Labour Market Outcomes for Low-Achieving Students Over the Past Three Decades in Sweden

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While the strong correlation between school achievement and future success is well-documented, there is limited research on how this relationship has evolved over time for different groups of individuals. Specifically, it remains unclear whether and how the life chances of low-achieving students have changed over the years. This study explores the consequences of low academic achievement on labour market outcomes in Sweden from 1994 to 2019, a period marked by educational reforms. Utilizing longitudinal Swedish data from a comprehensive register database, we analyse employment rates and income levels using descriptive statistics and regression analysis. The findings reveal significant income disparities between low and high achievers, with the former facing persistently lower income levels. For younger birth cohorts, these differences are more pronounced, highlighting the increased importance of schooling. Further, it has become increasingly difficult for individuals who have experienced school failure, such as not completing compulsory school, to obtain or retain employment. For 40-year-olds, employment has decreased by 10 percentage points between older (early 1970s) and younger (late 1980s) birth cohorts. Furthermore, while substantial, the income disparities between males and females, as well as among groups with different social backgrounds, have remained relatively stable across birth cohorts.

Introduction

Children's life chances are strongly influenced by the socio-economic conditions of their families, and the knowledge, skills, and personal characteristics they develop during upbringing and schooling. Sweden and many other countries have made ambitious attempts to equalize life chances by supporting general access to pre-primary and primary education and by widening access to secondary and tertiary levels of education (Björklund et al., 2010). In 2018, Sweden spent SEK 360.4 billion on education, which is 7.5% of the GDP. Education accounts for about 6.7% of the total cost of public expenses in Sweden (Ekonomifakta, 2023). This enormous spending on education in Sweden is motivated by the assumed significant positive outcomes in terms of generating higher productivity in society (McMahon, 2009). Over the last 50 years, providing more equitable access to education has resulted in a substantial increase in the level of education of the population (Björklund et al., 2010; Breen & Jonsson, 2007). However, despite the enormous spending on education, some individuals achieve low grades in compulsory school and therefore risk negative outcomes in adult life, such as lower levels of earnings, unemployment, and ill-health (Belfield & Levin, 2007; Johansson, 2019). Although research shows that the correlation between school achievement and future achievement, such as earnings, is high, how this association has changed over time is not well researched (Klapp et al., 2017). In particular, research is scarce on whether and how the life chances of low achieving students have changed over time.

In the past three decades, the educational landscape has changed dramatically in Sweden. For example, students born before 1982 experienced a norm-relative grading system, a curriculum without criteria for the different grade levels, and no failing grade (in a grading scale of 1–5, where 1 is the lowest grade). They were all certified to enter upper secondary education, apart from a small group of students that had not received grades in the core subjects Swedish, English, and mathematics or had not received grades due to reasons such as absenteeism. Meanwhile, students born in 1982 and after experienced a different educational and grading system. The decentralization of schools, the introduction of vouchers and independent schools, and the introduction of the curriculum in 1994, with grading criteria and a new grading scale with a fail grade (a grading scale of F, Pass, Pass with distinction, and Pass with special distinction), might have influenced the

opportunities students had for choosing their path through the educational system, potentially affecting their working life and later income. To shed light on this issue, we employ a register-based longitudinal dataset based on the total population. The analysis encompasses individuals born between 1972 and 1994, and we observe employment status and income levels up to 2019 and their relation to achievement in compulsory school. The rest of this study is organized as follows: The next section is a background section that presents the theory and a literature review. It is followed by sections that present the study's aim and research questions, its method and data, and its results. The final section offers a discussion of the results and the study's conclusions.

Background

The Human Capital Theory

The foundation of human capital theory (Schultz, 1961) is that people and their knowledge and competencies are important resources for wealth and prosperity in society. Individuals invest in themselves, for example, by learning and gaining knowledge and competencies in their spare time, in school, and at work—all of which give them a greater opportunity to choose a life path. Depending on the education system's structure and regulations, individuals can choose the type of education in which they invest and the subsequent work that can lead to higher individual prosperity. Human capital comprises different attributes such as personal characteristics, professional development, health, and motivation. The outcome of education is closely related to such attributes; education leads not only to higher productivity and profits but also to positive outcomes for society at large, such as better nutrition for infants, better childcare, and well-informed consumption. The social and private returns of education can be calculated (Belfield & Levin, 2007), and economists have estimated the relationship between the level of education attained and earnings (Card, 1999). In simple terms, higher levels of education result in greater returns (Belfield & Levin, 2007; Levin, 2009). Income levels are often used in economic theories as a simplified measure of human capital outcomes. From a societal standpoint, incomes are arguably a relevant outcome, particularly because higher incomes tend to have broader implications for other aspects of human capital, such as improved health.

Long-Term Outcomes of Low Achievement and School Failure

Low achievement and school failure can have severe long-term consequences. According to the Swedish National Board of Health and Welfare (Socialstyrelsen, 2010), a study analysing long-term psychosocial outcomes for ten Swedish population cohorts born between 1972 and 1981 revealed that low achievement and school failure significantly increased the risk of future psychosocial problems. The study compared the lowest performing students (lowest 16% of the final grades) in compulsory school with better-performing groups and found that serious criminality was 8–10 times more frequent in the low-performing group. There was also a large overrepresentation of individuals with misuse of alcohol and drugs, attempted suicide, suicide, and dependence on economic support from society. A systematic review of research on school, learning, and mental health found that perceived school failure, such as struggling to develop reading skills at the same pace as peers, increases the risk of experiencing internalizing mental health problems, which may cause externalizing problems (Gustafsson et al., 2010). Similarly, a longitudinal study of Swedish data also found that an increase in academic demands between Grades 6 and 9, particularly for females, is associated with increased stress and self-reported mental health problems (Giota & Gustafsson, 2017).

School failure is a multifaceted problem caused by various interrelated factors (Audas & Willms, 2001). Often, school failure starts early, marked by factors such as lack of interest, low achievement, and delinquency. Dropping out of school often marks the end of a long series of problems related to individual, family, or school context factors (Fortin et al., 2006). In the literature on low achievement, school failure, and school dropout, these problems exist on different levels. The individual level concerns demographic characteristics such as gender, ethnicity, cognitive ability, and age (Johansson, 2019). Research on gender issues reveals that different factors contribute to low achievement and school failures among girls and boys. Girls seem to experience internalized behaviour problems, parental mental disorders, and specific parenting practices. In contrast, boys experience externalized behaviour problems, low school achievements, and adverse family contexts and parenting practices as the main factors affecting their failure in school (Lessard et al., 2005). Sokolowski and Ansari (2018) emphasized the role of inherent individual differences since they may interact with social background factors. Olson et al. (2011) found that before children begin kindergarten, their home environment exerts a stronger influence on vocabulary skills than inherited factors. However, by second and fourth grade, both genetics and family environment play

comparable roles in explaining why some children develop stronger vocabularies than others. These findings suggest that even in a system committed to equity, particularly one that focuses on supporting low-performing and low-socioeconomic status students, biological factors combined with each child's unique needs may mean that not all students will reach the same achievement level. Rather than expecting uniform outcomes, educators must offer tailored resources and support that empower each student to realize their full potential.

School failure can also lead to closed educational routes, requiring compensatory training or a change in plans. Another possible consequence is dropping out of the educational system, a globally widespread phenomenon (Chávez Chávez et al., 1991; Rumberger, 2011; UNICEF, 2013). Students who drop out of school experience personal losses, such as limited opportunities, a greater risk of unemployment, longer periods outside the labour market, and financial difficulties. However, failing in school and dropping out also become problems for society at large due to costs for the welfare system and consequences for the education, economic, and health systems. Individuals not meeting the eligibility requirements for upper secondary education (passing grades in Swedish, English, and mathematics) can enter the preparatory individual program to raise their grades to meet the requirements for eligibility to upper secondary education. However, the throughput of students from the preparatory program who complete upper secondary education is about 15% within five years (Skolverket, 2019). Moreover, Fischbein and Folkander (2000) found that students attending the preparatory individual program in Sweden exhibited lower (below average) reading and writing abilities compared to students in vocational programs. The individual program group is typically characterized by a diverse group of students with lower grades, partial school attendance, specific learning disabilities, and different social backgrounds. Although the group's overall performance was low, there was considerable variation within the group (Fischbein & Folkander, 2000). A notable disparity between low achievers and high achievers concerned their school experiences: Low achievers faced learning difficulties, had limited confidence in their academic abilities, and received less parental support. On the other hand, high achievers did not encounter learning difficulties, displayed a positive attitude towards schooling, and benefited from parental support, albeit finding school boring (Fischbein & Folkander, 2000; Klapp & Jönsson, 2020). According to Halapuu (2021), the 2011 school reform has prevented students with low levels of achievement from entering upper secondary education programs due to stricter eligibility requirements. Consequently, the probability of low-achieving youth being given disability insurances doubled among students who did not meet the eligibility requirements for upper

secondary education after the reform. Halapuu (2021) concluded that excluding low-achieving youth from upper secondary education may have long-term consequences.

Aim and Research Questions

Structural changes in Swedish society over the last decades have affected the labour market. During this period, several reforms were implemented, such as changes in unemployment compensation and the pension system. The levels of unemployment compensation (monetary) have decreased, affecting the earnings of unemployed individuals (Forslund et al., 2008). Other structural changes, not in the form of reforms, include the later introduction of young people to the labour market (Krueger and Ludwig, 2006), an increase in migration (Engdahl, 2016; Ruist, 2017), an increase in international trade (Auer et al., 2013), and technical development (Westermark, 2019). Further, economic downturns and financial crises may have added to the negative effects of these structural changes on individual incomes. This study aims to investigate how individuals with low achievement in compulsory school have been affected over a three-decade period. It poses the following research questions:

- What are the gaps in employment and income rates associated with gender, parents' education level, and families' migration background, and how have these gaps evolved over time?
- What are the trends in employment and income rates in Sweden during 1990–2019 for individuals with low achievement in compulsory school?
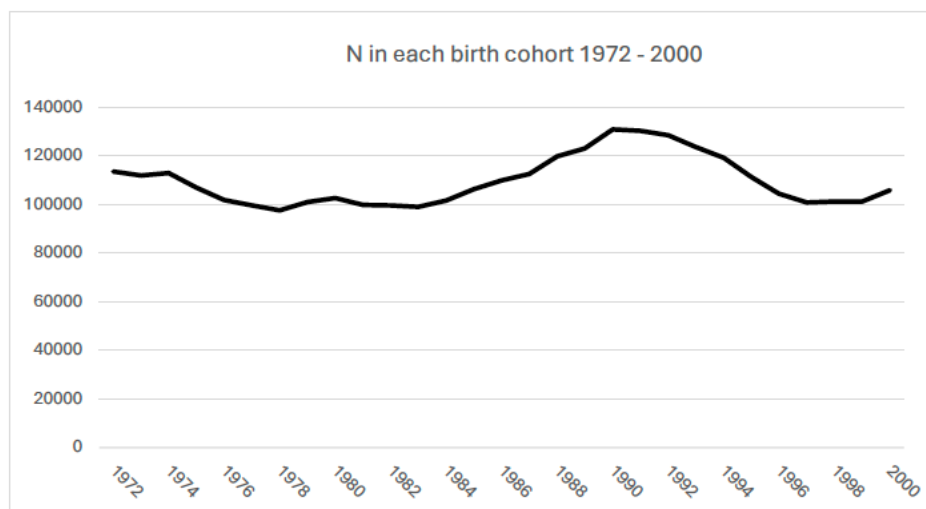

Method and Data

The data for the current study are derived from the Gothenburg Educational Longitudinal Database (GOLD), which combines information from several registers. In the current study we used the total population register, the student register (grade data), and labour statistics derived from administrative sources. GOLD, which is owned by the university of Gothenburg, comprises annually updated data on individuals born after 1971. A feature of GOLD is that it is stored by a

personal identity number, which facilitates links between population registers and GOLD.[1] The present study focuses mainly on birth cohorts from 1972 to 1994. We tracked the income of individuals from the age of 16 years, although there are typically limited individuals with income at this young age. For the birth cohort of 1972, we collected income data for the years 1988 to 2019, covering the age range of 16 to 47 years. Figure 1 displays the number of individuals included in each birth cohort. When all cohorts within the studied period are considered, the total number of cases exceeds 55 million. All data were analysed within MONA (Microdata Online Access), SCB's platform for access to microdata.

Figure 1

Number of individuals included in the study, in each birth cohort.

The trend displayed in Figure 1 reflects the variation in the number of individuals in each birth cohort. Each birth cohort comprises typically around 100,000 individuals, but this number is about 20,000–30,000 higher for some cohorts.

Variables

In the following, we describe the variables used in the present study. The variables were collected from the aforementioned databases.

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1 GOLD contains data for the complete population in Sweden born from 1972 and onwards. Data on individuals is stored from the year a person is 16 years old and is updated yearly. GOLD contains longitudinal information at the individual level, where certain characteristics (such as grades) are fixed and others (income levels) vary.

Employment Status

Employment status was used as an outcome to explore how individuals who experienced school failure have managed the labour market over time. This is a dichotomous variable indicating whether the individual is employed or not: 0 = "unemployed" and 1 = "employed" . It is measured annually, but it is a estimated cut-off rather than information about employment at a specific point. In order to be classified as employed, the individual must have a taxable income that exceeds a specified threshold or have declared active business operations during the current year.

To facilitate the comparison of income levels among individuals from different birth cohorts, we had to account for inflation. Notably, nominal income levels for 30-year-olds in 2015 are considerably higher than those in 2005. Consequently, the disparities between individuals with a low and high grade point average and those with and without school failure may have increased for later birth cohorts due to inflationary effects. In Sweden, the consumer price index (CPI) is a widely accepted measure for adjusting wages to reflect real or actual values (Carlsson & Nilsson, 2020); it is the standard measure of compensation and inflation calculations in the country. Accordingly, employing the CPI as a correction factor enabled us to assess real wages. The CPI index is publicly available at the Statistics Sweden's home page. We calculated the real wages by dividing the nominal wages by the index.[2] However, the CPI adjustment is not enough to handle the implications of inflation. For example, if yearly average earnings increase from SEK 200,000/year to SEK 300,000/year and if low-achieving individuals earn SEK 100,000 less per year in both settings, one could reasonably argue that the gap has decreased from 50% to 30% (100k vs. 200k and 200k vs. 300k). Therefore, we also used the logarithm of income (see, e.g., Ganzach & Pazy, 2021). Using log income is standard practice when analysing differences in earnings because it offers a more theoretical and intuitive understanding. The importance of percentage change in pay, as opposed to nominal change, necessitates the use of a logarithmic pay scale. For example, a SEK 1,000 increase in monthly income is more significant for someone earning SEK 25,000/month than for someone earning SEK 80,000/month.

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2 The index for the yearly average was imputed to the data set and nominal wages were corrected according to the following formula: (CPI year x–1/CPI year x)/Nominal wage year x = Corrected Wage. The reference year was 1980.

Compulsory Schooling Dropouts

One definition of school failure is not finishing compulsory schooling. To explore the consequences of dropout and non-completions on later income, we created a dichotomous variable indicating whether or not students had completed Grade 9. About 3% of the students in the study had not completed Grade 9, and this number is fairly stable for all birth cohorts between 1972 and 1994. The individuals in this group had not received any final grades from compulsory school, presumably because they dropped out before completing their education. The data regarding this group were collected at ages typically associated with compulsory school graduation (around 15–18 years). However, some individuals may have completed compulsory schooling at a later age, possibly through adult education programs. The variable is coded 0 = "not completed compulsory school" and 1 = "completed compulsory school."

Grade Point Average

Having poor grades is another definition of school failure. We explored individual students' grade point average (GPA) for Grade 9. Importantly, the birth cohorts within the studied period were subject to different grading systems. In Sweden, a norm-referenced grading system was replaced by a criterion-referenced system in 1994. Accordingly, the norm-referenced grading system applied to the cohorts born prior to 1982, whereas the criterion-referenced system applied to the cohort born in 1982 and later. Because of the different grading systems and the fact that grades have been subject to grade inflation (see, e.g., Cliffordson, 2004), every individual was assigned a percentile-transformed score, based on 16 subjects. Percentiles were computed separately for the grades of each cohort. For each cohort, the GPA had a mean of about 50 and a standard deviation of about 28 (see Svensson & Nielsen, 2008). Specifically, being in the 50th percentile means having an average GPA in Grade 9. To shed light on "school failure," we compared GPA percentiles of low achieving students with those of average or high performing students. We used two distinct versions of the GPA in our analysis. First, the overall scale was segmented into five quantiles: 0–20, 21–40, 41–60, 61–80, and 81–100. These five categories (GPA5), derived from the percentile scale, were used in our analysis to examine income disparities across different GPA levels. Second, the variable GPA was divided into eight categories (GPA8) to identify potential differences among varying levels of low achievement: 0–5, 5–10, 10–15, 15–20, 20–30, 30–40, 40–50, and 50–100.

Family Education Level, Gender, and Immigration Background

To investigate the changes in income, we also controlled for family educational level, gender, and immigration background. These variables were dichotomous. Substantial differences in income levels based on these aspects commonly exist. However, income trends linked to family educational level, gender, and immigration background can vary over time and birth year. Consequently, these variables were included in the analyses to account for potential variations in income patterns. Family background was coded as 1 = "individuals with parents who have two or more years of tertiary education" and 0 = "those with less." Immigration background was coded as 1 = "native" and 0 = "foreign background." Consequently, what is conventionally distinguished as second-generation immigrants and first-generation immigrants was combined into a single category.
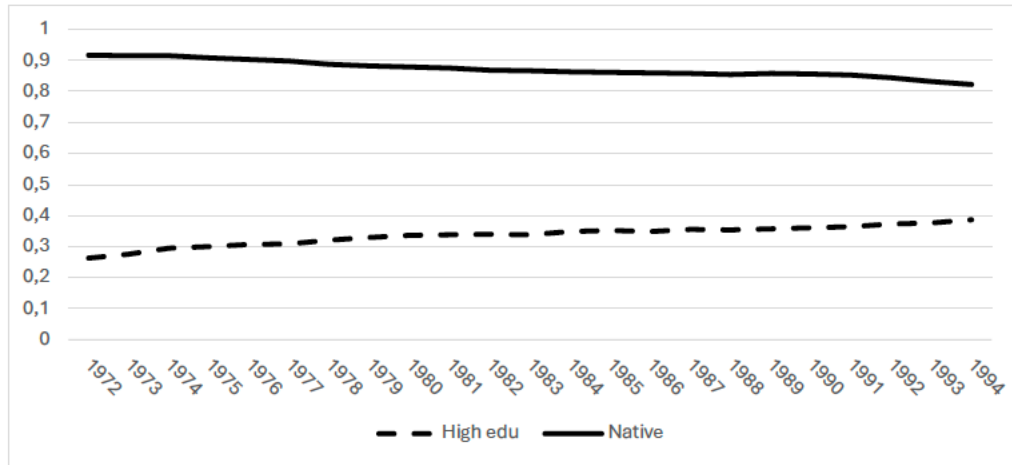
Table 1.

N and proportions across background variables for birth cohorts from 1972 to 1994.

Age		Gender		ParEd		Immig	
		Male	Female	Less than 2 years of tertiary education	2 or more years of tertiary education	Immigrant	Swedish
25	N	1,026,876	968,484	1,337,668	657,692	241,951	1,753,396
	%	51.50%	48.50%	67.00%	33.00%	12.10%	87.90%
30	N	945,116	891,991	1,239,169	597,938	217,260	1,619,836
	%	51.40%	48.60%	67.50%	32.50%	11.80%	88.20%
35	N	656,495	620,958	877,070	400,383	137,080	1,140,359
	%	51.40%	48,60%	68.70%	31.30%	10.70%	89.30%
40	N	408,189	387,904	559,004	237,089	75,061	721,023
	%	51.30%	48.70%	70.20%	29.80%	9.40%	90.60%
ParEd, parental education; Immig, immigration status							

Table 1 presents the proportions of the study population across variables. The N for 25-year-olds is about 20 million, reflecting all birth cohorts included (1972–1994). Importantly, the nature of the selected variables has evolved over time, reflecting the increasing prevalence of tertiary education and increasing number of immigrants among later birth cohorts. The changes are displayed in Figure 2.

Figure 2

Proportion of individuals with high parental education and native background.

The 25-year-olds born in 1972 differ from those born in 1994 by more than 10 percentage points both as regards parental education and immigrant background.

Procedure

Comparing income levels across multiple birth cohorts over time presents a complex task. It requires addressing factors such as inflation and the natural progression of earnings with age in Sweden. To enhance comparability in our analyses, we adopted specific measures: Rather than tracking the trends for individual birth cohorts, we focused on specific ages, comparing the income levels of 25-, 30-, 35-, and 40-year-olds for different birth cohorts. Further, by correcting for inflation, we were able to make meaningful comparisons of their income levels and development. To relate the independent variables (gender, parental education level, and family migration background) to the outcomes (employment status and income level), we employed descriptive statistics with diagrams as well as multiple regression analysis. All data preparation and analyses were carried out in SPSS 28 (IBM SPSS Statistics, 2022).

Results

Income Development

To investigate how income had developed over time, we performed regression analyses where we regressed income on cohort dummies, using cohort 1972 as the reference category. Initially, we

explored the general income development across all cohorts, using log-transformed income to compare percentage increases among 25-, 30-, 35-, and 40-year-olds. The trends indicated a positive linear increase. In the first step, we introduced birth year as a predictor. In the second step, we added GPA5 (GPA divided into five quantiles). Third, we included gender, followed by immigrant status, and finally parental education.

Because we used the log income, we can interpret the effects in terms of percentages. For each birth cohort, income increases by approximately three percentage points, with a somewhat smaller increase observed in older cohorts. This trend aligns with societal changes, where income has seen substantial growth over the past two decades. When entering GPA5 in the model we noted higher income for age groups 30, 35 and 40. Interestingly, having a lower GPA correlates with higher income at the age of 25 years, likely because individuals with lower GPAs are less inclined to pursue higher education and instead enter the labour market earlier. Further analyses show that, in this age group, individuals from lower parental educational backgrounds are the ones who enter the labour market earlier. For other age groups, there is approximately a 10% increase in income for each step up the 5-point GPA scale, a trend that remains consistent even after adjusting for other covariates. This indicates that Grades have a significant long-term impact on income.

Furthermore, a significant gender income gap is evident across all age groups, with females earning approximately 50% less than their male counterparts under otherwise equal conditions. Similarly, immigrants earn nearly 10% less than individuals of Swedish descent despite other factors in the model being equal. Parental education shows minimal impact on income within the 30–35 age groups, whereas 40-year-olds with highly educated parents earn more (approx. 3%) despite not having higher grades. The results of the regressions for 25-, 30-, 35-, and 40-year-olds are presented in Table 2.

Table 2.

Income development in percentages. Regression coefficients for 25-, 30-, 35-, and 40-year-olds.

Model		25			30			35			40		
		B	SE	t	B	SE	t	B	SE	t	B	SE	t
1	Birth year	0.032	0.000	197.38	0.031	0.000	206.48	0.029	0.000	127.02	0.026	0.000	64.44

2	Birth year	0.032	0.000	198.72	0.031	0.000	206.79	0.028	0.000	127.59	0.026	0.000	64.58
	GPA	−0.065	0.001	-101.12	0.069	0.001	122.39	0.074	0.001	122.43	0.100	0.001	149.97
3	Birth year	0.032	0.000	201.53	0.031	0.000	216.41	0.029	0.000	134.42	0.026	0.000	66.88
	GPA	−0.039	0.001	−60.68	0.111	0.001	198.48	0.114	0.001	193.46	0.129	0.001	196.06
	Gender	−0.344	0.002	−188.50	−0.565	0.002	−361.25	−0.544	0.002	−329.36	−0.402	0.002	−219.20
4	Birth year	0.032	0.000	204.95	0.031	0.000	218.28	0.029	0.000	135.76	0.027	0.000	67.71
	GPA	−0.042	0.001	−64.98	0.109	0.001	195.09	0.113	0.001	190.78	0.128	0.001	193.80
	Gender	−0.343	0.002	−187.95	−0.564	0.002	−360.94	−0.543	0.002	−329.10	−0.402	0.002	−219.00
	Immig	0.158	0.003	53.63	0.083	0.003	32.72	0.069	0.003	24.69	0.080	0.003	24.14
5	Birth year	0.034	0.000	213.87	0.031	0.000	218.27	0.029	0.000	135.15	0.026	0.000	66.83
	GPA	−0.015	0.001	−21.73	0.11	0.001	187.63	0.112	0.001	180.19	0.124	0.001	180.35
	Gender	−0.358	0.002	−197.11	−0.565	0.002	−360.60	−0.543	0.002	−328.01	−0.402	0.002	−217.55
	Immig	0.177	0.003	60.22	0.084	0.003	33.03	0.068	0.003	24.32	0.077	0.003	22.98
	ParEd	−0.261	0.002	−131.32	−0.012	0.002	−6.96	0.009	0.002	5.08	0.033	0.002	15.91

Income for Low-Achieving Students

A small proportion of students in the studied birth cohorts do not graduate from compulsory school, which can be considered a school failure. Figure 3 displays real income (CPI adjusted), revealing remarkable differences between the cohorts. These differences are particularly evident for the 35- and 40-year-old cohorts, with more pronounced disparities observed among cohorts born later (1980 and beyond).
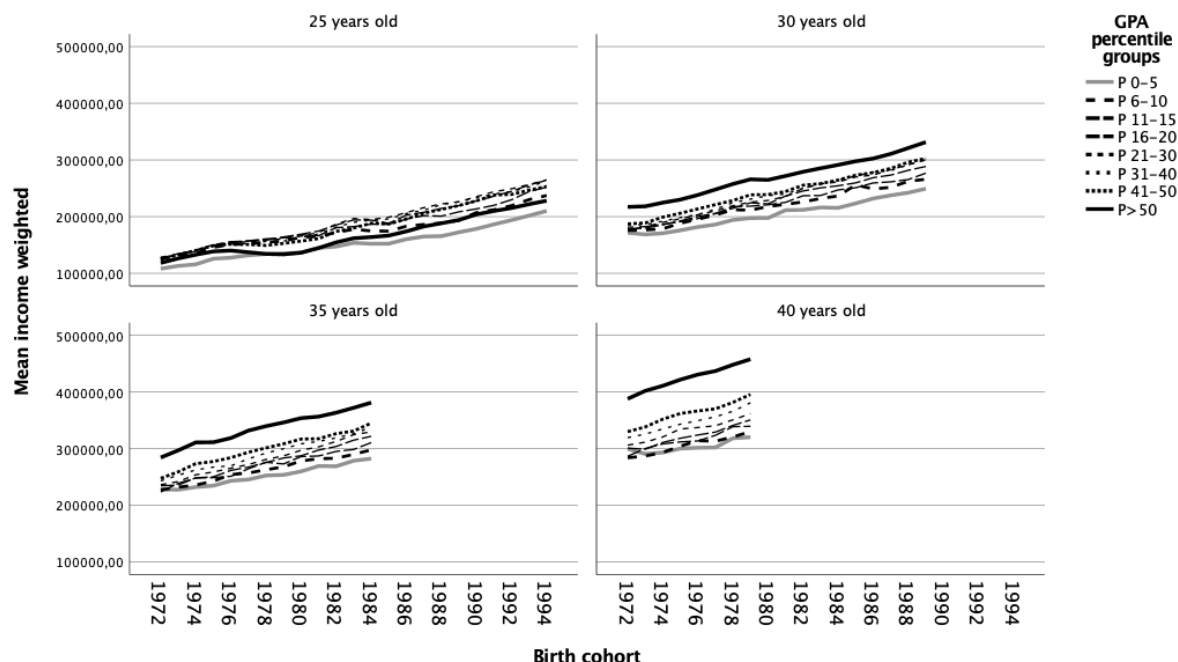
Figure 3

Real income for individuals with or without compulsory schooling at different ages.

Additionally, we analysed income disparities utilizing our GPA8 variable, revealing positive income trends across birth cohorts consistent with the general pattern (see Appendix). However, disparities between groups widen with age. At age 25 years, differences are subtle, yet the lowest-performing group (0–5 GPA percentile) consistently shows the lowest income in every birth cohort. This pattern is more pronounced in older age groups, highlighting clear distinctions between achievement levels. Those with average or higher GPAs have notably higher incomes. As shown in Figure 4, even modest improvements in GPA result in substantial differences in income.

Figure 4

Real income for individuals with varying degrees of low achievement at different ages.
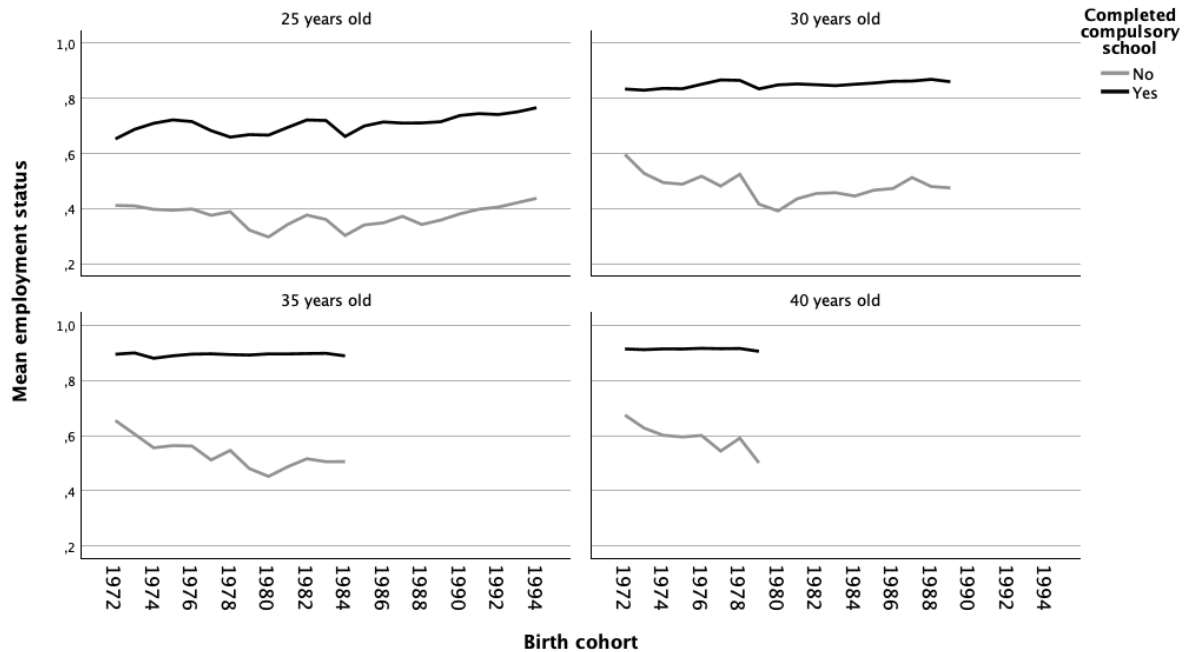

Employment Status

In addition to examining income differences, we analysed employment status among individuals who did not complete Grade 9 as well as those who experienced low achievement in school. To track employment status over time, we examined the proportion of employed individuals. However, given the inherent variability in employment patterns at younger ages and factors such as higher education enrolment, we concentrated on ages where individuals were likely to have favourable opportunities for employment. To capture temporal changes, we observed the trends at ages 25, 30, 35, and 40 years. Figure 5 depicts the employment status trends for individuals who completed or did not complete compulsory school, providing insights into how employment patterns evolved over time.

Figure 5

Proportion of individuals with and without compulsory schooling in employment at different ages.
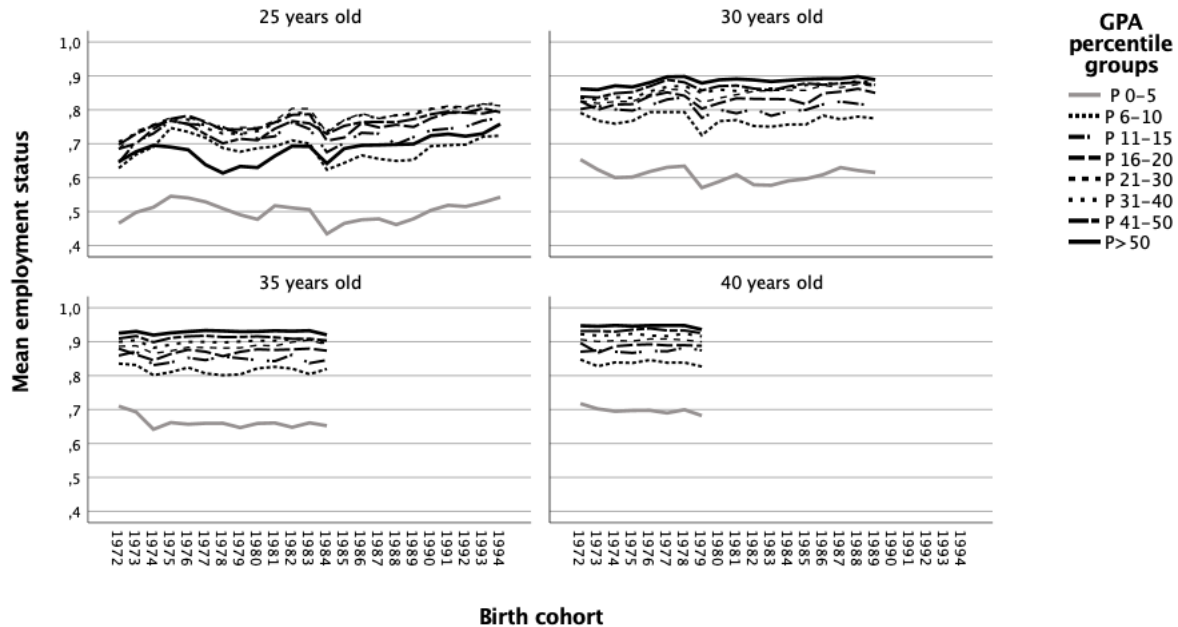

The employment status remains relatively stable over time, especially among individuals who completed Grade 9 and those aged 30 years and older. However, for individuals who did not complete Grade 9, the proportion of those in the labour market is lower by approximately 50% among those aged 30 years and older. There seems to be a slight decrease in these proportions for later birth cohorts. For instance, the proportion of employed 35-year-olds was higher for the cohort born in 1972 compared to the one born in 1982, as indicated in the graph displayed in the lower left in Figure 5.

We also examined employment status at various ages across different GPA8 categories. The results are presented in Figure 6. Notably, the likelihood of being employed increases as individuals age. We found that average or slightly below average GPAs make only a marginal difference in the employment rates. However, individuals performing in the lowest five percentiles exhibit a substantial difference. Their employment rate is approximately 70% at the age of 40 years, whereas those who perform slightly better (e.g., 10–20 GPA percentile) are employed at rates ranging from 85% to 90%.

Figure 6

Proportion of individuals with differing grade levels in employment at different ages.

Discussion

This study aimed to explore the relationship between low achievement in compulsory education and labour market outcomes, specifically employment status and income level, for individuals born between 1972 and 1994 in Sweden. In this section, we discuss the overall results before addressing specific issues of importance.

Based on human capital theory, we hypothesized that individuals with low achievement and school failure would exhibit lower income levels than their counterparts without school failure and that this income disparity would increase over time. Our analysis confirmed this hypothesis. While income levels generally increased over time at a similar percentage rate regardless of school achievement, the gap in real earnings widened over time. Substantial income differences were evident from a relatively early age across all birth cohorts, but they were less pronounced for the older cohorts (e.g., 1972-1976). Interestingly, at 25 years of age, low-achieving students in compulsory school initially showed higher income levels, likely due to their earlier entry into the workforce compared to peers more inclined towards further education.

The distinction between individuals with and without school failure was less marked for certain birth cohorts and for those who were not at the very bottom of the GPA distribution. For example, individuals who scored above the fifth percentile had clearly higher incomes than the lowest group, and this held true for all birth cohorts. The differences increased with the increase in GPA. Thus, even when the overall achievement was well below average, small gains in GPA appear to have influenced the average income level. Moreover, individuals born in 1972 who did not complete compulsory schooling still achieved a decent income, similar to the average for those who completed their schooling. However, for the cohorts born in the 1980s, at the age of 40, income was clearly lower for those who did not complete Grade 9. This suggests not only that patterns in the labour market were changing but also that individuals experiencing school failure were finding it increasingly difficult to succeed in the labour market. Economic downturns impacted different age groups in unique ways. For example, the 2008–2009 financial crisis had a lesser effect on individuals aged 35–40 years than on those aged 25–30 years, indicating that economic recessions can significantly affect long-term incomes. Eriksson et al. (2017) observed that while the immediate negative impact on employment fades over time, the influence on income endures. Conversely, the 1990s Swedish financial crisis resulted in relatively lower labour incomes and reduced employment likelihood in both the short and the long term for those affected, particularly those born in the early 1970s. Meanwhile, individuals from this cohort with higher incomes today were likely engaged in higher education during the 1990s crisis and were thus less affected.

This study focused on outlining the trends and outcomes of low academic achievement and school failure on income development, but the causes of variations among birth cohorts warrant exploration. One potential reason for the observed differences might be the changing job demands over time. Three decades ago, those who did not complete compulsory education might have found alternative employment opportunities. Significant educational reforms in the 1990s—including the decentralization and marketization of schools, a revised grading system, and higher entry requirements for upper secondary education—could have influenced the employment prospects and income development of individuals. The reform of the grading system and the introduction of measures regulating access to upper-secondary school programs likely made school failure more apparent to students. With about 15% of students not initially qualifying for upper-secondary education, requiring remedial courses to become eligible, and more than 25% of those admitted to an upper-secondary program in 2017 dropping out or failing to obtain a degree within five years

(Ekonomifakta, 2023), further research into the impact of these trends on future earnings is evidently needed. Numerous other factors have also impacted labour markets and society over time. For instance, digitalization and automation have likely significantly altered labour market tasks, jobs, and outcomes for workers. It remains difficult to determine how these changes specifically impact low achievers in Sweden and whether the observed results can be attributed to the educational reforms discussed or to other factors.

Conclusion

Sweden has undergone several major educational reforms over the past 30 years. These changes appear to have contributed to larger disparities between schools and increased inequality among socioeconomic groups in Swedish society (Fischbein & Marx, 2023; Gustafsson & Blömeke, 2018). International school achievement comparisons indicate a decline in educational equity as well as widening gaps between schools and between social and ethnic groups within schools (Yang Hansen et al., 2011; Yang Hansen & Gustafsson, 2019).

Certain reforms aimed at fostering equitable outcomes have been closely tied to an ideology of inclusion, for example, by integrating students with special needs into mainstream classrooms. Indeed, inclusive schools that share responsibility for supporting these students among all staff members have often shown strong results. Meanwhile, studies have raised concerns that exclusive strategies, such as placing students in separate groups, may marginalize these learners and undermine their self-confidence. Nevertheless, while inclusion can be beneficial, some students who struggle academically have found it overwhelming, which negatively affected their self-esteem. In such cases, more specialized settings, where peers have similar cognitive levels, can be advantageous for struggling learners (Fischbein & Marx, 2023).

Given the detrimental outcomes associated with school failure, it is crucial to implement strategies to mitigate this risk. In Sweden, special needs education is provided to students who are unable to meet compulsory school educational goals. However, this intervention may come too late to be effective, and the current model's efficacy lacks empirical support. In contrast, special needs education in Finland begins in the early years of schooling, not only targeting those at highest risk but also focusing on prevention and interventions to support the development of early reading skills (Abrams, 2016). Inspired by the Finnish model, Sweden began implementing a similar system.

Interventions like intensive training for dyslexic children have shown positive outcomes (Wolff, 2011), and early phonological training has demonstrated preventive effects for children at risk of dyslexia (Wolff & Gustafsson, 2022).

For those who have not completed compulsory or upper-secondary level education, municipal adult education and folk high schools offer continued education opportunities. Between 2013 and 2015, nearly 290,000 students engaged in municipal adult education, surpassing the size of regular upper secondary schooling (SCB, 2022). Further research is needed to understand how Swedish adult education serves its compensatory role and reaches diverse groups.

In conclusion, the findings of this study underscore the persistent impact of educational achievement on labour market outcomes. Systemic and individual interventions can potentially mitigate the effects of school failure. For instance, the implementation of targeted educational reforms and support systems, inspired by successful models like Finland's, offers a promising avenue for enhancing at-risk students' educational outcomes. By focusing on early intervention, tailoring support, and recognizing diverse learning needs, education policymakers can foster a more inclusive and equitable educational landscape. Such efforts hold the promise of not only narrowing the income disparities linked to educational achievement but also empowering all students to reach their full potential in the labour market. Therefore, it is crucial that policymakers, educators, and researchers collaborate to build on these insights, ensuring that every student has the opportunity to succeed, irrespective of their starting point. The future of education rests on society's collective ability to adapt, innovate, and remain committed to the continuous improvement of teaching and learning practices for the benefit of all learners.

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