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Educational inequalities in Sweden: Past, present and future in a comprehensive school system?¹

di Frida Rudolphi

ABSTRACT: *The aim of this paper is to review the most important empirical results on the development of social-background inequalities in educational attainment of adolescents in Sweden at the end of compulsory education and in upper secondary education. The focus is on quantitative studies of the development during the past 25-30 years. Research indicate that the role of family background for adolescents' grade point averages at the end of compulsory education has been remarkable stable during the 20-year period between 1988 and 2007, while social inequality in upper secondary education is to a larger extent characterized by change. Importantly, the development of social inequality in upper secondary education depends on the aspect in focus. One general conclusion is that so called "primary effects" account for a substantial part of the inequality process to academic upper secondary education, and seems to be more resistant to change over time than 'secondary effects' are.*

KEYWORDS: *Education, Inequality, Policy Change, Sweden*

Introduction

Research has shown clearly that Sweden experienced a long-term decline in inequality of educational attainment during the twentieth century, with a more consistent decline for the transition to upper secondary education than for the transition to university education. While in the early 1970s this equalization seemed to have leveled off for traditional longer university education (Erikson and Jonsson 1996a; Gustafsson, Andersson and Hansen 2000; Jonsson and Erikson 2007), it slowed down somewhat later for academic upper secondary education, and inequalities in the chances of making this transition further declined from the late 1980s up until 1998 (Erikson and Jonsson 1996a; Erikson and Rudolphi 2010; Gustafsson *et al.* 2000), and even further up to 2007 (Böhlmark and Holmlund 2011; Rudolphi 2013).

In the present paper, the objective is to review the most important empirical results in Sweden from studies that focused on the past 25-30 years and looked at social-background inequalities in the educational attainment of adolescents. The aim is to cover inequality in school performance at the end of compulsory education, and the relative importance of performance and choice in producing inequalities in upper secondary attainment. Thus, the focus is on educational inequality from around the mid-1980s and onwards with regard to different aspects of educational success at the compulsory and upper secondary level. Upper secondary education is the first important transition in the Swedish educational system, where much of the channeling into higher education is established (see Breen and Jonsson 2000; Rudolphi 2013 for

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¹ Parts of the manuscript have been previously published in Rudolphi (2013), a book chapter in a comparative volume edited by Michelle Jackson (2013), and Rudolphi (2011), an introductory chapter in a doctoral thesis.

flow graphs). The review is restricted to quantitative studies either with a longitudinal perspective or aiming at estimating educational reform effects. The emphasis in the review of empirical results is on a commonly used indicator of social inequalities in educational success: to what extent there is an association between socio-economic background and educational outcomes.

Educational differentials related to children's social class and educational origins arise because privileged children tend to perform better in school (often called primary effects) and because they also choose to stay in education and opt for more academically oriented educational routes than do children of more disadvantaged social origins at similar performance levels (secondary effects) (Boalt 1947; Boudon 1974; Erikson and Jonsson 1996a; Erikson *et al.* 2005).² The organization of education is one aspect that has almost certain relevance to attainment inequalities, as are numerous other societal circumstances, of which inequality in conditions (e.g., employment and income) is probably one of the most important (e.g., Jackson and Jonsson 2013).

Sweden has maintained a comprehensive school system for many decades. It is comprehensive in the sense that students follow obligatory non-tracked education that shares the same curriculum for a fairly long period, up until age 16. In an international perspective, the Swedish educational system is characterized by late tracking, with the first branching point occurring at age 15/16, and leaves rather ample room for individual and family choice in determining the educational career at this stage. Changing inequality in educational attainment can be related to changes in the educational system. The organization of schools is important to the primary and secondary effects of inequality of educational opportunity (IEO) alike. For choice effects, the degree of stratification (how tracked a system is, and at what age tracking starts) and selectivity (to what extent progress in the system is determined by performance, on the one hand, and choice, on the other) are essential institutional characteristics. The distinction is suggested by Jackson and Jonsson (2013), because these aspects are assumed to influence secondary effects of educational inequality. One important feature of secondary effects concerns information about educational pathways: how transparent an educational system is and how much information schools provide their pupils with. If a school system is complex and little information is provided by schools, there is considerable opportunity for socially privileged families to benefit from their typical information advantage. The degree of stratification can thus be assumed to increase secondary effects. A stratified system provides much room for parents to guide their children through privileged education pathways, regardless of their child's ability. In contrast, selectivity probably has the opposite effect. Selectivity can be assumed to reduce secondary effects, because it means a greater challenge for parents' in helping their children through the educational system (*ibidem*).

Other organizational characteristics may work to strengthen primary effects, such as those that are important to the learning environment, probably including pedagogical aspects and the allocation of human and economic resources available for everyday activities in pre-school and compulsory schooling.³ In addition, the evaluative function of the schools is of significance. Skills and abilities that are unequally distributed across social origins are rewarded through teachers' grade assignment, and any discrimination of pupils from disadvantaged origins, whether open or hidden assessment of non-school relevant skills, will increase primary effects. The extent to which selection to higher education is determined by previous performance is natu-

² Performance and choice effects are used interchangeably with primary and secondary effects, respectively. Choice effects thus refer to inequality in choice net of performance.

³ For a brief overview of Swedish research, see Rudolphi (2011).

rally decisive for primary effects, because it sets limits for how great a role previous performance plays in pupils' progress through the educational system.

Stratification and selectivity often come together – countries with high stratification tend to have highly selective systems – but variation in selectivity occurs in countries with an intermediate level of stratification. While the educational systems in Germany and the Netherlands are highly stratified with a high degree of selectivity, Sweden and England are characterized by lower levels, with Sweden at an intermediate and England at a low level of stratification and selectivity (Jackson and Jonsson 2013, Table 11.1). In the following, the focus is on the characteristics of the Swedish educational system and the most comprehensive educational reforms implemented from the mid-1980s and onwards.

1. The Swedish setting

The Swedish educational system is characterized by late formal tracking, free tuition at all educational levels, and no dead ends. After nine years of compulsory schooling, when pupils are normally around 16 years old, the first important transition is made. Pupils can then choose to continue to upper secondary school, which is optional although nearly all students make this choice, and if they continue, they need to decide which track to take. Teacher-assigned grades function as a selection instrument for both upper secondary and tertiary education.

Swedish upper secondary education can be described as a parallel system, where pupils can choose between programs that broadly fall into two groups: vocational or academically oriented tracks. While academic programs mainly prepare for higher levels of study, vocational programs provide more direct training for the labor market. A major part of the education in vocational tracks takes place in a school setting. Pupils who are not eligible for the vocational or academic tracks (*nationella program*) have the option of enrolling in non-qualifying tracks (*individuella program*). The aim of non-qualifying tracks is to prepare for vocational or academic tracks or for the labor market. In the fall of 2012, 98.7 percent of students who graduated from compulsory education enrolled in upper secondary education. Among first and second-year students in upper secondary education, 13 percent were enrolled in a non-qualifying track, 55 percent in an academic track and 32 percent in a vocational track (Swedish National Agency for Education 2014).

Like in many other Western societies, Sweden has experienced a long-term educational expansion both at lower and higher levels. Today, the vast majority of contemporary youth make the transition to upper secondary education of some kind (Böhlmark and Holmlund, 2011). It should be acknowledged, however, that graduation rates from vocational or academic upper secondary education are relatively low. During more than a decade, from 1999 to 2013, less than 75% of 20-year-olds attained complete grades from vocational or academic upper secondary education (Swedish National Agency for Education 2014, Diagram 7.3).

1.1. The Swedish school system: policy and overview of changes

Reducing educational inequalities has been a recurrent subject on the Swedish political agenda, the longstanding political goal being that individuals' educational attainment should not be highly dependent on their social origin; this is also explicitly

stated in the legislation regulating compulsory education (Skollagen 2010: 800). Educational inequality has received renewed attention in the wake of extensive educational reforms carried out in the 1990s.

Major educational reforms of compulsory and upper secondary education were undertaken in the early and mid-1990s. These reforms have involved changes toward decentralization, marketization and individualization⁴. Much of the economic responsibility for compulsory and upper secondary education was shifted from the central government to the municipalities (*kommunaliseringen*), and privately run, state-funded compulsory and upper secondary schools were allowed together with increased possibilities for pupils and parents to choose schools (*friskolereformen*).⁵ A variety of reforms were implemented within a rather narrow time span during the 1990s – a situation that has proven to pose a challenge to those wishing to evaluate reform effects.

In 1991, upper secondary education was reformed and expanded to be more comprehensive in character (Government Bill 1990/91: 85). Vocational programs increased in length from two to three years, providing basic eligibility for entry to tertiary education. However, graduation from vocational tracks only granted restricted access to tertiary education, as many university programs require additional courses. Moreover, some programs in the reformed system could be regarded as “semi-vocational” or “semi-academic” alternatives. One of the purposes of the reform was to increase tertiary education among students in vocational upper secondary education (e.g., Hall 2009). However, academic tracks continued to be the main route for those preparing for higher studies and had much higher enrollment rates than other programs (Swedish National Agency for Education, 2009a). The royal road to university education continued to go via the natural science program, which provided eligibility for most tertiary programs. Yet another new program structure was implemented in the fall of 2011 (Government Bill, 2008/09:199). The main changes concern vocational tracks and an increase in requirements for eligibility to vocational and academic tracks alike.

In Sweden, the grade sum (*meritvärde*) or grade point average (GPA) of teacher-assigned grades in the final grade for compulsory education at around age 15/16 is a crucial performance measure. Prior to the 1995/96 academic year, a national relative grading system was used, with grades and grade point averages varying between 1 and 5, with the national average fixed at 3 and with grades following a normal distribution (*relativa betyg*). Pupils who completed compulsory school in 1998 were the first to earn grades that are assigned in relation to fulfillment of the curriculum (*målrelaterade betyg*).

The grade sum (henceforth GPA) is the sum of the 16 best subject scores, and varies between 0 and 320 points. The scale of the grading system has recently been changed for compulsory and upper secondary education, in conjunction with the above-mentioned reform of the structure of upper secondary tracks in the fall of 2011. GPA is a relevant measure of overall scholastic performance because it is the best available summary measure reflecting both ability and sustained effort, and because it is observable by students and their parents. It is utilized as a selection instrument when there is competition for educational places in specific tracks and/or schools.

4 The implementation of market elements in educational systems is in line with a general European trend (e.g., Musset, 2012).

5 At least in part, the increased between-school variation in grades from the late 1990s (8.8 percent in 1998) up to 2011 (18.2 percent) is related to the later reform (Swedish National Agency for Education, 2012).

Similarly, grades from upper secondary education are the main, but not only, selection instrument to tertiary education. Although the focus of the present manuscript is on performance in compulsory education and transition to upper secondary education, it could be mentioned that universities and university colleges are integrated within the Swedish tertiary educational system. In the 1990s, tertiary education was substantially expanded, mainly through increasing enrollment at regional university colleges (Josefsson and Unemo 2003).

2. Development of educational inequalities: empirical research

2.1. Performance

There are many different measures of educational performance and skills available in international surveys, of which PISA (Programme for International Student Assessment) is one of the most well-used. Nation-specific performance measures of high relevance exist too. As described above, grades from the final year of compulsory education (age 15/16) are a crucial performance measure in the Swedish educational system. GPA is the most important signal from teachers regarding pupils' ability to manage future education. As a selection instrument, it de facto affects the chance of being admitted to the educational route a student (and parents) prefers to take. Another advantage of using GPA is the availability in registers comprising all pupils attending the final grade of compulsory education.

However, GPA has two main shortcomings as a measure of actual knowledge and related trends. The first shortcoming is the subjective nature of grade assignment. Although grades are partly based on examinations, the grades are assigned by teachers. The second shortcoming is that it is well-known that grade inflation has occurred starting in the late 1990s, when a new grading system was implemented. GPA has increased or remained stable, while international measures of scholastic skills show a rather consistent pattern of declining knowledge among Swedish pupils (Fredriksson and Vlachos 2011; Swedish National Agency for Education, 2009b). Grade inflation and lack of equality in grade assignment across schools and teachers is a well-acknowledged issue in the Swedish educational policy discussion (Swedish National Agency for Education 2007; 2009b).

Research based on nation-specific measures and international surveys including skill assessments, such as PISA, can potentially provide a complementary picture of the inequality in educational performance. Comparisons of results, however, must not only be viewed in light of differences in age at measurement and type of performance measure, representativeness, sample size, but also with regard to measures of socio-economic background. While parental information on highest educational attainment or social class is typically used in research based on Swedish register data, information from children is commonly used in international surveys (PISA, TIMSS, PIRLS). In reports based on PISA, an index of social, cultural and economic status is frequently used, which consists of information about parents' education, occupation and items in the home (e.g., desk for studying and number of books in the home) (see, e.g., Swedish National Agency for Education, 2012). Importantly, studies using the same data source also often differ in where they establish cut-offs for

socio-economic measures, which is yet another challenge when comparing effect sizes in different research results.⁶

Studies on grade inequalities depending on parents' education show a high degree of stability for the period 1988 to 2011 (Böhlmark and Holmlund, 2011; Fredriksson and Vlachos, 2011; Rudolphi, 2013; Swedish National Agency for Education, 2012).⁷ Analyzing compulsory grades in Mathematics and English (the academic subjects that suffer the least from grade inflation) and GPA, Böhlmark and Holmlund (2011) find stability in the role of family background for adolescents' educational performance during the period 1988 to 2007. The results hold both using sibling analysis and estimating correlations between socio-economic origin, as measured by parents' education and income, and performance. Similar results are found in other studies using parents' education as a single indicator of social origin (Fredriksson and Vlachos, 2011; Rudolphi, 2013; Swedish National Agency for Education, 2012). The overall picture of stability appears to apply up to 2011 for GPA as well as for grades in Mathematics and English (Swedish National Agency for Education, 2012). However, when breaking down parental education in more detail, there is a slight tendency toward increasing inequality in GPA between 2007 and 2011 (*ibid.*).

The main pattern of long-term stability in grade inequalities from the late 1980s up to 2011 is quite a remarkable result, in view of the concurrent development of vastly increasing between-school variation in grades, at least partly related to the implementation of increased scope for individual choice of school (Böhlmark and Holmlund, 2011; Swedish National Agency for Education, 2012). Böhlmark and Holmlund (2011) conclude that Swedish schools may have become less effective, but not less unequal in providing pupils with knowledge.

Is the pattern similar for other performance measures? Results based on PISA data suggest that the answer is 'yes' for mathematical literacy but 'no' for reading literacy. The association between socio-economic background and mathematical literacy remained stable between the survey years 2003 and 2012, with an association strength that is not significantly different from the OECD average (Swedish National Agency for Education 2013). On the contrary, PISA data indicate that socio-economic background exerts an increasing impact on language literacy between the survey years 2006 and 2009 (Böhlmark and Holmlund, 2011; OECD, 2010b; Swedish National Agency for Education, 2012) and a stronger association in Sweden compared to the OECD average (OECD, 2010b).⁸ The increased strength of the association between socio-economic background and reading literacy is statistically significant and amounts to around 19 percent (Swedish National Agency for Education, 2012). However, it should be noted that a sensitivity analysis carried out by Böhlmark and Holmlund (2011) showed no significant increase when the definition

⁶ The reviewed research results are mainly based on two data sources on scholastic skills for 15/16-year-olds: Grades from compulsory education 1988–2011 (15/16-year-olds, population register data) and PISA 2000–2012 (15-year-olds, Reading and Mathematical literacy). Other potentially relevant international data sources are TIMSS 1995–2007 (14-year-olds, Mathematics and Natural Science) and PIRLS 2001–2006 (10-year-olds, Reading literacy). Due to the restricted information on socio-economic background, I do not include results based on these two data sets in the review. The only available indicator of socio-economic background for a sufficiently large proportion of the sample is number of books in the home, as reported by children (Swedish National Agency for Education 2012).

⁷ The grading system changed during the studied period, which is why grades are standardized yearly in the referenced studies. When yearly standardization is not carried out, Gustafsson and Yang Hansen (2009) find a slight increase in GPA inequality 1998–2004 and a weak decline up until 2008.

⁸ The main focus of PISA 2006 and 2009 was on reading literacy, and on mathematical literacy in 2003 and 2012.

of parental education is changed and used as a single indicator of family background.

It is far from self-evident why the development of inequality differs between teacher-assigned grades and PISA reading literacy scores. Two main interpretations have been put forward by the Swedish National Agency for Education (2012). First, stable inequality in GPA may in part be related to teacher assignment of grades, as pupils with low educated parents are overrepresented in the group of students who are given a passing grade despite the fact that they do not meet the course requirements (*ibid.*). Second, they argue that reading literacy is a specific subject in relation to which we can expect the home environment to be of particular importance, because reading skills are probably learned and maintained at home to a larger extent than mathematics skills are. Hence, socio-economic background may be of greater importance for reading literacy than for mathematical literacy. Moreover, it is acknowledged that a pattern of slightly increasing GPA inequality is observed for the most recent development, 2007-2011, when a more detailed measure of parental education is used, which corresponds with the trend for reading literacy for the period 2006-2009. It has repeatedly been pointed out that PISA results are based on socio-economic indicators that are reported by children, which may be problematic when comparing results based on Swedish register data (e.g., Böhlmark and Holmlund, 2011; Fredriksson and Vlachos, 2011), and that PISA is a survey and consequently involves a certain amount of sampling error (Fredriksson and Vlachos, 2011).⁹

Results from the most recent PISA survey received extensive attention in Swedish media when they were first published in 2013 (Swedish National Agency for Education, 2013a). The falling results among Swedish students in all PISA subjects caused a lively public debate on the efficacy of Swedish compulsory education. The stable inequality pattern in mathematical literacy between 2003 and 2012 should thus be viewed in light of a general decline in mathematical literacy for all socio-economic groups alike (*ibidem*).

2.2. Attainment of upper secondary education

The development of social inequality in upper secondary education depends on the aspect in focus, which could be overall enrollment and completion of upper secondary education (irrespective of track) or academic upper secondary education versus other routes (vocational tracks, non-qualifying or no track).

Falling upper secondary education completion rates followed the implementation of a new grading system in compulsory education in the early 1990s when it became more difficult to achieve a passing grade and thus to become eligible for upper secondary education. Björklund *et al.* (2010) show that the trend of increasing non-completion was stronger among pupils with low grades from compulsory school, a group in which pupils of low social origin are overrepresented. Consistent with their finding, the part of the variation in completion of any upper secondary education attributable to family background increased sharply between 1993 and 1994 (i.e., between the cohorts graduating in the old and new system) and continued up to 1999, followed by a decline (Böhlmark and Holmlund 2011).

⁹ Böhlmark and Holmlund (2011) point out that one reason for the weaker correlation between parental education and reading literacy in PISA, as compared with GPA, is probably that many pupils make incorrect reports about their parents' educational attainment. Thus, the socio-economic measures in PISA probably involve a higher degree of measurement error than do Swedish population register data.

As to the completion of vocational upper secondary education, the effects of the prolonged vocational tracks from two to three years in 1991 have been studied by Hall (2009), who found that non-completion was more common in the reformed system, in particular among students with low grades. Furthermore, contrary to one of the aims of the reform, graduation rates in tertiary education did not increase among students taking the vocational route after the reform.

For academic upper secondary education, programs mainly preparing for higher studies, the inequality development is different. Research suggests slightly declining social class inequalities in the transition to academic tracks between 1988 and 1998 (Gustafsson *et al.*, 2000).¹⁰ While it has been suggested that the decline between 1988 and 1993 occurred partly due to demographic factors (Gustafsson *et al.*, 2000),¹¹ the reformed upper secondary education in the mid-1990s may have contributed to equalization by diminishing the cost differences between vocational and academic routes up to 1998 (Jonsson, 2007).¹² There are no obvious reasons to expect a substantial equalization in academic upper secondary education after 1998 up until 2011, given that, among other things, no major changes in the educational system were implemented. For the 8-year period following 1998, the proportions of pupils entering academic upper secondary tracks declined (Statistics Sweden, 2007). Moreover, there was no general trend of equalization in living conditions up until 2006 (e.g., income inequalities increased: Jonsson, Mood and Bihagen 2010, Fig. 2), and no wide-ranging educational reform was implemented during 1999-2011.

However, an analysis based on sibling correlations suggests that the inequality in graduating from an academic track has declined also for the cohorts who in the typical case entered upper secondary education in 1999 to 2003 (Böhlmark and Holmlund, 2011). This development seems to have continued up until 2006 (Rudolphi, 2013). During the years after 1998, enrollment rates in academic programs fell substantially (Statistics Sweden, 2007). Equalization was then driven by a more stable interest in academic programs among youths of low educated parents – who had low enrollment rates in academic programs to begin with – than among those with highly educated parents. Why did children of highly educated parents increasingly turn to non-academic tracks? A tentative answer is that, at the beginning of the new program structure, highly educated parents made cautious judgments about programs falling outside the traditional educational routes. After some years of experience with the new system, alternative routes may have gained acceptance as appropriate paths to higher education. This may particularly have been the case for programs with a semi-academic character.

¹⁰ The referenced studies apply social class measures with an objective perspective on class-based resources. Other studies take Bourdieu's view of class as a point of departure. This view is more complex and goes beyond the objective perspective on resources, also putting an emphasis on lifestyles and taste. From that perspective, Swedish researchers have analyzed the social selection to upper secondary schools and specific programs within particular geographical areas by using a 32-34 group categorization of parental occupation. By analyzing more specific occupational groups, one can tap in to more detailed aspects of social class inequalities (e.g. Broady *et al.* 2000). My understanding of these studies is that the benefits lie in their exploratory and detailed descriptions, while the approach is arguably less fruitful in detecting persistence or change in social selection in educational outcomes (for an elaborated argumentation, see Rudolphi 2011).

¹¹ It has been suggested that declining cohort sizes in combination with a stable or increased number of educational places have resulted in less competition and lower GPA requirements for entry into academic tracks (Gustafsson *et al.* 2000).

¹² The prolongation of vocational programs from two to three years reduced the alternative cost of choosing an academic program over vocational education.

Second, it is also possible that the most recently observed equalization is an artifact, in the sense that it will not have substantial repercussions for inequality at higher levels of education. One hypothesis is that pupils of high educational origin may increasingly have come to choose a program with a large number of non-academic courses still providing eligibility status similar to the more academic natural science and social science programs as a strategy for increasing their competitiveness when enrolling in university education.¹³ Whether or not this speculation is well-founded is an empirical question. It can be examined in the near future when these cohorts have had the chance to make the transition to higher education for some years. Not until then will we be able to observe how their ambitions translated into enrollment in higher education. A related interpretation is that the choice of program may have become less important than the choice of school, at least in large city areas (Rudolphi, 2013). No doubt, individuals respond to system changes and develop strategies for optimizing benefits within the new system, and students with high parental resources are best equipped to develop strategies within the educational system (SOU, 2004: 29).

Swedish adolescents in the most recent cohorts have experienced a new upper secondary system starting in 2011. In the present system, the distinction between vocational and academic programs has been accentuated (Government Bill, 2008/09:199). To what extent have pupils and parents responded to this system change? It is clearly the case that more students have made the choice to enroll in academic tracks after the reform, as compared with before (Swedish National Agency for Education, 2013b; 2014). Importantly, however, it should be acknowledged that it is not possible to make a straightforward comparison of programs in the different systems.

2.3. The relative importance of performance and choice in producing social inequalities in upper secondary attainment.

The performance and choice effects of social origin were recognized early in the Swedish research. The two processes were acknowledged by Boalt (1947) and Härnqvist (1958), and were later shown to prevail at both the transition from primary to upper secondary school and from upper secondary school to university (Erikson and Jonsson 1993, 1996a).

A few studies have aimed at assessing the relative importance of performance and choice in producing inequality in Swedish academic upper secondary education. Erikson (2007) examined the transition to upper secondary education for cohorts born in 1953 and 1969. He found a tendency for a somewhat lower proportion of secondary effects when considering enrollment in natural science programs (around 30 to 45 percent) as compared with enrollment in all upper secondary programs tak-

¹³ For some adolescents of highly educated parents, the decision to not enroll in one of the academic programs may even be a strategy to secure high or acceptable grades. Taking a less academic route with extended courses could have increased students' competitiveness in accessing a university education. Choosing the semi-academic esthetics program over the natural science and academic social science program for this reason does not seem unlikely. Grade inflation is a general problem, but the degree of inflation varies across subjects. At least in compulsory education, this trend has been particularly prominent in the esthetics subjects (Gustafsson and Yang Hansen 2009). This suggests that it has become easier to achieve high grades in these courses as compared with others (under the assumption that pupils' "esthetics skills" have not substantially increased). Inflation of upper secondary grades has been lowest in Math and English. For these subjects, national tests are available for calibrating the grades (Wikström 2005 for the years 1997-2002).

en together (around 40 to 65 percent). Erikson and Rudolphi (2010) estimated that slightly more than a third (around 35 to 40 percent) of the social class inequality in academic upper secondary education was determined by secondary effects. They analyzed four cohorts born between 1967 and 1982 and used GPA from compulsory school as a performance measure.

In a path analysis of the same data for one of the cohorts, Härnqvist (in Erikson and Jonsson 1993, Ch. 7) estimated that around 43 percent of the inequality at the transition to upper secondary education was determined by secondary effects. Several different performance measures from age 10 to 16 were taken into account.

Results indicate that both reduced primary and secondary effects accounted for the decline in social class inequality in academic upper secondary education from the mid-1960s to 1998 (Erikson and Rudolphi, 2010). Recent research suggests a continuing trend of declining inequality in academic upper secondary education between pupils of high and low educational origin over the years 1998–2006, a development that is mainly driven by decreasing secondary effects. Conditional on grades students of low educational origin have come to make upper secondary choices more similar to those of their peers with highly educated parents, while primary effects (performance effects) have remained much more stable over time (Rudolphi 2013).

One general conclusion is that primary effects are indeed a prevailing force in producing social inequalities throughout individuals' educational careers. This is particularly the case for graduation from an academic track, where around 60 to 75 percent of the total inequality between pupils of high and low educational origin is attributed to inequality in performance. Thus, primary effects account for a substantial part of the inequality process in relation to the first important educational transition in Sweden, when studying academic upper secondary education and contrasting individuals of low and high educational origin (*ibidem*).

Discussion

The aim has been to review the most important empirical results on the development of social-background inequalities in educational attainment of adolescents in Sweden at the end of compulsory education and in upper secondary education. The focus has been on quantitative studies of the development during the past 25-30 years.

Despite educational reforms and increasing between-school variation in grades, the role of family background for adolescents' grade point averages at the end of compulsory education has been remarkably stable during the 20-year period between 1988 and 2007 (e.g., Böhlmark and Holmlund, 2011). Social inequality in upper secondary education is to a larger extent characterized by change. Importantly, the direction depends on whether inequality concerns the overall enrollment or completion of upper secondary education (irrespective of track), or academic upper secondary education versus other routes. Inequality in overall access to a qualifying vocational or academic upper secondary education has been increasing during parts of the 20-year period between 1988 and 2007 (e.g., Böhlmark and Holmlund, 2011). In contrast, inequality in choosing an academic route versus other alternatives has continued to decline during the past 20-25 years (Gustafsson *et al.* 2000; Rudolphi, 2013). Declining inequality in academic upper secondary education between pupils of high

and low educational origin over the period 1998–2006 has primarily been driven by decreasing secondary effects (Rudolphi 2013).

Different aspects of the educational system are potentially important for social-background inequality in educational attainment, together with the resources and ambitions of families. It is beyond the scope of the present paper to make international comparisons. Nevertheless, it is relevant from a nation-specific point of view to acknowledge that equality in conditions and two institutional features have been suggested to impact the level of primary and secondary effects of IEO: stratification and selectivity (Jackson and Jonsson, 2013).

Importantly, it has been pointed out that stratification and selectivity can be expected to be less important for primary effects than for secondary effects. There is rather little variation in primary effects between countries with different institutional settings with regard to stratification and selectivity (Jackson and Jonsson, 2013). This is consistent with the idea that there are partly different mechanisms underlying primary and secondary effects. If intergenerational transmission of cognitive and non-cognitive skills occurs mainly through genetics or continuous socialization within the family from an early age, one can expect rather small cross-country variation in the association between social origin and performance depending on the structure of educational choice and to what extent progression in the system is determined by previous performance (Jackson and Jonsson, 2013; cf. Erikson and Jonsson, 1996b).

On the other hand, equality of conditions – such as income inequality – can be assumed to impact the magnitude of both primary and secondary effects. A higher degree of economic inequality between social classes could increase the ability of privileged parents to improve the quality of childcare and extra tuition. Jackson and Jonsson (2013) hypothesize that the countries covered by their cross-country comparison are all affluent Western societies, and therefore differing inequality in income may not result in great differences in primary effects.

The educational system is important for the level of educational inequality, but there are also limitations on the reachability of educational policy. This is partly because other societal conditions also matter for the magnitude of IEO, such as equality of conditions, and partly because some key aspects of educational institutions may affect the secondary but not primary effects of IEO. First, sometimes reforms implemented with the aim to reduce educational inequalities have limited or no intended effects. One example is the prolongation of vocational tracks in upper secondary education intended to increase inequality at the next educational transition. Second, rising inequality may be an unintended consequence of reforms implemented with other overriding intentions. This probably holds for increasing the requirements for eligibility to upper secondary education.

In conclusion, social inequality can cease, or even increase, in some respects even in a country with a comprehensive educational system and broad political consensus as to the value of equality in educational opportunities. The part of IEO driven by primary effects seems to be more resistant to change over time in Sweden and varies less across Western countries than secondary effects do (Jackson and Jonsson, 2013). The greatest potential for present and future educational policy may thus lie in further reduction of the secondary effects of social inequality in educational attainment.

Results show that declining secondary effects drive recent equalization in academic upper secondary education to a larger extent than primary effects do. This development is consistent with arguments put forward in previous Swedish research (Erikson and Jonsson 1996b, see also Breen and Goldthorpe, 1997). Secondary effects are arguably easier to change, because crucial educational decisions are taken

actively and when most children can be reached by information and support provided in the school environment.

It has been suggested that primary effects are likely to be generated from a very young age and to depend strongly on socialization in the immediate home environment (Erikson and Jonsson 1996b). The reachability for policy may thus be much more limited. However, remaining social selection to academic upper secondary education now mostly depends on performance inequalities, which calls for the relevance of policy targeting this dimension of inequality. This is indeed a challenging issue. Forthcoming equalization of performance inequality early in the school career probably hinges on explicit political concern and costly long-term investments. Investments that may have potential for promoting equality in compulsory and upper secondary performance are improvement of general societal conditions, involving a low level of inequality in children's early living conditions, and including high quality and equity in pre- and primary schooling conditions (cf. Jackson and Jonsson, 2013).

What can we expect of the new reforms implemented in the fall of 2011? Fredriksson and Vlachos (2011) make the following two predictions in relation to parts of the new reform. First, the change of curriculum in vocational tracks toward less time on academic subjects, and more on vocational subjects, will probably benefit low performing students in the compulsory school. Second, increasing requirements for eligibility to vocational and academic tracks will probably result in youth who would benefit most from a stronger focus on vocational training being excluded from vocational upper secondary education.

Finally, more students have made the choice to enroll in academic tracks after the reform in 2011 than did before the reform (Swedish National Agency for Education 2013b; 2014). In future research, one highly relevant question to study systematically and longitudinally is to what extent the change of program structure has had a greater impact on children from well-educated homes.

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