Scandinavian Journal of Educational Research

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/csje20

Regional Differences in Educational Achievement among Swedish Grade 9 Students

Björn Boman

To cite this article: Björn Boman (2022) Regional Differences in Educational Achievement among Swedish Grade 9 Students, Scandinavian Journal of Educational Research, 66:4, 610-625, DOI: 10.1080/00313831.2021.1897880

To link to this article: https://doi.org/10.1080/00313831.2021.1897880

SCANDINAVIAN JOURNAL OF EDUCATIONAL RESEARCH
2022, VOL. 66, NO. 4, 610–625
https://doi.org/10.1080/00313831.2021.1897880

Regional Differences in Educational Achievement among Swedish Grade 9 Students

Björn Boman

Department of Education, Stockholm University, Stockholm, Sweden

ABSTRACT

The current article examined educational achievement at lower-secondary level in Sweden (Grade 9), using grades and national test results (NTR) as the dependent variables. Linear regressions and bivariate correlations indicated that the proportion of highly-educated individuals in each municipality was positively associated with grades and NTR and that the proportion of welfare recipients and non-natives, as well as rural location, had negative associations. In relation to two case studies with fewer observations, teacher certification rates were more strongly correlated with higher achievement measures. Overall, the NTR of Swedish as a second language (SVA) pupils lowered the overall results in most municipalities. For instance, in low-performing municipalities the native students' NTR was virtually identical to that of the "high-performing" or "best" municipalities when SVA scores were removed. Thus, it seems misguided to highlight "successful" school municipalities whose performance is only average.

ARTICLE HISTORY
Received 14 May 2020
Accepted 23 February 2021

KEYWORDS
Sweden; educational achievement; socioeconomic status; grades; national test scores

Introduction

When measuring, describing, and eventually explaining educational achievement among Swedish pupils at lower-secondary level, four standardized procedures are typically used to evaluate them: grades, national tests, international tests (e.g., TIMSS, PIRLS, PISA), and specific tests constructed by researchers (Björklund et al., 2010; Holmlund et al., 2019). While all these assessments have their set of strengths and weaknesses (Lundahl, 2014), grades—especially non-self-reported grades (Kuncel et al., 2005)—are powerful because they are the result of both cognitive and non-cognitive abilities and are predictive of individuals' future life course (Borghans et al., 2016), often seemingly linked to socio-economic status and cultural capital at the individual, family, and school level (e.g., Myrberg & Rosén, 2009).

Siris, the statistics database of the Swedish ministry of education, Skolverket, allows grades to be matched and compared with national test results in several subjects at Grade 9, at both the municipal and school level. The specific characteristics of Siris make it possible to assess schools, although individual students within those schools are not revealed due to standard ethical guidelines. Both descriptive and potentially explanatory data can be found at SCB (Sweden Statistics), such as the proportion of welfare recipients and highly-educated inhabitants.

While Holmlund et al. (2019), Böhlmark and Lindahl (2015), Björklund et al. (2010), and Gustafsson and Yang Hansen (2018) have, in part, taken a similar approach in their reports on

CONTACT Björn Boman bjorn.boman@edu.su.se
This article has been corrected with minor changes. These changes do not impact the academic content of the article.

Swedish pupils' academic performance, no previous study has used a municipality perspective. Many "exceptional" municipalities—whether strongly or poorly performing—are overlooked in these studies and readers do not have specific information regarding which these are. Moreover, these reports do not build on a specific theoretical framework.

The current cross-sectional study adds to the understanding of educational achievement at lower-secondary level in Sweden, specifically Grade 9 in 2019. It begins with correlational and regression analyses at the national-regional level, covering 288 municipalities in Sweden for which Siris and Sweden Statistics (SCB) data exists. Besides typical explanatory variables related to socio-economic status (SES), demographic composition (proportion of natives and non-natives), and teacher certification ratio (TCR) in each municipality, a novel approach focused on geographical distance is introduced. Then, 8–10 high-performing and 10 low-performing municipalities are compared using similar analytical procedures. A second case study of municipalities and schools at the middling level of the performance spectrum is also conducted. This level of analysis also includes a few specific schools and comparisons between end-term grades and national test results and briefly discusses gender and native/non-native differences. This adds a qualitative dimension to the quantitative analysis, as well as more precision. The aim is not to make inferences about individual achievement, as the methodological approach does not allow for such interpretations, but to identify descriptive and explanatory patterns at the national and regional (municipality) and, to a lesser extent, school level. Moreover, with regard to discourses concerning "failed" and "successful" school municipalities (e.g., Lärarförbundet, 2019a, 2019b), some critical comparisons will be made.

The following research questions are addressed:

RQ1: What factors are associated with high- and low-grade levels at the municipality level?

RQ2: Are these associations stronger or weaker when low-performing and high-performing municipalities are highlighted?

RQ3: What relationships exist between grades and national test results?

The article proceeds with a background section that briefly sketches the contours of the contemporary Swedish educational context, a literature review, a theoretical framework section, a method and data section, results, and a conclusive discussion.

Background: The Contemporary Swedish Education Context

Due to the cumulative processes of democratization, modernization, and emancipation of women (Stanfors, 2003), as well as the growth of material wealth and prosperity in the early twentieth century, the educational system in Sweden was reformed numerous times between 1900 and 1970. Increased secularization paved the way for non-confessional education from the 1950s onwards. However, the major reforms, such as the introduction of the current version of upper-secondary education and the municipal adult education were introduced around 1970 and the regulations have been relatively stable ever since (Richardsson, 2010, pp. 89–140). Further, Imsen et al. (2017) underline that the Nordic model has developed from social democracy via progressivism to neoliberalism.

The national curriculum has been revised several times. The last major revision for the entire school system was launched in 2011 (Lgr 11), with a partial revision in 2018. Sweden offers nine years of mandatory elementary school education, in which "Årskurs 7–9" can be translated into lower-secondary school education. Furthermore, it consists of three years of non-mandatory upper-secondary school, and three to five years of higher education (Skolverket, 2018). In this regard, Fredholm (2017) stresses a conservative response to progressive and horizontal teacher–student relations associated with decreased discipline.

Apart from the knowledge-centered national curriculum of compulsory education, two major reasons for this appear to be free school choice, which leads to increased school segregation (Hennerdal et al., 2020; Larsson, 2019), and high rates of low-skilled migrants from the

1990s onwards (Ekberg, 1999; Sanandaji, 2018). Moreover, economists such as Sanandaji (2018) and migration scholars like Vogiazides and Mondani (2020) have argued that the socio-economic and sociocultural integration of migrants in Sweden has failed, especially in the city of Malmö, leading to an increased fiscal burden and high unemployment and crime rates (Sanandaji, 2018).

As Wiklund (2018) observes, Sweden's teachers are often blamed for poor results in general and among low-SES segments such as second-generation and newly arrived migrants in particular. However, it is far from certain that better teachers—those who would, for instance, be congruent with how Finland's teacher pool was constituted around 2011/2012—do have much of an impact since Swedish teachers' Programme for the International Assessment of Adult Competencies (PIAAC) scores are not greatly below those of their Finnish counterparts and indeed are substantially above the OECD average in that regard (Hanushek et al., 2019). Moreover, as MacIntyre et al. (2018) note, Sweden is overall largely welcoming towards migrants and provides demographically diverse and low-SES municipalities with more economic and material resources compared to other municipalities (Sanandaji, 2018) and other nations like England (MacIntyre et al., 2018). Whereas this does not highlight all didactical and school-specific characteristics relevant for achievement and equality, it does show that these areas are hardly neglected.

Essentially, the Swedish context is signified by a hybrid system of neoliberal-oriented decentralization and school accountability and a center-left compensatory and remedial redistribution system aimed at decreasing differences in opportunity and outcome between different socio-economic strata (Bunar, 2010; Hennerdal et al., 2020). These characteristics might affect patterns at the national level, such as teacher certification rates and even socio-economic composition because low-performing municipalities are often compensated with more, if not better, school resources (Holmlund et al., 2019; Sanandaji, 2018).

Related Literature

Larsson (2019) points to a socio-educational division in current Swedish society, especially in the capital, Stockholm. Whereas some rural areas are associated with high achievement and high-SES family characteristics (e.g., Lundsberg in Värmland), the divide is now between the renowned inner-city schools and the suburban schools with low completion rates and intake ratings (Gynantagningen, 2019). The partial marketization of the Swedish school system has also been emphasized by Imsen et al. (2017) and Hennerdal et al. (2020).

Sanandaji (2018) has underlined anti-social behaviors and poor integration of the country's suburban youth. He also stresses (p. 11) that the three most ethnically diverse municipalities in Sweden have increased their municipal tax equalization revenues since 1996 due to poor performance in the local and national labor market. A report published by Skolverket (2016) indicates that approximately 6–7% of the decreases in PISA 2000–2012 are attributable to migrant participation. Differences in educational attainment and achievement are also underscored in the SOU (Swedish Government Official Report) conducted by Holmlund et al. (2019; see also Skolverket, 2009).

Regarding socio-economic inequalities and gentrification in an international context, Atkinson et al. (2017) examined the nexus between elite formation, power, and socio-geographic space in contemporary London and underscored the relationships between different forms of capital and local and global mechanisms. Pearman (2019) presents a comprehensive review of the recent literature on the relationship between gentrification and educational achievement. Some of the findings might be applicable to the Stockholm region in Sweden and correspond to those of Larsson (2019).

Gustafsson and Yang Hansen (2018) examined changes in the impact of family education on student educational achievement in Sweden, 1988–2014, and found that correlations increased by .04 units between the early 1990s and 2014, partly due to immigration. More or less positive

SES–academic achievement correlations have been found in the US (Sirin, 2005), other developed countries (Tan, 2015), and developing countries (Kim et al., 2019).

In relation to teacher effects, a rich literature emerges from scholars in the US showing that teachers have at least a moderate effect on academic performance (e.g., Hanushek et al., 1996). In Sweden, studies are lacking but Holmlund et al. (2019) stress that the totality of national and international evidence suggests that teachers have a substantial effect on academic performance at lower-secondary level. However, findings from correlational and regression analyses might be spurious because there may be more certified teachers in at least some low-performing schools and municipalities (Holmlund et al., 2019).

Another key area of educational research focused on the secondary level is free school choice and whether it leads to greater competition among schools, as well as greater segregation (Böhlmark & Lindahl, 2015; Hennerdal et al., 2020; Lindbom, 2010). To reiterate, as a result of the Swedish hybrid model highlighted above, there are parallel processes of school segregation and decentralization, on the one hand, and social redistribution, equity, and compensatory measures that derive from the state initiatives, on the other hand (Bunar, 2010). As the review by Bunar (2010) shows, there is no unambiguous evidence that suggests that academic performance has improved due to marketization of the Swedish school system, in particular at the upper-secondary level. However, Holmlund et al. (2019) stress that there seem to be indications of grade inflation, especially in the independent schools.

Other generic factors associated with academic achievement in the Swedish context are gender differences, as girls typically outperform boys, and peer effects (Holmlund et al., 2019; Skolverket, 2009).

Theoretical Framework

Socio-economic status is intimately linked to academic achievement (Sirin, 2005; Tan, 2015), including in Sweden (Gustafsson & Yang Hansen, 2018). However, educational results in Sweden are typically affected by migration, geographical location, and school factors such as teacher competence or certification (Björklund et al., 2010: Gustafsson & Yang Hansen, 2018; Holmlund et al., 2019; Skolverket, 2009). Thus, all these factors must be considered in this context. However, these should typically not be considered as completely separate but often connected factors because highly-educated parents and certified teachers are generally located in the vicinity of urban areas where students might perform best (Holmlund et al., 2019; Yang Hansen & Gustafsson, 2016). However, because of the impact of migration and the Swedish hybrid model in the current educational context, these socio-economic and socio-demographic patterns might be fuzzy or unexpected.

The geographical aspects of cultural and social capital, which are intricately linked with socio-economic status, have been stressed by Bourdieu-inspired research relevant to the Swedish context (e.g., Carlhed, 2017; Larsson, 2019). For instance, major university cities in Sweden attract higher socio-economic status students with higher cultural capital (Carlhed, 2017) and some inner-city schools in Stockholm are considered prestigious locations at which to obtain upper-secondary education (Larsson, 2019). Moreover, typically there is a positive relationship between urban regions and academic achievement in Sweden (Holmlund et al., 2019; Yang Hansen & Gustafsson, 2016).

Therefore, in addition to the research questions, the following hypotheses were considered:

H1: There is a positive relationship between academic achievement and proportion of highly-educated people at the municipality level.

H2: There is a negative relationship between academic achievement and proportion of welfare recipients and non-natives at the municipality level.

H3: There is a negative relationship between academic achievement and geographical distance to major cities at the municipality level.

H4: There is a positive relationship between academic achievement and rates of certified teachers at the municipality level.

Method and Data

This study used aggregated data (inclusive of both municipal and independent schools) from the Skolverket Siris database for lower-secondary level students in 288 of Sweden's 290 municipalities for the year 2019 in relation to *grades in all subjects* (GAS). The percentage of students per municipality who receive documented, non-self-reported grades—which may be seen as a sub-form of obtained cultural capital (Carlhed, 2017)—of E–A in all subjects is understood as the dependent variable. This measure captures both "equity and excellence" as it shows that, in high-performing municipalities, a large proportion of students perform at least "good enough" (E) in all subjects or better. Hence, it was preferred over average national tests scores at this level of the analysis.

Data from SCB on percentage of highly-educated people (i.e., with at least three years of tertiary education) and percentage of welfare recipients, which are used as independent variables, were matched with the data that constituted the dependent variable. A third independent variable was *proportion of certified teachers* (CTR, certified teacher ratio), measured in 2019 (see Siris) to, in a temporal sense, align the variables. A fourth independent variable was geographical *distance from major cities* (DMC), which constitutes cities with at least 100,000 inhabitants, and the important university town Kalmar, which has slightly less than 70,000 inhabitants (see Tables 1 and 2). This variable captures important nuances regarding residence. For instance, urban clusters in Sweden can only partially predict academic achievement due to their heterogeneous populations (Manhica et al., 2018; Vogiazides & Mondani, 2020) and many certified teachers work in towns or cities at a commuting distance from various urban clusters or vice versa. This variable was measured using https://sv.distance.to/ in kilometers by matching each municipality with the closest major city. A negative effect was expected because, on average, the further from a major city, the less likely it is that such municipalities are inhabited by high-SES families and certified teachers. While imperfect, this variable captures geographical dynamics and relationships within the urban–rural continuum in a more nuanced way than simple dichotomies.

The analysis began with bivariate analyses. For a correlational effect size to be considered moderate a correlation of .3–.69 had to be found. Coefficients between .7– and .9 are considered highly correlated (Akoglu, 2018). Potential heteroskedasticity between the independent SES-related variables was controlled for by intercorrelations and collinearity diagnostics in SPSS Statistics 26, which was used for all analyses. No variables had intercorrelations that were considered high, although highly educated and welfare recipients reached r = -.636, and welfare recipients and non-natives reached r = .50 (see Dohoo et al., 1997, for recommendations). Thus, all variables were included in the regressions.

It proceeded with ordinary least squares regressions (OLS) with the above-mentioned variables. The initial estimation model can be described as follows:

$$Grade^{m} = X_{m}^{Ed}\beta + X_{m}^{Welfare}\beta + X_{m}^{Teacher}\beta + X^{Urban}\beta + X_{m}^{Migrant}\beta + e^{m},$$

where *Grade* is the percentage of the degree to which pupils receive grades E–A in all subjects in a municipality ^{m}; $X_{m}^{Ed}\beta$ are the coefficients of the proportion of highly-educated people in a municipality ^{m}; $X_{m}^{Welfare}\beta$ are the coefficients of welfare recipients in a municipality ^{m}; $X_{m}^{Teacher}\beta$ are the coefficients of the proportion of highly-educated teachers in a municipality ^{m}; $X^{Urban}\beta$ are the coefficients of distance to urban regions; $X_{m}^{Migrant}\beta$ are the coefficients of the proportion of the population with a migrant (i.e., non-native) background; and e^{m} is an error term.

Table 1. Descriptive statistics for Swedish municipalities.

Municipality	Grades %	Highly-educated individuals %	Welfare r %	Certified teachers %	Distance	Non-natives %
Ale	75.8	21.5	11.0	84.0	34	22
Alingssås	77.4	25.6	12.4	82.1	42	15
Alvesta	64.8	16.3	16.2	81.8	101	33
Aneby	81.9	15.5	15.6	72.3	40	22
Arboga	70.6	16.9	16.3	80.3	47	24
Arjeplog	82.1	14.7	14.1	80.8	272	12
Arvidsjaur	90.5	15.8	15.9	57.7	203	11
Arvika	76.5	17.6	16.1	74.2	154	18
Askersund	69.2	13.8	13.5	81.3	46	11
Avesta	57.4	14.1	19.4	62.3	63	31
Bengstfors	60.9	13.9	19.1	74.4	148	34
Berg	77.0	14.6	13.6	57.9	312	20
Bjurholm	67.9	14.3	17.5	96.0	52	16
Bjuv	67.2	10.6	16.3	68.8	14	37
Boden	78.6	23.4	14.7	86.5	233	17
Bollnäs	71.6	15.8	20.1	63.8	85	20
Bollebyggds	80.8	22.1	9.9	81.7	36	11
Borgholm	66.7	18.2	15.6	72.8	30	19
Borlänge	58.3	19.0	16.1	71.8	96	32
Borås	73.1	22.8	13.7	76.1	0	33
Botkyrka	69.8	20.1	14.5	66.3	16	52
Boxholm	82.6	14.5	14.0	86.4	52	15
Bromölla	66.9	14.9	16.8	71.3	106	26
Bräcke	62.3	14.7	18.8	60.8	270	19
Burlöv	66.5	22.9	16.5	83.3	7	52
Båstad	76.0	22.8	12.1	84.3	43	20
Dals-Ed	75.5	13.2	14.0	60.7	133	16
Danderyd	93.2	57.3	5.7	84.2	9	17
Degerfors	59.6	10.2	19.9	81.2	45	25
Dorotea	70.4	12.0	16.7	64.7	194	13
Eda	83.6	10.2	13.5	78.8	252	30
Ekerö	84.1	31.6	7.8	74.2	17	13
Eksjö	67.8	22.1	16.0	66.0	50	29
Emmaboda	66.7	13.6	16.9	81.0	50	35
Enköping	73.8	20.2	12.9	74.7	40	22
Eslöv	73.6	22.1	14.9	82.1	32	27
Eskilstuna	69.8	20.9	19.4	74.7	0	38
Essunga	69.6	22.1	15.2	83.3	72	27
Fagersta	64.7	13.9	19.3	71.2	59	37
Falköping	71.7	17.6	16.5	69.3	107	24
Falkenberg	74.4	17.9	12.4	88.9	95	28
Falun	76.4	29.0	11.6	81.3	83	17
Filipstad	79.9	10.2	23.9	62.7	77	32
Finspång	73.7	16.9	16.1	71.2	28	25
Flen	56.4	14.9	21.1	58.9	82	45
Forshaga	69.0	18.3	15.0	84.8	102	10
Färgelanda	60.0	12.4	16.8	84.1	96	17
Gagnef	77.2	17.2	10.5	87.9	113	9
Gislaved	63.8	13.0	14.2	67.2	65	35
Gnesta	65.2	19.6	12.4	66.0	53	15
Gnosjö	65.0	12.1	12.7	76.1	54	40
Gotland	79.5	21.7	13.3	81.3	162	9
Grästorp	88.7	15.8	12.9	77.6	81	11
Grums	67.9	11.5	17.5	77.0	120	14
Gullspång	64.7	11.5	21.2	65.7	72	39
Gällivare	78.8	15.6	11.3	62.6	369	14
Gävle	69.9	25.0	16.5	74.7	0	24
Göteborg	72.9	36.0	13.1	79.7	0	37
Götene	79.2	16.6	14.5	80.6	128	19
Habo	75.0	25.4	9.8	91.7	20	8
Hagfors	70.5	12.5	18.0	73.9	120	21
Hallsberg	60.2	13.6	15.7	70.8	24	28

(*Continued*)

Table 1. Continued.

Municipality	Grades %	Highly-educated individuals %	Welfare r %	Certified teachers %	Distance	Non-natives %
Hallstahammar	71.6	15.2	14.5	73.0	18	24
Halmstad	74.1	25.8	13.8	87.2	71	26
Hammarö	86.3	33.4	9.2	92.0	127	6
Haninge	72.1	18.1	11.5	65.7	17	32
Haparanda	62.6	14.4	23.0	67.6	289	40
Heby	76.1	13.6	15.0	75.6	44	15
Helsingborg	76.8	25.3	16.2	74.4	0	38
Herrljunga	73.1	15.3	14.8	76.4	74	17
Hjo	77.9	19.4	13.7	80.2	152	11
Hofors	71.1	11.7	17.9	68.8	49	21
Huddinge	81.0	28.9	10.1	79.4	11	20
Hudiksvall	75.3	19.8	16.0	72.5	117	14
Hultsfred	60.8	11.7	19.8	67.6	98	42
Hylte	54.3	13.3	16.6	63.8	109	41
Håbo	74.5	18.4	9.1	65.2	30	15
Härjedalen	76.6	13.2	12.2	64.4	378	17
Hällefors	71.0	10.8	20.7	62.7	69	39
Härnösand	69.1	22.0	18.3	75.9	177	28
Härryda	85.1	34.4	9.6	84.8	19	10
Hässeholm	69.7	19.2	17.2	79.1	68	27
Höganäs	86.6	27.7	11.6	80.2	72	15
Högsby	66.7	12.2	23.3	64.8	60	49
Hörby	72.5	26.3	13.6	73.3	50	15
Höör	66.0	26.3	12.7	83.5	64	16
Jokkmokk	80.4	16.5	12.8	58.0	310	26
Järfälla	76.8	28.1	11.6	76.6	16	37
Jönköping	80.5	27.8	12.3	87.1	0	25
Kalix	77.7	16.6	15.8	85.4	264	12
Kalmar	84.5	28.7	13.2	90.5	0	21
Karlsborg	77.3	19.0	14.5	76.8	92	15
Karlshamn	66.5	21.0	16.8	74.0	107	24
Karlskoga	62.2	16.9	17.4	76.6	39	26
Karlskrona	76.3	29.0	13.4	78.4	173	19
Karlstad	80.7	30.9	12.6	88.3	98	21
Katrineholm	65.5	16.3	18.6	71.3	65	33
Kil	55.6	20.5	13.4	91.3	130	9
Kinda	79.5	18.0	12.2	84.9	57	15
Kiruna	74.3	17.6	9.1	72.6	449	11
Klippan	66.2	13.7	16.7	70.4	60	28
Knivsta	75.9	35.5	7.6	77.4	17	12
Kramfors	61.5	14.0	20.2	76.4	253	24
Kristianstad	70.7	23.4	17.0	83.3	86	31
Kristnehamn	62.0	18.3	19.6	83.6	63	24
Krokom	82.8	23.6	12.0	79.8	293	9
Kumla	71.0	17.7	14.0	78.8	17	18
Kungbacka	83.5	30.4	8.2	82.3	25	9
Kungsör	55.1	15.1	19.8	71.8	53	27
Kungälv	74.9	24.8	10.6	83.2	18	13
Kävlinge	86.9	3.0	10.4	83.2	22	11
Köping	72.1	15.2	17.1	72.0	33	32
Laholm	62.0	17.4	13.7	84.0	56	26
Landskrona	77.5	18.7	19.1	72.1	21	43
Laxå	61.1	11.2	17.6	56.0	47	32
Lekeberg	65.9	19.3	10.3	73.9	26	8
Leksand	74.6	21.0	11.6	71.1	117	15
Lerum	79.7	31.2	10.2	80.0	18	10
Lessebo	58.2	15.1	23.2	77.6	67	46
Lidingö	89.7	46.6	6.7	72.2	6	16
Lidköping	79.8	22.5	13.6	86.9	113	16
Lilla Edet	49.6	14.0	14.7	76.5	48	23
Lindesberg	60.9	14.7	16.6	74.8	35	29
Linköping	74.2	37.7	11.3	87.2	0	27

(*Continued*)

Table 1. Continued.

Municipality	Grades %	Highly-educated individuals %	Welfare r %	Certified teachers %	Distance	Non-natives %
Ljungby	76.2	16.8	14.2	72.2	109	27
Ljusdal	72.4	13.0	18.4	58.3	141	14
Ljusnarberg	51.0	11.5	22.9	62.9	68	33
Lomma	93.0	49.3	6.5	89.1	9	10
Ludvika	65.8	19.0	19.1	63.4	98	30
Luleå	83.4	30.8	11.3	91.2	215	12
Lund	85.1	52.8	9.7	83.9	0	26
Lyckesele	80.8	18.0	17.8	82.9	115	20
Lysekil	69.3	19.0	15.5	88.9	71	23
Malmö	67.5	33.2	18.2	77.4	0	52
Malung-Sälen	80.8	12.8	12.9	62.9	217	17
Malå	70.0	13.5	14.8	84.1	168	15
Mariestad	76.1	19.0	14.9	77.1	155	18
Mark	75.2	17.6	13.7	75.0	48	17
Markaryd	61.3	12.0	17.5	77.3	151	36
Mellerud	60.8	14.5	19.3	65.7	114	38
Mjölby	64.2	18.4	14.3	84.4	31	17
Mora	68.8	19.7	12.5	71.2	176	11
Motala	73.5	17.4	19.7	78.9	36	24
Mullsjö	84.9	18.9	13.4	88.2	23	10
Munkedal	61.9	13.5	14.9	86.4	87	19
Munkfors	81.1	10.6	17.8	61.3	113	24
Mölndal	76.0	37.1	9.9	87.7	7	19
Mönsterås	61.0	15.5	17.4	74.4	42	30
Mörbylånga	86.2	25.6	11.3	87.5	15	10
Nacka	89.1	39.7	7.7	80.8	6	17
Nora	68.1	19.4	16.6	86.3	34	23
Norberg	52.6	11.9	16.9	40.3	61	32
Nordanstig	83.1	12.9	15.6	66.3	148	16
Nordmaling	67.1	14.9	16.5	77.6	47	13
Norrköping	73.5	23.5	18.2	73.1	0	30
Norrtälje	73.7	16.0	13.2	72.5	60	17
Norsjö	78.4	12.4	17.4	56.3	127	13
Nybro	69.3	15.9	17.7	79.2	29	28
Nykvarn	85.2	21.6	7.8	73.1	40	10
Nyköping	72.4	20.6	14.6	72.9	88	23
Nynäshamn	72.5	15.8	13.6	60.3	48	25
Nässjö	70.6	16.1	17.8	79.8	35	34
Ockelbo	78.8	13.2	22.1	66.7	33	25
Olofström	70.9	12.1	17.1	72.4	120	35
Orsa	72.9	15.1	15.4	81.0	186	21
Orust	68.5	17.9	12.1	85.1	56	12
Osby	60.1	15.4	17.0	75.0	106	27
Oskarshamn	79.5	17.1	14.9	80.6	67	24
Ovanåker	78.8	13.5	15.3	75.0	102	16
Oxelösund	55.0	13.1	19.0	72.8	54	28
Pajala	64.6	13.8	16.0	69.6	403	19
Partille	75.2	33.8	10.8	84.2	9	20
Perstorp	62.0	12.3	21.4	71.9	45	42
Piteå	86.0	21.9	14.7	91.1	176	8
Ragunda	60.7	11.6	18.0	55.3	210	17
Robertsfors	81.1	18.5	15.4	93.6	50	12
Ronneby	70.4	18.9	19.7	73.5	83	51
Rättvik	78.3	16.3	12.7	78.1	112	9
Sala	69.6	16.1	15.3	80.0	60	24
Salem	81.8	28.1	9.8	78.9	26	25
Sandviken	65.0	17.2	20.8	66.2	21	30
Sigtuna	83.8	20.1	10.8	77.0	38	43
Simrishamn	74.6	20.5	16.3	83.1	85	21
Sjöbo	69.7	15.7	12.8	66.9	44	13
Skara	73.1	18.6	17.0	74.3	115	29
Skellefteå	75.0	22.6	14.4	85.3	108	14

(*Continued*)

Table 1. Continued.

Municipality	Grades %	Highly-educated individuals %	Welfare r %	Certified teachers %	Distance	Non-natives %
Skinnsskatteberg	64.7	11.8	16.0	71.4	54	30
Skurup	73.7	17.9	13.5	82.1	34	17
Skövde	77.9	25.8	12.3	81.6	134	22
Smedjebacken	76.3	13.9	13.9	73.6	112	14
Sollefteå	67.8	15.6	19.2	56.3	166	23
Sollentuna	86.6	40.7	9.0	76.3	14	30
Solna	76.2	46.0	6.9	78.9	9	31
Sorsele	63.3	15.5	13.6	65.6	231	15
Sotenäs	79.4	17.9	11.2	73.0	87	15
Staffanstorp	86.2	33.5	9.3	83.1	14	15
Stenungsund	75.6	24.0	10.2	84.0	41	13
Stockholm	81.7	41.8	9.6	78.6	0	32
Storfors	94.1	10.6	18.0	73.4	60	19
Storuman	57.9	15.3	15.4	69.4	207	12
Strängnäs	71.6	23.4	13.6	69.4	59	17
Strömstad	68.9	17.4	10.9	69.7	145	33
Strömsund	73.1	12.7	18.3	69.7	231	23
Sundbyberg	73.3	34.4	9.1	73.2	8	36
Sundsvall	66.9	24.4	13.6	76.6	191	15
Sunne	75.0	17.2	12.8	78.9	132	13
Surahammar	65.2	13.0	14.3	82.1	21	19
Svalöv	68.5	18.8	13.1	75.5	35	24
Svedala	75.7	24.4	10.0	88.0	18	14
Svenljunga	56.3	11.6	15.3	72.4	72	25
Säffle	76.2	14.1	20.0	71.7	131	25
Säter	70.8	17.4	11.9	73.7	85	9
Sävsjö	67.3	15.7	16.0	69.7	52	35
Söderhamn	72.5	14.1	22.0	63.9	70	27
Söderköping	82.0	19.6	13.2	83.5	15	7
Södetälje	73.6	19.8	17.0	66.3	29	55
Sölvesborg	62.4	17.4	15.6	81.9	110	16
Tanum	70.0	17.5	12.8	78.0	118	19
Tibro	79.5	15.1	17.9	76.1	112	26
Tidaholm	77.2	13.9	15.6	75.9	129	19
Tierp	62.8	14.1	16.8	81.3	55	19
Timrå	70.2	15.2	14.1	74.6	210	13
Tingsryd	72.0	22.6	17.5	72.5	86	24
Tjörn	80.4	22.6	9.9	87.5	60	12
Tomelilla	53.7	14.6	15.9	80.9	60	22
Torsby	74.1	14.5	13.8	74.1	157	18
Torsås	52.6	15.6	17.1	78.6	36	19
Tranemo	67.4	16.4	13.0	72.4	86	28
Tranås	74.1	14.8	17.1	83.5	56	25
Trellborg	75.0	16.4	14.5	81.6	27	22
Trollhättan	72.3	18.6	17.3	78.2	67	33
Trosa	76.6	24.1	9.5	79.5	56	17
Tyresö	79.2	19.5	9.4	75.7	13	17
Täby	89.1	44.5	6.4	75.8	13	15
Töreboda	59.8	13.9	20.0	72.3	168	28
Uddevalla	68.0	22.8	16.0	77.0	71	26
Ulricehamn	63.4	18.4	12.6	82.9	86	18
Umeå	81.4	39.1	10.7	90.1	0	14
Upplands Väsby	73.6	23.5	10.9	67.3	23	35
Upplands-Bro	79.8	22.4	10.7	69.6	25	35
Uppsala	77.7	41.3	11.2	82.4	0	26
Uppvidinge	60.2	12.3	16.0	70.0	69	40
Vadstena	84.9	18.3	16.7	95.2	43	12
Vaggeryd	70.4	18.1	10.7	80.5	32	22
Valdemarsvik	59.3	12.8	16.0	76.3	49	28
Vallentuna	83.2	28.9	8.1	75.3	23	14
Vansbro	63.9	11.4	13.1	55.4	160	16
Vara	73.8	13.5	16.0	79.7	85	15

(*Continued*)

Table 1. Continued.

Municipality	Grades %	Highly-educated individuals %	Welfare r %	Certified teachers %	Distance	Non-natives %
Varberg	81.5	23.0	10.5	85.2	69	14
Vaxholm	91.8	36.0	7.1	79.6	17	8
Vellinge	90.4	34.8	7.4	84.1	15	11
Vetlanda	63.4	14.9	14.2	72.0	68	27
Vilhelmina	81.3	13.8	18.5	57.8	196	14
Vimmerby	77.3	14.2	14.9	70.5	104	24
Vindeln	69.8	16.9	14.9	72.2	50	16
Vingåker	44.7	12.8	19.6	69.8	46	33
Vårgårda	71.3	17.1	13.9	83.9	61	20
Vänersborg	67.9	22.4	17.3	76.7	78	28
Vännäs	65.3	23.1	15.1	91.6	30	10
Värmdö	85.7	26.4	7.8	72.8	29	11
Värnamo	71.6	17.8	12.0	76.8	67	29
Västervik	77.9	18.3	17.1	73.6	96	20
Västerås	73.6	28.2	15.3	76.5	0	31
Växjö	74.5	30.3	13.2	80.7	98	28
Ydre	80.0	16.2	12.7	77.8	64	17
Ystad	86.5	23.4	13.2	85.8	55	14
Åmål	72.4	16.2	21.1	80.3	155	29
Ånge	67.4	12.7	17.2	68.7	273	13
Åre	65.4	21.6	11.2	62.3	370	16
Årjäng	80.0	11.8	11.9	61.5	175	25
Åsele	79.4	14.7	18.5	73.5	147	20
Åtvidaberg	75.8	15.7	11.9	83.0	32	11
Älmhult	72.0	24.3	12.6	61.6	137	20
Älvdalen	91.8	12.4	12.5	70.4	431	11
Älvkarleby	67.3	14.7	18.0	78.3	21	21
Älvsbyn	96.3	13.2	15.8	74.4	209	21
Ängelholm	75.6	22.2	12.6	86.6	25	18
Öckerö	88.2	23.8	9.8	86.0	19	8
Ödeshög	69.2	14.0	14.1	79.6	60	19
Örebro	74.3	29.0	13.5	82.1	0	31
Örkelljunga	57.4	13.4	16.0	68.9	177	26
Östersund	81.4	28.3	13.3	75.6	289	13
Örnsköldsvik	77.0	22.3	15.5	86.4	97	14
Österåker	84.0	26.5	8.3	69.8	21	17
Östhammar	65.3	14.0	11.7	74.2	60	9
Östra Göinge	65.8	13.7	21.4	76.4	105	36
Överkalix	73.3	13.1	16.2	58.3	304	23
Övertorneå	73.5	15.2	18.6	73.6	327	27

Table 2. Sweden's major cities.

City	Population
Stockholm	974,073
Göteborg	579,281
Malmö	344,166
Uppsala	230,767
Linköping	163,051
Örebro	155,696
Västerås	154,049
Helsingborg	147,734
Norrköping	143,171
Jönköping	141,081
Umeå	128,901
Lund	124,935
Borås	113,179
Eskilstuna	106,859
Gävle	102,418
Kalmar	69,467

Source: scb.se.

Case Studies at the Municipality and School Levels

Partly guided by the recommendations of Seawright and Gerring (2008) and Hamilton and Corbett-Whittier (2013), the study proceeded with two case studies. In the first case study, $N = 20$ municipalities at the top ($N = 10$) and bottom ($N = 10$) sections of the municipality league tables were chosen (Table 1). The selection is purposive rather than representative of the entire sample but is of theoretical and instrumental interest (Hamilton & Corbett-Whittier, 2013, p. 12; Seawright & Gerring, 2008, p. 296). In some steps, Älvdalen and Älvsbyn were removed because they had outlier characteristics (i.e., exceedingly high GAS, despite poor geographic and socio-economic indicators, as well as few schools and small school sizes).

In addition, an alternative dependent variable, average national test scores, was used with the aggregated score of the schools in these municipalities. Swedish, Swedish as a second language (SVA), mathematics, and English were used as a composed average value for each scale, where F counts as O points, E as 10 points, D as 12.5 points, C as 15 points, B as 17.5 points, and A as 20 points. As many schools and municipalities fall between these discrete values, an exact average score was calculated. When one or two of the four values were missing, the average scores of two or three subjects were calculated. Furthermore, a few specific comparisons between boys and girls, and the native population ("svensk bakgrund") and non-native population ("utländsk bakgrund"), as well as specific schools were made.

This alternative measure was used to provide a slightly more precise measure of educational achievement. For example, Hanushek et al. (1996) stress that aggregated data can substantially skew upwards the statistical significance of inputs in the educational process, such as certified teacher rates. On the other hand, aggregated data can average out differences in grade inflation. Moreover, as Holmlund et al. (2019) emphasize, national test results are slightly less prone to grade inflation. Thus, a step-by-step analysis, in which one such step involves NTR as an alternative measure, may capture more precise dimensions of educational achievement. OLS models were run at this step of the analysis, whereas Pearson correlations were complementary.

The second case study followed a similar procedure but included the first municipality from each letter in the alphabet and thus used a more random selection approach (Seawright & Gerring, 2008). As some letters do not cover any municipality in Sweden, the total number was 23. While, of course, distributed across the broader achievement spectrum, these were all part of the "great middle" and thus representative (Seawright & Gerring, 2008). Due to space limitations and to avoid repetition, school, gender, and natives/non-natives comparisons were excluded in this case study (Tables 3 and 4).

Results

The correlation between the average rate of highly-educated people and GAS was $r = .471$. The correlation between the average rate of welfare recipients and GAS was $r = -.549$. The correlation between the average rate of certified teachers and GAS was $r = .312$. The correlation between DMC and GAS was $r = -.012$. The correlation between the proportion of non-natives and GAS was $r = -.419$.

The OLS shows that the proportion of highly-educated people in each municipality had a positive relationship with GAS, as expected, and that the proportion of welfare recipients and non-

Table 3. GAS in relation to education, welfare, and demography (OLS).

	Unstandardized coefficients	Standardized beta coefficients	Standard error
Highly-educated individuals (%)	.314*	.301	.076
Welfare recipients (%)	−.602*	−.248	.181
Non-natives (%)	−2.393*	−.226	.562
Observations:	288	288	

Notes: R^2: .380. Significance level: *$p < 0.0001$.

Table 4. High- and low-performing municipalities.

Municipality	GAS (%)	NTR points
Borlänge	58.3	10.8
Hylte	54.3	8.9
Flen	56.4	10.5
Lessebo	58.2	10.6
Lilla Edet	49.6	10.6
Norberg	52.6	11.2
Storuman	57.9	9.2
Svenljunga	56.3	10.9
Tomelilla	53.7	11.2
Vingåker	44.7	9.1
Danderyd	93.2	16.0
Lidingö	89.7	14.3
Sollentuna	86.6	13.5
Storfors	94.1	12.7
Vaxholm	91.8	14.6
Vellinge	90.4	13.4
Täby	89.1	13.9
Öckerö	88.2	13.0

natives had negative relationships with GAS, as expected. The proportion of certified teachers did not add to the model and did not reach statistical significance at the 5% level.

Case Study 1

The correlation between the average rate of highly-educated people and GAS was $r = .591$. When Älvdalen and Älvsbyn were removed, this increased to $r = .762$. The correlation between the average rate of welfare recipients and GAS was $r = -.694$. The correlation between the average rate of certified teachers and GAS was $r = .470$. When Älvdalen and Älvsbyn were removed, this increased to $r = .514$. The correlation between non-natives and GAS was $r = -.638$. The correlation between DMC and GAS was $r = -.604$ when the two outliers were removed.

The correlation between NTR and GAS was $r = .899$, which is probably because grades are influenced by NTR and they largely measure the same school knowledge and latent abilities. The correlation between the average rate of highly-educated people and NTR was $r = .866$. The correlation between the average rate of welfare recipients and NTR was $r = -.828$. The correlation between the average rate of certified teachers and NTR was $r = .472$. The correlation between DMC and NTR was $r = -.760$. The correlation between the proportion of non-natives and NTR was $r = -.587$.

Thus, all independent variables became more predictive in relation to GAS and NTR. In relation to narrower comparisons, these patterns became more pronounced. In other words, living close to an urban region and having a highly-educated population, a large proportion of native inhabitants, and a large proportion of certified teachers, as well as a low proportion of welfare recipients correlates substantially with NTR.

The OLS model (see Table 5) indicates that two variables reached statistical significance at the 5% level. However, the non-natives variable was not statistically significant.

Table 5. Case study 1 (OLS).

	Unstandardized coefficients	Standardized beta coefficients	Standard error
Non-natives	.087*	−.270	.169
Highly educated individuals	.010**	.524	.018
Distance	−1.42*	−.348	.050
Observations	18	18	

Notes: Adjusted R^2: .856. Significance levels: *$p < 0.01$ **$p < 0.05$.

Comparisons

Strong Performers

Vargbroskolan in Storfors is one of the somewhat unexpected high performers because Storfors is located about 60 kilometers from Örebro and has a low proportion of highly-educated individuals (10.6%) and a rather high proportion of welfare recipients (18%) at the municipality level. Regarding school characteristics, however, 88.9% of teachers have a proper teaching degree and are certified. Of 33 pupils in Grade 9 who took all national tests in Swedish (A, B, C), 81.8% of all girls and 71.4% of all boys achieved grades E–A. The average grade scores on these tests are typically grouped at D level (12.7 points), which suggests that Storfors has a decent equity–quality ratio; however, average grades and test scores are, indeed, quite average. This is considerably lower compared to, for instance, Mörbyskolan in Danderyd (a part of Stockholm's län), where 90.3% of students achieved grades E–A, with an average NTR of 16.0. These results imply that, at the aggregate level, these municipalities and even specific schools appear to be equivalent in terms of achievement. However, a closer inspection shows substantial differences in performance. Moreover, the results illustrate that the predictors of the aggregated regional data become more predictive using more specific measures.

Gender Comparisons

In some schools (e.g., Viktor Rydbergs samskola), boys slightly outperformed girls (97% GAS compared to 95.7%) or their results were virtually identical (95.3% female and 95.2% GAS in Fribergaskolan, Danderyd). Similar patterns were found within low-performing municipalities such as Vingåker, where girls and boys performed equally poorly, on average.

Native and Non-Native Comparisons

As expected, in all schools in Danderyd, Lindingö and other wealthy municipalities in the Stockholm urban region, the native pupils outperformed the non-native population (e.g., 96.2% GAS at Fribergaskolan in Danderyd compared to 77.8% of non-natives; 90.3% GAS at Mörbyskolan in Danderyd compared to 66.7% of non-natives). However, at Viktor Rydbergs samskola, the GAS of non-natives was 86.7%, which is substantially above the national average.

In Vingåker, a low-performing municipality, only 50.7% of native Swedes (which make up about 77% of all pupils) reached GAS in Grade 9. This might be difficult to interpret in terms of, for instance, peer effects. It might be that natives and non-natives have a mutual negative association, combined with low SES at the municipality level.

Overall, the NTR of Swedish as a second language pupils lowered the overall results in all 18 municipalities. For instance, in another low-performing municipality, Norberg, the native students' NTR is 12.5, virtually identical to the high-performing municipality, Storfors. According to the ranking system of the influential teachers' union, Lärarförbundet (2019a)—whose index comprises, for instance, educational results (measured by grade point average), proportion of pupils who attend pre-school education, and TCR (Lärarförbundet, 2019b)—Torsby is the best school municipality in Sweden and Gnesta is the worst. Despite this, NTR are close to identical in these two municipalities (12.57 in Torsby and 12.56 in Gnesta when removing SVA). If we assume that TCR is a moderate predictor of educational achievement and NTR has a slightly higher reliability than GAS, then Gnesta outperforms Torsby. Similar patterns were found in most comparisons. Thus, it seems misguided to highlight as "the best" those school municipalities whose performance is actually average, despite better contextual conditions.

Case Study 2

The correlation between the average rate of highly-educated individuals and GAS was $r = .305$. The correlation between the average rate of welfare recipients and GAS was $r = -.503$. The correlation between the average rate of certified teachers and GAS was $r = .340$. The correlation between non-natives and GAS was $r = -.456$. The correlation between DMC and GAS was $r = -.183$. Thus, these relationships were less striking among schools and municipalities at the middling level of the national achievement spectrum.

The correlation between NTR and GAS was $r = .483$. The weaker correlation results from the narrower standard deviation in NPR and the exclusion of SVA scores. The correlation between the average rate of highly-educated people and NTR was $r = .744$. The correlation between the average rate of welfare recipients and NTR was $r = -.469$. The correlation between the average rate of certified teachers and NTR was $r = .366$. The correlation between DMC and NTR was $r = -.265$. The correlation between the proportion of non-natives and NTR was $r = -.0.48$. In an OLS regression with GAS as the dependent variable, no predictor was statistically significant.

Conclusion and Discussion

The results in this cross-sectional study on educational achievement at Grade 9 level show that indicators of socio-economic status and socio-demographic characteristics are substantially associated with the dependent variables. These results are similar to those reported by Holmlund et al. (2019). From an international perspective, this study is at least partly consistent with SES-academic achievement correlations (e.g., Sirin, 2005; Tan, 2015); however, the emphasis on geographical distance and non-natives might provide a more dynamic understanding. This study could also be conducted in other national contexts. Moreover, the reliance on coarse aggregated data in the first step of the analysis might require more individual and school-level data in longitudinal or replication studies. However, as for instance Hennerdal et al. (2020) underline, aggregated results may often corroborate the findings from individual data and vice versa. There are, indeed, limitations of this study. The case studies, the first in particular, took a closer look at specific municipalities and schools but data were still aggregated to the school level and only measured student achievement at a single point in time.

On a more positive note, the proportion of highly-educated inhabitants at the municipality and school level, together with the certified teacher ratio, seems to be associated with high academic results for the children of such families. As long as the proportion of non-natives, with some exceptions (e.g., Sollentuna, with a 30% non-native population), does not surpass about 20%, these high results often persist. Moreover, when removing SVA students from NTR, non-natives perform at an equal level in most municipalities.

A more pessimistic perspective on the same findings, however, underlines large socio-economic differences and a negative association between low-skilled migration flows and school results. Whereas many of these learning outcome issues are language-related and therefore possible to address (Holmlund et al., 2019), earlier research (e.g., Sanandaji, 2018) suggests that a large proportion of second-generation migrants have not assimilated into Swedish society. Moreover, many low-skilled migrant families are affected by having many children and young unaccompanied migrants from, in particular, Afghanistan lack stable social networks and are therefore prone to homelessness, crime, and low academic performance (Vogiazides & Mondani, 2020).

In addition to improved migration and integration policies, Sweden must tackle grave issues related to socio-economic inequality. It seems that, for instance, gender differences in academic achievement constitute a minor issue in comparison to these deeper and broader problems.

Disclosure Statement

No potential conflict of interest was reported by the author.

References

Akoglu, H. (2018). User's guide to correlation coefficients. *Turkish Journal of Emergency Medicine*, *18*(3), 91–93. https://doi.org/10.1016/j.tjem.2018.08.001

Atkinson, R., Parker, S., & Burrows, R. (2017). Elite formation, power and space in contemporary London. *Theory, Culture & Society*, *34*(5–6), 179–200. https://doi.org/10.1177/0263276417717792

Björklund, A., Fredriksson, P., Gustafsson, J.-E., & Öckert, B. (2010). Den svenska utbildningspolitikens arbetsmarknadseffekter. Vad säger forskningen? https://www.ifau.se/globalassets/pdf/se/2010/r10-13-den-svenska-utbildningspolitikens-arbetsmarknadseffekter-vad-sager-forskningen.pdf

Böhlmark, A., & Lindahl, M. (2015). Independent school and long-run educational outcomes: Evidence from Sweden's large-scale voucher reform. *Economica*, *82*(328), 508–551. https://doi.org/10.1111/ecca.12130

Borghans, L., Golsteyn, B., Heckman, J., & Humphries, J. (2016). What achievement tests measure. *Proceedings of the National Academy of Sciences of the United States of America*, *51*(3), 13355–13359. https://doi.org/10.1073/pnas.1601135113

Bunar, N. (2010). Choosing for quality or inequality: Current perspectives on the implementation of school choice policy in Sweden. *Journal of Education Policy*, *25*(1), 1–18. https://doi.org/10.1080/02680930903377415

Carlhed, C. (2017). The social space of educational strategies: Exploring patterns of enrolment, efficiency and completion among Swedish students in undergraduate programmes with professional qualifications. *Scandinavian Journal of Educational Research*, *61*(5), 503–525. https://doi.org/10.1080/00313831.2016.1172496

Dohoo, I., Ducrot, C., Fourichon, C., Donald, A., & Hurnik, D. (1997). An overview of techniques for dealing with large numbers of independent variables in epidemiologic studies. *Preventive Veterinary Medicine*, *29*(3), 221–239. https://doi.org/10.1016/S0167-5877(96)01074-4

Ekberg, J. (1999). Immigration and the public sector: Income effects for the native population in Sweden. *Journal of Population Economics*, *12*(3), 411–430. https://doi.org/10.1007/s001480050106

Fredholm, A. (2017). Reconsidering school politics: Educational controversies in Sweden. *The Curriculum Journal*, *28*(1), 5–21. https://doi.org/10.1080/09585176.2016.1191361

Gustafsson, J.-E., & Yang Hansen, K. (2018). Changes in the impact of family education on student educational achievement in Sweden 1988–2014. *Scandinavian Journal of Educational Research*, *62*(5), 719–736. https://doi.org/10.1080/00313831.2017.1306799

Gynatagningen. (2019). Preliminär antagning 2019 (Preliminary admission 2019). https://www.gyantagningen.se/antagningspoang-och-rapporter/preliminar-antagning/prel-antagning-2019.html

Hamilton, L., & Corbett-Whittier, C. (2013). *Using case study in education research*. Sage.

Hanushek, E., Piopiunik, M., & Wiederhold, S. (2019). The value of smarter techers: International evidence on teacher cognitive skills and student performance. *Journal of Human Resources*, *54*(4), 857–899. https://doi.org/10.3368/jhr.54.4.0317.8619R1

Hanushek, E. A., Rivkin, S. G., & Taylor, L. L. (1996). Aggregation and the estimated effects of school resources. *The Review of Economics and Statistics*, *78*(4), 611–627. https://doi.org/10.2307/2109949

Hennerdal, P., Malmberg, B., & Andersson, E. K. (2020). Competition and school performance: Swedish school leavers from 1991–2012. *Scandinavian Journal of Educational Research*, *64*(1), 70–86. https://doi.org/10.1080/00313831.2018.1490814

Holmlund, H., Sjögren, A., & Öckert, B. (2019). SOU, Jämlikhet i möjligheter och utfall i den svenska skolan. Bilaga 7 till Långtidsutredningen 2019 (40). https://www.regeringen.se/4adad2/contentassets/23c13d7ae0ef48e4bed43b68917573d3/jamlikhet-i-mojligheter-och-utfall-i-den-svenska-skolan-sou-201940.pdf

Imsen, G., Blossing, U., & Moos, L. (2017). Reshaping the Nordic education model in an era of efficiency. Changes in the comprehensive school project in Denmark, Norway, and Sweden since the millennium. *Scandinavian Journal of Educational Research*, *61*(5), 568–583. https://doi.org/10.1080/00313831.2016.1172502

Kim, S. W., Cho, H., & Kim, L. Y. (2019). Socioeconomic status and academic outcomes in developing countries: A meta-analysis. *Review of Educational Research*, *89*(6), 875–916. https://doi.org/10.3102/0034654319877155

Kuncel, N. R., Credé, M., & Thomas, L. L. (2005). The validity of self-reported grade point averages, class ranks, and test scores: A meta-analysis and review of the literature. *Review of Educational Research*, *75*(1), 63–82. https://doi.org/10.3102/00346543075001063

Lärarförbundet. (2019a). Bästa skolkommun. https://www.lararforbundet.se/basta-skolkommun

Lärarförbundet. (2019b). Information om förändringar och nyheter i Lärarförbundets ranking av bästa skolkommun. https://www.lararforbundet.se/artiklar/information-om-forandringar-och-nyheter-i-lararforbundets-rankning-sveriges-basta-skolkommun

Larsson, E. (2019). Innerstadsgymnasierna. En studie av tre elitpräglade gymnasieskolor i Stockholm och deras positionering på utbildningsmarknaden. Stockholm University: Department of Education, http://su.diva-portal.org/smash/get/diva2:1354630/FULLTEXT01.pdf

Lindbom, A. (2010). School choice in Sweden: Effects on student performance, school costs, and segregation. *Scandinavian Journal of Educational Research*, *54*(6), 615–630. https://doi.org/10.1080/00313831.2010.522849

Lundahl, C. (2014). *Bedömning för lärare*. Studentlitteratur.

MacIntyre, J., Neuahis, S., & Blennow, K. (2018). Participatory parity in schooling and moves towards ordinariness: A comparison of refugee education policy and practice in England and Sweden. *Compare: A Journal of Comparative and International Education*, *50*(3), 391–409. https://doi.org/10.1080/03057925.2018.1515007

Manhica, H., Berg, L., Almquist, Y. B., Rostila, M., & Hjern, A. (2018). Labour market participation among young refugees in Sweden and the potential of education: A national cohort study. *Journal of Youth Studies*, *22*(4), 533–550. https://doi.org/10.1080/13676261.2018.1521952

Myrberg, E., & Rosén, M. (2009). Direct and indirect effects of parentś education on reading achievement among third graders in Sweden. *British Journal of Educational Psychology*, *79*(4), 695–711. https://doi.org/10.1348/000709909X453031

Pearman, F. (2019). Gentrification and academic achievement: A review of recent research. *Review of Educational Research*, *89*(1), 125–165. https://doi.org/10.3102/0034654318805924

Richardsson, G. (2010). *Svensk utbildningshistoria. Skola och samhälle förr och nu*. Studentlitteratur.

Sanandaji, T. (2018). *Massutmaning*. Kuhzad förlag.

Seawright, J., & Gerring, J. (2008). Case selection techniques in case study research: A menu of qualitative and quantitative options. *Political Research Quarterly*, *61*(2), 294–308. https://doi.org/10.1177/1065912907313077

Sirin, S. (2005). Socioeconomic status and academic achievement: A meta-review of research. *Review of Educational Research*, *75*(3), 417–453. https://doi.org/10.3102/00346543075003417

Skolverket. (2009). Vad påverkar resultaten i svensk grundskola? Kunskapsöversikt om betydelsen av olika faktorer. Stockholm. https://www.skolverket.se/getFile?file=2260

Skolverket. (2016). Invandringens betydelse för skolresultaten. https://www.skolverket.se/download/18.6bfaca41169863e6a65becf/1553966593126/pdf3604.pdf

Skolverket. (2018). Curriculum for the Compulsory School, Preschool Class and School-age Educare. https://www.skolverket.se/getFile?file=3984

Stanfors, M. (2003). *Education, labor force participation and changing family patterns. A study of women and socio-economic change in twentieth century Sweden*. Lund Studies in Economic History, 22.

Tan, C. Y. (2015). The contribution of cultural capital to students' mathematics achievement in medium and high socioeconomic gradient economies. *British Educational Research Journal*, *41*(6), 1050–1067. https://doi.org/10.1002/berj.3187

Vogiazides, L., & Mondani, H. (2020). A geographical path to integration? Exploring the interplay between regional context and labour market integration among refugees in Sweden. *Journal of Ethnic and Migration Studies*, *46*(1), 23–45. https://doi.org/10.1080/1369183X.2019.1588717

Wiklund, M. (2018). The media apparatus in the becoming of education policy: Education media discourse during two electoral periods. *The Journal for Critical Education Policy Studies*, *16*(2), 99–134.

Yang Hansen, K., & Gustafsson, J.-E. (2016). Causes of educational segregation in Sweden – school choice or residential segregation. *Educational Research and Evaluation*, *22*(1-2), 23–44. https://doi.org/10.1080/13803611.2016.1178589