local sector gap. The predicted difference is calculated as 36.48 + 0.1366 × local sector gap, using the coefficients in Table 7.7. The local-sector-gap main effect enters both group-specific predictions and cancels when their difference is calculated. Dashed vertical guides and open circles mark local sector gaps of −10, 0, 10, and 20, corresponding to predicted high-SES advantages of 35.11, 36.48, 37.85, and 39.21 merit-rating points. Author's calculations based on Statistics Sweden register extracts.

At a local sector gap of zero, the estimated high-SES advantage is 36.48 merit-rating points. The positive slope in Figure 7.3 shows that this advantage increases as the local sector gap becomes larger. The increase is modest in magnitude, but it is systematic. A 10-point increase in the local sector gap corresponds to an additional high-SES advantage of approximately 1.37 merit-rating points. Substantively, the figure shows that the socioeconomic merit-rating gap is wider

in municipalities and graduation years where the residual sector gap more strongly favors for-profit independent schools.

For students not classified as high SES, the coefficient for the local sector gap is slightly negative. The interaction term between high SES and the local sector gap is positive and statistically significant, which means that the association between the local sector gap and merit rating is more favorable for high-SES students than for other students. The school fixed-effects robustness checks in Appendix D (Table D1, columns 2–3) further delimit the interpretation. When stable differences between schools are absorbed, the interaction term is attenuated. This is consistent with the interpretation that the pattern is primarily expressed through between-school and between-sector differentiation within municipalities, rather than only through changes within the same school over time.

The model therefore links the chapter's descriptive and municipal-level results to individual-level socioeconomic differences. The earlier analyses showed that for-profit independent schools tend to have higher residuals than municipal schools, and that positive for-profit-minus-municipal gaps are widespread across included municipalities. The student-level model adds that these local gaps are also socially structured. Where the sector gap is larger, the relative advantage associated with high SES is larger.

This is the chapter's most direct answer to the second research question. Larger local sector gaps are associated with larger high-SES merit-rating advantages. The finding links grade divergence to equity because the relative grade advantage differs by socioeconomic position.

Summary and Discussion

This chapter addressed the dissertation's second research question: *To what extent do more marketized municipalities exhibit greater grade divergence between municipal and for-profit independent schools, and is the grade advantage associated with students from more socioeconomically advantaged backgrounds larger where such divergence is greater?*

The answer developed in the chapter is twofold. First, composition-adjusted differences between for-profit independent and municipal schools are visible and persistent within the local school-market contexts analyzed here. Second, these differences are socially patterned: in municipalities and graduation years where the for-profit-minus-municipal residual gap is larger, the relative merit-rating advantage associated with high SES is also larger. The chapter therefore shows that grade divergence is not only a sectoral pattern. It is also connected to the socioeconomic distribution of grade-based advantages.

The analysis began by constructing a composition-adjusted benchmark for expected merit ratings for each school and graduation year. The purpose of this benchmark was to avoid comparing schools and sectors only by raw mean grades. Schools serve different student populations, and those differences matter. The model therefore adjusted expected merit ratings for observed student composition, household resources, municipal context, cohort year, and municipality. The resulting residuals measured the difference between observed and predicted merit ratings. A positive residual indicated that the observed mean merit rating was above the model-predicted level; a negative residual indicated that it was below.

This residual framework does not identify school quality or grading practice directly. It provides a more disciplined comparison of observed and expected grade outcomes. This distinction matters for interpretation. A positive residual may reflect grading practices, instructional conditions, peer composition not fully captured by the model, unobserved selection, local assessment cultures, or other institutional features. The chapter therefore does not claim to isolate one mechanism. Its contribution is to show that observed-minus-predicted merit ratings differ systematically across ownership sectors, provider groups, municipalities, and socioeconomic positions.

The sector-level results showed a clear pattern. Municipal schools were positioned close to the predicted level, with small negative residuals. Non-profit independent schools had modest positive residuals. For-profit independent schools had larger positive residuals. The selected large for-profit provider groups also differed from one another, with Provider A showing the largest positive residuals, while Providers B and C were more moderate. This means that residual divergence is not only a municipal-versus-independent distinction. It is also a provider-structure pattern within the independent sector.

The time-series evidence strengthened this interpretation. The for-profit sector remained above its predicted level throughout 2014–2022, while the municipal sector remained slightly below prediction. The for-profit-minus-municipal residual gap was positive in every year. The gap was modest relative to the full merit-rating scale, but large enough to matter in a competitive admissions system, especially because final merit ratings in compulsory school rank students for upper-secondary education. The decline in Provider A's residuals after 2019 also matters, but it should not be overread. It may reflect changes in grading practices, student intake, organizational composition, provider strategy, or external scrutiny. The data do not allow those explanations to be separated.

The municipal analysis showed that the sector gap was not confined to a few isolated cases. Most included municipalities had positive pooled for-profit-minus-municipal residual gaps, and the student-weighted share of students living

in municipalities with positive gaps was high. At the same time, the relationship between the size of the for-profit sector and the size of the residual gap was not simple or monotonic. Some municipalities with limited for-profit presence had large positive gaps, while some more marketized municipalities had smaller or even negative gaps. This heterogeneity matters for interpretation. It suggests that ownership sector matters, but that the local provider landscape, student flows, municipal structure, and the presence of particular providers also shape how residual divergence appears.

The final student-level model connected these local sector gaps to socioeconomic differences in final merit rating in compulsory school. High-SES students had a large merit-rating advantage overall. More directly for the chapter's argument, the interaction between high SES and the local sector gap was positive and statistically significant. This means that the high-SES advantage was larger in municipalities and graduation years where the residual gap between for-profit independent and municipal schools was larger. The association was not a uniform grade increase for all students. It was socially differentiated.

The descriptive sector evidence also limits one simple alternative interpretation. If positive for-profit residuals merely reflected stronger instructional or support capacity, one might expect the for-profit sector to have more favorable staffing and student-support profiles. The descriptive tables did not show this. Municipal schools had higher teacher-certification levels and stronger student-support coverage on several indicators, while independent schools, including for-profit schools, enrolled more socioeconomically advantaged students. This does not rule out instructional effectiveness as part of the explanation. It does, however, show that the residual pattern is not readily explained by the staffing and support-resource indicators reported here.

The chapter's main conclusion is therefore not that marketization mechanically produces grade inflation. The evidence does not support such a simple claim. The more precise conclusion is that, in the 2014–2022 period, grade divergence is patterned by ownership sector, provider group, municipality, and SES. For-profit independent schools tend to have higher observed-minus-predicted merit ratings than municipal schools; these gaps are common across included municipalities; and larger local gaps are associated with a larger high-SES merit-rating advantage. The pattern is consistent with the broader concern that grades in local school markets function not only as measures of demonstrated mastery but also as institutional signals shaped by provider structure and social composition.

This finding matters for the dissertation's broader argument. Chapter 6 showed that final merit ratings in compulsory school became more closely tied to parental education, municipal income, and local independent-school presence

over time. Chapter 7 has shown that, in the later Lgr11 period, grade-based outcomes also diverge from composition-adjusted expectations across sectors and local school markets, and that this divergence is socially patterned. The longitudinal descriptive pattern in Chapter 6 is therefore not only a matter of national trends in observed grades. It is connected to local provider structures and to the distribution of grade advantages within municipalities.

The next chapter adds subject-domain and subject-grade resolution to this argument. Chapter 7 has treated final merit rating in compulsory school as an aggregate grade-based signal. Chapter 8 breaks down that signal by examining subject-domain grades, subject-specific patterns, and, where possible, their relationship to national subject test results. This makes it possible to ask whether the residual and socioeconomic patterns identified here are concentrated in particular parts of the grade profile and, if so, what that implies for the validity and comparability of final grades in compulsory school.

CHAPTER 8

Inside the Merit Rating: Subject Grades, Socioeconomic Background, and School-Market Context

Chapters 6 and 7 treated the final merit rating in compulsory school as the central grade-based outcome. Chapter 6 established the longitudinal descriptive pattern: merit ratings became more closely associated with socioeconomic background, municipal income, and local independent-school presence over time. Chapter 7 then examined the later Lgr11 period in more detail, showing that observed merit ratings diverge from composition-adjusted expectations across ownership sectors, provider groups, and municipalities, and that this divergence is socially patterned.

The present chapter adds subject-domain and subject-grade resolution to that argument. The final merit rating in compulsory school is not a single performance measure. It is an aggregate constructed from subject-grade points, and the subjects that make up this aggregate may differ in their relation to student background, curriculum structure, assessment practice, national tests, and local school-market context. Treating merit rating as one outcome is useful for tracing broad patterns, but it can also conceal where in the grade profile those patterns are located. A rising or socially stratified merit rating may be driven by several subject domains at once, or it may be concentrated in particular parts of the curriculum.

The chapter therefore examines subject-domain grades as components of the aggregate merit-rating signal. The aim is to extend the aggregate analyses in Chapters 6 and 7 by opening the merit-rating measure and examining its internal subject structure. This makes it possible to ask whether subject grades relate differently to final merit rating in compulsory school, whether grade growth and socioeconomic differentiation vary across domains, and whether subject-grade discrepancies in the Lgr11 period are patterned by ownership sector and provider group.

The chapter addresses the dissertation's third research question: *How does the subject-domain composition of final merit rating in compulsory school vary over time, and how are subject-domain grade patterns related to socioeconomic background, local school-market saturation, grade–test alignment, and provider-patterned subject-grade discrepancies?*

In practice, the chapter answers this question through four connected steps. First, it examines how subject-domain grades relate to the aggregate merit-rating signal. Second, it identifies which subject domains show the clearest patterns of grade growth, socioeconomic differentiation, and market-context difference over time. Third, it uses national test scores in Swedish, English, and Mathematics as a limited benchmark for grade–test alignment in one matched cohort. Fourth, it examines whether selected subject grades deviate from intake-based expectations across ownership sectors and provider groups during the Lgr11 period.

Taken together, these four steps give Chapter 8 its distinct function in the dissertation. Rather than treating final merit rating in compulsory school as a single aggregate outcome, the chapter asks where within its subject structure the broader patterns identified in Chapters 6 and 7 become visible. Subject grades are therefore treated as curricular components of the grade signal and as a basis for examining validity and comparability at a finer level than the aggregate merit rating alone allows.

Analytical Purpose and Data Sequence

The analyses group subjects into subject domains to make the structure of merit ratings interpretable without turning the chapter into a sequence of isolated subject-by-subject comparisons. Swedish, English, and Mathematics are retained as separate core subjects because of their institutional role in eligibility, selection, and national testing. Natural-science, social-science, and practical-aesthetic subjects are analyzed as broader domains, while Technology is retained separately because it does not fit cleanly within those grouped domains and appears repeatedly in the later analyses. This grouping captures major curricular areas while keeping the presentation focused enough to show patterns across the whole grade profile.

The grouping is analytical rather than administrative. It is used to identify whether broader curricular domains differ in their relationship to the aggregate merit-rating signal and in their association with socioeconomic and market-context measures. The core subjects are separated because they carry specific institutional weight, while the grouped domains make it possible to see broader curricular patterns that would be harder to interpret if every subject were presented separately. The result is a compromise between detail and readability, providing enough subject-level resolution to break down the aggregate while preserving the chapter's comparative structure.

The longitudinal subject-domain figures cover 1998–2017. This period crosses the transition from the Lpo94 grading scale to the Lgr11 grading scale,

which means that changes after 2013 must be read with caution. The main comparability issue is not simply that the notation for failing performance changed, since failing performance still generates zero merit points in merit-rating calculations. More important for the present figures is that Lgr11 introduced additional passing steps, especially D and B. These additional steps may affect the distribution of grade points and make part of the post-2013 increase scale-related. The figures should therefore be interpreted as descriptive changes in grade-based outcomes across grading regimes, not as estimates of identical latent achievement growth. The vertical reference line marks the first graduating cohort under the Lgr11 scale.

The chapter draws on three data infrastructures. GOLD is used for longitudinal subject-domain patterns because it provides harmonized subject grades across 1998–2017. These analyses show how subject-domain grades relate to total final merit rating in compulsory school, how they changed relative to the 1998 baseline, and how parental-education and market-saturation gaps developed across domains. UGU is used for the 1998 birth cohort observed at graduation in 2014, because it contains national test scores in Swedish, English, and Mathematics linked to final subject grades for the same students. SCB extracts are used for 2014–2022 because they provide richer provider and SES information for observed–predicted subject-grade comparisons in the Lgr11 period.

The analyses follow a sequence from broad subject-grade patterns to more specific comparisons. The chapter first examines how subject-domain grades relate to total merit rating and how grade growth and socioeconomic and market-context differences vary across subjects. It then compares final grades with national test scores in Swedish, English, and Mathematics for one matched cohort. Finally, it examines subject-grade differences across ownership sectors and provider groups during the Lgr11 period.

This subject-domain step matters because final merit rating in compulsory school is an institutional aggregate. Its components may not all carry the same empirical meaning. Some subject domains may be tightly linked to the total because they form a large or academically central part of the grade profile. Others may move more independently, or show stronger links to socioeconomic background, market saturation, or provider context. A stable or rising aggregate merit rating can therefore conceal considerable variation across the curriculum. For that reason, Chapters 6 and 7 provide the aggregate and residual framework, while Chapter 8 examines the subject structure through which the aggregate grade signal is constructed.

Subject-Domain Structure, Change, and Stratification

The descriptive starting point for the subject-domain and subject-grade analysis is the pattern already summarized in Table 5.2: subject grades increased between 1998 and 2017, but the increase was not uniform across subjects. This unevenness is important because final merit rating in compulsory school is an aggregate measure. If all subjects moved in the same way, the aggregate could be interpreted more straightforwardly as a general grade trend. If subject domains move differently, however, the aggregate signal has to be read as a composite outcome whose components carry partly different empirical meanings.

In this chapter, subject domains refer to analytically grouped subject-grade categories. The natural-science domain consists of Biology, Chemistry, and Physics. The social-science domain consists of Geography, History, Religious Studies, and Civics. The practical-aesthetic domain consists of Art, Crafts, Home and Consumer Studies, Music, and Physical Education and Health. Swedish, English, Mathematics, and Technology are treated separately where relevant because they have distinct roles in the merit-rating structure and in the later grade–test and observed–predicted analyses.

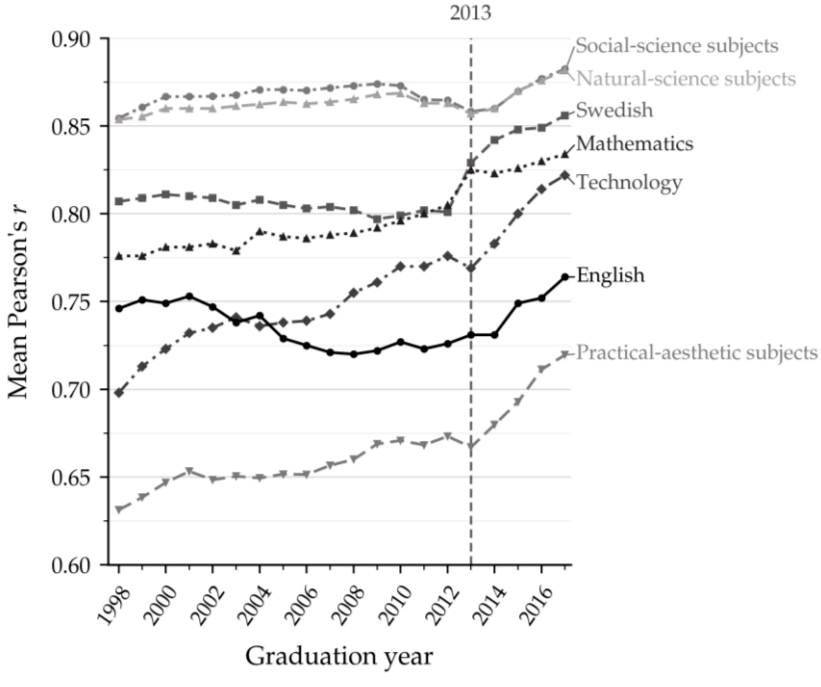
Rather than presenting every subject separately in the main text, the analysis calculates each statistic at the subject level and then summarizes the results by subject domain. For the natural-science, social-science, and practical-aesthetic domains, the plotted values are unweighted arithmetic means of the constituent subject-specific statistics. Swedish, English, Mathematics, and Technology are plotted individually. The figures move from subject-level correlations with the aggregate merit rating to baseline-standardized grade growth, parental-education grade gaps, market-saturation grade gaps, and finally the intersection between parental education and market saturation. This sequence shows which parts of the curriculum are most closely connected to the aggregate, which changed most over time, and which display the clearest socioeconomic or market-context differentiation.

Subject Domains and the Internal Structure of Merit Rating

The first analytical step is to examine how strongly each subject domain is connected to the aggregate merit-rating signal. The correlations in Figure 8.1 show how closely grades in individual subjects are associated with students' overall final merit ratings in each graduation year, summarized by subject domain. A high correlation means that students with high overall merit ratings also tend to have high grades in the subjects included in that domain, while students with lower overall merit ratings tend to have lower grades in the same domain. Since final merit rating is constructed from subject-grade points, strong correlations are expected. The analytical interest therefore lies not in whether

subject domains correlate with the total, but in how strongly different domains are tied to the aggregate and whether these relationships change over time.

Figure 8.1
Annual Mean Subject-Level Correlations With Final Merit Ratings by Subject Domain, 1998–2017



Note. Values are annual Pearson correlations between students' grades in each subject and their final merit ratings. For the social-science, natural-science, and practical-aesthetic domains, the plotted values are unweighted arithmetic means of the constituent subject-specific correlations; Swedish, English, Mathematics, and Technology are plotted individually. Correlations use pairwise available cases, so the analytic *N* may differ between constituent subjects. The vertical line marks the grading-scale and curriculum transition in 2013. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

Figure 8.1 shows that subject-level correlations with final merit ratings are high throughout the period but vary across the curriculum. The unweighted mean correlations for social-science and natural-science subjects are the two highest series in every year, while the mean for practical-aesthetic subjects is the lowest. Among the individually plotted subjects, Swedish and Mathematics are also closely related to the aggregate. English has a lower correlation, while Technology shows the largest increase over the period, from .698 in 1998 to .822 in 2017.

The multi-subject lines should be read as summaries of constituent subject correlations rather than as correlations for constructed domain-grade indices. Each subject grade is correlated separately with final merit rating, after which the coefficients are averaged with equal weight within the domain. The high values for the social-science and natural-science domains therefore indicate that their constituent subjects are consistently closely associated with the aggregate; they are not a mechanical consequence of combining several grades into one index. The lower practical-aesthetic mean similarly indicates weaker average subject-level alignment with the aggregate.

This variation matters for the interpretation of later figures. A higher mean subject-level correlation indicates that the constituent subjects are more closely aligned with the aggregate final merit rating; it does not identify their independent contribution to the credential. A lower mean correlation may still coexist with strong grade growth or socioeconomic differentiation. Figure 8.1 therefore connects the aggregate analyses in Chapters 6 and 7 to the subject-level analyses that follow without treating all parts of the curriculum as equally aligned with the total.

After showing how strongly subject grades are related to the aggregate, the next issue is change over time. For each subject and year, the baseline-standardized value is calculated as the difference between that year's mean subject grade and the corresponding 1998 mean, divided by the subject's 1998 standard deviation. For the multi-subject domains, Figure 8.2 reports the unweighted arithmetic mean of these constituent subject-specific values. Every series is therefore zero in 1998 by construction. The units provide a common descriptive scale for comparing change from each subject's own baseline, but they should not be interpreted as conventional between-group treatment-effect estimates.

This standardization does not solve the comparability problem created by the transition from Lpo94 to Lgr11. It simply provides a common descriptive scale for comparing relative movements across subject domains. The figure therefore answers a limited but important question: which parts of the curriculum moved most from their own 1998 starting points, and which remained closer to baseline? The answer helps specify whether the aggregate merit-rating growth documented in earlier chapters was distributed broadly across the curriculum or concentrated in particular domains.

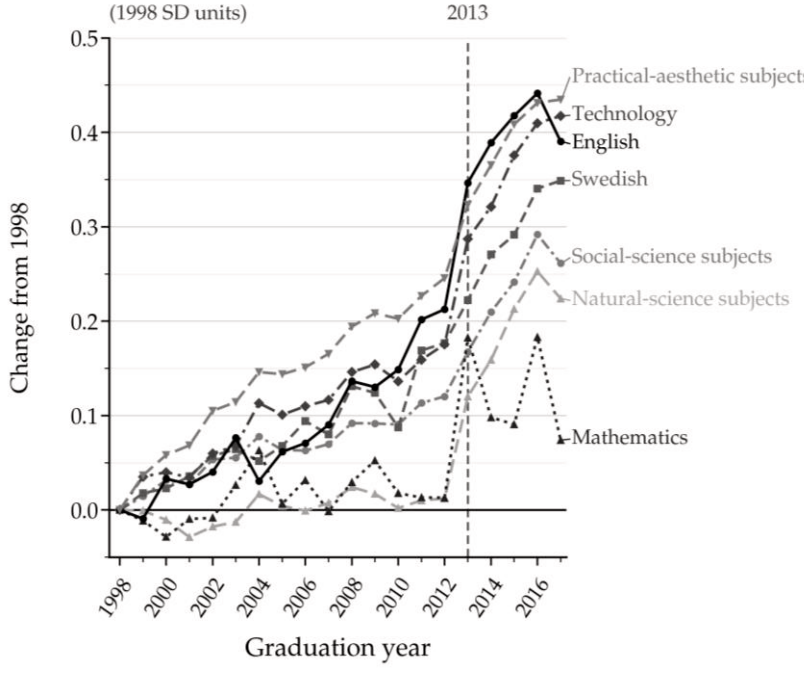
Baseline-Standardized Grade Growth Across Subject Domains, 1998–2017

Having established how strongly subject-domain grades relate to the total final merit rating, the next step is to examine how these domains changed over time

and how those changes relate to social background and local market context. The purpose is not simply to identify which subjects increased most, but to ask whether the aggregate merit-rating development documented in earlier chapters is evenly distributed across the curriculum. If grade growth, parental-education grade gaps, and market-saturation grade gaps are concentrated in particular subject domains, then the aggregate merit-rating signal should be interpreted as internally differentiated rather than uniform.

The following figures therefore move in three steps. Figure 8.2 describes baseline-standardized change in subject-domain grades. Figure 8.3 examines whether the parental-education gap widened differently across domains. Figure 8.4 adds the local school-market dimension by comparing high- and low-saturation municipalities. Figure 8.5 then brings these two dimensions together by asking whether the parental-education gap itself differs between high- and low-saturation contexts. Together, these figures form the descriptive core of the chapter.

Figure 8.2
Annual Baseline-Standardized Changes in Subject Grades by Subject Domain, 1998–2017



Note. For each subject and year, the plotted statistic is the annual mean subject grade minus the corresponding 1998 mean, divided by the subject's 1998 standard deviation. Multi-subject domain values are unweighted arithmetic means of the constituent subject-specific standardized changes; Swedish, English, Mathematics, and Technology are plotted individually. All series equal zero in 1998 by construction. The vertical line marks the grading-scale and curriculum transition in 2013. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

Figure 8.2 shows that grade growth was not evenly distributed across the curriculum. Practical-aesthetic subjects, English, and Technology display the clearest upward movement from the 1998 baseline. Swedish also increases, but more moderately. Social-science and natural-science subjects rise less sharply despite their strong association with total merit rating in Figure 8.1. The Mathematics series is the most uneven, with a more volatile trajectory and no comparable sustained increase.

The distinction between strong correlation with the total and strong growth from baseline is important. Social-science and natural-science subjects remain closely tied to final merit rating in compulsory school, but they are not the domains with the largest baseline-standardized increases. Practical-aesthetic subjects, by contrast, are less tightly aligned with the aggregate in Figure 8.1 but

show one of the clearest upward movements in Figure 8.2. This means that correlations with the aggregate and baseline-standardized grade growth capture different aspects of the subject-grade profile. Some domains are closely aligned with the aggregate, while other subjects or domains show larger increases from their own baselines.

The post-2013 movement should be interpreted cautiously because it coincides with the Lgr11 grading scale and the introduction of additional passing grade steps, especially D and B. At the same time, the figure does not suggest that subject-domain grade growth can be reduced to the Lpo94/Lgr11 transition alone. In most domains, the upward movement is relatively gradual across the full period, beginning before the new grading scale and continuing after it. Mathematics, and to some extent the natural-science domain, are the clearest exceptions, with more uneven trajectories. The figure should therefore not be read as evidence of equivalent growth in underlying subject achievement. It shows changes in grade-based outcomes within subject domains. On that descriptive scale, the main pattern concerns longer-term subject-domain development across both grading regimes, rather than a single break at the curriculum and grading-scale transition.

Figure 8.2 therefore adds an important qualification to the aggregate analyses in Chapters 6 and 7. The rise in final merit rating in compulsory school is not simply a general upward shift in all subject domains. It is partly structured by curricular domain. Practical-aesthetic subjects, English, and Technology are especially important for understanding where the aggregate grade signal moved most clearly from the 1998 baseline, while Mathematics follows a less stable trajectory and Swedish occupies a more moderate position. The next question is whether socioeconomic differentiation also developed unevenly across these domains.

Socioeconomic Differentiation Across Subject Domains

In Figures 8.3–8.5, all standardized grade gaps are first calculated separately for each subject. Figures 8.3 and 8.5 compare the highest and lowest categories of the four-level parental-education measure: four years or longer tertiary education and compulsory school or lower. They do not use the binary parental-education indicator applied in some other analyses. Each annual Cohen's d uses the contemporaneous pooled standard deviation of the two groups being compared. For multi-subject domains, the plotted values are unweighted arithmetic means of the constituent subject-specific statistics.

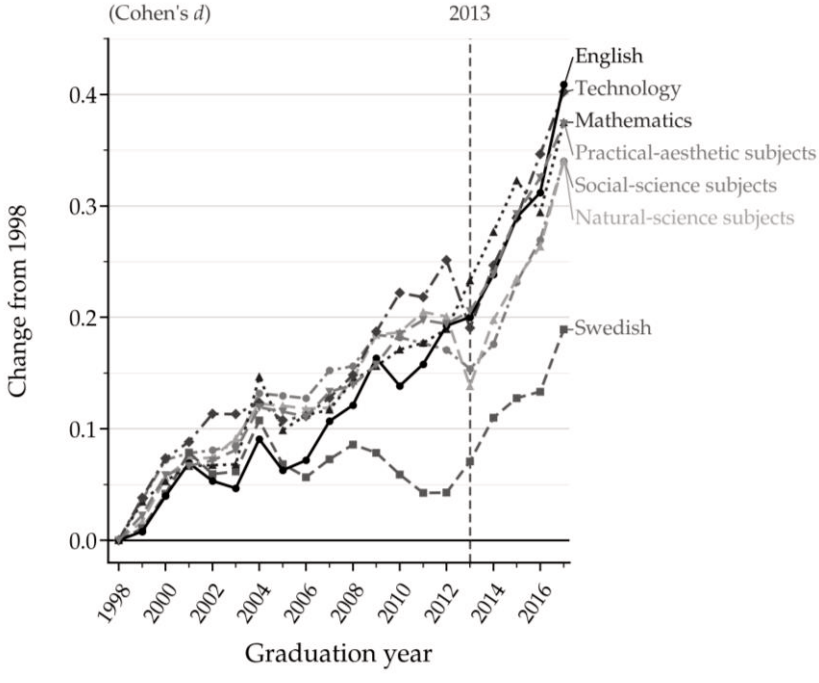
In Figures 8.3–8.5, a grade gap refers to the difference between two group means for the same subject, expressed relative to the 1998 baseline. In Figures 8.3 and 8.5, the parental-education contrast compares the highest and lowest

categories of the four-level measure: four years or longer tertiary education and compulsory school or lower.

The school-market saturation contrast follows the annually recalculated municipal grouping introduced in Chapter 6. Low-saturation municipalities have no final-year students enrolled in independent schools in the relevant year, whereas high-saturation municipalities have the largest shares in that year's municipal distribution. Figure 8.3 shows how the parental-education grade gap changed over time. Figure 8.4 shows how the grade gap between high- and low-saturation municipalities changed over time. Figure 8.5 then asks whether the parental-education grade gap developed differently in high- and low-saturation municipalities.

Figure 8.3 examines change since 1998 in the standardized subject-grade gap between students in the highest and lowest parental-education categories. For each subject and year, Cohen's *d* is calculated as the mean grade for students in the four years or longer tertiary education category minus the mean grade for students in the compulsory school or lower category, divided by that year's pooled group standard deviation; the corresponding 1998 value is then subtracted. Positive values indicate that the standardized parental-education grade gap has widened relative to 1998.

Figure 8.3
Annual Change in Standardized Subject-Grade Gaps Between the Highest and Lowest Parental-Education Groups by Subject Domain, 1998–2017



Note. The parental-education contrast is four years or longer tertiary education minus compulsory school or lower. For each subject and year, Cohen's *d* uses the contemporaneous pooled standard deviation of the two groups; the plotted statistic is the annual *d* minus its 1998 value. Multi-subject domain values are unweighted arithmetic means of the constituent subject-specific changes; Swedish, English, Mathematics, and Technology are plotted individually. The vertical line marks the grading-scale and curriculum transition in 2013. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

Figure 8.3 shows that the parental-education grade gap widened across several subject domains, but the widening was uneven. English and Technology show some of the largest increases by the end of the period. Mathematics and practical-aesthetic subjects also display substantial widening, although their trajectories are not identical. Social-science and natural-science subjects increase more moderately. Swedish shows the most limited widening: its parental-education gap grows less than in the other domains and ends at a lower level.

This pattern matters because it separates two aspects of the subject-grade structure. A subject or grouped domain can be strongly related to the total final merit rating in compulsory school without being one of the parts of the subject profile where the socioeconomic gap widens most. Swedish illustrates this point.

It remains an important part of the aggregate grade signal, but it is less strongly implicated in the widening parental-education gap than English, Technology, Mathematics, or practical-aesthetic subjects. The relationship between subject grades and socioeconomic background therefore cannot be inferred directly from each subject's correlation with the total merit rating.

The comparison with Figure 8.2 is also instructive. The domains with the strongest grade growth are not exactly the same as those with the strongest widening of the parental-education gap, but there is clear overlap. Technology, English, Mathematics, and practical-aesthetic subjects stand out in different ways across the two figures. This suggests that grade growth and socioeconomic differentiation are related but not identical processes. Some domains contribute to aggregate growth, some contribute more clearly to widening SES gaps, and some do both.

The timing of the widening is also important. The pattern does not appear only as a sharp post-2013 break following the introduction of the Lgr11 grading scale. In most domains, the parental-education gap changes gradually across the period, although the level and strength of the increase differ substantially between subjects. Swedish shows a more muted development than the other domains. The figure should therefore be read as evidence of a broader subject-domain stratification pattern, not simply as an artifact of the grading-scale transition.

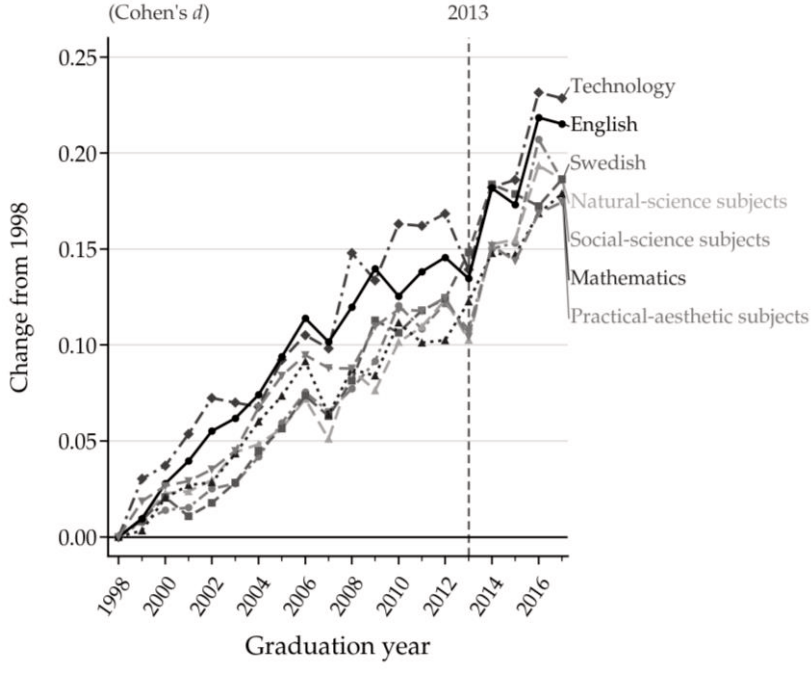
Market Saturation, Social Stratification, and Subject-Domain Differences

The preceding figures established two separate patterns: subject-domain grades did not grow uniformly over time, and the parental-education gap widened unevenly across domains. The next step is to connect these subject-domain patterns to local school-market context. This is important because the dissertation's earlier chapters show that market exposure is not only an individual provider characteristic, but also a feature of local educational environments. If the aggregate merit-rating signal is internally structured by subject domain, then market-context differences may also be unevenly distributed across the curriculum.

The following two figures examine this issue in complementary ways. Figure 8.4 compares grade differences between high- and low-saturation municipalities by subject domain, thereby asking where local market-context differences are most visible in the subject-grade profile. Figure 8.5 then combines market context with social stratification by examining whether the parental-education gap itself differs between high- and low-saturation municipalities. Together, the figures ask whether market saturation and socioeconomic background intersect

within the subject-domain structure of final grades in compulsory school, rather than only at the level of total merit rating.

Figure 8.4
Annual Change in Standardized Subject-Grade Gaps Between High- and Low-Saturation Municipalities by Subject Domain, 1998–2017



Note. For each subject and year, Cohen's *d* compares high-saturation with low-saturation municipalities using the contemporaneous pooled standard deviation; the plotted statistic is the annual *d* minus its 1998 value. Saturation groups are recalculated within each graduation year and are not fixed municipality cohorts. Multi-subject domain values are unweighted arithmetic means of the constituent subject-specific changes; Swedish, English, Mathematics, and Technology are plotted individually. The vertical line marks the grading-scale and curriculum transition in 2013. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

Figure 8.4 shows that the standardized subject-grade gap between high- and low-saturation municipalities increased relative to its 1998 value across all subject domains by 2017, but not uniformly. Technology and English show the largest increases by the end of the period. Swedish, Mathematics, social-science subjects, natural-science subjects, and practical-aesthetic subjects also end above their 1998 baselines, but their 2017 values cluster more closely together.

These differences should be read as comparisons between empirical local contexts. High-saturation municipalities differ from low-saturation

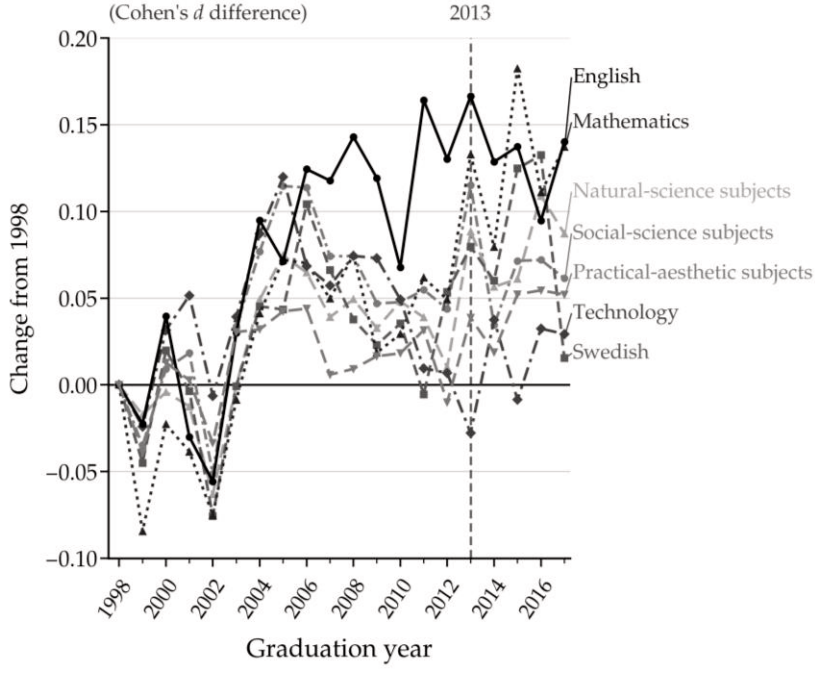
municipalities not only in independent-school presence but also in socioeconomic composition, population density, provider structure, and urban context. Figure 8.4 therefore shows where subject-domain grades are most clearly differentiated between municipalities with larger and smaller shares of students in independent schools.

The timing of the change is also relevant. As in Figures 8.2 and 8.3, the pattern does not point to one simple discontinuity at the Lpo94/Lgr11 transition. Most subject domains move upward over the period, although Technology, English, and Swedish especially stand out in the comparison between municipalities with larger and smaller shares of students in independent schools. The post-2013 years should still be interpreted cautiously because the grading scale changed, but the figure is better read as part of a longer market-context pattern across subject domains than as a scale-change effect alone.

Figure 8.4 adds subject-domain specificity to the aggregate pattern shown in Chapter 6. It shows that market-context differences are not evenly distributed across the curriculum. English and Technology are again prominent, suggesting that local market-context differences are especially visible in parts of the subject profile that also play a major role in the broader subject-level patterns of grade growth and stratification.

Figure 8.5 combines the two preceding comparisons. For each subject and year, the parental-education Cohen's *d* is calculated separately in high- and low-saturation municipalities. The low-saturation value is subtracted from the high-saturation value, and the corresponding high-minus-low difference in 1998 is then subtracted from every annual value. Positive values therefore indicate that the difference between high- and low-saturation municipalities in the parental-education grade gap is larger than it was in 1998; negative values indicate that it is smaller than in 1998.

Figure 8.5
Change Since 1998 in the Standardized Parental-Education Grade-Gap Difference Between High- and Low-Saturation Municipalities by Subject Domain, 1998–2017



Note. Within each saturation group, the parental-education contrast is four years or longer tertiary education minus compulsory school or lower and is standardized as Cohen's *d* using the contemporaneous pooled standard deviation. For each subject and year, the low-saturation parental-education *d* is subtracted from the high-saturation *d*, after which the corresponding 1998 high-minus-low difference is subtracted. Saturation groups are recalculated annually. Multi-subject domain values are unweighted arithmetic means of the constituent subject-specific values; Swedish, English, Mathematics, and Technology are plotted individually. The vertical line marks the grading-scale and curriculum transition in 2013. Author's calculations based on the Gothenburg Educational Longitudinal Database (GOLD).

Relative to 1998, the difference between high- and low-saturation municipalities fluctuates around or below the baseline in the early years but is positive in all subject domains by 2017. English and Mathematics show the largest increases by the end of the period, followed by natural-science subjects. Social-science and practical-aesthetic subjects show smaller positive increases, while Swedish and Technology remain closest to their 1998 differences.

The year-to-year variation reflects the more demanding nested comparison used in this figure: a parental-education gap is estimated within each market

context, the low-saturation estimate is subtracted from the high-saturation estimate, and the corresponding 1998 difference is then removed. The figure should therefore be read as evidence of change in the relationship between social background and market context, not as a simple comparison of the absolute parental-education gaps in high- and low-saturation municipalities.

Taken together, Figures 8.1–8.5 show that the aggregate merit-rating signal has a clear subject-domain structure. The first pattern is compositional. Social-science and natural-science subjects are closely aligned with total final merit rating in compulsory school, while practical-aesthetic subjects are less closely aligned. This does not make practical-aesthetic subjects unimportant. It shows that their empirical relationship to the aggregate differs from that of more academically central domains.

The second pattern concerns grade growth. The strongest increases from the 1998 baseline are not evenly distributed across domains. Practical-aesthetic subjects, English, and Technology show particularly clear upward movement, while Swedish increases more moderately and Mathematics follows a more uneven trajectory. Aggregate merit-rating growth therefore cannot be treated as a uniform rise across the whole curriculum.

The third pattern concerns socioeconomic stratification. The parental-education gap widens across most subject domains, but English, Technology, Mathematics, and practical-aesthetic subjects stand out more clearly than Swedish. This distinction matters because Swedish remains closely connected to the total merit rating while showing a more limited increase in the parental-education gap. The subject's relationship to the aggregate and its socioeconomic differentiation are therefore related but not identical.

The fourth pattern concerns local school-market context. Grade differences between high- and low-saturation municipalities increase across subject domains, again unevenly. English and Technology show particularly visible increases, while several other domains cluster more closely together by the end of the period. Figure 8.5 adds that, relative to 1998, the high-minus-low saturation difference in the parental-education grade gap is positive in all subject domains by 2017. The increase is largest in English and Mathematics, followed by natural-science subjects, while Swedish and Technology show the smallest net changes. Family background and local market exposure therefore intersect within the subject-grade structure, but the magnitude and development of that intersection differ across the curriculum.

The descriptive contribution of these figures is not simply that subjects differ. They show where aggregate grade growth, socioeconomic differentiation, and market-context differences are most visible within the curriculum. English and Technology emerge as especially informative subjects across several comparisons,

while Mathematics and practical-aesthetic subjects also matter for specific parts of the pattern. Swedish, by contrast, appears more central to the aggregate than to the widening of socioeconomic and market-context differences. This subject-level structure is the empirical reason for moving beyond the total merit-rating index.

Up to this point, the chapter has treated subject-domain grades as components of the aggregate merit-rating signal and has examined how their distributions vary over time, by parental education, and by local market saturation. The next section adds a different kind of evidence. Using UGU data for one cohort, it compares final grades and national subject test scores in Swedish, English, and Mathematics. This provides a limited external benchmark for the core subjects before the chapter turns to observed–predicted subject-grade discrepancies in the SCB data for 2014–2022.

Grade–Test Alignment in Core Subjects: A Matched 2014 Cohort

The subject-domain figures above describe how grades move within the aggregate merit-rating signal. They show where grade growth, socioeconomic differentiation, and market-context differences are most visible across the curriculum. They do not, however, show how subject grades relate to a common performance reference. This section therefore uses the UGU 1998 cohort to examine grade–test alignment in Swedish, English, and Mathematics, the three core subjects for which linked national subject test scores and final grades are available.

The analysis has a limited but specific role in the chapter. It does not provide a full external validation of grades or a comprehensive measure of grade inflation. National tests in Sweden are not fully external examinations, since they are ordinarily assessed within the school context rather than through universal central marking. They nevertheless provide a shared assessment reference that is more standardized than final grades alone. For that reason, they are useful for asking whether final grades in the three core subjects covary with national test performance in broadly similar ways across municipal and independent schools.

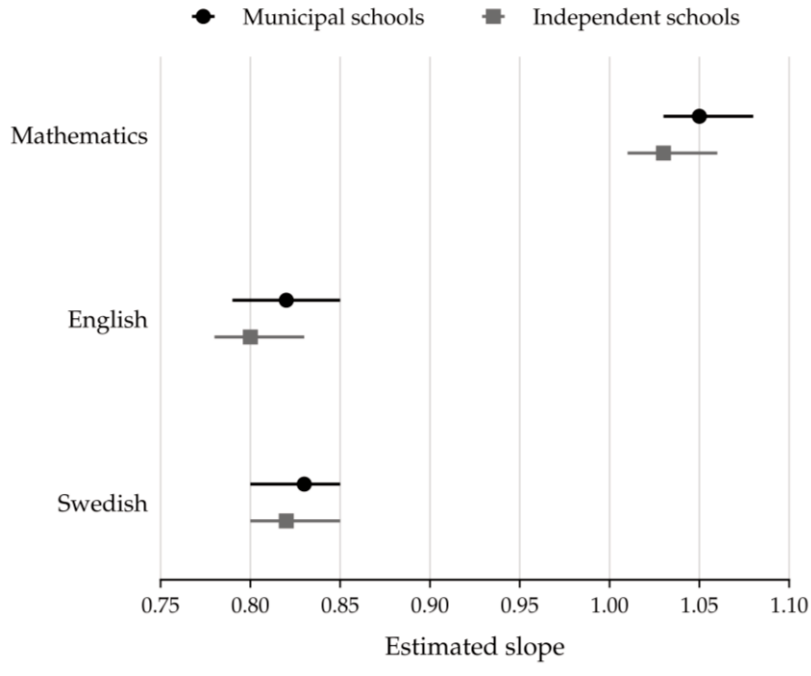
The cohort consists of students born in 1998 who completed compulsory school in 2014. To make the descriptive comparison less dependent on observed compositional differences between municipal and independent-school students, the analysis uses a matched sample. The matching creates a more comparable descriptive comparison of grade–test alignment among students who are similar on observed background characteristics.

Propensity scores were first estimated to capture each student's probability of attending an independent school based on gender and migration background.

Students attending independent schools were then matched to similar students attending municipal schools. Matching was restricted to students in the same parental-education category and with sufficiently similar propensity scores. A caliper of 0.05 means that matches were only accepted when the estimated probabilities of independent-school attendance differed by no more than 0.05 points. Here, the matching procedure is used to create more comparable groups for a descriptive comparison of grade–test alignment across school types. The propensity-score specification and matching equations are reported in Appendix A4, Equations A4.1 and A4.2, and balance diagnostics are reported in Appendix B, Table B1.

Figure 8.6 summarizes the main grade–test comparison. Each slope gives the estimated change in final subject grade associated with a one-unit increase in the corresponding national test score within a school sector. A steeper slope therefore means a larger grade change per test-score unit; it does not by itself establish a stronger correlation or closer alignment. The estimates are shown separately for Mathematics, English, and Swedish and for municipal and independent schools. Full regression estimates, including intercepts, confidence intervals, and p values, are reported in Appendix B, Table B2.

Figure 8.6
Estimated Slopes of Final Grades on National Test Scores by Subject and School Sector, Matched 2014 Cohort



Note. Points are slope estimates from subject-specific regressions of final grades on national test scores; horizontal lines are 95% confidence intervals. Municipal- and independent-school estimates are shown separately for Mathematics, English, and Swedish. The estimates reproduce the rounded results reported in Appendix B, Table B2 for the matched 1998 birth cohort observed at graduation in 2014. No formal tests of the between-sector slope differences are reported. Author's calculations based on Evaluation Through Follow-Up (UGU) data.

Figure 8.6 shows positive associations between national test scores and final grades in all three subjects and in both school sectors. The estimated slopes are close in magnitude across municipal and independent schools. They are 1.05 and 1.03 in Mathematics, 0.82 and 0.80 in English, and 0.83 and 0.82 in Swedish, respectively. The confidence intervals overlap substantially within each subject. The independent-school slopes are slightly lower in all three subjects, but the differences are small. The main result is therefore not a sharp sectoral difference in how national test performance translates into final grades, but a broadly similar grade–test relationship across municipal and independent schools in this matched cohort. This qualifies how the later observed–predicted subject-grade discrepancies should

be read. The matched-cohort evidence does not support a simple claim that grades in independent schools are detached from national test performance.

On the one hand, the point estimates show a consistent directional pattern: in all three subjects, the municipal-school slope is slightly steeper than the corresponding independent-school slope. On the other hand, the within-subject confidence intervals overlap substantially. Taken together, the estimates do not support strong conclusions about whether grade–test alignment differs between municipal and independent schools.

The matched-cohort results should therefore be read as a bounded validity check. They show that final grades in Swedish, English, and Mathematics remain positively associated with national test scores after matching on observed background characteristics. The comparison is limited to one cohort, three core subjects, and a test system that is not fully externally marked, so it does not speak directly to all subjects, years, provider groups, or forms of grade divergence.

For the broader chapter, this result matters in two ways. First, it prevents the subject-level argument from relying only on internal grade distributions. The matched-cohort analysis anchors the discussion in a comparison between final grades and a common test reference, even if that reference is imperfect. Second, it cautions against reading later observed–predicted subject-grade discrepancies as simple evidence that grades are detached from achievement.

The next section uses a different comparison logic. The matched-cohort analysis compares final grades with national test scores in three core subjects for one cohort. The Lgr11-period observed–predicted analysis instead compares selected observed subject grades with their predicted values after adjustment for measured student background and municipal context. This makes it broader in subjects, years, and provider categories, but it no longer uses national test scores as the benchmark.

Observed–Predicted Subject-Grade Discrepancies in the Lgr11 Period

The observed–predicted subject-grade analysis focuses on Mathematics, Swedish, English, History, Technology, and Music. The selection is guided by the preceding subject-domain figures and by the need to examine subjects with different relationships to the final merit rating. Mathematics, Swedish, and English are core subjects with particular institutional importance and national-test relevance. History represents the social-science domain, which is strongly associated with total merit rating. Technology is included because it appears repeatedly in the preceding figures as a subject with marked grade growth,

socioeconomic differentiation, and market-context differences. Music represents the practical-aesthetic subjects, which show strong grade growth and socioeconomic differentiation while occupying a different curricular and assessment position from the core academic subjects. The selection is therefore not intended to represent all subjects equally, but to examine a set of subjects that make the later discrepancy analysis analytically meaningful.

The analysis uses the 2014–2022 SCB extracts to compare observed subject grades with predicted subject grades after adjustment for measured student background and municipal context. This is not a repetition of the longitudinal subject-domain figures above. It is a Lgr11-period comparison of whether selected subject grades sit above or below common intake-based expectations in different ownership and provider contexts.

For each subject, the analysis first calculates the observed mean grade for each school and graduation year. The model then estimates the mean grade predicted from measured student background and municipal context using the specification in Appendix A6. The observed–predicted difference is the subject-grade discrepancy. Positive values indicate observed grades above predicted grades, and negative values indicate observed grades below predicted grades. The discrepancies are reported in subject-grade points and summarized as student-weighted group means by ownership category and selected provider group.

The resulting differences show whether subject grades are higher or lower than expected after accounting for measured student background and municipal context. These differences are then compared across ownership sectors and provider groups. This makes it possible to examine whether the aggregate grade divergence found in Chapter 7 also appears in particular subjects and whether the pattern differs between subjects or providers.

Subject-Grade Discrepancies by School Ownership

Table 8.1 first reports broad ownership categories: municipal schools, non-profit independent schools, and for-profit independent schools. This level is useful because it shows whether observed–predicted subject-grade discrepancies differ between the main institutional sectors before the independent sector is examined at a more disaggregated provider-group level. The table does not show raw mean grades. It shows how observed grades compare with predicted grades after adjustment for the included background and context variables.

Table 8.1
Differences Between Observed and Predicted Mean Grades by School Ownership, Pooled Data, 2014–2022

School Ownership	Math	Swedish	English	History	Technology	Music
Municipal Schools	-0.118	0.0965	-0.229	-0.106	-0.106	-0.127
Non-Profit Independent Schools	1.08	0.908	1.45	1.08	0.959	1.15
For-Profit Independent Schools	0.770	0.673	1.35	0.825	0.881	0.720
Total Population	0.0160	0.189	0.0244	0.0467	0.0398	0.0247

Note. Values are observed-minus-predicted mean subject-grade discrepancies, reported in subject-grade points. Positive values indicate observed grades above predicted grades; negative values indicate observed grades below predicted grades. The total population row is not a separate school category. It reports the pooled observed–predicted discrepancy for the analytical population under the same model and weighting procedure. The underlying 2014-2022 analytical population is described in Tables 5.3 and 7.3; the subject-specific analytic sample depends on valid grades for each subject. Author's calculations based on Statistics Sweden register extracts.

The ownership-level pattern is consistent in sign but not identical in magnitude. Municipal schools are close to the predicted level in all six subjects and are often slightly below it. The most negative municipal discrepancy is in English, at −0.229, followed by Music at −0.127 and Mathematics at −0.118. History and Technology are both −0.106. Swedish is the exception, with a small positive discrepancy of 0.0965. The municipal row therefore functions as a near-baseline reference in this subject-level framework, although it is not exactly zero in every subject.

Independent schools are positioned above predicted levels across all reported subjects. Non-profit independent schools show the largest positive discrepancies in the ownership-level table. Their discrepancies are positive in every subject: Mathematics 1.08, Swedish 0.908, English 1.45, History 1.08, Technology 0.959, and Music 1.15. English has the largest discrepancy, but the pattern is not confined to English. Within this adjustment framework, non-profit independent schools have observed mean subject grades that sit above predicted levels across the full set of reported subjects. The non-profit category should be interpreted cautiously because it includes schools with different pedagogical profiles and organizational models. The present analysis does not separate these profiles in the main table, and the non-profit row should therefore be read as an aggregate ownership category rather than as a homogeneous provider type.

For-profit independent schools also show positive discrepancies in every subject, although the ownership-level magnitudes are smaller than for non-profit independent schools. English again has the largest discrepancy, at 1.35, followed

by Technology at 0.881 and History at 0.825. Mathematics is 0.770, Music is 0.720, and Swedish is 0.673.

The more notable ownership-level result is that non-profit independent schools show larger positive subject-grade discrepancies than for-profit independent schools in all six reported subjects. This pattern was not specified as an a priori hypothesis and should therefore be interpreted as an empirical finding rather than as confirmation of an expected difference between the two ownership categories.

This finding qualifies the interpretation of Chapter 7 without contradicting it. Chapter 7 examined whether final merit ratings were higher or lower than expected and compared these patterns between municipal and for-profit independent schools within the same local school markets. Table 8.1 uses a subject-level observed–predicted framework and compares broad ownership categories across selected subjects. The two analyses therefore answer related but not identical questions. Chapter 7 showed stronger aggregate residual divergence in the for-profit sector. Table 8.1 shows that, at the subject level, positive discrepancies are visible in both non-profit and for-profit independent schools, and that the non-profit category is higher than the for-profit category in this ownership-level table.

English is the clearest subject-level ownership pattern. It has the largest positive discrepancy in both independent-school categories and the most negative discrepancy in municipal schools. This aligns with the earlier figures, where English was visible in grade growth, socioeconomic differentiation, and market-context differences.

Technology and History also show clear positive discrepancies in the independent-school categories, while Mathematics, Swedish, and Music remain positive but somewhat differently positioned across ownership groups. The table therefore does not point to one isolated subject. It suggests a broader pattern of positive subject-grade discrepancies in independent schools, with English as the most prominent case and with additional variation across the subject profile.

Subject-Grade Discrepancies by Provider Group

The ownership-level comparison may conceal heterogeneity within the independent sector. The next step therefore keeps the non-profit category and the aggregate for-profit category as reference points while also disaggregating the for-profit sector into selected major provider groups. This makes it possible to compare the broad non-profit and for-profit ownership pattern with provider-group variation inside the for-profit sector. As in Chapter 7, For-Profit Providers A–C refer to the three largest for-profit compulsory-school provider groups in

the analytical material. They are anonymized because of confidentiality restrictions, and provider-level sample sizes are not reported.

Table 8.2 applies the same observed–predicted framework to these provider groups. The interpretation of the values is unchanged. Positive values indicate that observed subject grades are above predicted subject grades after adjustment for measured student background and municipal context. The table should be read as a descriptive mapping of provider-patterned subject-grade discrepancies, not as a ranking of school quality.

Table 8.2

Differences Between Observed and Predicted Mean Grades by School Ownership Category and Selected Provider Groups, Pooled Data, 2014–2022

School Group	Math	Swedish	English	History	Technology	Music
Municipal Schools	-0.118	0.0965	-0.229	-0.106	-0.106	-0.127
Non-Profit Independent Schools	1.08	0.908	1.45	1.08	0.959	1.15
For-Profit Independent Schools	0.770	0.673	1.35	0.825	0.881	0.720
For-Profit Provider A	1.76	1.10	3.13	1.37	1.97	1.39
For-Profit Provider B	0.849	1.01	1.72	1.05	1.32	1.38
For-Profit Provider C	0.620	0.901	1.36	1.07	0.996	0.771
Total Population	0.0160	0.189	0.0244	0.0467	0.0398	0.0247

Note. Values are observed-minus-predicted mean subject-grade discrepancies, reported in subject-grade points. Positive values indicate observed grades above predicted grades; negative values indicate observed grades below predicted grades. Municipal schools, non-profit independent schools, and for-profit independent schools are included as ownership-level reference rows. For-Profit Providers A–C refer to the three largest for-profit compulsory-school provider groups in the analytical material. Provider groups are anonymized because of confidentiality restrictions. The total population row is not a separate school category. It reports the pooled observed–predicted discrepancy for the analytical population under the same model and weighting procedure. The underlying 2014-2022 analytical population is described in Tables 5.3 and 7.3; the subject-specific analytic sample depends on valid grades for each subject. Author's calculations based on Statistics Sweden register extracts.

Table 8.2 shows that the independent-school pattern is not uniform. Non-profit independent schools are positioned above predicted levels across all reported subjects, and so is the aggregate for-profit independent category. At the provider-group level, however, the for-profit sector is clearly differentiated. Provider A has the largest positive discrepancy in every reported subject, with especially large values in English, Technology, and Mathematics. Provider B is also positive across all subjects, but at lower levels than Provider A. Provider C displays smaller but still consistently positive discrepancies.

English is the most stable subject-level pattern across the independent-school rows. It is the largest positive discrepancy for non-profit independent schools, for-profit independent schools as an aggregate category, and all three selected for-profit provider groups. This is consistent with the earlier subject-domain figures, where English showed grade growth, socioeconomic differentiation, and market-context differences. Technology is also prominent, especially for Provider A and Provider B, while Swedish remains positive but less central to the strongest provider-patterned discrepancies.

The combined table qualifies a simple ownership-level interpretation. At the broad ownership level, the non-profit independent-school category shows larger positive discrepancies than the aggregate for-profit independent-school category in all six subjects. At the provider-group level, however, Provider A exceeds the non-profit ownership-level value in every reported subject, and Provider B exceeds it in several subjects. Provider C is closer to and generally below the values for the non-profit category. Neither the non-profit nor the for-profit independent sector should therefore be treated as homogeneous.

Taken together, Tables 8.1 and 8.2 show that observed–predicted subject-grade discrepancies are patterned by both ownership category and provider group. Municipal schools cluster close to predicted levels, while non-profit and for-profit independent schools are positive across all reported subjects. At the provider-group level, the for-profit sector is clearly heterogeneous, with Provider A displaying the largest discrepancies and Providers B and C showing smaller but still consistently positive values.

These tables do not identify the mechanisms behind the discrepancies. The patterns may reflect grading practices, unobserved student composition, school organization, local assessment cultures, peer effects, or other contextual features not captured by the model. The narrower but still relevant point is that the observed levels of the selected subject grades are not equally aligned with their predicted values across ownership categories and provider groups. This is the subject-grade counterpart to the aggregate residual divergence documented in Chapter 7.

The observed–predicted analysis connects the preceding parts of the chapter. The subject-domain figures showed that grade growth, socioeconomic differentiation, and market-context differences vary across the curriculum. The matched-cohort analysis showed that final grades and national test scores in the three core subjects remain positively related in one cohort. Tables 8.1 and 8.2 add that during the Lgr11 period, selected subject grades sit above or below intake-based expectations in provider-patterned ways. The chapter now turns to what these pieces of evidence imply for subject composition, validity, and comparability.

Summary and Discussion

This chapter addressed the dissertation's third research question: *How does the subject-domain composition of final merit rating in compulsory school vary over time, and how are subject-domain grade patterns related to socioeconomic background, local school-market saturation, grade–test alignment, and provider-patterned subject-grade discrepancies?*

The subject-domain analyses first showed that social-science and natural-science grades were most closely aligned with total final merit rating. Swedish, English, Mathematics, and Technology were also strongly related to the total, whereas practical-aesthetic subjects were less closely aligned. Subject domains therefore occupied different positions within the aggregate merit rating.

Between 1998 and 2017, baseline-standardized grades increased most clearly in practical-aesthetic subjects, English, and Technology. Swedish increased more moderately, while Mathematics followed a less even trajectory; social-science and natural-science subjects did not show the same degree of upward movement. Because the series crosses the transition from Lpo94 to Lgr11, these results describe changes in grade-based outcomes across grading regimes rather than psychometric change on an identical scale.

Socioeconomic and local school-market differences also varied across subjects. Parental-education gaps widened particularly in English and Technology, with substantial widening also in Mathematics and practical-aesthetic subjects, whereas Swedish was less prominent in this development. Differences between high- and low-saturation municipalities increased across subject domains. By 2017, the standardized parental-education gap had increased more since 1998 in high-saturation than in low-saturation contexts in every subject domain, although annual estimates fluctuated.

In the matched 1998 birth cohort graduating in 2014, national test scores in Swedish, English, and Mathematics were positively associated with final grades in both municipal and independent schools, with broadly similar grade–test slopes across school types. This comparison is limited to one cohort, three subjects, and a national test system that was not fully externally marked.

For 2014–2022, municipal schools clustered close to predicted subject-grade levels, whereas non-profit and for-profit independent schools showed positive discrepancies in all six subjects. At the broad ownership level, non-profit independent schools had larger positive discrepancies than the aggregate for-profit category in every subject. Within the for-profit sector, Provider A had the largest discrepancies in every reported subject. Provider B exceeded the non-profit ownership-level value in several subjects, whereas Provider C was generally closer to the non-profit level and tended to fall below it.

Across the analyses, English showed the most consistent subject-level pattern, combining strong grade growth, socioeconomic differentiation, market-context differences, and positive observed–predicted discrepancies. Technology was also prominent, while Mathematics, Swedish, and practical-aesthetic subjects contributed to more specific parts of the overall pattern.

The uneven subject trajectories extend earlier Swedish evidence that grade growth differed across subjects (Gustafsson & Yang Hansen, 2009). The present analyses add that these differences were also patterned by socioeconomic background and local school-market context. This matters for the interpretation of total final merit rating: changes in the aggregate measure can combine subject trajectories with different social and institutional patterns. The positive grade–test relationships in the matched 2014 cohort and the provider-patterned observed–predicted discrepancies in the later-period analyses also concern different aspects of comparability. The former describe how grades relate to test performance in three subjects, whereas the latter describe differences relative to intake-based expectations in six subjects. Their coexistence shows why a strong grade–test relationship alone cannot settle the broader question of comparability across provider contexts. This supports the emphasis in earlier Swedish assessment research on examining how nationally defined grading criteria operate within local institutional settings (Lundahl, 2006; Tholin, 2003).

Taken together, the results show that subject domains differ in their relationship to total final merit rating, longitudinal development, socioeconomic patterning, local school-market differentiation, grade–test alignment, and provider-patterned discrepancies. Chapter 9 considers these findings together with those of Chapters 6 and 7 and develops their theoretical and policy implications.

CHAPTER 9

Concluding Discussion on Grades as Stratified Institutional Signals

This concluding chapter brings together the dissertation's main arguments and empirical findings and develops their implications. It begins by returning to the problem addressed in the dissertation, the research questions, and the data, methods, and theoretical perspectives used to answer them. It then summarizes the empirical contributions of Chapters 6–8 and discusses how the findings relate to previous research and to the sociological framework developed earlier in the dissertation.

The final part of the chapter considers the policy implications of the findings, with particular attention to current attempts to strengthen grade comparability in Sweden. This discussion considers the grading reform adopted in 2026 following the government bill *Ett likvärdigt betygssystem* (Prop. 2025/26:197). The reform introduces national final tests and a new model for calculating merit values. Under the reform's calibration model, teacher-set grades are first calibrated against school-level performance on the national final tests, after which the calibrated grade value accounts for 70 percent of the merit value and the student's individual test result for 30 percent.

As part of this policy discussion, the chapter uses an illustrative simulation to examine how one of the dissertation's central empirical patterns would change under a set of assumptions inspired by the new grading reform. The chapter concludes by discussing limitations, directions for future research, and the broader implications of understanding grades as stratified institutional signals.

Point of Departure

Final grades in compulsory school have a central role in the Swedish education system. They summarize students' performance across subjects and determine their opportunities when applying to upper-secondary education. This makes comparability important. If students compete for the same educational places using grades produced in different schools and local contexts, similar grades need to carry reasonably similar meaning. Otherwise, selection may partly reflect the

conditions under which grades were produced rather than differences in demonstrated performance alone (Skolverket, 2010, 2012; SOU 2020:43).

This problem has become particularly relevant in a school system characterized by decentralized governance, school choice, and a growing independent-school sector. Swedish compulsory-school grades are assigned by teachers under national criteria, while schools operate in local contexts that differ in student composition, provider structure, and the practical extent of school choice. Previous research has also shown persistent socioeconomic differences in school outcomes, increasing between-school differentiation, and differences between grades and other indicators of student performance across schools and providers (Edmark & Persson, 2021; Gustafsson & Yang Hansen, 2018; Wikström & Wikström, 2005; Yang Hansen & Gustafsson, 2019). Grade comparability is therefore not only an assessment issue. It is also connected to how social and institutional differences are translated into educational credentials.

The underlying concern is that grades may remain strongly related to student performance while at the same time becoming differently patterned across social groups, schools, providers, and municipalities. Understanding such variation is necessary for assessing both the comparability of grades and the role they play in the reproduction of educational inequality. These concerns motivate the dissertation's aim and research questions.

This problem is translated into an aim and three empirical questions that address longitudinal change, local provider differences, and variation between school subjects.

Aim and Research Questions

The aim of the dissertation is to examine how socioeconomic background and local school-market context are associated with final merit ratings in compulsory school in Sweden between 1998 and 2022. More specifically, the dissertation examines longitudinal socioeconomic patterns in merit ratings, differences between school providers within local school markets, and the subject-domain structure of the aggregate merit-rating signal.

The dissertation addresses three research questions. First, how did the longitudinal relationships between final merit ratings in compulsory school, parental education, municipal median income, school-market saturation, and independent-school attendance develop in Sweden between 1998 and 2020? Second, to what extent do more marketized municipalities exhibit greater grade divergence between municipal and for-profit independent schools, and is the grade advantage associated with students from more socioeconomically advantaged backgrounds larger where such divergence is greater? Third, how does

the subject-domain composition of final merit rating in compulsory school vary over time, and how are subject-domain grade patterns related to socioeconomic background, local school-market saturation, grade–test alignment, and provider-patterned subject-grade discrepancies?

Together, the questions move from longitudinal patterns in merit ratings to local provider differences and, finally, to variation between school subjects. Answering these questions requires complementary data sources and analytical strategies.

Data, Methods, and Theoretical Approach

The empirical analyses draw on three complementary sources of Swedish register and register-linked data. The Gothenburg Educational Longitudinal Database (GOLD) provides the main longitudinal material and covers students completing compulsory school between 1998 and 2020. It contains final merit ratings, subject grades, parental education, demographic information, school identifiers, and municipality codes. Custom register extracts from Statistics Sweden cover students completing compulsory school between 2014 and 2022 and provide more detailed information on parental education, household income, school providers, and municipal context. The Evaluation Through Follow-Up (UGU) database is used for the cohort born in 1998 and observed in grade 9 in 2014. For this cohort, final subject grades can be compared with national test scores in Swedish, English, and Mathematics. The three data sources are used for different but connected purposes because no single source contains the information required for all three research questions.

The empirical strategy follows the sequence of the research questions. Chapter 6 uses descriptive statistics and year-by-year correlations to trace changes in merit ratings and their relationships with parental education, municipal income, independent-school attendance, and the local share of students attending independent schools between 1998 and 2020. Chapter 7 uses Statistics Sweden data for 2014–2022 to estimate model-predicted merit ratings for each school and graduation year from measured student composition and local context. Grade divergence is defined as the observed mean minus the predicted mean and is used to compare municipal and for-profit independent schools within the same municipality and graduation year. Student-level fixed-effects models then examine whether the high-SES merit-rating advantage is larger where the local sector gap is greater.

Chapter 8 combines three types of subject-level comparison. GOLD is used to examine how grades in different school subjects changed over time and how these patterns varied with socioeconomic background and local school-market context. UGU is used for a propensity-score-matched comparison of final grades

and national test scores in the three core subjects. Finally, the Statistics Sweden data are used to compare observed subject grades with grades predicted from measured student intake and municipal context across school sectors and provider groups during the Lgr11 period. These methods provide complementary descriptive and associative comparisons. Matching, fixed effects, and intake-based prediction make the comparisons more informative by accounting for measured differences between students and contexts.

The empirical findings are interpreted through three complementary sociological perspectives. A class and stratification perspective is used to understand how family resources, particularly parental education and income, are translated into educational credentials. A political-economy and economic-sociology perspective is used to interpret how school choice, provider competition, and institutional incentives may shape the production and value of grades. A spatial perspective focuses on how these processes are unevenly organized across municipalities through residential patterns, school choice, provider structures, and segregation.

These perspectives provide complementary lenses for interpreting the empirical findings. Together, they make it possible to examine grades not only as measures of student performance, but also as credentials produced within socially and institutionally differentiated contexts.

Against this background, the discussion now considers how the three empirical chapters extend existing research on socioeconomic gradients, provider structure, and the spatial and subject-specific patterning of grades.

Empirical Contributions in Relation to Previous Research

The findings are discussed in relation to three strands of research reviewed in Chapter 3. The first concerns socioeconomic gradients in grades and achievement. The second concerns school choice, provider structure, and grading. The third concerns segregation, geography, and school composition. These strands overlap in the Swedish school system because students, schools, and grades are shaped within the same local institutional settings. The contribution of the dissertation is to show how these established lines of research intersect within the same empirical setting.

Socioeconomic Gradients in Achievement and Grades

A robust finding in international and Swedish research is that socioeconomic background remains strongly associated with educational outcomes, including

grades, test performance, and later educational transitions. Parental education is particularly useful in register-based research because it is stable and closely linked to families' educational resources and familiarity with the education system (Coleman et al., 1966; Hattie, 2023; Sirin, 2005). Swedish studies have also shown persistent and, in several accounts, strengthening socioeconomic differences in school outcomes alongside growing between-school differentiation and segregation (Böhlmark et al., 2015; Gustafsson & Yang Hansen, 2018; Skolverket, 2025; Yang Hansen & Gustafsson, 2016, 2019).

Chapter 6 supports this established pattern and extends it in two ways. First, it follows the relationship between parental education and final merit ratings in compulsory school from 1998 to 2020, a period spanning both Lpo94 and Lgr11. The analysis therefore does not treat the period as a single unchanged grading regime. Instead, it shows that the association between parental education and the grade-based selection measure used for entry to upper-secondary education strengthened across the period. Mean final merit ratings also increased over the period. Because the series spans two grading regimes, this increase should be interpreted as change in a grade-based selection measure rather than as evidence of rising underlying achievement.

Second, the strength of this association varies by municipal context. The parental-education gradient is strongest in municipalities where a larger share of students attend independent schools and weaker where independent-school attendance is limited or absent. Municipal median income also becomes more closely associated with merit ratings over time. Individual independent-school attendance and the municipal independent-school share likewise became more strongly associated with merit ratings over time, although the associations remained modest. Together, these results indicate that socioeconomic differences in grades are related not only to family background but also to the local socioeconomic and institutional contexts in which schooling takes place.

The contribution is therefore more specific than showing that socioeconomic background matters. The dissertation extends earlier Swedish work by following the gradient into the later Lgr11 period and by examining it together with local school-market context. The results show that the relationship between socioeconomic background and merit ratings is spatially and institutionally uneven.

School Choice, Provider Structure, and Grading

A second strand of research concerns school choice, provider structure, and grading. International research on voucher, charter, and private-provider systems has shown that apparent provider advantages are often sensitive to student composition and that market-oriented reforms may increase sorting without

producing clear gains in underlying achievement (Austin et al., 2019; Epple et al., 2017; Larsen et al., 2023; Lubienski & Lubienski, 2006). Swedish research has raised a related concern about the stability of the grade signal. Some studies document divergence between grades and external anchors or later educational performance (Cliffordson, 2004; Petersson et al., 2025; Vlachos, 2010; Wikström & Wikström, 2005), while provider-focused studies have found more lenient grading patterns in independent schools in particular settings (Edmark & Persson, 2021; Tyrefors Hinnerich & Vlachos, 2016).

Chapter 7 extends this research by examining provider differences within municipalities and graduation years rather than only as national sector averages. Observed merit ratings are compared with model-predicted levels based on measured student composition and municipal context. For-profit independent schools generally show more positive grade divergence than municipal schools, although the size of the difference varies considerably across municipalities and provider groups. The annual average for-profit-minus-municipal local sector gap was positive in every year from 2014 to 2022. This adds a local dimension to earlier Swedish research and also shows that meaningful variation exists within the independent-school sector.

Chapter 7 also connects research on grading with research on socioeconomic stratification. Municipalities and years with larger grade differences between for-profit independent and municipal schools also show larger merit-rating advantages associated with high SES. The first pattern raises questions about grade comparability across provider contexts. Its association with socioeconomic background also gives the pattern an equity dimension because the differences are not distributed evenly across social groups. The analysis documents how provider structure, grade divergence, and socioeconomic advantage are related within the same local institutional settings. However, the mechanisms behind these relationships remain open.

Segregation, Geography, and School Composition

A third strand of research concerns segregation, geography, and school composition. International studies of school choice and voucher systems have shown that expanded choice is often associated with greater between-school sorting, particularly when families differ in resources, information, residential options, and their ability to navigate choice systems (Epple et al., 2017; Hsieh & Urquiola, 2006; Jheng et al., 2022; Monarrez et al., 2022; Zancajo, 2019). Swedish research similarly shows increasing between-school differences, more socially homogeneous school intakes, and uneven local opportunity structures associated with school choice and provider diversification (Böhlmark et al., 2015;

Brandén & Bygren, 2022; Fjellman, 2019a, 2019b; Fjellman & Yang Hansen, 2025; Forsberg, 2015; Lundahl et al., 2013; Östh et al., 2013; Yang Hansen & Gustafsson, 2019).

Chapter 6 connects this literature to grade outcomes at the municipal level. Municipalities with larger independent-school shares differ from municipalities with little or no independent-school attendance in several respects. They tend to differ in parental education, municipal income, population density, and demographic composition. The socioeconomic patterns in merit ratings therefore develop within local contexts that differ both socially and institutionally. This supports treating municipal context as part of the environment in which grades are produced and used for selection.

Chapter 7 adds evidence that grade differences between providers also vary geographically. For-profit independent schools generally have higher merit ratings relative to expected levels than municipal schools, but the size of this difference varies considerably between municipalities. The findings therefore add a grading dimension to research on uneven local school markets. Marketization varies across places through differences in provider structure, student composition, and the distribution of students between schools and sectors.

Chapter 8 adds a different form of differentiation. Merit rating is an aggregate of grades from several school subjects, and the analyses show that these subjects do not follow identical patterns. Social-science and natural-science subjects are closely aligned with the aggregate merit rating, whereas practical-aesthetic subjects are less closely aligned but show strong grade growth and socioeconomic differentiation. English and Technology stand out across several comparisons, including grade growth, socioeconomic differentiation, and local market-context differences. Mathematics is prominent in parts of the socioeconomic pattern. Swedish remains closely related to total merit rating but is less prominent in the strongest socioeconomic and local school-market differences. The same total merit rating can therefore be produced through different combinations of subject grades.

The analyses of Swedish, English, and Mathematics also connect these findings to research on grading validity. In the matched 2014 cohort, final grades and national test scores are positively related, with broadly similar relationships in municipal and independent schools. For 2014–2022, comparisons between observed subject grades and levels predicted from measured student composition and local context also show differences across ownership sectors and provider groups. These results are compatible but analytically distinct: the matched-cohort analysis concerns grade–test relationships, whereas the 2014–2022 analysis concerns subject-grade levels relative to intake-based predictions across institutional contexts.

Sociological Interpretation of the Findings

Taken together, the three empirical chapters establish a common pattern across analytical levels. Final grades in compulsory school remain linked to demonstrated performance while also being systematically patterned by socioeconomic background, local market context, provider structure, and subject composition. This combined pattern gives concrete form to the Chapter 4 conception of grades as institutionally produced signals that operate as both evaluative judgments and allocative credentials.

This section interprets the findings through three theoretical perspectives developed in Chapter 4. The first concerns class relations and the conversion of family resources into educational credentials. The second concerns how market organization, institutional incentives, and performance pressures can shape the production and value of grades. The third concerns spatial sorting and the unequal local conditions under which students and schools operate. Together, these perspectives help explain why the empirical patterns are sociologically connected. Grades remain linked to student performance, but they are also produced within social and institutional contexts that differ between students, schools, providers, and municipalities.

Class Analysis, Credentials, and Resource Conversion

A class-analytic perspective treats parental education and household resources as empirical traces of families' positions in class relations and of their differential capacity to secure advantageous life chances (Wright, 1997, 2015). In the classic sociology of education, grades and credentials are central to social allocation. They distribute access to further education and later positions, and they legitimize that distribution by presenting outcomes as earned, comparable, and formally individual (Bowles & Gintis, 1976; Collins, 1979). From this standpoint, the strengthening of the SES–merit rating gradient in Chapter 6 is not only a descriptive trend. It is evidence that the conversion of family resources into grade-based credentials has become more pronounced during the period studied.

This interpretation does not require reducing grades to class reproduction alone. Students learn, teachers assess, and grades remain linked to demonstrated performance. The point is more specific: the relationship between demonstrated performance and credentialed advantage is mediated by resources that are unequally distributed. Coleman's emphasis on family resources and social capital is useful here because it highlights how advantage is produced through information, expectations, norms, and institutional familiarity, not only through income or measured ability (Coleman, 1988). These resources matter especially in systems

where families must navigate differentiated school options, interpret institutional signals, and make strategic decisions about schools and educational pathways.

The analyses in Chapter 6 show how this interpretation relates to the empirical findings. The association between parental education and final merit ratings in compulsory school is present throughout the period studied, but it is stronger in municipalities where a larger share of students attend independent schools. This pattern is consistent with the idea that family resources may become more consequential where families face more differentiated school options and where information, mobility, and institutional familiarity have greater practical value. The analysis does not identify this mechanism directly, but it shows that the relationship between socioeconomic background and grades varies across local institutional contexts.

Chapter 7 adds a second dimension. The merit-rating advantage associated with high SES is larger in municipalities and years where the for-profit-minus-municipal local sector gap is larger. This connects socioeconomic advantage to local differences between provider sectors. The finding documents an empirical relationship between socioeconomic advantage and local grade divergence within the same school markets without specifying whether it reflects strategic action by high-SES students, provider-level processes, or other mechanisms.

Chapter 8 further shows that the relationship between social background and grades varies across subjects. This extends the class-analytic interpretation from the aggregate merit rating to its subject-level components without treating the subject analyses as estimates of independent contribution. The practical-aesthetic subject group shows strong grade growth and socioeconomic differentiation. Swedish remains closely related to the total merit rating but is less prominent in the strongest socioeconomic and local school-market differences. The conversion of family resources into grade-based advantage is therefore expressed not only through the total merit rating but also through differences between the subjects that contribute to it.

The class-analytic contribution is therefore more specific than showing that students from advantaged backgrounds receive higher grades. That relationship is already well established. The dissertation shows that the relationship between socioeconomic resources and grade-based advantage varies over time, across municipalities and provider contexts, and between school subjects. For research on educational stratification, this means that grades can be understood as credentials whose social value is shaped by the institutional settings in which they are produced and used for selection.

Political Economy, Performativity, and the Grading Signal

A political-economy perspective focuses on the institutional rules and incentives that shape how organizations operate. Swedish compulsory schooling is publicly funded and nationally regulated, but it is also organized through municipal responsibility, vouchers, parental choice, and competing providers. Competition therefore operates within a legal and publicly financed institutional framework (Aspers, 2011; Polanyi, 1944/2001; Swedberg, 2005).

Grades have two functions within this system. They are pedagogical judgments based on curricula, assessment practices, and teachers' professional responsibilities. They also function as organizational signals because they affect admissions and contribute to how schools are evaluated by families and other actors. Ball's concept of performativity helps explain why this matters. Organizations can become increasingly oriented toward visible indicators when those indicators affect evaluation, demand, and organizational standing (Ball, 2003). Grades are one such indicator.

The findings in Chapter 7 are consistent with this interpretation. For-profit independent schools generally show more positive grade divergence than municipal schools, although the size of the difference varies across municipalities and provider groups. This variation suggests that ownership alone does not capture the relevant institutional differences. Provider organization and local position also matter.

Chapter 8 adds a similar pattern at the subject level. Both non-profit and for-profit independent schools show positive observed–predicted subject-grade discrepancies in the subjects examined, but their magnitude varies across providers and subjects. Provider A shows the largest discrepancies across the reported subjects, while observed–predicted subject-grade discrepancies in English are especially large among independent schools. Provider-related differences are therefore visible both in the aggregate merit rating and in individual subject grades.

These patterns do not show that schools strategically raise grades in response to competition. Differences between observed and predicted grades may reflect instructional organization, unobserved student characteristics, peer effects, assessment culture, or provider-specific routines. Their systematic variation across provider groups and local contexts is nevertheless sociologically relevant. Grades are produced under institutionally diverse conditions, even when schools apply the same national grading criteria.

Polanyi's concept of embedded markets provides a broader interpretation of this pattern. Markets do not operate independently of social and political institutions. They are organized through rules, public institutions, and established social relations (Polanyi, 1944/2001). Swedish schooling illustrates

this principle. Competition and choice operate within a publicly funded and regulated system, and grades remain pedagogical judgments while also carrying reputational and allocative value. The findings are consistent with the view that the meaning and distribution of grades can therefore be shaped by the institutional settings in which they are produced.

Spatial Perspectives, Sorting, and Local Opportunity Structures

The third perspective focuses on space and local context. Educational inequality is distributed not only between individuals and organizations but also between places. Spatial research shows that access to resources, institutions, and opportunities varies geographically (Harvey, 1973, 2006; Massey, 1994; Massey & Denton, 1993). Municipalities are particularly relevant in the Swedish school system because they are both administrative units and local school-market contexts. They differ in socioeconomic composition, population density, provider structure, demographic characteristics, and the extent to which school choice is available in practice.

Chapter 6 shows that these local differences are related to the socioeconomic patterning of grades. Municipalities where a larger share of students attend independent schools also differ from municipalities with little or no independent-school attendance in parental education, municipal income, demographic composition, and population density. The association between parental education and merit ratings is stronger in the former group. Local market exposure should therefore be understood as part of a broader geographic and socioeconomic context rather than as an isolated characteristic of municipalities.

The segregation perspective developed in Chapter 4 helps clarify why this matters. Students and social groups are unevenly distributed between schools, providers, and municipalities, which means that opportunities and institutional conditions also vary across local settings (Massey & Denton, 1993). Chapter 7 adds a grading dimension to this pattern. In 71 of the 84 included municipalities (84.5%), the pooled for-profit-minus-municipal residual gap was positive, and these municipalities accounted for 91.0% of students in the included municipalities. The pattern was therefore spatially widespread rather than confined to a few local school markets, although the magnitude of the gap varied substantially between municipalities and did not increase consistently with the degree of marketization. This combination of prevalence and local variation means that provider sector cannot be separated from the spatial organization of grade divergence, while the magnitude of the pattern must be interpreted in relation to the particular provider landscape and municipal context. Local inequality therefore concerns not only how students are distributed between

schools but also how selection-relevant grade signals are distributed across institutional segments within the same local school market.

Chapter 8 adds differences between school subjects to this spatial interpretation. Grade growth, socioeconomic differentiation, and provider-related differences are not equally pronounced across subjects. English and Technology are prominent across several comparisons, while Mathematics and the practical-aesthetic subject group are important in more specific parts of the pattern. This suggests that local and organizational conditions may be related not only to total merit ratings but also to the subject grades from which those merit ratings are constructed.

The spatial contribution is therefore that local school markets are part of the institutional context in which educational inequality takes form. Students enter a national selection system with grades produced under the same formal grading framework, but the local settings in which those grades are produced differ in student composition, provider structure, resources, and patterns of school choice. A spatial perspective connects these local differences to the broader questions of socioeconomic stratification and grade comparability.

Integrated Interpretation of Class, Markets, and Space

Taken together, the three theoretical perspectives describe the findings as parts of the same institutional process. Family resources shape students' opportunities to convert social and educational resources into credentials. Provider structure shapes the organizational conditions under which grades are produced. Municipal context shapes local competition, sorting, and opportunities for school choice. Differences between school subjects show that these processes are also reflected unevenly within the aggregate merit rating.

This integrated interpretation explains why the dissertation treats grades as stratified institutional signals. Grades are linked to assessed performance, based on formal criteria, and used in consequential educational decisions. Their distribution and comparability are also associated with the social resources students bring, the organizations that assign grades, the local contexts in which schools operate, and differences between school subjects.

Educational inequality can develop through two related processes. Learning opportunities can be distributed unequally, producing differences in achievement. The grades used to represent achievement can also vary across contexts in ways that affect comparability and the distribution of educational advantage. The empirical analyses cannot fully separate these processes. They show that both need to be considered when grades are used for selection.

This interpretation leads to the policy discussion. If grade comparability depends partly on the institutional conditions under which grades are produced, reforms cannot address only the formal grading scale or individual teacher judgment. They must also consider how assessment and selection operate across schools, providers, municipalities, and different student populations.

Policy Implications and Reform Options

The empirical findings motivate a policy discussion, but they do not determine one specific reform. Grades have a dual role in the Swedish school system. They represent demonstrated performance and are used to allocate educational opportunities. Their comparability therefore depends both on grading practice and on the institutional arrangements through which grades are produced and used for selection. Concerns about grade comparability, grade inflation, and differences between grades and national test results have also been documented in Swedish research and public inquiries (Riksrevisionen, 2022; Skolverket, 2019, 2020a; Tyrefors Hinnerich & Vlachos, 2016; Vlachos, 2010; Wikström & Wikström, 2005).

The discussion below considers four policy questions raised by the findings. These concern external anchoring of grades, equity in grade-based selection, provider incentives and state capacity, and the relationship between calibration and broader institutional reform. The purpose is to identify the policy implications of the empirical results, not to specify a complete reform model.

Restoring Comparability and Anchoring the Grading Signal

A first policy question concerns the relationship between teacher judgment, national criteria, external assessment, and moderation. In a criterion-referenced grading system, national criteria alone cannot guarantee comparability. Their application must also be sufficiently consistent across schools and local contexts. Swedish audits and research have repeatedly identified persistent differences between grades and external assessment measures, which makes comparability a system-level governance issue rather than only a question of individual teacher judgment (Riksrevisionen, 2022; Tyrefors Hinnerich & Vlachos, 2016; Vlachos, 2010).

The findings in this dissertation reinforce that concern. Chapter 6 shows that merit ratings became more closely associated with socioeconomic background and municipal context over time. Chapter 7 shows that observed merit ratings relative to model-predicted levels differ between provider sectors and across municipalities. Chapter 8 shows that grade growth, socioeconomic

differentiation, and observed–predicted subject-grade discrepancies vary across subjects and provider groups. Taken together, the findings raise concerns about the stability of grade comparability across social and institutional contexts.

One policy response is stronger external anchoring. Possible mechanisms include centrally assessed national final tests, clearer limits on differences between teacher-set grades and external results, stronger moderation routines, and calibration models that make systematic school-level differences visible. The dissertation does not establish which design is preferable. It supports the more limited conclusion that a high-stakes selection system based on grades requires shared reference points that operate across schools and providers.

External anchoring does not require replacing teacher judgment. Teacher assessment can draw on a broader body of student work than a single test result and remains embedded in curriculum-based assessment. National tests can instead provide a common reference point within that broader assessment process (SOU 2020:43). The policy question is therefore how professional judgment and external anchoring can be combined in a way that improves comparability while retaining information from teachers' broader assessment of student performance.

Chapter 8 also cautions against treating stronger anchoring as a complete solution. In the matched cohort, final grades and national test scores in Swedish, English, and Mathematics are positively related. Grades are therefore not detached from measured performance. The problem is that grade levels can remain systematically different across institutional contexts even when grades and tests are closely related. Stronger external anchoring may reduce such differences, but it cannot by itself remove unequal learning conditions, student sorting, or differences between local school markets.

The policy conclusion is therefore limited. The findings support a stronger common anchoring of grades, but they do not show that external anchoring alone can secure either grade comparability or educational equity.

Admissions-Stage Contextual Compensation

A second policy question concerns equity in grade-based selection. More comparable grades can make selection fairer in the sense that the same grade carries a more similar meaning across schools. They cannot remove inequalities in the conditions under which students acquire those grades. Chapter 7 illustrates this distinction. The merit-rating advantage associated with high SES is larger in municipalities and years where the difference between for-profit independent and municipal schools is larger. Grade comparability and socioeconomic equity are therefore related but distinct problems.

The 2026 grading reform already addresses part of the first problem. Its calibration model is intended to reduce systematic differences between schools, while national final tests add an external component to the merit rating (Prop. 2025/26:197; SOU 2025:18). The reform does not, however, compensate students for differences in socioeconomic background or local opportunity structures. That raises a separate policy question about whether contextual conditions should be considered when grades are used for selection.

One possibility would be to incorporate contextual information directly into the value assigned to grades. This would recognize that students are educated under unequal conditions, but it would also change what the grade represents. A grade would no longer report only assessed performance. It would also include a redistributive adjustment. Keeping these functions separate has an important conceptual advantage. Grades can remain measures of assessed performance while admissions rules address inequalities in the conditions under which that performance was achieved.

Contextual compensation at the admissions stage provides one example. In the United States, percent plans and local guarantee schemes allocate access partly according to school context without redefining individual grades. The Texas Top 10% plan broadened access across high schools, although it did not eliminate inequalities in preparation (Niu & Tienda, 2010). The Swedish institutional context is different, and such models cannot be transferred directly. The example nevertheless illustrates how selection rules can take context into account while leaving the meaning of individual grades unchanged.

The dissertation does not establish whether Sweden should adopt such a model. Legal feasibility, legitimacy, transparency, and the choice of relevant contextual units would require separate analysis. The narrower implication is that greater grade comparability does not by itself resolve socioeconomic inequality in grade-based selection. Calibration and contextual compensation address different parts of the problem.

Incentives, Value Extraction, and State Capacity

A third policy question concerns the institutional incentives under which grades are produced. Research on school choice and provider competition shows that competitive environments can affect organizational behavior and the use of visible performance indicators even without explicit misconduct (Austin et al., 2019; Lubienski & Lubienski, 2006). This is relevant to the dissertation because grade differences vary across local school markets, ownership sectors, and provider groups.

These differences should be interpreted cautiously. Higher grades relative to expected levels may reflect assessment practices, instructional organization, peer composition, unobserved differences in student intake, school culture, or other factors not captured by the models. The analyses cannot distinguish between these mechanisms. Their policy relevance lies instead in the persistence and systematic distribution of the differences across institutional contexts.

Provider incentives are relevant because student demand affects organizational viability in a voucher-funded school system. Schools also operate in an environment where grades can influence reputation and perceived performance (Lundahl et al., 2013; Wikström & Wikström, 2005). This creates a governance problem when the same grades are used for high-stakes selection. National grading criteria operate within organizations that differ in ownership, incentives, resources, and local market position.

The issue is especially relevant for for-profit providers because their organizational structure also allows financial returns to owners. The dissertation examines grading patterns across provider groups. Profit extraction and the role of ownership in the observed differences lie outside its scope. Chapters 7 and 8 nevertheless show substantial variation between providers, including some of the largest differences among particular for-profit provider groups. This makes provider governance, transparency, calibration, and oversight relevant to the discussion. Recent Swedish policy proposals have likewise addressed ownership, establishment, transparency, and provider responsibility in the independent-school sector (SOU 2025:37).

State capacity is therefore part of the same problem. National grading rules require administrative capacity to identify systematic differences, support moderation, monitor providers, and respond when comparability is weak. This is particularly important in a decentralized school system where municipalities differ in socioeconomic composition, resources, provider structure, and the extent to which school choice is available in practice. The findings show that grade differences are unevenly distributed across local contexts. Governance therefore needs to account for this variation rather than assume that the same formal rules produce the same conditions everywhere.

From Signal Calibration to Institutional Redesign

The policy implications operate at different institutional levels. Stronger external assessment, moderation, and calibration address the comparability of grades. Changes to selection rules address how grades are used to allocate educational opportunities. Provider regulation, compensatory resources, and stronger public

oversight address some of the organizational and local conditions under which grades are produced.

These approaches address different parts of the problem. Calibration may improve comparability while leaving socioeconomic sorting and provider incentives largely unchanged. Context-sensitive selection rules may address distributive inequalities without changing how grades are produced. Provider regulation and compensatory measures may alter institutional conditions without fully resolving differences in grading practice. The relevant policy question is therefore how reforms at these levels interact.

The dissertation does not provide a blueprint for institutional redesign. Its contribution is to show why grade comparability cannot be separated from the social and organizational conditions surrounding grading and selection. Grades remain measures of demonstrated performance, but they also operate within a system shaped by socioeconomic inequality, provider structure, and local school-market conditions. This provides the basis for assessing the grading reform introduced in Sweden in 2026.

The 2026 Swedish Grading Reform and the Limits of Calibration

The completion of this dissertation coincides with a major reform of the Swedish grading system. Following the parliamentary decision in June 2026, a new grading system is scheduled to be introduced from 2028. The reform includes a ten-step grading scale, centrally assessed national final tests, and a revised model for calculating merit ratings used for selection to further education. It responds to long-standing concerns about grade comparability, grade inflation, and differences between teacher-set grades and national test results (Prop. 2025/26:197; Regeringen, 2026; SOU 2025:18). These concerns are directly relevant to the empirical problems examined in this dissertation.

The reform can therefore be considered in relation to the dissertation's findings, but its effects cannot be predicted from these analyses. Changes to the grading scale, external assessment, and merit-rating calculation may alter some of the differences documented in Chapters 6–8. They may also leave other social, organizational, and local differences largely unchanged. Rather than constituting a separate empirical contribution, the simulation is used here to bring the dissertation's findings into dialogue with the newly adopted grading reform. It asks how one of the central patterns documented in Chapter 7 would change under a simplified set of assumptions inspired by the reform's calibration logic. The following sections first describe the reform architecture and the simulations

already presented in SOU 2025:18 and then introduce a narrower illustrative simulation based on simplified assumptions and focused on municipality-specific sector gaps.

The Reform Architecture and Its Stated Aims

The 2026 reform has three elements of direct relevance to this dissertation. The existing grading scale is replaced by a ten-step scale from 1 to 10 without a sharp pass or fail boundary in the grading scale itself. National final tests are introduced and centrally assessed. The merit rating used for selection is also redesigned to combine a calibrated value based on teacher-set grades with a component based on national final test results (Regeringen, 2026; SOU 2025:18).

Teacher-set grades therefore remain central to the new system. In the two-component model, the calibrated grade value accounts for 70 percent of the final merit rating and the national final test component accounts for 30 percent (Prop. 2025/26:197; SOU 2025:18). The calibration of teacher-set grades is intended to reduce systematic differences between schools. The national final test component provides an additional external reference at the student level.

This architecture directly addresses the dissertation's concern with grade comparability. It combines teacher assessment with school-level calibration and centrally assessed external evidence rather than relying on national grading criteria alone. At the same time, the reform changes how grades are calibrated and used for selection rather than the broader social and institutional conditions under which schooling takes place. The next section presents an illustrative simulation in which the observed local sector gaps are reduced by the same percentage.

Illustrative Simulation of Sectoral Grade Divergence

SOU 2025:18 already presents simulations of the proposed merit-value calibration model, including average changes for municipal and independent schools (see Appendix 3 of SOU 2025:18). These simulations do not, however, examine how the municipality-specific Grade Divergence measure used in this dissertation—that is, the within-municipality gap between for-profit independent and municipal schools—would change. The simulation below addresses this narrower question under a simplified proportional-compression assumption. It should therefore be read as an illustrative simulation rather than as a replication of the official simulations or an estimate of the reform's effects.

The pooled local sector gaps in Appendix C are first rescaled from the 0-320 merit-value scale to a 1-10 metric. Because the quantity is a difference between sectors, the additive part of the scale transformation cancels and each gap is

multiplied by 9/320. The scenario then combines the national-final-test weight of 0.30 with an illustrative parameter of 0.35 derived from published reassessment evidence (Skolinspektionen, 2018a). This yields a uniform proportional compression of 10.5 percent, so that 89.5 percent of each rescaled gap remains.

This calculation is applied identically to all 84 municipalities. It does not reproduce the reform's school-specific calibration of both mean levels and dispersion, and it does not incorporate behavioral responses by schools, teachers, students, or providers. It therefore illustrates the robustness of the observed pattern to one proportional adjustment rather than estimating the reform's effect.

Table 9.1

Illustrative Simulation of Proportional Compression in the Pooled Sector Gap (2014–2022)

Outcome	Baseline	Illustrative simulation	Difference (Scenario – Baseline)
Mean Pooled Sector Gap	0.192	0.172	−0.020
Student-Weighted Mean Pooled Sector Gap	0.227	0.203	−0.024
Share of Municipalities with Gap > 0	0.845	0.845	—
Student-Weighted Share with Gap > 0	0.910	0.910	—
Number of Municipalities	84	84	—

Note. The table presents an illustrative simulation, not an estimate or forecast of the 2026 grading reform. Observed 2014-2022 sector gaps are rescaled from the 0-320 metric to a 1-10 metric and then subjected to a uniform 10.5% proportional compression. SOU 2025:18, Appendix 3, already presents simulations of the proposed merit-value calibration model, including average changes for municipal and independent schools; those simulations do not examine changes in the municipality-specific Grade Divergence measure used here. The table therefore does not replicate the official simulations or the full school-specific calibration model. Negative values in the final column indicate reductions from the baseline. Author's calculations based on Statistics Sweden register extracts and the scenario assumptions described in Appendix A7.

Because the same proportional rule is applied to every municipality, the simulation changes the magnitude but not the ordering or sign of the local gaps. On the rescaled 1-10 metric, the unweighted mean declines from 0.192 to 0.172 and the student-weighted mean from 0.227 to 0.203. The shares of municipalities and students associated with positive gaps remain 0.845 and 0.910, respectively. The structural pattern documented in Chapter 7 therefore persists under this simulation.

Calibration, Comparability, and Institutional Conditions

The simulation shows the limited mechanical effect of the stated proportional scenario. Centrally assessed national final tests and school-level calibration can reduce systematic differences in how teacher-set grades contribute to selection-relevant merit ratings. This directly addresses the problem of grade comparability identified in the dissertation.

Calibration can also strengthen the legitimacy of the grading system. If merit ratings are used to compare students across schools, the system needs visible common reference points. National final tests and central calibration can reduce dependence on local grading practices and make the construction of merit ratings more transparent.

Under the uniform 10.5% adjustment, 89.5% of each rescaled local sector gap remains, with the signs and ordering of the gaps unchanged. Future evaluation should therefore examine more than average grades and grade–test differences. It should assess whether differences between providers and municipalities decline, whether socioeconomic patterns change, and whether effects vary between school subjects. Behavioral responses will also matter because schools, teachers, students, and families may adapt to the new system in ways that the present simulation does not incorporate.

The reform may have stronger effects on grade comparability than on educational equity. More comparable merit ratings do not remove unequal learning conditions, family resources, or access to different school contexts. Similarly, the consequences may differ between subjects depending on which subjects are included in national final tests and how the external component affects the final merit rating.

The 2026 reform therefore addresses an important part of the problem examined in this dissertation. It strengthens external anchoring and introduces a calibration model intended to improve grade comparability. The eventual effects will depend on implementation and on how the new system interacts with provider structure, municipal context, socioeconomic background, and differences between school subjects.

Limitations and Directions for Future Research

The dissertation's longitudinal and multi-level design makes it possible to map how grade signals vary across social, institutional, spatial, and curricular contexts during a historically layered reform period. Because municipalization, school choice, provider diversification, grading-scale change, demographic change, and educational expansion overlap, the analyses identify patterned development

rather than separate reform effects. Future research can build on this mapping through quasi-experimental designs focused on policy discontinuities, provider entry and exit, school closures, or differences in implementation.

Treating final merit rating as an institutional credential makes it possible to study the grade-based outcome that is actually used for selection. The measure is not a direct psychometric scale of underlying learning, and the longitudinal analyses cross the transition from Lpo94 to Lgr11. The dissertation addresses this boundary by interpreting cross-regime trends descriptively and locating the detailed 2014-2022 analyses within Lgr11. Future work can connect the same register-based trends to additional externally anchored achievement measures.

The observed-predicted models in Chapters 7 and 8 enable composition-adjusted comparisons across schools, sectors, providers, municipalities, and subjects. Their estimates remain conditional on the measured student and contextual variables; prior achievement, peer context, school culture, staffing, leadership, assessment routines, and provider-specific practices may also shape the outcomes. Organizational studies and richer longitudinal data can extend the analysis by examining which of these processes account for the patterned discrepancies.

The provider data distinguish municipal, non-profit independent, and for-profit independent schools and reveal substantial heterogeneity within the for-profit sector. Anonymization protects confidentiality but limits analysis of named corporate actors, ownership chains, internal grading policies, and organizational strategies. Administrative records, inspection materials, organizational documents, interviews, and case studies could connect provider-level governance more directly to grading patterns.

The matched-cohort analysis provides an external benchmark by linking national test scores and final grades for the same students in Swedish, English, and Mathematics. Its evidential scope is one cohort, three core subjects, and a national test system that was not fully externally marked. Replication across later cohorts, additional subjects, providers, and municipalities would show how far the broadly similar grade-test slopes extend beyond this bounded comparison.

The illustrative simulation complements the simulations already presented in SOU 2025:18 by addressing a narrower outcome: the municipality-specific Grade Divergence gap between for-profit independent and municipal schools. It applies a uniform proportional compression and does not reproduce the official simulations, the reform's full calibration model, implementation, or behavioral adaptation. Post-reform data will make it possible to evaluate changes in school-level means and dispersion, local provider differences, socioeconomic gradients, subject patterns, and responses by schools, students, and families.

These limitations point to several directions for future research. The 2026 grading reform should be evaluated as soon as post-implementation data become

available. Such evaluations should examine not only average grades and national final test results but also socioeconomic gradients, differences between providers and municipalities, differences between school subjects, and the relationship between teacher-set grades and the external test component. Research should also examine how schools respond to the new incentives, including whether responses differ by provider type or affect the distribution of grade advantages across socioeconomic groups.

Future research should also connect the quantitative patterns identified in this dissertation to evidence on grading practices and school organization. The analyses can identify systematic differences between observed and model-predicted grades, but they cannot observe assessment meetings, moderation routines, teacher deliberations, leadership expectations, school culture, or provider-level assessment systems. Interviews, ethnographic studies, document analysis, and comparative case studies could help identify the organizational processes behind these patterns.

More detailed research is also needed on differences between school subjects. Chapter 8 shows that grade growth, socioeconomic differentiation, grade–test alignment, and provider differences are not distributed evenly across subjects. Possible explanations include differences in assessment traditions, curriculum structure, national-test anchoring, teacher supply, student motivation, parental expectations, school profiling, and subject-specific status. Subject-level studies could clarify why some subjects are more strongly associated with the patterns documented in the dissertation.

The spatial dimension also deserves further analysis. Municipalities differ in provider structure, socioeconomic composition, population density, urbanization, and the practical scope for school choice. Municipalities are useful analytical units, but local school markets do not necessarily follow municipal borders. Future research could examine commuting zones, catchment areas, neighborhood-level sorting, and cross-municipal school choice to study the geography of grade production more precisely.

These directions build on an existing Swedish literature rather than starting from an unstudied field. Studies have already documented geographical variation in grade–test relations (Molin & Alm Fjellborg, 2021), socially patterned mobility and segregation from preschool onward (Alm Fjellborg & Forsberg, 2023; Fjellborg & Forsberg, 2022), and long-term spatial and organizational differentiation within urban school markets (Fjellman et al., 2026; Forsberg, 2018). A useful next step is therefore to bring these lines of research together by examining socioeconomic background, local geography, provider structure, organizational practice, and subject composition within the same analytical design.

Such an integrated approach would make it possible to study how these dimensions jointly shape the production and distribution of grade-based advantages.

Finally, future research should examine how grade comparability interacts with admissions rules. More comparable grades may improve the fairness of grade-based selection, but they do not remove unequal learning conditions or unequal access to favorable school contexts. Context-sensitive admissions models and other selection mechanisms therefore remain relevant areas for research. Such studies would need to consider statistical consequences alongside legal feasibility, legitimacy, transparency, and public acceptance.

Concluding Reflections

This dissertation has examined final grades in compulsory school in Sweden as educational outcomes, selection instruments, and institutional signals. Its central argument is that grades remain connected to demonstrated performance, while their distribution, comparability, and selection value are also shaped by the social and institutional conditions under which they are produced and used. Merit ratings became more closely associated with socioeconomic background and local school-market context over time. Differences between observed and model-predicted grade outcomes also varied across local provider contexts during the later Lgr11 period. Chapter 8 further showed that these patterns vary between school subjects.

This makes comparability a sociological problem, not only a technical assessment problem. The issue is not whether grades have meaning. They clearly do. The issue is how stable that meaning remains when grades are assigned across schools, municipalities, provider structures, and school subjects under different social and institutional conditions.

Interpreting grades as stratified institutional signals brings together the dissertation's three main empirical levels. Socioeconomic background shapes the distribution of merit ratings. Provider structure and local school-market context shape the environments in which grade signals are produced and compared. Subject composition shapes how the aggregate credential is built from different curricular components. These dimensions do not operate separately. They meet in the final merit rating as a credential used for selection.

The policy implication is similarly layered. Strengthening external anchoring and calibration may improve comparability, but it cannot by itself remove the social, spatial, organizational, and curricular conditions that make grade signals stratified. A more comparable grading system may reduce some forms of divergence, but the equity problem also concerns how students are sorted across

schools, municipalities, providers, and curricular profiles before grades are assigned and used.

The Swedish grading system is therefore best understood as a system in which grades remain meaningful, but not self-explanatory. They continue to summarize assessed performance and regulate access to further education, yet their distribution and selection value are shaped by family resources, provider organization, local school-market structure, and differences between school subjects. If grades are to function as fair and comparable credentials, they need to be governed not only as assessment outcomes, but as institutional signals produced within a stratified school system.

SVENSK SAMMANFATTNING

Betyg på skolmarknaden
Socioekonomisk bakgrund, huvudmannastruktur och slutbetyg i svensk grundskola, 1998–2022

Denna avhandling undersöker hur socioekonomisk bakgrund och lokala skolmarknadssammanhang hänger samman med slutbetyg i svensk grundskola under perioden 1998–2022. Empiriskt ligger fokus på meritvärdet i grundskolan, det vill säga det sammanvägda betygsmått som används för urval till gymnasieskolan. Meritvärdet är därmed inte bara ett mått på skolprestation i pedagogisk mening. Det fungerar också som en institutionell signal i ett nationellt urvalssystem. Elever med högre meritvärden får bättre möjligheter att konkurrera om attraktiva gymnasieprogram och skolor. Om meritvärden inte är jämförbara mellan skolor, huvudmän eller lokala sammanhang får detta därför konsekvenser för både likvärdighet och urval.

Avhandlingens centrala utgångspunkt är att betyg inte kan förstås som neutrala eller kontextfria mått på individuella prestationer. Betyg sätts av lärare inom ett nationellt betygssystem, men de produceras samtidigt i lokala institutionella miljöer. Dessa miljöer varierar med kommunal styrningskapacitet, elevsammansättning, huvudmannastruktur, skolval, konkurrens och lokala skolmarknader. Betyg är därför både pedagogiska bedömningar och sociala signaler. De uttrycker något om elevers kunskaper, men de kan också bära spår av de sociala och organisatoriska sammanhang där de har producerats.

Sverige är ett särskilt intressant fall för en sådan analys. Sedan slutet av 1980-talet har den svenska grundskolan genomgått flera omfattande reformer. Kommunaliseringen, som beslutades 1989 och genomfördes 1991, förändrade styrningen och flyttade ett större ansvar till kommunerna. Reformen om fristående skolor 1992 öppnade för offentligt finansierade men enskilt drivna skolor. Det fria skolvalet och den skolpengsbaserade finansieringen förändrade relationen mellan elever, familjer, skolor och huvudmän. Samtidigt infördes mål- och kunskapsrelaterade betyg genom Lpo94, och betygssystemet ändrades igen i samband med Lgr11. Från 1998 till 2012 användes betygsskalan G, VG och MVG, medan elever från 2013 och framåt fick slutbetyg enligt A–F-skalan. Den senare skalan införde också fler godkända betygssteg, bland annat D och B, vilket är viktigt att beakta vid jämförelser av betygsnivåer över tid.

Avhandlingen analyserar dessa förändringar sociologiskt. Med marknadisering avses här kombinationen av kommunalisering, skolval, skolpeng och framväxten av offentligt finansierade fristående skolor. Med lokala skolmarknader avses de kommunala sammanhang där skolor, huvudmän och familjer möts under dessa villkor. Avhandlingen prövar inte om en enskild reform ensam orsakade ett visst utfall. I stället undersöks hur betygsutfall, socioekonomisk bakgrund och lokala skolmarknadssammanhang har rört sig tillsammans under en period då den svenska skolan både decentraliserats, marknadiserats och fått ett förändrat betygssystem. Den övergripande poängen är att meritvärden i svensk grundskola bör förstås som stratifierade institutionella signaler. Med det menas att meritvärden både är socialt strukturerade och formas av de lokala och organisatoriska sammanhang där betygen sätts, samtidigt som olika ämnesbetyg bidrar på olika sätt till det samlade meritvärdet.

Eftersom avhandlingens tabeller, figurer och appendix är skrivna på engelska anges vissa centrala engelska begrepp i parentes första gången de introduceras i den svenska sammanfattningen. Meritvärdet motsvarar *final merit rating in compulsory school* eller *merit rating*. Andelen elever i fristående skolor på kommunal nivå motsvarar *school-market saturation*. Den grupp som i figurerna benämns *low-saturation municipalities* består av kommuner där inga avgångselever gick i fristående skolor det aktuella året. Huvudmannastruktur används för *provider structure*. Med skolkoncern avses här de större fristående huvudmän som av juridiska sekretesskäl och forskningsetiska skäl har anonymiserats i analyserna och redovisas som *provider groups* i kapitel 7 och 8. Betygsavvikelse (*grade divergence*) avser skillnaden mellan observerat genomsnittligt meritvärde och modellens predicerade genomsnitt för samma skola och avgångsår. Lokalt sektorsgap (*local sector gap*) avser skillnaden inom samma kommun mellan den genomsnittliga residuala betygsavvikelsen i vinstdrivande fristående skolor och motsvarande avvikelse i kommunala skolor. Ett positivt värde innebär att avvikelsen är högre i de vinstdrivande fristående skolorna. Ämnesbetygsavvikelse (*observed–predicted subject-grade discrepancy*) avser motsvarande observerade–predicerade skillnad i ett enskilt ämne.

Syfte och forskningsfrågor

Avhandlingens syfte är att undersöka hur socioekonomisk bakgrund och lokala skolmarknadssammanhang är associerade med meritvärden i svensk grundskola mellan 1998 och 2022. Meritvärden behandlas inte enbart som skolresultat, utan som institutionellt formade signaler som produceras under förändrade villkor för styrning, huvudmannaskap och konkurrens. Empiriskt undersöks betygen ur tre

sammanhängande perspektiv: över tid, mellan skolor med olika huvudmän inom lokala skolmarknader och mellan olika skolämnen. Analysen omfattar därmed socioekonomiska skillnader i meritvärden över tid, betygsavvikelser mellan huvudmannakategorier efter justering för elevsammansättning och lokal kontext samt variation i betyg mellan olika skolämnen.

Avhandlingen besvarar tre forskningsfrågor. Den första frågan gäller hur sambanden mellan meritvärden, föräldrautbildning, kommunal medianinkomst, andelen elever i fristående skolor på kommunal nivå och elevers egen skolgång i fristående skola utvecklades i Sverige mellan 1998 och 2020. Den andra frågan gäller i vilken utsträckning mer marknadiserade kommuner uppvisar större betygsavvikelse mellan kommunala skolor och vinstdrivande fristående skolor, och om meritvärdesfördelen för elever med hög socioekonomisk status är mer framträdande där detta lokala sektorsgap är större. Den tredje frågan gäller hur meritvärdets ämnesstruktur varierar över tid, och hur ämnesbetyg hänger samman med socioekonomisk bakgrund, andelen elever i fristående skolor på kommunal nivå, samband mellan slutbetyg och nationella prov samt ämnesvisa skillnader mellan observerade och förväntade betyg efter huvudmannakategori och skolkoncern.

De tre empiriska kapitlen svarar mot forskningsfrågorna i tur och ordning. Kapitel 6 etablerar den longitudinella empiriska utgångspunkten genom att följa meritvärden, socioekonomisk bakgrund och andelen elever i fristående skolor på kommunal nivå över tid. Analysen i kapitel 7 undersöker betygsavvikelser i lokala skolmarknader under 2014–2022, med särskilt fokus på skillnader mellan kommunala och vinstdrivande fristående skolor efter justering för elevsammansättning och lokal kontext. Kapitel 8 analyserar meritvärdets ämnesmässiga uppbyggnad och undersöker hur ämnesdomäner, ämnesbetygens utveckling, socioekonomiska och lokala skolmarknadsmönster, betyg–prov-samband samt ämnesvisa skillnader mellan observerade och förväntade betyg bidrar till frågan om jämförbarhet. Kapitel 9 sammanför resultaten teoretiskt och policyanalytiskt och innehåller en illustrativ simulering av hur de lokala sektorsgapen förändras vid en proportionell minskning, med anknytning till 2026 års betygsreform.

Tidigare forskning och forskningslucka

Avhandlingen bygger på tre forskningsfält som ofta har behandlats separat. Det första gäller sambandet mellan socioekonomisk bakgrund och skolresultat. Internationell och svensk forskning visar att elevers sociala bakgrund, särskilt föräldrars utbildning, är en av de mest stabila prediktorerna för skolresultat

(Gustafsson & Yang Hansen, 2018; Hattie, 2023; Sirin, 2005). I Sverige har tidigare registerbaserad forskning visat att sambandet mellan föräldrautbildning och meritvärde har stärkts över tid, och att ökade skillnader mellan skolor spelar en viktig roll i denna utveckling (Gustafsson & Yang Hansen, 2018; Yang Hansen & Gustafsson, 2016, 2019).

Det andra forskningsfältet gäller betygens jämförbarhet, betygsinflation och relationen mellan betyg, provresultat och senare utbildningsutfall. Svensk forskning har visat att stigande betyg inte alltid motsvaras av starkare provresultat eller senare utbildningsprestationer (Cliffordson, 2004; Petersson et al., 2025; Vlachos, 2010; Wikström & Wikström, 2005). Flera studier som jämför skolsektorer har dessutom funnit mer generösa betygsmönster i fristående skolor i vissa sammanhang (Edmark & Persson, 2021; Tyrefors Hinnerich & Vlachos, 2016). Samtidigt är nationella prov i Sverige inte helt externa examensprov. De är lärarbedömda och fungerar framför allt som en gemensam referenspunkt i ett betygssystem där slutbetyg fortfarande sätts av lärare.

Det tredje forskningsfältet gäller skolval, segregation och skolmarknadens geografi. Forskning om Sverige och andra skolsystem med valfrihet visar att skolval ofta används olika av olika sociala grupper och att valfrihet kan förstärka skillnader mellan skolor (Böhlmark et al., 2015; Brandén & Bygren, 2022; Lundahl et al., 2013; Östh et al., 2013). I Sverige är detta särskilt relevant eftersom fristående skolor är ojämnt fördelade över landet. De är vanligare i större och mer urbana kommuner, och skolmarknadens praktiska omfattning skiljer sig därför starkt mellan olika lokala sammanhang (Edmark, 2019; Fjellman, 2019b).

Forskningsluckan består i att dessa tre processer sällan analyseras tillsammans över tid, lokalt och ämnesmässigt. Tidigare forskning har ofta studerat socioekonomiska skillnader, betyg–prov-avvikelser eller skolsegregation var för sig. Denna avhandling bidrar genom att koppla samman dessa dimensioner i en gemensam analys av svensk grundskola. Den följer meritvärden över en längre period, analyserar lokala sammansättningsjusterade betygsavvikelser mellan huvudmannakategorier och undersöker hur meritvärdet är uppbyggt av ämnesbetyg som är olika starkt knutna till socioekonomisk bakgrund, lokal skolmarknad och huvudmannastruktur.

Teoretiskt ramverk

Avhandlingen tolkar resultaten genom tre kompletterande teoretiska perspektiv. Det första är ett klass- och stratifieringsperspektiv. Här förstås föräldrars utbildning och inkomst som resurser som kan omvandlas till utbildningsfördelar. Klassiska teorier om utbildning och social reproduktion visar hur skolan både kan

erbjuda möjligheter och reproducera skillnader mellan sociala grupper (Bourdieu, 1979/1984, 1983/1986; Bowles & Gintis, 1976; Coleman et al., 1966; Collins, 1979; Wright, 1997, 2015). I avhandlingen används detta perspektiv för att förstå varför föräldrautbildning och hushållsinkomst inte bara är bakgrundsvariabler utan centrala analytiska indikatorer. De visar hur familjer är positionerade i en bredare social struktur och hur dessa positioner kan omvandlas till betyg och meritvärden.

Det andra perspektivet är ett politisk-ekonomiskt och ekonomisk-sociologiskt perspektiv på skolmarknad och betyg. Den svenska skolmarknaden är inte en oreglerad marknad, men den är heller inte ett renodlat offentligt administrerat system. Offentlig finansiering, skolpeng, fristående huvudmän, etableringsfrihet och skolval skapar ett hybridartat institutionellt fält där professionella, politiska och marknadsmässiga logiker samverkar (Aspers, 2011; Ball, 2003; Le Grand & Bartlett, 1993; Lundahl et al., 2013; Polanyi, 1944/2001). I ett sådant system blir betyg inte bara pedagogiska bedömningar, utan också symboliskt och institutionellt värdefulla signaler. Höga betyg kan signalera skolframgång, öka attraktiviteten och påverka konkurrensen om elever. Det betyder inte att lärare medvetet sätter felaktiga betyg, men det gör betygens institutionella villkor sociologiskt relevanta.

Det tredje perspektivet är rumsligt. Skolmarknaden verkar inte i ett geografiskt neutralt landskap. Bostadsmarknader, pendlingsmöjligheter, kommunala resurser, urbanisering och etableringen av fristående skolor formar de faktiska möjligheterna till skolval. Segregation kan därför förstås som en rumslig koncentration av resurser och möjligheter (Harvey, 2006; Massey & Denton, 1993). I avhandlingen används kommuner som analytiska lokala skolmarknadskontexter. Den lokala närvaron av fristående skolor mäts som andelen avgångselever från grundskolan som går i fristående skolor i en kommun. Det gör det möjligt att skilja mellan elevers egen skolgång i fristående skola och den lokala förekomsten av fristående skolor som institutionellt sammanhang.

Tillsammans gör dessa tre perspektiv det möjligt att tolka betyg som stratifierade institutionella signaler. Betyg uttrycker inte enbart individuell prestation, utan produceras i mötet mellan familjeresurser, skolmarknadsincitament och lokala utbildningsgeografier. Dessa teoretiska perspektiv ligger också till grund för avhandlingens analytiska upplägg och för hur de empiriska analyserna av sociala, organisatoriska och ämnesmässiga skillnader har utformats.

Material och metod

Avhandlingen bygger på svenska registerdata och använder tre datainfrastrukturer. Den första är Gothenburg Educational Longitudinal Database (GOLD), en registerbaserad forskningsdatabas vid Göteborgs universitet. GOLD används för de longitudinella analyserna av meritvärden, föräldrautbildning, kommuninkomst, elevers skolgång i fristående skola och lokal andel elever i fristående skolor under perioden 1998–2020, samt för de longitudinella ämnesbetygsanalyserna 1998–2017. Beskrivande statistik för GOLD redovisas i tabell 5.1, där bland annat meritvärden, andel elever i fristående skolor, föräldrautbildning och kommunal medianinkomst visas för utvalda år. Tabell 5.2 redovisar motsvarande beskrivande statistik för valda ämnesbetyg.

Den andra datakällan består av specialbeställda registerutdrag från Statistiska centralbyrån (SCB) för perioden 2014–2022. Dessa data innehåller mer detaljerad information om hushållsinkomst, föräldrautbildning, skolidentifikatorer, huvudmannaskap, kommunal kontext och valda ämnesbetyg. De används framför allt i kapitel 7 och i den senare delen av kapitel 8. Tabell 5.3 ger en översikt över SCB-materialet för åren 2014, 2018 och 2022 och visar bland annat meritvärden, ämnesbetyg, andelen elever i fristående skolor och andelen elever med högutbildade föräldrar. Hushållsinkomst används också i de senare analyserna.

Den tredje datakällan är Utvärdering genom uppföljning (UGU), en longitudinell studie vid Göteborgs universitet. UGU används för en mer begränsad analys av kohorten född 1998, som avgick ur grundskolan år 2014. För denna kohort finns både slutbetyg och nationella provresultat i svenska, engelska och matematik. UGU-materialet gör det därför möjligt att jämföra ämnesbetyg med nationella provresultat för samma elever.

Metodiskt kombinerar avhandlingen flera typer av analyser. Kapitel 6 använder främst deskriptiva trender och korrelationer. För att göra utveckling över tid mer jämförbar används i vissa figurer förändringar standardiserade mot 1998 års nivå, det vill säga baslinjestandardiserade förändringar, där 1998 sätts till noll och senare år uttrycks i enheter av 1998 års standardavvikelse. Detta gör inte Lpo94- och Lgr11-skalorna psykometriskt identiska, men det gör förändringarnas riktning och relativa storlek lättare att tolka.

Kapitel 7 använder en sammansättningsjusterad jämförelse mellan observerade och predicerade meritvärden. För varje skola och avgångsår beräknas ett predicerat genomsnittligt meritvärde utifrån elevsammansättning och lokal kontext. Skillnaden mellan observerat och predicerat genomsnitt tolkas som en betygsavvikelse. Denna logik liknar Skolverkets SALSA-modell, där skolors observerade resultat jämförs med modellberäknade resultat utifrån elevsammansättning (Skolverket, 2026a). Avhandlingen använder dock inte

Skolverkets SALSA-data utan konstruerar ett eget registerbaserat jämförelsemått. Residualerna används sedan för att jämföra kommunala skolor, ideella fristående skolor och vinstdrivande fristående skolor samt för att beräkna lokala sektorsgap mellan vinstdrivande fristående skolor och kommunala skolor.

Kapitel 8 använder flera kompletterande analysstrategier: analyser av sambanden mellan ämnesområden och totalt meritvärde, baslinjestandardiserade förändringar i ämnesbetyg, standardiserade skillnader mellan socioekonomiska grupper och mellan kommuntyper, en matchad UGU-baserad betyg–provjämförelse samt analyser av skillnader mellan observerade och förväntade ämnesbetyg under Lgr11-perioden. Analyserna visar samband och mönster. De används för att jämföra utveckling, grupper och lokala sammanhang, inte för att fastställa att enskilda reformer eller huvudmannatyper orsakar vissa utfall.

Meritvärden, socioekonomisk bakgrund och skolmarknad över tid

Kapitel 6 etablerar avhandlingens longitudinella empiriska utgångspunkt. Det visar hur meritvärden, föräldrautbildning, kommunal medianinkomst, elevers skolgång i fristående skola och andelen elever i fristående skolor på kommunal nivå utvecklades mellan 1998 och 2020. Kapitlet är viktigt eftersom det placerar de mer detaljerade analyserna i kapitel 7 och 8 i ett historiskt sammanhang.

Först visar figur 6.1 att det genomsnittliga meritvärdet ökade över perioden. Denna ökning måste tolkas försiktigt eftersom serien korsar övergången från Lpo94 till Lgr11. Samtidigt visar förändringarna, standardiserade mot 1998 års nivå, att ökningen inte enbart kan reduceras till ett diskret brott vid införandet av Lgr11. Den uppåtgående rörelsen börjar före den nya betygsskalan och fortsätter efter den. Betygssystemsskiftet är därför en viktig tolkningsreservation, men inte hela förklaringen till de longitudinella betygsmönstren.

Därefter analyseras föräldrautbildning. Figur 6.2 visar att föräldrarnas utbildningsprofil förändrades tydligt mellan 1998 och 2020. Andelen elever med föräldrar med enbart grundskoleutbildning eller gymnasieutbildning minskade, medan andelen elever med föräldrar med eftergymnasial utbildning ökade. Detta speglar den bredare utbildningsexpansionen i Sverige och innebär att föräldrautbildning både är ett stabilt jämförelsemått och en kategori vars fördelning förändras över tid.

Figur 6.3 visar att sambandet mellan föräldrautbildning och meritvärde är positivt under hela perioden. Den binära variabeln ger ett lägre och mer stabilt samband, medan den ordnade fyrkategorivariabeln visar ett starkare samband och en tydligare förstärkning under senare år. Figur 6.4 visar dessutom att meritvärden

är graderade över hela föräldrautbildningshierarkin. Elever med föräldrar med lång högskoleutbildning har genomgående högst meritvärden, medan elever med föräldrar med enbart grundskoleutbildning har lägst meritvärden.

Kommunal medianinkomst läggs sedan till som ett kontextuellt mått. Figur 6.5 visar att den reala kommunala medianinkomsten ökade kraftigt under perioden, men också att variationen mellan kommuner var betydande. Figur 6.6 visar att sambandet mellan kommunal medianinkomst och meritvärde stärktes över tid. Sambandet är svagare än sambandet mellan föräldrautbildning och meritvärde, men det blir tydligare under perioden. Detta visar att betygsutfall inte bara blev kopplade till familjers utbildningsresurser, utan också till lokala socioekonomiska sammanhang.

Kapitel 6 analyserar också skolmarknadens lokala struktur. Tabell 6.1 visar att kommuner med låg, medelhög och hög andel elever i fristående skolor skiljer sig åt på flera sätt. Kommuner där många elever går i fristående skolor har högre genomsnittliga meritvärden, större andel elever med högutbildade föräldrar, större lokal närvaro av fristående skolor och betydligt högre befolkningstäthet. Dessa kommuner är alltså inte bara kommuner med fler fristående skolor. De är särskilda lokala skolmarknadsmiljöer där urbanisering, socioekonomisk sammansättning och huvudmannastruktur hänger samman.

Figur 6.7 visar hur andelen elever i fristående skolor utvecklades i dessa tre kommungrupper. I kommuner där inga avgångselever gick i fristående skolor var andelen per definition noll, medan den ökade tydligt i kommuner med hög andel. Figur 6.8 visar att både elevers egen skolgång i fristående skola och den lokala andelen elever i fristående skolor blev starkare korrelerade med meritvärden över tid. Figur 6.9 visar att dessa mönster också blev socialt strukturerade i relation till föräldrautbildning. Elever med högre utbildade föräldrar var mer benägna att själva gå i fristående skolor och mer benägna att bo i kommuner där fristående skolor utgjorde en större del av skolutbudet. Figur 6.10 visar dessutom att kommunal inkomst framför allt var starkt kopplad till den lokala koncentrationen av fristående skolor.

Avslutningsvis visar figur 6.11 och figur 6.12 att sambanden mellan meritvärden och socioekonomiska kontextmått skiljer sig mellan kommungrupperna. Sambandet mellan föräldrautbildning och meritvärde är genomgående starkast i kommuner med hög andel elever i fristående skolor och svagast i kommuner där inga avgångselever gick i fristående skolor. Sambandet mellan kommunal medianinkomst och meritvärde visar också en tydligare koppling i mer marknadsexponerade sammanhang. Kapitel 6 visar därmed att socioekonomisk stratifiering i meritvärden inte utvecklades likformigt över Sverige. Den framträder starkare i lokala sammanhang där skolmarknaden är mer utvecklad.

Sammansättningsjusterade betygsavvikelser i lokala skolmarknader

I kapitel 7 undersöks hur skolors observerade meritvärden skiljer sig från de meritvärden som kan förväntas utifrån elevsammansättning och lokal kontext, och hur dessa betygsavvikelser varierar mellan kommunala och vinstdrivande fristående skolor inom lokala skolmarknader under perioden 2014–2022. Med sammansättningsjusterad betygsavvikelse avses skillnaden mellan skolors observerade meritvärden och de meritvärden som kan förväntas utifrån elevsammansättning och lokal kontext. Frågan är om kommuner med högre andel elever i fristående skolor uppvisar större skillnader mellan kommunala skolor och vinstdrivande fristående skolor efter sådan justering, och om meritvärdesfördelen för elever med hög socioekonomisk status är större där denna skillnad är större.

Tidigare forskning har använt tre huvudsakliga strategier för att undersöka betygsavvikelse och betygsinflation. Det första är att jämföra betyg med provresultat, framför allt nationella prov, för att undersöka om betyg och prov samvarierar, vilket bland annat görs av Wikström och Wikström (2005), Vlachos (2010), Tyrefors Hinnerich och Vlachos (2016) samt Edmark och Persson (2021). Det andra är att analysera senare utbildningsutfall, exempelvis om stigande eller olika satta betyg motsvaras av senare studieprestationer (Cliffordson, 2004; Furusten et al., 2024; Petersson et al., 2025). Det tredje är att jämföra observerade meritvärden med meritvärden som kan förväntas utifrån elevsammansättning och lokal kontext. Analysen i kapitel 7 använder den tredje strategin.

Analysen genomförs i flera steg. Först beräknas ett förväntat meritvärde för varje skola och avgångsår, utifrån observerad elevsammansättning, hushållsresurser, kommunal kontext, år och kommun. Därefter beräknas avvikelsen som skillnaden mellan observerat och förväntat meritvärde. En positiv avvikelse betyder att skolans observerade meritvärde ligger över den förväntade nivån, medan en negativ avvikelse betyder att det ligger under. Avvikelserna ska inte tolkas som direkta mått på skolans kvalitet eller som direkta mått på betygsinflation. De visar i stället var betygsutfallet ligger över eller under en gemensam förväntan efter justering för elevsammansättning och lokal kontext.

De deskriptiva jämförelserna mellan huvudmannakategorier visar tydliga skillnader. Kommunala skolor ligger nära den förväntade nivån, ofta med svagt negativa avvikelser. Ideella fristående skolor har positiva avvikelser, men dessa är mindre än i de vinstdrivande fristående skolorna. Vinstdrivande fristående skolor har större positiva avvikelser. Tabellerna i avsnittet *Overall Sector Differences in Grade Divergence* visar att skillnaderna inte bara gäller en enkel kontrast mellan kommunala och fristående skolor. De större vinstdrivande skolkoncernerna skiljer

sig också åt. Skolkoncern A uppvisar de största positiva avvikelserna, medan skolkoncern B och skolkoncern C ligger lägre. Figur 7.1 visar dessutom att dessa skillnader varierar över tid. Skolkoncern A:s avvikelse är särskilt framträdande, även om den minskar efter 2019. Denna minskning tolkas försiktigt i kapitlet, eftersom den kan bero på förändringar i elevintag, organisationsstruktur, bedömningspraktiker, koncernstrategi eller ökad extern granskning.

Kapitel 7 analyserar också hur sammansättningsjusterade betygsavvikelser varierar mellan kommuner och avgångsår. I många kombinationer av kommun och avgångsår ligger vinstdrivande fristående skolor över kommunala skolor efter justering för elevsammansättning och lokal kontext, men skillnadens storlek varierar. I den poolade kommunanalysen hade 71 av de 84 inkluderade kommunerna ett positivt lokalt sektorsgap, vilket innebär att den genomsnittliga residuala betygsavvikelsen var högre i vinstdrivande fristående skolor än i kommunala skolor. Dessa kommuner svarade för 91 procent av avgångseleverna i det inkluderade materialet. I genomsnitt är skillnaderna inte stora i förhållande till hela meritvärdesskalan, men de är relevanta i ett urvalssystem där även mindre meritvärdesskillnader kan påverka elevers placering i gymnasieantagningen.

Det mest centrala resultatet gäller kopplingen mellan dessa lokala skillnader och den socioekonomiska fördelningen av meritvärden. I elevnivåmodellen undersöks om meritvärdesfördelen för elever med hög socioekonomisk status är större i kommuner och avgångsår där skillnaden mellan vinstdrivande fristående och kommunala skolor är större. Resultatet visar ett måttligt men systematiskt samband. Meritvärdesfördelen för elever med hög socioekonomisk status är mer framträdande i kommuner och avgångsår där vinstdrivande fristående skolor ligger längre över kommunala skolor efter justering för elevsammansättning och lokal kontext. Analysen visar därmed att de två mönstren samvarierar, men inte att det ena orsakar det andra.

Kapitel 7 bidrar därmed med avhandlingens andra empiriska huvudpoäng. Lokala skolmarknader uppvisar sammansättningsjusterade betygsavvikelser mellan huvudmannakategorier, och dessa avvikelser är socialt mönstrade. Kapitlet ska därför läsas som en analys av återkommande mönster i sammansättningsjusterade betygsavvikelser, inte som en direkt analys av enskilda bedömningsmekanismer. Det visar däremot att observerade meritvärden systematiskt skiljer sig från förväntade meritvärden på ett sätt som varierar mellan huvudmannakategorier, skolkoncerner, kommuner och socioekonomiska positioner.

Ämnesbetyg och meritvärdets inre struktur

Analysen i kapitel 8 undersöker hur olika ämnesbetyg hänger samman med det samlade meritvärdet. Det är viktigt eftersom meritvärdet ofta behandlas som ett samlat mått, trots att det består av flera ämnen som kan utvecklas på olika sätt. Om vissa ämnen har starkare betygstillväxt, starkare samband med socioekonomisk bakgrund eller större skillnader mellan lokala skolmarknader än andra, kan det samlade meritvärdet dölja viktiga interna mönster.

Det första steget i kapitel 8 gäller hur olika ämnen hänger samman med det totala meritvärdet. Figur 8.1 visar att de ämnesvisa korrelationerna i de samhällsorienterande och naturorienterande ämnesgrupperna i genomsnitt är mycket starka. Svenska, engelska och matematik har också starka samband med totalen, medan de ämnesvisa korrelationerna i den praktisk-estetiska gruppen i genomsnitt är svagare. En del av sambandet är väntat eftersom ämnesbetygen ingår i det totala meritvärdet. Analyserna identifierar däremot inte varje ämnes oberoende bidrag. Skillnaderna kan ha flera förklaringar, exempelvis olikheter i undervisning, bedömningstraditioner, kursinnehåll och graden av förankring i nationella prov.

Figur 8.2 visar förändringar i ämnesbetyg mellan 1998 och 2017, standardiserade mot 1998 års nivå. Här framträder tydliga skillnader mellan ämnen. Praktisk-estetiska ämnen, engelska och teknik visar stark betygstillväxt. Svenska ökar också, men mer måttligt. Matematik har en mer ojämn utveckling. Liksom i kapitel 6 är övergången från Lpo94 till Lgr11 en viktig tolkningsreservation, men utvecklingen framstår inte enbart som ett skarpt brott vid betygssystemsskiftet. Flera ämnen rör sig gradvis över perioden.

Figur 8.3 analyserar hur skillnaderna mellan elever med hög och låg föräldrautbildning förändras över tid. Teknik, engelska, matematik och praktisk-estetiska ämnen visar särskilt tydliga ökningar i skillnaderna mellan elever med hög och låg föräldrautbildning, medan svenska har en mer återhållen utveckling. Resultatet visar att betygstillväxt och socioekonomisk differentiering inte är samma sak. Vissa ämnen visar starkare betygstillväxt, andra tydligare ökningar av socioekonomiska skillnader, och vissa visar båda mönstren.

Figur 8.4 analyserar skillnader mellan kommuner med hög andel avgångselever i fristående skolor och kommuner där inga avgångselever gick i fristående skolor. Även här framgår att ämnesbetyg inte utvecklas likformigt. Teknik, engelska och svenska är särskilt synliga i jämförelsen mellan lokala skolmarknadskontexter. Figur 8.5 går ett steg längre genom att jämföra föräldrautbildningsskillnader inom olika ämnesområden mellan dessa två kommungrupper. Mönstret är mer instabilt än i tidigare figurer, vilket är väntat eftersom jämförelsen kombinerar ämne, socioekonomisk bakgrund och lokal

skolmarknadskontext. Ändå framträder matematik, engelska och naturorienterande ämnen som områden där skillnaderna mellan kontexter är särskilt relevanta.

Kapitel 8 innehåller också en UGU-baserad jämförelse mellan slutbetyg och nationella provresultat i svenska, engelska och matematik för kohorten född 1998. Efter matchning på observerade bakgrundsvariabler visar analysen att slutbetyg och nationella provresultat är positivt relaterade i både kommunala och fristående skolor. De skattade lutningarna är genomgående något brantare i kommunala skolor, men konfidensintervallen överlappar betydligt. Sammantaget ger analysen därför inte stöd för några starka slutsatser om huvudmannaskillnader i relationen mellan provresultat och slutbetyg. Den ger inte heller stöd för en förenklad bild där betyg i fristående skolor är frikopplade från provresultat. Samtidigt utesluter den inte skillnader i betygsnivåer eller andra former av betygsavvikelse mellan skolor och huvudmän, vilka undersöks genom andra jämförelser i avhandlingen. Analysen är begränsad till en kohort, tre ämnen och ett nationellt provsystem som inte är helt externt rättat och kan därför inte ensam avgöra om betyg är jämförbara över alla ämnen, år eller skolhuvudmän.

Den sista empiriska delen av kapitel 8 återvänder till SCB-materialet för 2014–2022 och analyserar ämnesvisa skillnader mellan observerade och förväntade betyg i sex utvalda ämnen: matematik, svenska, engelska, historia, teknik och musik. Urvalet bygger på de föregående analyserna. Matematik, svenska och engelska är kärnämnen med särskild institutionell betydelse och koppling till nationella prov. Historia representerar de samhällsorienterande ämnena. Teknik återkommer som ett ämne med stark betygstillväxt, socioekonomisk differentiering och tydliga skolmarknadsmönster. Musik representerar de praktisk-estetiska ämnena.

Tabell 8.1 visar ämnesvisa betygsavvikelser efter huvudmannakategori. Kommunala skolor ligger nära förväntade nivåer, medan både ideella och vinstdrivande fristående skolor uppvisar positiva avvikelser i de rapporterade ämnena. Engelska framstår som särskilt tydligt, med stora positiva avvikelser bland fristående skolor och negativ avvikelse i kommunala skolor. Teknik och historia visar också tydliga positiva avvikelser i fristående skolor.

Tabell 8.2 visar motsvarande mönster för större vinstdrivande skolkoncerner. Här framträder betydande variation inom den vinstdrivande sektorn. Skolkoncern A har de största positiva avvikelserna i samtliga rapporterade ämnen, särskilt engelska, teknik och matematik. Skolkoncern B har också positiva avvikelser i flera ämnen, men på lägre nivå. Skolkoncern C ligger lägre men är fortfarande positiv i samtliga rapporterade ämnen. Jämförelsen mellan tabell 8.1 och tabell 8.2 visar att breda huvudmannakategorier kan dölja viktiga skillnader mellan skolkoncerner. Den vinstdrivande sektorn är alltså inte homogen.

Kapitel 8 bidrar därmed med avhandlingens tredje empiriska huvudpoäng. Meritvärdet är inte bara socialt och institutionellt stratifierat på aggregerad nivå. Det är också stratifierat genom särskilda ämneskomponenter. Engelska och teknik framträder återkommande i flera jämförelser. Matematik framträder tydligt i vissa socioekonomiska och skolmarknadsrelaterade mönster. Den praktisk-estetiska ämnesgruppen, som här omfattar bild, slöjd, hem- och konsumentkunskap, musik samt idrott och hälsa, visar stark betygstillväxt och en tydlig ökning i skillnaderna mellan elever med hög och låg föräldrautbildning, även om gruppen är svagare kopplad till det totala meritvärdet. Svenska är viktigt för det samlade meritvärdet, men mindre framträdande i de starkaste socioekonomiska och skolmarknadsrelaterade mönstren.

Samlad tolkning: betyg som stratifierade institutionella signaler

Avhandlingens tre empiriska kapitel visar tillsammans att slutbetyg i svensk grundskola bör förstås som stratifierade institutionella signaler. Kapitel 6 visar att meritvärdenas relation till socioekonomisk bakgrund och lokala skolmarknader förändras över tid. Kapitel 7 visar betygsavvikelser i lokala skolmarknader, med högre observerade–predicerade meritvärdesskillnader i vinstdrivande fristående skolor än i kommunala skolor i de flesta inkluderade kommuner, samt ett samband mellan större lokala sektorsgap och större meritvärdesfördelar för elever med hög socioekonomisk status. Kapitel 8 analyserar ett annat men närliggande utfall: observerade–predicerade ämnesbetygsavvikelser. Där uppvisar både ideella och vinstdrivande fristående skolor positiva avvikelser i de rapporterade ämnena, med betydande variation mellan större vinstdrivande skolkoncerner. Kapitlen visar därmed relaterade men inte identiska mönster på aggregerad nivå och ämnesnivå.

Detta betyder inte att betyg är godtyckliga eller saknar koppling till kunskap. Den matchade UGU-baserade analysen i kapitel 8 visar positiva samband mellan slutbetyg och nationella provresultat i svenska, engelska och matematik i både kommunala och fristående skolor. Lutningarna är numeriskt något brantare i kommunala skolor, men konfidensintervallen överlappar betydligt. Sammantaget ger analysen därför inte stöd för några starka slutsatser om huvudmannaskillnader i relationen mellan provresultat och slutbetyg. Avhandlingen visar samtidigt att betygens jämförbarhet inte kan tas för given i de andra analyserna. Betyg produceras i lokala, sociala och organisatoriska sammanhang, och även måttliga systematiska skillnader kan få betydelse när betyg används för urval. Betygen förblir knutna till demonstrerade prestationer, men deras fördelning,

jämförbarhet och urvalsvärde är också relaterade till social bakgrund, lokala skolmarknader, huvudmannastruktur och ämnesbetygens sammansättning.

Ur ett klass- och stratifieringsperspektiv visar resultaten hur familjeresurser fortsätter att omvandlas till utbildningsmeriter. Föräldrautbildning och hushållsinkomst är inte bara bakgrundsvariabler, utan indikatorer på resurser som hjälper familjer att navigera skolan, tolka information, välja skolor och stödja barns utbildningsgång.

Ur ett skolmarknadsperspektiv visar resultaten att betygssignalen produceras i ett system där skolor och huvudmän verkar under olika organisatoriska villkor och där betyg kan få värde i konkurrensen om elever. Det betyder inte att enskilda lärare eller skolor nödvändigtvis agerar strategiskt. Poängen är snarare att betyg sätts i ett institutionellt sammanhang där skolors rykte, elevunderlag, huvudmannaskap och konkurrensvillkor kan påverka hur betyg fungerar som signaler.

Ur ett rumsligt perspektiv visar resultaten att dessa processer är ojämnt fördelade över kommuner. Andelen elever som går i fristående skolor varierar kraftigt mellan kommuner, liksom vilka typer av huvudmän som är verksamma lokalt. Dessa skillnader sammanfaller också med variation i socioekonomisk sammansättning och urbanisering. Därför kan betygens sociala och institutionella betydelse inte förstås utan hänsyn till lokal skolmarknadsgeografi.

Avhandlingens bidrag är att förena frågor om socioekonomisk stratifiering, betygsjämförbarhet, huvudmannaskap, skolmarknadsgeografi och ämnesbetygens interna struktur. Den visar att meritvärdet inte bör tolkas som ett enkelt och transparent mått på individuell prestation. Det är ett institutionellt sammansatt urvalsmått vars betydelse formas av social bakgrund, lokala skolmarknader, huvudmannastruktur och ämnesbetygens sammansättning.

Policyimplikationer och 2026 års betygsreform

Avhandlingens resultat har betydelse för diskussionen om betygens jämförbarhet och om statens försök att stärka betygssystemets legitimitet. Om meritvärden används för urval till gymnasieskolan måste samma meritvärde så långt som möjligt bära liknande innebörd oavsett skola, kommun, huvudman och årskull. Resultaten visar att detta inte bara är en teknisk bedömningsfråga. Jämförbarhet påverkas också av elevsammansättning, lokala skolmarknader, huvudmannastruktur och ämnesbetygens sammansättning.

En första policyimplikation är därför att åtgärder för ökad betygsjämförbarhet inte bör begränsas till enskilda justeringar av betygsskalan. Stärkt provförankring, tydligare nationella jämförelsepunkter och mer systematisk uppföljning kan göra betygssignalen mer stabil. Samtidigt visar resultaten att betygens jämförbarhet formas

i ett bredare institutionellt sammanhang. Om skolor verkar under olika lokala villkor, har olika elevsammansättning och ingår i olika huvudmannastrukturer kan samma formella betygsregler ändå få olika praktiska uttryck.

En andra policyimplikation gäller hur betygsavvikelser kan få olika konsekvenser för elever med olika socioekonomisk bakgrund. Om socioekonomiskt gynnade elever får större meritvärdesfördelar i vissa lokala skolmarknadssammanhang, räcker det inte att bara fråga om betygen i genomsnitt är höga eller låga. Det är också nödvändigt att undersöka vilka grupper som gynnas när betygsavvikelser uppstår. Detta innebär inte att socioekonomisk bakgrund bör skrivas in i betygssättningen. Betyg bör även fortsättningsvis avse visade kunskaper. Resultaten aktualiserar i stället skolans kompensatoriska uppdrag och betydelsen av att undervisning, stöd och resursfördelning ger elever likvärdiga möjligheter till lärande även när skolor verkar under socialt och institutionellt olika villkor.

En tredje policyimplikation gäller huvudmannaskap, styrning och uppföljning. Kapitel 7 visar högre betygsavvikelser i vinstdrivande fristående skolor än i kommunala skolor, medan kapitel 8 visar positiva ämnesbetygsavvikelser i både ideella och vinstdrivande fristående skolor och betydande variation mellan större vinstdrivande skolkoncerner. Styrning och uppföljning bör därför inte enbart bygga på breda huvudmannakategorier. Om vissa skolkoncerner systematiskt avviker mer än andra behöver uppföljningen kunna identifiera sådana mönster utan att förväxla dem med hela sektorns genomsnitt.

Mot denna bakgrund diskuteras 2026 års betygsreform som ett försök att stärka jämförbarheten genom en ny betygsskala och en starkare koppling mellan slutbetyg och nationella prov. Reformen kan förstås som ett försök att kalibrera betygssignalen, det vill säga att göra relationen mellan betyg, provresultat och urvalsvärde mer stabil. I avhandlingens illustrativa simulering minskas samtliga lokala sektorsgap proportionellt med 10,5 procent.

Justeringen minskar skillnaderna, men förändrar inte vilken skolsektor som har den högre betygsavvikelsen i respektive kommun. Samma 71 av 84 kommuner har därför fortfarande ett positivt sektorsgap efter simuleringen, och dessa kommuner svarar fortfarande för 91 procent av avgångseleverna i det inkluderade materialet. En starkare provförankring förändrar inte heller i sig skolmarknadens lokala struktur, elevsammansättningen mellan skolor, huvudmännens organisatoriska villkor eller ämnesbetygens olika roller i meritvärdet. Reformen bör därför förstås som ett möjligt steg mot ökad jämförbarhet, inte som en lösning på de strukturella ojämlikhetsmönster som avhandlingen identifierar.

Begränsningar och framtida forskning

Avhandlingen har flera begränsningar. För det första visar analyserna samband och mönster, inte entydiga orsakssamband. De visar hur betygsutfall, socioekonomisk bakgrund, huvudmannaskap och lokala skolmarknader hänger samman, men de kan inte ensamma avgöra vilken enskild reform, huvudman eller organisatorisk strategi som ligger bakom mönstren. Den svenska reformhistorien är tät, och flera centrala förändringar sammanfaller över tid. Avhandlingens syfte är därför att kartlägga mönster och utveckla en sociologisk tolkning, inte att isolera effekten av en enskild policyförändring.

För det andra är skillnader mellan observerade och förväntade värden inte direkta mått på betygsinflation, lärarkvalitet eller skolans effektivitet. En positiv avvikelse kan bero på flera saker, exempelvis betygsättningspraktiker, undervisningsvillkor, kamrateffekter, elevsammansättning som inte fullt fångas av modellen, organisatoriska rutiner eller lokala bedömningskulturer. Avvikelserna bör därför förstås som indikatorer på systematiska betygsavvikelser i relation till en sammansättningsjusterad förväntan.

För det tredje är nationella provresultat endast tillgängliga i den UGU-baserade betyg–provjämförelsen för en kohort och tre ämnen. Det begränsar möjligheten att analysera relationen mellan slutbetyg och nationella prov över hela perioden, i alla ämnen och för alla skolkoncerner. Framtida forskning skulle behöva kombinera registerdata med mer heltäckande provdata, särskilt om nationella slutprov införs och rättas centralt.

För det fjärde är skolkoncernerna anonymiserade, vilket begränsar möjligheten att koppla resultaten till specifika organisatoriska modeller, koncernstrategier och betygssättningspraktiker. Registerdata fångar heller inte klassrumspraktiker, lärares bedömningsdiskussioner eller de konkreta processer genom vilka betyg sätts. Framtida forskning bör därför, där det är etiskt och juridiskt möjligt, kombinera registeranalyser med organisationsstudier, intervjuer, dokumentanalyser och fallstudier för att undersöka hur skolkultur och bedömningskultur, organisatoriska rutiner, skolledning, huvudmannastyrning och betygssättningsprocesser hänger samman med de mönster som identifieras här.

Slutsats

Avhandlingen visar att slutbetyg i svensk grundskola inte bara bör förstås som individuella prestationsmått. De fungerar också som institutionella urvalssignaler i ett skolsystem där elevers sociala bakgrund, lokala skolmarknader och huvudmannastruktur samverkar med skillnader mellan skolämnen. Engelska, matematik och teknik framträder tydligt i flera socioekonomiska och

skolmarknadsrelaterade mönster, medan svenska visar en mer återhållen utveckling och den praktisk-estetiska ämnesgruppen är svagare kopplad till det samlade meritvärdet.

Det centrala resultatet är inte att betyg saknar koppling till kunskap. Tvärtom visar den UGU-baserade betyg–provjämförelsen att slutbetyg i svenska, engelska och matematik är starkt relaterade till nationella provresultat i den analyserade kohorten. Men betygens jämförbarhet kan inte tas för given. Kapitel 7 visar högre residual betygsavvikelse i vinstdrivande fristående skolor än i kommunala skolor, medan kapitel 8 visar positiva ämnesbetygsavvikelser i både ideella och vinstdrivande fristående skolor samt variation mellan skolkoncerner. Meritvärden utvecklas också olika över tid och mellan lokala sammanhang, och ämnesbetygsmönstren varierar mellan delar av meritvärdet.

Därför bör meritvärdet förstås som ett sammansatt och stratifierat urvalsmått. Det sammanfattar elevers skolprestationer, men dess sociala och institutionella betydelse formas också av de sammanhang där betygen produceras. I ett system där meritvärden används för gymnasieantagning blir detta en fråga om både jämförbarhet och likvärdighet. Samma meritvärde bör så långt som möjligt bära samma innebörd oavsett skola, kommun, huvudman och årskull. Avhandlingen visar att detta kräver mer än en ny betygsskala. Det kräver också uppmärksamhet på hur social stratifiering, lokal skolmarknadsgeografi, huvudmannaskap och ämnesbetygens interna struktur påverkar betygens funktion som urvalssignaler.

SUMMARY

Grades in the School Market

Socioeconomic Background, Provider Structure, and Final Grades in Compulsory School in Sweden, 1998–2022

In Sweden, final merit ratings in compulsory school summarize students' final subject grades and are used to rank applicants for upper-secondary education. They are therefore both educational outcomes and institutional signals used to distribute educational opportunities. Their comparability matters because students compete for the same places with grades produced in different schools, municipalities, and provider contexts. The dissertation examines these conditions in relation to socioeconomic status (SES), provider structure, and local school markets.

The institutional background is a school system reshaped by municipalization, school choice, publicly funded independent-school expansion, and goal- and criterion-referenced grading. Final grades under the Lpo94 scale were awarded to graduating cohorts from 1998 to 2012, while the Lgr11 A–F scale applied from 2013. The latter introduced the additional passing steps D and B, which need to be considered when interpreting longitudinal grade development. These grading regimes form part of the changing institutional conditions under which merit ratings are produced and used for selection.

Aim and Research Questions

The aim of this dissertation is to examine how socioeconomic background and local school-market context are associated with final merit ratings in compulsory school in Sweden between 1998 and 2022. The dissertation treats merit ratings not merely as educational outcomes but also as institutionally shaped signals produced under changing conditions of governance, provider diversification, and competition. Empirically, it analyzes three connected dimensions: longitudinal SES gradients in merit ratings, composition-adjusted grade divergence across provider contexts within municipalities, and subject-domain patterns in the construction and comparability of merit ratings. The broader purpose is to clarify

what these patterns imply for educational equity, validity, and the governance of grades in a marketized school system.

The empirical chapters cover different periods within this overall timeframe. Research question 1 covers 1998–2020, research question 2 covers 2014–2022, and research question 3 is addressed through longitudinal subject-domain analyses for 1998–2017, a grade–test analysis of the 1998 birth cohort graduating in 2014, and observed–predicted subject-grade analyses for 2014–2022.

To operationalize the aim, the dissertation addresses the following questions: (1) How did the longitudinal relationships between final merit ratings in compulsory school, parental education, municipal median income, school-market saturation, and independent-school attendance develop in Sweden between 1998 and 2020? (2) To what extent do more marketized municipalities exhibit greater grade divergence between municipal and for-profit independent schools, and is the grade advantage associated with students from more socioeconomically advantaged backgrounds larger where such divergence is greater? (3) How does the subject-domain composition of final merit rating in compulsory school vary over time, and how are subject-domain grade patterns related to socioeconomic background, local school-market saturation, grade–test alignment, and provider-patterned subject-grade discrepancies?

Chapter 6 establishes the longitudinal baseline, Chapter 7 examines local provider divergence, and Chapter 8 examines patterns in individual subjects. Chapter 9 develops the theoretical and policy implications.

Previous Research and Theoretical Framework

The dissertation connects three strands of research. The first documents persistent socioeconomic differences in achievement and grades (Sirin, 2005). In Sweden, the association between parental education and merit ratings has strengthened, partly through growing between-school differences (Gustafsson & Yang Hansen, 2018; Yang Hansen & Gustafsson, 2019). The second examines grading comparability across providers using national test performance and later educational outcomes as benchmarks, while accounting for differences in student composition (Edmark & Persson, 2021; Petersson et al., 2025; Tyrefors Hinnerich & Vlachos, 2016). The third concerns school choice, segregation, and the geography of educational opportunities (Böhlmark et al., 2015; Brandén & Bygren, 2022; Fjellman, 2019a, 2019b). Less is known about how these processes intersect over time, within local provider contexts, and across school subjects.

The theoretical framework combines three perspectives. A class-analytic and stratification perspective treats parental education and income as coarse

indicators of families' positions and access to resources that can be converted into educational credentials. Grades matter because credentials organize access to further education and positions in the social structure (Bowles & Gintis, 1976; Collins, 1979; Wright, 1997, 2015).

A political-economy and economic-sociology perspective views Swedish schooling as a hybrid institutional order in which public funding, regulation, professional judgment, and competition coexist (Aspers, 2011; Polanyi, 1944/2001). Grades are pedagogical judgments, but they also carry value for admission, school reputation, and student recruitment. Ball's (2003) notion of performativity helps explain how performance indicators can gain organizational importance in schools that compete for students. This creates a potential tension between assessment and the production of favorable indicators.

A spatial perspective adds that these processes are unevenly distributed. Residential patterns, provider locations, mobility, and municipal conditions shape the practical availability of school choice and the composition of school intakes (Harvey, 2006; Massey & Denton, 1993). Together, these perspectives connect family resources, provider organization, and local geography to the production of grades. Equity and validity are used as evaluative lenses. Equity concerns whether comparable demonstrated mastery is translated into comparable grades across social and local contexts. Validity concerns what grades represent and how defensible the grade signal remains when it is used for selection across contexts.

Data and Methods

The analyses use three complementary data sources. The Gothenburg Educational Longitudinal Database (GOLD) provides merit ratings and background measures for students completing grade 9 in 1998–2020 and subject grades for 1998–2017. Custom register extracts from Statistics Sweden (SCB) provide richer information on students, households, providers, and municipal context for 2014–2022. Evaluation Through Follow-Up (UGU) supplies linked final grades and national test scores for the cohort born in 1998 and graduating in 2014. Each source serves a distinct analytical purpose.

Socioeconomic background is operationalized mainly through parental education and income. The ordered parental-education measure distinguishes compulsory schooling only, upper-secondary education, short tertiary education, and long tertiary education, defined as four years or more. The binary measure identifies students with at least one parent with three years or more of tertiary education. The later high-SES indicator identifies students who have at least one

parent with four years or more of tertiary education and whose disposable household income is in the top cohort-specific quartile. Its comparison group comprises all other students. Municipal median disposable income is adjusted using the Consumer Price Index (CPI) and expressed in constant 1998 prices. It captures the broader local socioeconomic context and should not be interpreted as a direct measure of school resources.

School-market saturation refers to the municipal share of final-year students attending independent schools. Individual independent-school attendance is a separate measure. Low-, medium-, and high-saturation municipal groups are recalculated annually. In the observed data, the low-saturation group contains municipalities with no independent-school attendance. Group membership can therefore change between graduation years.

The design combines descriptive statistics, correlations, fixed-effects regressions, observed–predicted models, and propensity score matching. The Chapter 7 benchmark follows the general observed–predicted logic of the Swedish National Agency for Education's SALSA model. SALSA adjusts for parents' average education level, the share of boys, and the share of newly arrived students, including students with unknown background in the current model. The dissertation estimates its own broader model from the SCB extracts. Its school-year predictors are the shares of female students, students with migration background, students in the parental-education categories, and students in household-income quartiles, together with the urbanization degree of the school municipality and municipality and year fixed effects. The model is estimated by weighted least squares, using school-year student counts as weights and municipality-clustered standard errors.

In the UGU comparison, independent-school students are matched 1:1 to municipal-school students using nearest-neighbor propensity score matching. Propensity scores are estimated from gender and migration background, and students are matched within the same parental-education category. A caliper of 0.05 limits the absolute difference in estimated attendance probabilities between matched students. Grade–test relationships are then estimated for the matched groups.

The analyses describe patterns and provide conditional comparisons. They do not identify causal effects. Baseline standardization facilitates comparison of grade-based developments without making the grading scales psychometrically identical. Observed–predicted differences remain dependent on the measured covariates. Data are pseudonymized, results are reported in aggregated form, and the large for-profit provider groups are anonymized.

Merit Ratings, Socioeconomic Background, and School Markets Over Time

Chapter 6 shows that annual mean final merit ratings increased between 1998 and 2020. The baseline-standardized series, expressed in units of the 1998 standard deviation, rises under Lpo94 and continues upward under Lgr11. The increase therefore began before the grading-scale transition, although the additional passing steps introduced under Lgr11 remain relevant to its interpretation. This trend in a grade-based selection measure does not by itself establish that achievement improved.

Over the same period, the share of students with at least one parent with long tertiary education rose from 10.7 to 22.6 percent. Parental education is positively associated with merit ratings throughout the period. The ordered measure, examined using Spearman's rho, captures a stronger relationship and a clearer increase in the later years than the binary measure, examined using Pearson's *r*. Socioeconomic differentiation thus extends across the parental-education hierarchy. The lowest educational category becomes more negatively associated with merit ratings over time, while the highest category remains positively associated with them.

Municipal median income also becomes more closely associated with merit ratings. Its correlation remains smaller than the parental-education association, but increases from .036 in 1998 to .168 in 2020. Grades thus become more closely tied both to family educational resources and to the broader local socioeconomic context.

Independent-school attendance and the municipal independent-school share likewise become more strongly associated with merit ratings. Between 1998 and 2020, the correlation rises from .055 to .136 for individual attendance and from .028 to .119 for the municipal share. Both measures are positively and increasingly related to parental education, while municipal income is more closely connected to the local concentration of independent schools than to individual attendance.

These associations are also examined across saturation groups for 2003–2020. The parental-education correlation is consistently strongest in high-saturation municipalities and weakest in low-saturation municipalities. Municipal income shows a similar overall pattern, although the annual ordering is less uniform. The groups also differ in population density, demographic composition, and family resources, so the comparison cannot isolate an effect of market saturation. The strongest grade-based socioeconomic gradients are found where independent-school presence and social and spatial differentiation overlap.

Grade Divergence in Local School Markets

Chapter 7 examines composition-adjusted provider differences during 2014–2022. Grade divergence is the difference between a school's observed mean merit rating and its model-predicted mean for the same graduation year. The local sector gap is then calculated as the student-weighted mean residual for for-profit independent schools minus the corresponding residual for municipal schools within the same municipality and graduation year. A positive gap indicates a higher average residual in the for-profit sector.

In the pooled comparison, residuals differ by ownership sector. Municipal schools have a small negative residual of −1.16 merit-rating points, non-profit independent schools a positive residual of 2.36, and for-profit independent schools a larger positive residual of 5.95. Among the anonymized for-profit provider groups, Provider A has the largest pooled residual at 12.65, followed by Providers B at 5.78 and C at 3.24. The annual average local sector gap remains positive throughout 2014–2022, at approximately 6.5–8.0 merit-rating points (Tables 7.5–7.6).

The municipal analysis includes 84 municipalities with at least 2,000 grade 9 students over 2014–2022 and both municipal and for-profit independent schools present in at least one graduation year. Of these, 71 have positive pooled sector gaps and account for 91.0 percent of students in the included municipalities. The mean pooled gap is 6.823 merit-rating points, the median is 8.160, and the student-weighted mean is 8.067. The gap has a small positive unweighted correlation with the pooled for-profit share (r = .23), although municipalities with similar shares can have very different gaps (Figure 7.2; Appendix C).

The student-level analysis relates local divergence to socioeconomic differences in merit ratings. In the main student-level model with municipality and year fixed effects, the interaction between high SES and the local sector gap is positive (b = 0.137, p < .01). At a local sector gap of zero, the model predicts a high-SES advantage of 36.48 merit-rating points. A 10-point larger gap is associated with an additional predicted advantage of approximately 1.37 points. The comparison is between high-SES students and all students not classified as high SES. With school fixed effects, the interaction is attenuated and no longer statistically distinguishable from zero. This is consistent with the pattern being expressed primarily through between-school and between-sector differentiation within municipalities (Table 7.7; Appendix D).

Independent schools have lower shares of certified teachers and teachers with special-education qualifications, and more students per teacher and guidance counselor, while enrolling more students from high-income households. Higher residuals therefore cannot simply be equated with better school quality. The

residuals may reflect grading practices, instructional conditions, unmeasured student composition, or other institutional features. The chapter shows that local provider divergence is geographically distributed and associated with socioeconomic differences in merit-rating advantages.

Subject Grades and the Internal Structure of the Merit Rating

Chapter 8 examines the subject-grade structure underlying the aggregate merit rating. Longitudinal statistics are calculated for each subject and summarized by domain. Natural-science, social-science, and practical-aesthetic domain values are unweighted means of the constituent subject-specific statistics. Swedish, English, Mathematics, and Technology are retained separately where relevant.

Subject domains differ in their correlations with the aggregate merit rating. Social-science and natural-science subjects have the highest mean correlations with total merit ratings, while practical-aesthetic subjects have the lowest. Swedish and Mathematics are also closely related to the aggregate. Technology shows the largest increase in correlation over 1998–2017, from .698 to .822. Because subject grades contribute to the merit rating, high correlations are expected. These describe differences in alignment between subjects and the aggregate, rather than independent contributions to it.

Patterns of grade growth also differ across subjects. Between 1998 and 2017, practical-aesthetic subjects, English, and Technology show particularly clear baseline-standardized grade growth. Swedish increases more moderately, while Mathematics follows a less even trajectory. The subjects most closely aligned with total merit ratings are therefore not necessarily those with the strongest growth.

Socioeconomic and school-market differences are also uneven across subjects. The standardized grade gap between the highest and lowest parental-education categories widens particularly in English and Technology, with substantial widening in Mathematics and practical-aesthetic subjects. Swedish shows more limited change. By 2017, standardized grade differences between high- and low-saturation municipalities had increased relative to 1998 across domains, with Technology and English especially prominent. The parental-education gap also became more differentiated between high- and low-saturation municipalities. By 2017, the difference between these municipal groups in the size of the standardized parental-education gap had increased relative to 1998 in every domain, although annual patterns fluctuate.

The matched UGU comparison adds a common performance reference for Swedish, English, and Mathematics. The matched sample comprises 2,059

students in each sector. Final grades and national test scores are positively related in both municipal and independent schools. The estimated slopes for municipal and independent schools, respectively, are 1.05 and 1.03 in Mathematics, 0.82 and 0.80 in English, and 0.83 and 0.82 in Swedish. Municipal-school slopes are slightly steeper, with substantially overlapping confidence intervals. A steeper slope indicates a larger grade change per test-score unit and does not necessarily imply a stronger correlation. The results show broadly similar grade–test relationships in this matched cohort, without establishing identical grading levels across providers. The national tests provide a shared reference, but were not fully externally marked (Figure 8.6; Appendix B).

The later observed–predicted analysis covers Mathematics, Swedish, English, History, Technology, and Music during 2014–2022. Municipal schools are close to predicted levels, while non-profit and for-profit independent schools have positive discrepancies in all six subjects. Non-profit independent schools show larger discrepancies than the aggregate for-profit category in every subject. Within the for-profit sector, however, Provider A has the largest discrepancy in each subject, and Provider B exceeds the non-profit category in several subjects. English has the largest positive discrepancy across the independent-school rows (Tables 8.1–8.2).

The different sectoral orderings in Chapters 7 and 8 reflect related but distinct comparisons. Chapter 7 examines composition-adjusted deviations in aggregate merit ratings within local school markets, while Chapter 8 examines discrepancies between observed and predicted subject grades across ownership categories and provider groups. Together, they show why neither the total merit rating nor a broad municipal–independent distinction fully captures the pattern. English is the most consistent case across the subject analyses, with Technology also prominent.

Grades as Stratified Institutional Signals

The empirical chapters connect strengthening socioeconomic gradients, local provider divergence, and differences between school subjects. Chapter 9 interprets this pattern through the class, market, and spatial perspectives developed in the theoretical framework.

Family resources shape students' opportunities to acquire and use educational credentials. How providers are organized affects the institutional conditions under which grades are produced. The practical range of school choice, competition, and student sorting depends in turn on municipal context. Subject differences show how these processes are reflected within the components of the aggregate credential.

Grades are therefore understood as stratified institutional signals. They remain connected to assessed performance and carry formal value in selection, but their distribution and comparability are also patterned by the settings in which they are produced. Comparability is consequently a sociological as well as a technical problem. The central issue is how stable the meaning of a grade remains across schools, municipalities, provider structures, and school subjects when locally produced judgments are used in a common admissions system.

Policy Implications

The findings support stronger common reference points for grading, including external assessment, moderation, and calibration. The discussion also distinguishes between securing grade comparability and compensating for broader inequalities in educational opportunity. More comparable grades do not remove unequal learning conditions, differences in family resources, or unequal access to favorable school contexts. Contextual compensation at the admissions stage could take these inequalities into account while retaining grades as measures of assessed performance. Changes in provider governance, resources, and oversight concern the institutional conditions under which both learning and grading take place.

The 2026 Swedish grading reform, scheduled to be introduced from 2028, provides the immediate policy context. It introduces a ten-step scale from 1 to 10 and centrally assessed national final tests. For admissions, a value based on teacher-set grades is calibrated using school-level test results. The merit value combines this calibrated grade component at 70 percent with the student's individual test component at 30 percent (Prop. 2025/26:197; SOU 2025:18). The official simulations in SOU 2025:18 do not examine the municipality-specific sector gaps used in this dissertation. Chapter 9 therefore presents an illustrative simulation of these gaps under a uniform proportional adjustment.

The pooled local sector gaps are rescaled from the 0–320 merit-rating scale to the 1–10 metric by multiplying each gap by 9/320. The scenario combines the test weight of 0.30 with an illustrative parameter of 0.35 derived from reassessment evidence (Skolinspektionen, 2018a). Their product is 0.105, implying a uniform reduction of 10.5 percent. The student-weighted mean gap falls from 0.227 to 0.203, while signs and ordering remain unchanged. The same 71 of 84 municipalities retain positive gaps and continue to account for 91.0 percent of students in the included municipalities. This persistence follows from applying the same proportional rule throughout. The exercise does not reproduce school-specific calibration or behavioral responses and is not an estimate of the

reform's effects. It motivates evaluation of local provider differences and socioeconomic gradients alongside average grade–test discrepancies.

Limitations and Conclusion

The analyses identify associations within a period of overlapping institutional, demographic, and educational change and cannot separate the effects of individual reforms. Observed–predicted differences remain conditional on measured student composition and context, while the matched grade–test comparison concerns one cohort and three subjects. Provider anonymization and register data limit direct analysis of corporate organization and everyday assessment practices. Municipalities are useful but imperfect proxies for local school markets.

Future research can connect these patterns to classroom assessment, school organization, and provider governance through richer longitudinal data, organizational studies, and quasi-experimental designs. Comparisons across additional cohorts and subjects, together with finer-grained spatial analyses, can clarify how the patterns vary across settings. Once post-reform data are available, evaluation should examine local sector gaps, socioeconomic gradients, and subject differences alongside grade–test alignment.

The dissertation brings socioeconomic stratification, provider structure, local geography, and subject composition into the same analysis of final grades in compulsory school. Grades remain meaningful, but their meaning is not independent of the institutional settings in which they are assigned and used. If grades are to function as fair and comparable credentials, their governance needs to address both assessment practices and the social and organizational conditions under which grade-based educational opportunities are distributed.

Appendix

Appendix A. Statistical Formulas

This appendix summarizes the main statistical formulas used in Chapters 6–9. The formulas document the construction of the central measures and model-based quantities used in the empirical analyses. They are intended as compact representations of the analytical procedures described in the main text, rather than as a full reproduction of all model variants, robustness checks, or implementation details.

A1. Notation

Let i index students, s schools, m municipalities, and t grade 9 cohort years. Let d index subject domains, k individual subjects, g groups, sectors, or provider groups, and p school type in the UGU grade–test analyses. The main outcome in Chapters 6 and 7 is the final merit rating in compulsory school, denoted by Y with student, school, municipality, and year subscripts. In the subject-level analyses in Chapter 8, final subject grades are denoted by Y with student and subject subscripts.

The following notation is used throughout the appendix. Y with subscripts i, s, m, and t denotes the final merit rating in compulsory school for student i in school s, municipality m, and cohort year t. Y with subscripts i and k denotes the final subject grade for student i in subject k. Mean grades are marked with an overbar. Thus, the mean grade in subject domain d and year t is denoted by an overbarred Y with subscripts d and t. The observed school-level mean merit rating for a given graduation year is denoted by an overbarred Y with subscripts $s, m,$ and $t,$ while the observed school-level mean grade in subject k for a given graduation year is denoted by an overbarred Y with subscripts $k, s, m,$ and t.

The indicator for high socioeconomic status is denoted by H, with student subscript i. Individual-level controls are collected in the vector X, while municipality–year contextual variables are collected in the vector Z. The measured intake composition of a school in a given graduation year is denoted by B. In the propensity score matching analysis, T denotes treatment status, where treatment refers to independent-school attendance, and W denotes the

covariate vector used to estimate the propensity score. The resulting propensity score for student *i* is denoted by *p* with student subscript *i*, while *PE* denotes the parental-education category used for exact matching. Student-weighted means are marked with the superscript *w*. The number of students in a school in a given graduation year is denoted by *N*.

Municipality, school, and year fixed effects are denoted by the conventional Greek *letters mu, delta,* and *lambda*, respectively, with the relevant subscripts. Error terms are denoted by *epsilon*, with subscripts adjusted to the relevant level of analysis.

A2. Subject-Level Change and Standardized Group Gaps

Chapter 8 calculates each statistic separately for subject k and graduation year t before summarizing the results by subject domain. Let K_d denote the set of constituent subjects in domain d, and let $|K_d|$ denote the number of subjects in that domain. For the natural-science, social-science, and practical-aesthetic domains, the plotted domain value is the unweighted arithmetic mean of the constituent subject-specific statistics. Swedish, English, Mathematics, and Technology are represented by their corresponding single-subject statistics.

The standardization differs across the analyses. Figure 8.2 expresses each subject's change in units of its own 1998 standard deviation. Figures 8.3–8.5 instead use Cohen's *d*, calculated separately for each subject and year with the contemporaneous pooled standard deviation of the compared groups. The corresponding 1998 value is then subtracted.

Baseline-Standardized Subject Change and Domain Mean

(A2.1)

$$\Delta_{kt} = \frac{\overline{Y}_{kt} - \overline{Y}_{k,1998}}{\mathrm{SD}_{k,1998}} \qquad \Delta_{dt} = \frac{1}{|K_d|} \sum_{k \in K_d} \Delta_{kt}$$

Equation A2.1 expresses each subject's change from 1998 in units of that subject's 1998 standard deviation. A value of 0.50 therefore means that the mean grade in the relevant year is half of a 1998 standard deviation higher than the 1998 mean; a negative value indicates a decline. For domains containing several subjects, the reported domain value is the unweighted arithmetic mean of the constituent subject-specific changes. The same baseline-standardization procedure is applied to the aggregate final merit rating in Chapter 6, using the 1998 mean and standard deviation of that aggregate measure.

Change in a Contemporaneously Standardized Group Gap

(A2.2)

$$d_{kt} = \frac{\overline{Y}_{A,kt} - \overline{Y}_{B,kt}}{\mathrm{SD}_{\mathrm{pooled},kt}}$$

$$\Delta d_{kt} = d_{kt} - d_{k,1998} \qquad \Delta d_{dt} = \frac{1}{|K_d|} \sum_{k \in K_d} \Delta d_{kt}$$

Equation A2.2 first expresses the mean-grade difference between groups *A* and *B* in units of their contemporaneous pooled standard deviation. It then subtracts the corresponding standardized difference in 1998. A value of 0.15 therefore means that the standardized group gap is 0.15 standard deviations larger than it was in 1998. For multi-subject domains, the reported value is the unweighted arithmetic mean of the constituent subject-specific changes. In the parental-education comparison, group *A* is four years or longer tertiary education and group *B* is compulsory school or lower.

Change in the Parental-Education Gap Difference Across Market Contexts

(A2.3)

$$\Delta d_{kt}^{\mathrm{market}} = \left(d_{kt}^{\mathrm{high}} - d_{kt}^{\mathrm{low}}\right) - \left(d_{k,1998}^{\mathrm{high}} - d_{k,1998}^{\mathrm{low}}\right)$$

$$\Delta d_{dt}^{\mathrm{market}} = \frac{1}{|K_d|} \sum_{k \in K_d} \Delta d_{kt}^{\mathrm{market}}$$

Equation A2.3 compares the parental-education grade gap in high- and low-saturation municipalities. It first subtracts the low-saturation gap from the high-saturation gap in each subject and year and then subtracts the same high-minus-low difference in 1998. Positive values indicate that the two market contexts have moved further apart since 1998; negative values indicate that they have moved closer together. This statistic provides a descriptive comparison of changes in standardized gaps across market-saturation contexts. Multi-subject domain values are unweighted arithmetic means of the constituent subject-specific values.

A3. Generic Regression Framework

The following equations provide a generic representation of the regression framework used to examine associations between socioeconomic background, contextual variables, and final merit ratings in compulsory school. The exact model specification varies across chapters and tables. In Chapter 6, the models mainly support descriptive and correlational analyses of longitudinal patterns. In Chapter 7, fixed-effects specifications are used in relation to local sector-gap measures.

Read the three equations as increasingly restrictive versions of the same association. Equation A3.1 shows the basic relationship after the listed individual and contextual controls have been included. Equation A3.2 additionally compares observations within municipalities while accounting for common year shifts. Equation A3.3 compares cohorts within the same schools while accounting for common year shifts. The equations are schematic maps of the model structure and do not imply that every empirical chapter uses every listed term.

Baseline Student-Level Model

(A3.1)

$$Y_{ismt} = \alpha + \beta_1 H_i + \boldsymbol{\beta}_2^{\mathsf{T}} X_i + \boldsymbol{\beta}_3^{\mathsf{T}} Z_{mt} + \varepsilon_{ismt}$$

Municipality Fixed-Effects Model

(A3.2)

$$Y_{ismt} = \alpha + \beta_1 H_i + \boldsymbol{\beta}_2^{\mathsf{T}} X_i + \boldsymbol{\beta}_3^{\mathsf{T}} Z_{mt} + \mu_m + \lambda_t + \varepsilon_{ismt}$$

School Fixed-Effects Model

(A3.3)

$$Y_{ismt} = \alpha + \beta_1 H_i + \boldsymbol{\beta}_2^{\mathsf{T}} X_i + \delta_s + \lambda_t + \varepsilon_{ismt}$$

In these models, the coefficient attached to the high-SES indicator captures the association between high socioeconomic status and final merit rating in compulsory school, conditional on the included covariates and fixed effects. Individual-level controls are included through the student-level covariate vector. Contextual variables measured for each municipality and year vary across analyses and may include municipal median income, market saturation, provider composition, or other municipality-by-year characteristics.

The fixed-effects specifications adjust for time-invariant differences at the municipality or school level, depending on the model. Year fixed effects account

for common period-specific shifts in grade levels, grading regimes, or other cohort-level conditions.

A4. Propensity Score Matching and Grade–Test Alignment

The matched-cohort analysis in Chapter 8 uses propensity score matching to compare students in municipal and independent schools in the 1998 birth cohort. The purpose is to improve comparability between students before examining grade–test alignment in Swedish, English, and Mathematics.

Propensity Score Model

(A4.1)

$$p_i = \Pr(T_i = 1 \mid W_i) = \text{logit}^{-1}\left(\alpha + \boldsymbol{\beta}^{\mathsf{T}} W_i\right)$$

Equation A4.1 represents each student's estimated probability of attending an independent school, based on gender and migration background. The probability is estimated with logistic regression. Parental education is not included in the propensity-score distance; instead, it is used as an exact matching condition in Equation A4.2.

Matching Rule

(A4.2)

$$\mathcal{C}_i = \{j : T_j = 0,\ \text{PE}_j = \text{PE}_i,\ |p_i - p_j| \le 0.05\}, \qquad T_i = 1$$

$$j(i) = \underset{j \in \mathcal{C}_i}{\arg\min} |p_i - p_j|$$

Equation A4.2 describes the matching step. Each student attending an independent school is matched 1:1 to the municipal-school student in the same parental-education category whose propensity score is closest, provided that the absolute difference between the two scores does not exceed 0.05. In Equation A4.2, C with student subscript *i* denotes the set of eligible municipal-school matches for treated student *i*, and *j(i)* denotes the selected nearest-neighbor match. The matching creates more comparable groups for the subsequent subject-specific grade–test regressions. No separate *ATT* estimate is reported.

Grade–Test Alignment Model

(A4.3)

$$Y_{ikp} = \alpha_{kp} + \beta_{kp}\,\mathrm{Test}_{ik} + \varepsilon_{ikp}$$

Equation A4.3 relates final grades in a given subject to the corresponding national test score. It is estimated separately by subject and school type. The grade–test slope indicates the estimated change in final subject grade associated with a one-unit increase in the national test score within each school type. This supports the Chapter 8 comparison of grade–test alignment in the UGU cohort before the analysis turns to the broader Lgr11-period observed–predicted subject-grade discrepancies.

A5. Grade Divergence and the Local Sector Gap

Chapter 7 constructs a residual measure of grade divergence using school-level mean merit ratings for each graduation year. The logic is to compare observed mean merit ratings with predicted means based on measured intake composition and fixed effects. The resulting residuals are then used to construct local sector gaps between for-profit independent and municipal schools within municipalities and years.

School-Level Mean Merit Rating

(A5.1)

$$\overline{Y}_{smt} = \frac{1}{N_{smt}} \sum_{i=1}^{N_{smt}} Y_{ismt}$$

Equation A5.1 defines the observed mean final merit rating for a school in a given graduation year as the arithmetic mean of the individual final merit ratings of students in that school–year observation.

Composition-Adjustment Model

(A5.2)

$$\overline{Y}_{smt} = \alpha + \boldsymbol{\beta}^{\mathsf{T}} B_{smt} + \boldsymbol{\gamma}^{\mathsf{T}} Z_{mt} + \mu_m + \lambda_t + \varepsilon_{smt}$$

Equation A5.2 is a simplified representation of the benchmark model used to estimate expected school mean merit ratings. The model combines measured intake composition with the urbanization degree of the school municipality, and

municipality and year fixed effects. It is intended to show the structure of the adjustment rather than reproduce every coefficient reported in Table 7.4.

Predicted School-Level Mean Merit Rating

(A5.3)

$$\widehat{\overline{Y}}_{smt} = \widehat{\alpha} + \widehat{\boldsymbol{\beta}}^{\mathsf{T}} B_{smt} + \widehat{\boldsymbol{\gamma}}^{\mathsf{T}} Z_{mt} + \widehat{\mu}_m + \widehat{\lambda}_t$$

Equation A5.3 retains the fitted components of Equation A5.2 to produce the predicted mean merit rating for each school and graduation year. The prediction reflects measured intake composition, municipality–year context, and the relevant fixed effects; the unexplained residual is not included in the prediction.

Grade Divergence

(A5.4)

$$R_{smt} = \overline{Y}_{smt} - \widehat{\overline{Y}}_{smt}$$

Equation A5.4 defines grade divergence as the difference between the observed and predicted mean merit rating for a school in a given graduation year, after accounting for measured intake composition, municipality–year context, municipality fixed effects, and year fixed effects. Positive residuals indicate that observed mean merit ratings are higher than predicted, while negative residuals indicate that observed mean merit ratings are lower than predicted.

Local Sector Gap

(A5.5)

$$\overline{R}^{w}_{gmt} = \frac{\sum_{s \in \mathcal{S}_{gmt}} N_{smt} R_{smt}}{\sum_{s \in \mathcal{S}_{gmt}} N_{smt}}$$

$$G_{mt} = \overline{R}^{w}_{\mathrm{FP},mt} - \overline{R}^{w}_{\mathrm{MUN},mt}$$

Equation A5.5 first calculates the student-weighted mean residual separately for for-profit independent and municipal schools within each municipality and graduation year. In Equation A5.5, the calligraphic *S* with subscripts *g, m,* and *t* denotes the set of schools in sector *g*, municipality *m*, and graduation year *t*. Schools with more students in that graduation year therefore receive greater weight. The local sector gap is then calculated as the weighted for-profit mean residual minus the weighted municipal mean residual. Positive values indicate higher residual merit ratings in the for-profit sector within the same local context.

Student-Level Model with Sector-Gap Interaction

(A5.6)

$$Y_{ismt} = \alpha + \beta_1 H_i + \beta_2 G_{mt} + \beta_3 (H_i \times G_{mt}) + \boldsymbol{\gamma}^{\mathsf{T}} X_i + \mu_m + \lambda_t + \varepsilon_{ismt}$$

Equation A5.6 shows the structure of the student-level interaction model. Its central term is the interaction between high SES and the local sector gap. A positive interaction indicates that the SES-associated merit-rating advantage is larger in municipality–year contexts where the for-profit-minus-municipal residual gap is larger. The model estimates the conditional association between the local sector gap and the SES-related merit-rating advantage.

A6. Observed–Predicted Subject-Grade Discrepancies

Chapter 8 extends the observed–predicted logic to subject-grade outcomes during the Lgr11 period. As in Chapter 7, each observation represents one school in one graduation year. For each subject, the observed school-level mean subject grade is compared with a predicted mean based on measured intake composition, municipality–year context, municipality fixed effects, and year fixed effects. The observed–predicted discrepancy is the observed mean minus the predicted mean. Group-level discrepancies are student-weighted averages of these school–year residuals within ownership sectors or provider groups. These model-dependent residual differences provide descriptive comparisons across ownership sectors and provider groups, with grade inflation and grading practice requiring separate evidence.

School-Level Mean Subject Grade

(A6.1)

$$\overline{Y}_{ksmt} = \frac{1}{N_{smt}} \sum_{i=1}^{N_{smt}} Y_{ik}$$

Equation A6.1 defines the observed mean grade in a given subject for a school in a given graduation year. It is calculated by averaging individual subject grades within that school and graduation year.

Subject-Grade Composition-Adjustment Model

(A6.2)

$$\overline{Y}_{ksmt} = \alpha_k + \boldsymbol{\beta}_k^{\mathsf{T}} B_{smt} + \boldsymbol{\gamma}_k^{\mathsf{T}} Z_{mt} + \mu_{km} + \lambda_{kt} + \varepsilon_{ksmt}$$

Equation A6.2 is the subject-specific counterpart to the Chapter 7 benchmark model. For each subject, the observed school mean is modeled using measured intake composition, municipality–year context, municipality fixed effects, and year fixed effects. The equation is a compact map of the adjustment rather than a complete coefficient-by-coefficient specification.

Predicted School-Level Mean Subject Grade

(A6.3)

$$\widehat{\overline{Y}}_{ksmt} = \widehat{\alpha}_k + \widehat{\boldsymbol{\beta}}_k^{\mathsf{T}} B_{smt} + \widehat{\boldsymbol{\gamma}}_k^{\mathsf{T}} Z_{mt} + \widehat{\mu}_{km} + \widehat{\lambda}_{kt}$$

Equation A6.3 uses the fitted components of Equation A6.2 to calculate the predicted school mean for each subject and graduation year. The prediction represents the grade level expected from the measured intake and contextual variables included in the model.

Observed–Predicted Subject-Grade Discrepancy

(A6.4)

$$D_{ksmt} = \overline{Y}_{ksmt} - \widehat{\overline{Y}}_{ksmt}$$

Equation A6.4 defines the observed–predicted subject-grade discrepancy as the difference between the observed school-level mean subject grade for a given graduation year and the corresponding model-predicted mean. Positive values indicate that the observed mean subject grade in the school in a given graduation year is higher than predicted. Negative values indicate that the observed mean subject grade is lower than predicted.

Group-Level Mean Subject-Grade Discrepancy

Group-level discrepancies are calculated as student-weighted averages across schools and graduation years:

(A6.5)

$$\overline{D}_{kg}^{w} = \frac{\sum_{(s,m,t)\in\mathcal{G}_g} N_{smt} D_{ksmt}}{\sum_{(s,m,t)\in\mathcal{G}_g} N_{smt}}$$

Equation A6.5 calculates the group-level subject-grade discrepancy as a student-weighted average of school-level discrepancies. In Equation A6.5, the calligraphic G with subscript g denotes the set of school–municipality–year observations belonging to group g. A school with more students in a given graduation year therefore contributes proportionally more to the ownership-sector or provider-group mean. The weighting summarizes the experience of students rather than giving every school–graduation-year observation equal influence.

A7. Illustrative Simulation Related to the 2026 Grading Reform

SOU 2025:18, Appendix 3, already presents simulations of the proposed merit-value calibration model, including average changes for municipal and independent schools. Chapter 9 addresses a different and narrower question by applying an illustrative simulation to the pooled local sector gaps reported in Appendix C: how would the municipality-specific Grade Divergence measure change under a uniform proportional compression? The calculation does not reproduce the official simulations or the school-specific calibration of means and dispersion proposed for the 2026 reform and should not be interpreted as a forecast.

The gaps are first rescaled from the 0-320 merit-value metric to a 1-10 metric. The scenario then combines the national-final-test weight of 0.30 with an illustrative parameter of 0.35 derived from reassessment evidence (Skolinspektionen, 2018a, pp. 24-25, 42). Applied proportionally, these assumptions imply a 10.5% compression and retain 89.5% of every rescaled gap.

General Rescaling Formula

(A7.1)

$$SG_m^{10} = \frac{9}{320} SG_m^{\text{obs}}$$

Equation A7.1 rescales the pooled local sector gap from the existing 0–320 merit-value scale to a 1–10 metric. In Equations A7.1 and A7.2, *SG* denotes the local sector gap, while the superscripts *obs, 10*, and *sim* denote the observed gap, the gap rescaled to the 1–10 metric, and the gap in the simulation, respectively. The observed gap refers to the pooled difference between for-profit independent and municipal schools in each of the 84 municipalities reported in Appendix C. Because the quantity being rescaled is a difference between sectors rather than an absolute grade value, the additive part of the scale transformation cancels out. Each observed local sector gap is therefore multiplied by 9/320.

Applied Scenario Formula

(A7.2)

$$SG_m^{\text{sim}} = \left(1 - 0.30 \times 0.35\right) SG_m^{10}$$

Equation A7.2 combines the national-final-test weight of 0.30 with the illustrative scenario parameter of 0.35 to the rescaled local sector gaps. Together, these imply a mechanical reduction of 10.5 percent, meaning that 89.5 percent of each rescaled local sector gap is retained. Each value obtained from Equation A7.1 is therefore multiplied by 0.895. The same calculation is applied to all 84 municipalities. Unweighted summary measures are calculated across the municipal gaps reported in Appendix C, while student-weighted measures use the corresponding Students *(N)* values.

Appendix B. Propensity Score Matching Diagnostics (UGU)

This appendix reports the main balance checks for the matched UGU sample and the subject-specific grade–test regressions used in Chapter 8. Parental education is matched exactly; the remaining balance checks describe gender and migration background.

Table B1
Covariate Balance in the Matched UGU Sample

Variable and category	Municipal schools, *n* (%)	Independent schools, *n* (%)	*p*
Sample size, *n*	2,059	2,059	—
Gender (Boy)	996 (48.4)	992 (48.2)	.925
Gender (Girl)	1,063 (51.6)	1,067 (51.8)	—
Migration background (Swedish background)	1,656 (80.4)	1,642 (79.7)	.813
Migration background (Second-generation immigrant)	300 (14.6)	314 (15.3)	—
Migration background (Foreign adoptive child)	34 (1.7)	29 (1.4)	—
Migration background (First-generation immigrant)	69 (3.4)	74 (3.6)	—

Note. The matching procedure uses 1:1 nearest-neighbor matching within a caliper of 0.05 on the estimated propensity score, combined with exact matching on parental education. Students attending independent schools are matched to students attending municipal schools. The cohort was born in 1998, and the matched sample includes 2,059 students in each group. Because parental education is matched exactly, its distribution is identical across the matched groups by construction and is not repeated here. The *p*-values are descriptive balance checks. Author's calculations based on Evaluation Through Follow-Up (UGU) data.

Table B2

Regression Results for Mathematics, English, and Swedish Grades Predicted by National Test Scores, Estimated Separately by School Type, Graduation Year 2014

Model	Predictor	Estimate	95% *CI*	*p*-value
Mathematics (Municipal Schools)	Intercept	-1.96	[-2.28, -1.64]	< .001
	National Test Score	1.05	[1.03, 1.08]	< .001
Mathematics (Independent Schools)	Intercept	-1.48	[-1.88, -1.08]	< .001
	National Test Score	1.03	[1.01, 1.06]	< .001
English (Municipal Schools)	Intercept	2.75	[2.39, 3.11]	< .001
	National Test Score	0.82	[0.79, 0.85]	< .001
English (Independent Schools)	Intercept	3.09	[2.68, 3.50]	< .001
	National Test Score	0.80	[0.78, 0.83]	< .001
Swedish (Municipal Schools)	Intercept	2.97	[2.62, 3.33]	< .001
	National Test Score	0.83	[0.80, 0.85]	< .001
Swedish (Independent Schools)	Intercept	3.02	[2.63, 3.41]	< .001
	National Test Score	0.82	[0.80, 0.85]	< .001

Note. Estimates are from subject-specific linear regressions of final grades on the corresponding national test scores in the matched UGU sample, estimated separately for municipal and independent schools. CI = confidence interval. Sample composition and size are reported in Table B1. Author's calculations based on Evaluation Through Follow-Up (UGU) data.

Appendix C. Municipalities Included in the Pooled Analysis of For-Profit Marketization and the Local Sector Gap, 2014–2022

This appendix reports the 84 municipalities included in the pooled municipality-level analyses in Chapter 7 and in the mechanical scenario analysis in Chapter 9.

Table C1
Municipalities Included in the Pooled Analysis of For-Profit Marketization and the Local Sector Gap, 2014–2022

Municipality	Code	Pooled For-Profit Share	Pooled Local Sector Gap (Merit Points)	Students *(N)*
Eskilstuna	0484	0.28	24.97	10,879
Karlstad	1780	0.24	21.01	8,123
Tyresö	0138	0.17	20.51	5,308
Hässleholm	1293	0.12	19.55	5,326
Håbo	0305	0.24	18.61	2,507
Sundsvall	2281	0.30	17.81	9,758
Örebro	1880	0.27	17.65	14,479
Upplands Väsby	0114	0.42	17.24	3,976
Vänersborg	1487	0.38	15.79	3,779
Jönköping	0680	0.19	15.11	13,334
Borås	1490	0.17	15.01	10,711
Sigtuna	0191	0.16	14.93	4,537
Nyköping	0480	0.35	14.88	5,666
Strängnäs	0486	0.45	14.23	3,760
Halmstad	1380	0.14	13.73	9,254
Sundbyberg	0183	0.28	13.46	3,236
Sandviken	2181	0.08	13.28	3,677
Bollnäs	2183	0.49	12.72	2,523
Karlshamn	1082	0.20	12.20	3,061
Botkyrka	0127	0.15	11.75	8,421
Borlänge	2081	0.13	11.36	5,482
Falun	2080	0.21	11.36	5,712
Kiruna	2584	0.10	11.27	2,084
Enköping	0381	0.29	11.06	4,406
Solna	0184	0.29	10.99	3,941
Stockholm	0180	0.26	10.83	80,382
Västerås	1980	0.27	10.50	14,423

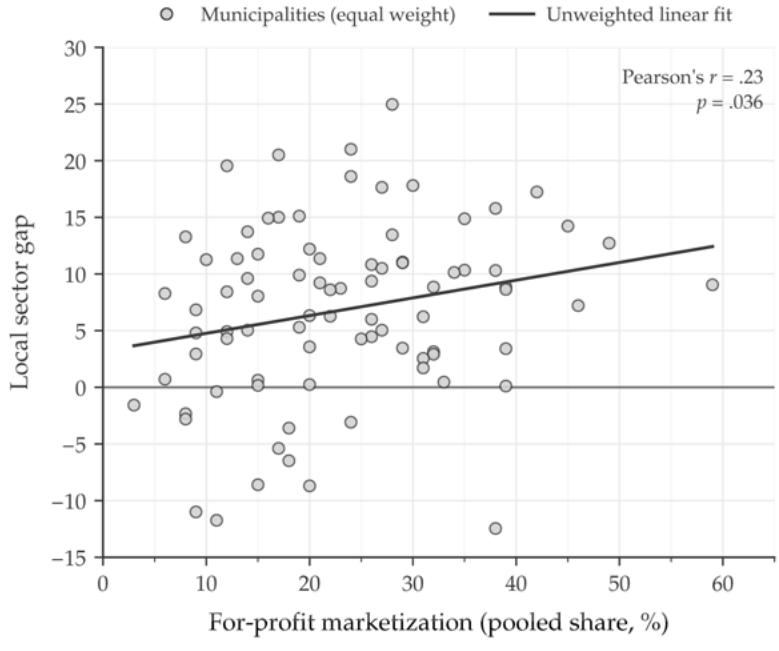
Municipality	Code	Pooled For-Profit Share	Pooled Local Sector Gap (Merit Points)	Students *(N)*
Gävle	2180	0.35	10.34	9,999
Göteborg	1480	0.38	10.31	46,054
Landskrona	1282	0.34	10.14	4,347
Norrtälje	0188	0.19	9.90	5,212
Ale	1440	0.14	9.61	3,145
Helsingborg	1283	0.26	9.37	13,615
Järfälla	0123	0.21	9.22	7,364
Täby	0160	0.59	9.05	10,787
Vallentuna	0115	0.39	8.86	3,212
Boden	2582	0.32	8.85	2,512
Trelleborg	1287	0.23	8.73	4,148
Karlskrona	1080	0.39	8.64	6,695
Huddinge	0126	0.22	8.61	11,211
Malmö	1280	0.12	8.43	25,336
Lomma	1262	0.06	8.28	3,023
Lund	1281	0.15	8.04	12,001
Falkenberg	1382	0.46	7.21	4,299
Ekerö	0125	0.09	6.84	3,100
Södertälje	0181	0.20	6.33	9,856
Österåker	0117	0.22	6.27	4,050
Norrköping	0581	0.31	6.23	13,713
Kungsbacka	1384	0.26	6.00	9,754
Haninge	0136	0.19	5.30	7,280
Växjö	0780	0.27	5.04	9,099
Gotland	0980	0.14	5.04	5,151
Alingsås	1489	0.12	4.92	4,307
Ljungby	0781	0.09	4.80	2,743
Härryda	1401	0.26	4.47	4,299
Hudiksvall	2184	0.12	4.30	3,851
Uppsala	0380	0.25	4.27	20,290
Lidingö	0186	0.20	3.57	4,985
Linköping	0580	0.29	3.46	14,895
Katrineholm	0483	0.39	3.41	3,675
Sollentuna	0163	0.32	3.14	8,755
Lidköping	1494	0.09	2.94	3,665
Vellinge	1233	0.32	2.92	4,255
Nacka	0182	0.31	2.55	12,156

Municipality	Code	Pooled For-Profit Share	Pooled Local Sector Gap (Merit Points)	Students *(N)*
Ronneby	1081	0.31	1.71	2,624
Kungälv	1482	0.06	0.71	4,491
Kristianstad	1290	0.15	0.63	8,317
Ystad	1286	0.33	0.46	3,242
Trollhättan	1488	0.20	0.24	6,171
Luleå	2580	0.15	0.17	6,817
Umeå	2480	0.39	0.11	10,892
Mölndal	1481	0.11	-0.38	6,190
Skellefteå	2482	0.03	-1.57	7,001
Varberg	1383	0.08	-2.33	5,880
Mark	1463	0.08	-2.80	3,627
Mariestad	1493	0.24	-3.08	2,233
Kalmar	0880	0.18	-3.60	6,199
Motala	0583	0.17	-5.39	4,136
Kävlinge	1261	0.18	-6.48	3,319
Uddevalla	1485	0.15	-8.60	5,280
Västervik	0883	0.20	-8.70	3,274
Skövde	1496	0.09	-11.00	5,026
Stenungsund	1415	0.11	-11.74	2,926
Östersund	2380	0.38	-12.46	5,551

Note. The table includes $N = 84$ municipalities meeting two inclusion criteria: (a) a total grade 9 cohort size of at least 2,000 students across 2014–2022 and (b) at least one graduation year in which both a for-profit independent sector and a municipal sector are represented, allowing the local sector gap to be defined. Pooled for-profit share is the pooled proportion of final-year students enrolled in for-profit independent schools. The pooled local sector gap is the student-weighted mean of the graduation-year-specific difference between the for-profit and municipal sector residuals within each municipality, expressed in merit points. Students *(N)* is the municipality's total grade 9 cohort size across 2014–2022 and is used for student-weighted summary measures. Author's calculations based on Statistics Sweden register extracts.

Figure C1

Association Between Pooled For-Profit Marketization and the Pooled Local Sector Gap



Note. Each municipality receives equal weight. For-profit marketization is shown as a percentage in the figure but as a proportion in Table C1. Pearson's $r(82) = .23$, $p = .036$, 95% *CI* [.02, .42], $N = 84$. Author's calculations based on Statistics Sweden register extracts.

The unweighted Pearson correlation indicates a small positive association between pooled for-profit marketization and the pooled local sector gap across municipalities. However, the dispersion is substantial, and the result should not be interpreted as a uniform or deterministic relationship.

Appendix D. Supplementary Analyses and Robustness Checks for Chapter 7

Appendix D reports supplementary analyses that document measurement choices and assess the robustness of the chapter's main results. The appendix is organized in analytically distinct blocks. The first block (D1) reports supplementary fixed-effects specifications for the local sector gap interaction and examines the level at which the main pattern is realized. The second block (D2–D4) reports diagnostics and alternative specifications that speak to marketization-related identification and to the level at which the main pattern is realized (between municipalities, within municipalities over time, and within schools). These supplementary models are not presented as alternative answers to the research question, but as diagnostics that clarify the interpretation and limits of the main specification.

D1. Student-Level Fixed-Effects Models for the Local Sector Gap Interaction

The main student-level fixed-effects model is reported in Table 7.7 in Chapter 7. Table D1 reports related specifications designed to assess whether the local sector-gap interaction is expressed primarily through between-school differentiation within municipalities or through within-school change over time. Column (1) is a comparable, but not identical, year-and-municipality fixed-effects specification; columns (2) and (3) use year and school fixed effects.

Table D1

Supplementary Student-Level Fixed-Effects Models Predicting Final Merit Rating in Compulsory School, 2014–2022

Predictor	(1) Year + Municipality FE	(2) Year + School FE	(3) Year + School FE + 3-way (fp)
High SES	36.5*** (0.949)	32.0*** (0.951)	34.0*** (1.01)
Local Sector Gap	−0.105*** (0.020)	−0.105*** (0.022)	−0.221*** (0.024)
Female	22.1*** (0.465)	21.3*** (0.568)	21.3*** (0.569)
Swedish Background	28.3*** (0.859)	23.8*** (1.03)	23.7*** (1.02)
In Urban Locality	0.427 (0.690)	0.387 (0.716)	0.304 (0.720)
High SES × Local Sector Gap	0.146** (0.044)	0.052 (0.048)	0.084 (0.054)
High SES × For-Profit	—	—	−7.59*** (0.729)
Local Sector Gap × For-Profit	—	—	0.604*** (0.039)
High SES × Local Sector Gap × For-Profit	—	—	−0.187*** (0.054)
Observations	661,518	661,518	661,518
R^2 / Within R^2	0.1668 / 0.1354	0.2312 / 0.1041	0.2323 / 0.1055

Note. Entries are unstandardized coefficients with municipality-clustered standard errors in parentheses. Model 1 includes year and municipality fixed effects. Model 2 includes year and school fixed effects. Model 3 adds interactions with for-profit status to the year-and-school fixed-effects specification. High SES is coded as described in Chapter 5; the reference category comprises students not classified as high SES and should not be labeled low SES. Author's calculations based on Statistics Sweden register extracts.

*p < .05. **p < .01. ***p < .001.

The High SES × local sector gap interaction is positive in Model 1. It is attenuated and no longer statistically distinguishable from zero when school fixed effects are introduced in Models 2 and 3. This is consistent with the main pattern being expressed primarily through between-school differentiation within municipalities rather than through change within the same schools over time. The models serve as diagnostics of whether the main pattern is expressed within or between schools.

D2. Construction Diagnostics for Marketization

Tables D2a–D2b document observed variation over time in municipal for-profit marketization. These diagnostics concern the broader set of municipalities with non-missing marketization values and should not be confused with the 84 municipalities in Appendix C. Municipality fixed-effects estimates are informed only by municipalities in which the marketization measure changes over time.

Table D2a classifies a municipality as having within-period variation when more than one distinct observed value is present during 2014–2022. This identifies the presence of variation; it does not by itself establish that the variation is substantively large.

Table D2a

Diagnostic, Within-Municipality Variation in Municipal For-Profit Marketization, 2014–2022

Statistic	Value
Valid municipalities (non-missing)	281
Municipalities with within-variation in for-profit marketization (unique values > 1)	113
Share of municipalities with within-variation	0.402

Note. Among the 281 municipalities with non-missing marketization values, 113 have more than one distinct observed value during 2014–2022. The corresponding share is 113/281 = 0.402. Author's calculations based on Statistics Sweden register extracts.

Table D2b

Top 10 Municipalities by Within-Period SD in Municipal For-Profit Marketization, 2014–2022

Municipality Code	*SD*
0483	0.379
0482	0.369
1495	0.357
1415	0.354
1315	0.313
0840	0.300
2029	0.290
0860	0.231
2380	0.215
0163	0.195

Note. *SD* = within-period standard deviation in municipal for-profit marketization. Author's calculations based on Statistics Sweden register extracts.

D3–D4. Alternative Marketization Specifications (Between vs Within)

Tables D3–D4 examine an alternative approach where municipal for-profit marketization is entered directly in the student-level model and interacted with high SES. These specifications address the concern that the outcome could be modeled as an SES × marketization relationship rather than via the constructed sector-gap measure. The distinction matters because the between-municipality specification captures cross-sectional differences across municipalities, whereas the within-municipality specification isolates associations with changes in marketization over time within the same municipality.

Table D3 contrasts a between-municipality specification (year fixed effects only) with a within-municipality specification (year and municipality fixed effects). Both models use the same student-level controls and cluster-robust standard errors by municipality.

Table D3
Alternative Student-Level Specifications Using Municipal For-Profit Marketization, 2014–2022

Predictor	(1) Between: Year FE, *b (SE)*	(2) Within: Year + Municipality FE, *b (SE)*
High SES	48.14*** (0.905)	41.12*** (1.524)
Municipal Marketization (Mkt_fp)	20.44*** (5.65)	3.308 (2.076)
High SES × Mkt_fp	-9.517* (4.536)	-7.728 (6.137)
Female	23.53*** (0.439)	23.47*** (0.471)
Swedish Background	31.06*** (1.086)	32.71*** (0.953)

Note. The outcome is final merit rating in compulsory school at the student level. Entries are unstandardized coefficients with municipality-clustered standard errors in parentheses. Model 1 includes year fixed effects and captures between-municipality differences. Model 2 includes year and municipality fixed effects and is identified by changes in marketization within municipalities over time. Municipal for-profit marketization is entered as a proportion. Author's calculations based on Statistics Sweden register extracts.
*p < .05. **p < .01. ***p < .001.

The school fixed-effects specification in Table D4 absorbs all time-invariant differences between schools and tests whether the SES × marketization association is consistent with within-school changes over time as municipal marketization varies across years rather than reflecting stable between-school differences. Because marketization is measured for each municipality and graduation year, this specification asks whether the SES gradient within the same school shifts as the municipal context changes across cohorts.

Table D4
School Fixed-Effects Specification Using Municipal For-Profit Marketization, 2014–2022

Predictor	*b*	*SE* (clustered by municipality)	Sig.
High SES	38.32	1.341	***
Municipal Marketization (Mkt_fp)	–0.393	2.178	
High SES × Mkt_fp	-16.8	4.555	***
Female	22.68	0.562	***
Swedish Background	26.98	1.139	***

Note. The outcome is final merit rating in compulsory school at the student level. Entries are unstandardized coefficients. Standard errors, clustered by municipality, are reported in the adjacent column. The model includes year and school fixed effects and is identified by changes in municipal for-profit marketization across cohorts within the same school. Municipal for-profit marketization is entered as a proportion. Author's calculations based on Statistics Sweden register extracts.

*$p < .05$. **$p < .01$. ***$p < .001$.

Together, Tables D3–D4 show how conclusions differ when marketization is treated as a direct municipal context variable rather than being operationalized through within-municipality sectoral divergence.

Tables D2a–D4 are reported as targeted diagnostics addressing identification and interpretation concerns arising from the analysis. They do not constitute alternative tests of the chapter's research question, which is explicitly about within-municipality sectoral grade divergence (a composition-adjusted residual gap). Tables D3–D4 instead treat municipal for-profit marketization as the key context variable, shifting the estimate from divergence to marketization per se. Moreover, the within-municipality estimate in Table D3 is identified only by municipalities with observed within-period variation in marketization (Tables D2a–D2b), and the school fixed-effects model in Table D4 isolates within-school change and therefore cannot capture the between-school and between-sector differentiation that is conceptually central to sectoral divergence.

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