Completion rates in High-stakes Assessments among Disadvantaged Students following COVID-19 School Closures

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Keywords: Education, Disadvantaged students, Examination completion rate, COVID-19, School closures.

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In Denmark, children from socially disadvantaged backgrounds have lower completion rates in the final examinations at the end of compulsory school than their peers. For example, 20-25 percent of children in foster care do not complete the final examinations in Danish and mathematics. As completion of these examinations is required to obtain exam grades that determine access to further education, such inequality may have serious consequences for children's opportunities to enroll in youth education and for their outcomes later in life. This paper investigates whether the gap in examination completion rates between socially disadvantaged children and their peers worsened following the COVID-19 school closures. I compare completion rate gaps for the first cohort that took the examinations under normal circumstances after the closures with those for the last pre-pandemic cohort. The analysis focuses on highly disadvantaged children, defined as those who have been in foster care or received preventive measures under the Social Services Act. I find that the completion-rate gap between this group and their peers increased by approximately 5 percentage points following the COVID-19 school closures. This paper thus contributes to the literature with evidence on exacerbation of educational inequalities in schools following the COVID-19 school closures.

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JEL Classification: I24, I38, J13

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Introduction

Following the school closures during the COVID-19 pandemic, a research literature has emerged concerning the potential exacerbation of pre-pandemic inequalities in educational outcomes between disadvantaged school students and their peers (Blanden et al., 2023; Stantcheva, 2022; Werner and Woessmann, 2021; Alejo et al., 2024). Agostinelli et al. (2022) show in a theoretical, structural model of skill formation, where skill formation is a function of school, parental inputs, peer effects and the interaction between these factors, that the school closures could have unequal effects on educational outcomes (Stantcheva, 2022). There are several mechanisms via which disadvantaged children could incur greater learning losses. One is that the online education during the school closures required more parental support, but parents in disadvantaged families may have found it harder to compensate for teachers, for example because they were less likely to have jobs that allowed them to work from home (Agostenelli et al., 2022) or because lower-educated parents feel less capable of supporting their children's learning (Bol, 2020). The school closures also removed positive peer effects, and some studies suggest that positive peer effects are stronger for disadvantaged children (Jørgensen et al, 2018; Humlum and Thorsager, 2021).

Several empirical papers document inequalities in educational outcomes for disadvantaged children in terms of test scores, i.e. that disadvantaged children suffered greater learning losses (Blanden et al., 2023; Stantcheva, 2022; Werner and Woessmann, 2021; Alejo et al., 2024). For example, Agostenelli et al. (2022) document a learning loss of 0.4 SD for students from low-income neighborhoods, whereas students from high-income neighborhoods are unaffected. Engzell et al. (2021) find a 40 percent larger learning loss among children from the least educated homes, and Maldonado and DeWitte (2022) also find larger learning losses in schools with larger shares of children with low-educated mothers.

Whereas potential learning losses have received considerable attention, potential inequalities in the propensity to participate in tests or exams – which is a necessary prerequisite for obtaining a test score – have received less attention. Engzell et al. (2021) and Maldonado and de Witte (2022) consider non-participation as a potential source of bias in their learning-loss estimates, but they do not investigate non-participation as an outcome in its own right.

In this paper, I investigate whether the gap in completion rates between socially disadvantaged students and their peers at the final examinations in compulsory school increased following the COVID-19 school closures. In Denmark, children from socially disadvantaged backgrounds generally have lower completion rates in the final compulsory school examinations. This social inequality in completion rates is concerning, as final-year examinations are high-stakes. Progression to most upper secondary education requires a minimum grade point average in the exams, and completion of upper secondary education is in turn generally associated with e.g. higher incomes and better health. For example, children residing in socially disadvantaged

housing areas exhibited completion rates that were approximately 5–10 percentage points lower than those of their peers over the period 2003–2019 (Christensen et al., 2022a; 2022b), and children in foster care have non-completion rates of approximately 20-25 percent in the Danish and mathematics examinations (Børne- og Indenrigsministeriet, 2019).

I exploit the administrative records from Statistics Denmark – henceforth, the register data - which provide examination grades for all schoolchildren in Denmark, together with detailed individual-level information on foster care placements and preventive measures under the Social Services Act for 0-18-year-olds to delimit the group of socially disadvantaged children. The examinations in 2023 were the first ones held under normal circumstances after the school closures, and I therefore estimate the difference between the completion rate gap for the 2023-cohort with that for the last pre-pandemic cohort, controlling for individual-level background and socioeconomic information. Thus, this paper follows Kuhfeld et al. (2025), Gore et al. (2021), and Schult et al. (2022) in using cohort comparisons between pre- and post-pandemic periods. As in those studies, factors other than the school closures may have differentially affected the gap in completion rates between disadvantaged students and their peers in the two cohorts. However, the examination structure was the same in 2019 and 2023, as was the relative examination exemption rates between the two groups.

I find that the gap in completion rates between disadvantaged children and their peers increased by approximately 5 percentage points following the COVID-19 school closures. Robustness checks defining the group of disadvantaged children instead by a risk-factor approach using parents' education and income levels show similar results, with smaller increases in the gap of between 2.5 and 3.2 percentage points, which is expected as these groups are not necessarily as socially disadvantaged. The increase in the gap is caused by a larger decrease in completion rates among disadvantaged children, although the completion rate also drops slightly for other children.

This paper contributes to the literature on educational inequalities following COVID-19 school closures in three ways. First, it adds to the evidence of a widening social gradient in educational outcomes after the pandemic. Second, it shows that this gradient extends to completion of compulsory school examinations. Third, it focuses on the most socially disadvantaged students and demonstrates that their likelihood of completing compulsory school exams has declined further. These results are policy-relevant in the Danish context, where progression to upper secondary education increasingly depends on examination grades, making the final examination a high-stakes exam; for example, the minimum GPA requirement for high school entry will rise by one grade point from 2030 (Børne- og Undervisningsministeriet, 2020; 2025).

Birkelund and Karlsson (2023) investigate whether Danish children in general experienced a learning loss as a consequence of the COVID-19 school closures 14 months into the pandemic, using test scores from nationwide individualized tests in reading and mathematics that take place at most schools at various grade levels during the 10-year schooling period. Because they can follow the same children in for example reading tests

in both grade levels 2 and 4, or grade levels 6 and 8, they are able to observe each child's performance both before and after the school closure. They find no learning loss on average in reading and mathematics. When considering children from different family backgrounds, they find some evidence of a widening in learning gaps between children with at least one unemployed parent and their peers, and between children from families with incomes in the lower quartile and their peers, between grade levels 6 and 8. However, they do not investigate the final examinations (which are the ones that impact future education possibilities), just as they do not specifically consider the group of socially disadvantaged children.

Jensen and Lykketoft (2024) investigate pass rates in the final Danish and mathematics exams for the 2023 cohort, compared with previous years, and find that academically weakest grade level 4 students with unemployed parents experienced a larger increase in failure rates following the COVID-19 school closures. While their study is the most closely related to this paper, it does not examine completion rate gaps for the most socially disadvantaged students. EVA (2021) conducted a survey among a number of teachers and students shortly after the first school closure which finds that while about 80 percent of students with highly educated parents received help with schoolwork at home, the same was only true for about 60 percent of students with parents without a vocational education. In a similar vein, Jæger and Blaabæk (2020) analyze register data combined with data on Danish families' daily library takeouts and show that the socioeconomic gradient – by parent education and income – increased during the first COVID-19 school closure. These last two studies align with a larger international literature analyzing data on time use during the school closures also showing a social gradient in time used for learning (Andrew et al., 2020), indicating a potential explanation for the increasing achievement gaps.

The rest of the paper is organized as follows. The next section describes the school system, the final examinations and the COVID-19 school closures and their implications for examinations in Denmark. The third section describes the data, defines the group of socially disadvantaged children as well as the alternate groups used for robustness, and presents the estimating equation. Section 4 contains the results, and section 5 concludes.

Completion of final examinations and the COVID-19 School Closures

Completion of final examinations at the end of compulsory school in Denmark

In Denmark, compulsory schooling is 10 years, where children typically start school at age 6 and complete by age 16. Compulsory school finishes with a final exam at the end of grade level 9, which is the final grade level, consisting of 10 mandatory exams in 6 different subjects. This exam structure has been in place since

2016/17.[2] The 10 exams are: 3 tests in written Danish (one in reading, one in grammar and one in essay writing); 1 oral Danish exam; 2 written mathematics exams (one with allowed materials such as books and pocket calculator, and one without); 1 oral English exam; 1 oral exam in natural sciences, spanning the subjects physics, chemistry, biology and geography; and finally 2 exams in 2 different subjects drawn randomly for each school from the remaining taught subjects which are: written exam in English, oral or written exam in your third language (typically German or French), oral exam in social studies, oral exam in history, written exam in physics, written exam in chemistry, written exam in geography, written exam in biology, or oral exam in physical exercise. A student can be legally excepted from one or several exams, due to for example significant functional impairment or insufficient Danish skills.[3] A student has thus completed the final examinations if the 10 examinations are either completed and registered with a grade or registered with a legal exception in some or all examinations.[4]

The grade point average in the 4 exam subjects that are held nationwide each year – Danish (written and oral), mathematics, English and natural sciences - together with the grade point average of the teacher grades in all subjects at the end of grade level 9, determine admittance to further youth education. There are different options for youth education in Denmark, with the most common ones being high school – either general, technical and science based, or commerce based – and vocational high school or vocational educations. Being eligible for and guaranteed a place in high school requires a minimum GPA of 5 (corresponding to a high C or a low B) in the teacher grades, a minimum GPA in the exam grades of 2 (which corresponds to a pass) in the full set of exam subjects, as well as a minimum GPA of 5 in the exam grades in the 4 exam subjects Danish, mathematics, English and natural sciences. Being guaranteed a place in vocational high school or vocational education requires a minimum GPA in the exam grades of 2 in the full set of exam subjects as well as a minimum GPA of 2 in both Danish and mathematics.

COVID-19 School Closures and Examination Rules

In Denmark, schools were closed from 16th March 2020 till 18th May 2020, and again from 16th December 2020 till 1st March 2021, followed by a 50 percent closure until 6th of May 2021. In total, schools were thus

[2] In 2021, an 11th exam in the compulsory elective subject that students choose in grade level 7 (cooking, arts or crafts) was added to the set of mandatory final exams. The exam in the elective subject takes place at the end of grade level 8. However, due to some seemingly inconsistencies in the data concerning the registration of exams and grades for the elective subjects during the COVID-19 years 2020-22, which I will explain in the Data section, I exclude the elective subject exams from the analysis.

[3] The different reasons for exemption recorded in the register data are: excepted 1) without registered cause, 2) due to significant functional impairment (§35), 3) due to receiving fulltime schooling in a municipal youth school instead of in regular school (§39), 4) not having been taught the subject or 5) due to illness on the day of the exam (§6) in which case the pupil can sit the exam at a later date.

[4] In 2019, 555 students were exempt, of whom 170 were disadvantaged. In 2023, 363 students were exempt, of whom 110 were disadvantaged. The decline in exemptions appears broadly proportional across the two groups: 6,99% and 3.65% of disadvantaged students in 2019 and 2023, respectively, compared with 0.72% and 0.47% of other students. Disadvantaged children are thus no less likely than their peers to be exempt after COVID-19.

fully closed for 17 weeks and partly closed for a further 9 weeks. With a school year typically consisting of approximately 40 weeks, the school closures consisted of approximately half a school year spread over two different school years.

Because of the school closures, the final examinations were conducted under special rules in 2020-22 and not until 2023 were exams back to normal.[5] I therefore compare the cohort from 2023 with the last pre-pandemic cohort, which is 2019. The cohort finishing school in 2023 was subjected to school closures in 6th and 7th grade levels. Grade level 7 is the first year in which pupils in Danish schools are assessed using formal grades. From this grade level, the emphasis on academic activities and testing intensifies, alongside increased time pressure to complete the curriculum and prepare for final examinations compared to earlier grade levels (EVA, 2020). Thus, the 2023-cohort experienced the school closure for the beginning of that crucial period, but subsequently completed all of 8th and 9th grade level under normal circumstances.

Empirical Analysis

Data

The data source used in this paper is the register data from Statistics Denmark. For the cohort comparisons, I use exam grades for the final exams in grade level 9 for all children in Denmark finishing school in 2019 and 2023, and for context exam grades for the additional years in the period 2017-2023 as well.[6] As mentioned above, the final exams consist of the same 10 exams throughout this period, except that an exam at the end of grade level 8 in the elective subjects cooking, arts or crafts was added from 2021. In 2021 and 2022, exams were not held in the elective subjects due to COVID-19 and the teacher grade in the subject was used in lieu of the exam grade. In the register data, however, registration of the elective subjects is missing for approximately 2.600 pupils in 2023, where it seems to be missing for entire classes or schools for approximately half, indicating some registration problem due to COVID-19 rather than pupils not actually completing the subject. I therefore exclude the elective subjects from the analyses and hence, all analysis in this paper is based on the final exams that take place at the end of grade level 9 in Danish, mathematics, English, natural sciences and two randomly picked subjects, for all cohorts considered.

[5] The final examinations for grade level 9 were cancelled entirely in 2020 and conducted under special circumstances in 2021 and 2022 (Børne- og Undervisningsministeriet, 2021). In 2020, teacher grades were used in lieu of examination grades for all subjects. In 2021 and 2022, exams were held in Danish, mathematics and English, but cancelled in all other subjects again with teacher grades used in lieu of examination grades for the cancelled subjects. Furthermore, if a pupil's exam grade was lower than his/her teacher grade in that subject, the teacher grade replaced the lower exam grade.

[6] I use exam grades from the years from 2017 and onwards only, because the exam structure changed in 2016. For the years 2017-23, the exam subjects as well as the number of and nature of tests were the same throughout (except for the elective subject introduced in 2021, which I exclude in this paper).

Register data also contains individual-level information on foster care placements and preventive measures under the Social Services Act, with dates, as well as extensive background individual-level information on for example gender, country of origin, parents' education and employment, household income, single parent households, mental health issues and substance abuse, as well as school absences.

Most children in Denmark go to public schools, and approximately 15-20 percent go to private schools. Examination rules are the same in public and private schools and exam grades from private schools are also contained in the register data, whereas school absence records are registered for public schools only. School absence, however, is a potentially important control variable and I therefore estimate all models both with and without including individual-level school absence information which in effect corresponds to estimating the model for all schools, and for public schools only, respectively. I exclude all special needs classes throughout.[7] For the (few) children that attempt the final exams more than once, I use their first attempt.

The group of socially disadvantaged children

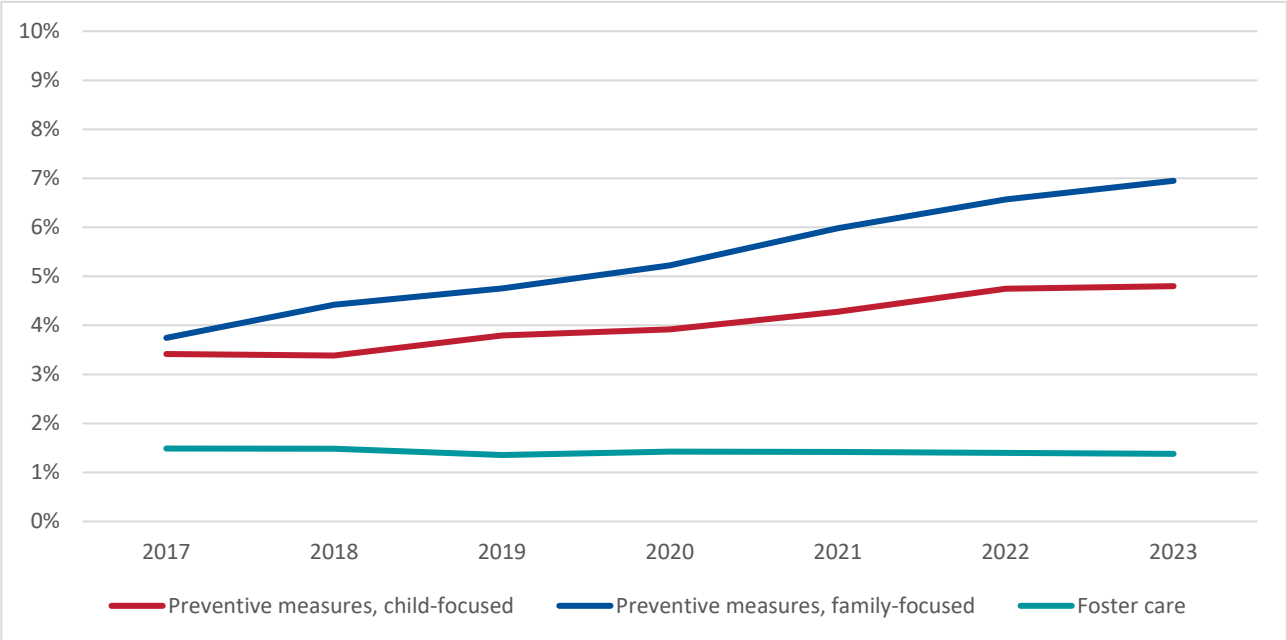
I focus on the group of the most vulnerable and socially disadvantaged children, namely the ones that are or have been in foster care and/or receive or have received preventive measures under the Social Services Act at some point prior to their final school year. This group entails children that have all been individually assessed by a social worker to be in need of an intervention, either in the form of a preventive social measure or foster care placement. Most preventive measures and foster care placements happen in the teenage years and approximately 36 percent of foster care placements occur at the ages 15-17, where placement in foster families is more common for early placements and placement in institutions more common for teenage placements (Social- og Boligministeriet, 2024). This means that there are children with varying lengths of preventive measures and foster care placements in the group, children that no longer receive preventive measures or are in care when they take the final exam, as well as children from the 2023-cohort that were not in foster care or received preventive measures during the years of the school closures.

There are two types of preventive measures – one directed at the family as a whole, and one directed specifically at the child. The share of children that have been in foster care or that have received preventive measures, either family-focused or child-focused, in the period 2017-23, are depicted in Figure 1. As can be seen in Figure 1, the share of children having been in foster care is constant throughout the period at approximately 1,5 percent, while the share of children having received preventive measures has quadrupled from approximately 2 percent. to 8 percent. over the 7-year period. This means that comparing 2019 to 2023 could lead to false conclusions about exam results for disadvantaged children, simply because a significantly larger share of children has received preventive measures and thus categorizes as disadvantaged. However, Figure 1 also shows that the increase in preventive measures is mainly due to an increase in family-focused

[7] Approximately 4-6 percent of children in Denmark go to special needs classes.

preventive measures, whereas the share receiving child-focused preventive measures increases by less than one percentage point from 2019 to 2023. I therefore define the group of socially disadvantaged children as those that are or have been in foster care, and/or that have received or are receiving preventive child-focused measures. Defining the group based on child-focused preventives measures only and not family-focused also ensures that the definition captures children where it is the child and not the parents that have been assessed sufficiently vulnerable to be in need of municipal help and intervention. Furthermore, Figure 1 shows the share of children that are or have been in foster care, as well as the shares with different preventive measures, over the period from 2017 to 2023. A post-COVID-19 increase in these shares could potentially confound analyses of differences between the group of socially disadvantaged children and their peers, following COVID-19. However, the share in foster care is constant over the period and the share receiving preventive child-focused measures shows a steady upward trend beginning in 2018, suggesting a structural change rather than one attributable to COVID-19.

Figure 1. The share of children in each cohort receiving preventive measures under the Social Services Act.



Note: Register data, own calculations. The share is out of total number of children in N(2017)=54.319, N(2018)=54.248, N(2019)=56.015, N(2020)=56.751, N(2021)=56.422, N(2022)=57.530, N(2023)=56.673. Foster care and preventive measures are both defined as "yes" if the child has been or is in foster care and has received or receives preventive measures at any point in his/her life prior to grade level 9. Child-focused measures are defined by paragraph-codes 200, 210, 215, 220, 225, 230, 240, 245, 250, 252, 256-262, 268 and 269. Family-focused measures are defined by paragraph-codes 406, 415, 420, 425, 430, 435, 440, 445, 450, 451, 455, 498 and 499.

Descriptives of the group of disadvantaged children in the two cohorts, 2019 and 2023, are in Table 1 below. The group of disadvantaged children constitute 4, respectively 5, percent of the cohort in the two years, where the share of foster care children is constant at 1,4 percent in both years. Approximately 75 percent of

the foster care children live in a foster family in their final school year, but only 38 percent of the foster care children in the 2023-cohort were in a foster family during the school closures.

Table 1. The group of disadvantaged children in 2019 and 2023.

The groups of disadvantaged children (preventative measures and/or foster care) and other children				
	2019 *Number*	2019 *Percent*	2023 *Number*	2023 *Percent*
Disadvantaged	2.430	4,3	3.011	5,3
Foster care	759	1,4	782	1,4
Preventive measures (child-focused)	2.124	3,8	2.720	4,8
Preventive measures (child-focused) only, not foster care	1.671	3,0	2.229	3,9
Other children	53.565	95,7	53.635	94,7
Total	**55.995**	**100**	**56.646**	**100**
Foster care children				
	2019 *Number*	2019 *Percent*	2023 *Number*	2023 *Percent*
In foster care in final school year	574	76	583	75
In foster care with a foster family in the final year of school	416	55	346	44
In foster care with a foster family during school closures	-	-	295	38
Total	**759**	**100**	**782**	**100**
Background characteristics for disadvantaged children and all children				
	Disadvantaged		All	
	2019 *Percent*	2023 *Percent*	2019 *Percent*	2023 *Percent*
Girls	49	57	49	49
MENAPT	12	12	8	7
Mental health diagnosis	25	18	5	4
Single parent household	42	45	24	25
Mother no education	47	39	18	16
Father no education	51	46	24	23
Mother not employed	54	46	17	16
Father not employed	40	34	14	12
Household below poverty line	35	31	8	8
Average school absence in school-year	13	15	6	8

Register data, own calculations. N(disadvantaged, 2019)=2.430; N(disadvantaged, 2023)=3.011; N(all, 2019)=55.995; N(all, 2023)=56.646. The group of disadvantaged children is defined as those who are or have been in foster care and/or who receive or have received child-focused preventive measures under the Social Services Act at some point prior to their final school year. Note that the sum of the number of children in foster care and those who have received child-focused preventive measures does not equal the number of disadvantaged children, as some children may have experienced both.

Estimating strategy – the cohorts

The estimating equation is in (1), where *y* denotes the outcome of interest (the completion rate or the grade point average, GPA), *Treat* denotes the dummy for whether the individual is in the 2023-cohort, *Disadvantaged* denotes the dummy for being in the group of socially disadvantaged students, and β_3 denotes the parameter of interest:

$$y = \beta_0 + \beta_1 Treat + \beta_2 Disadvantaged + \beta_3 (Treat\ x\ Disadvantaged) + \beta_4 Controls + \varepsilon \qquad (1)$$

The model (1) is estimated by OLS with robust standard errors.

Robustness

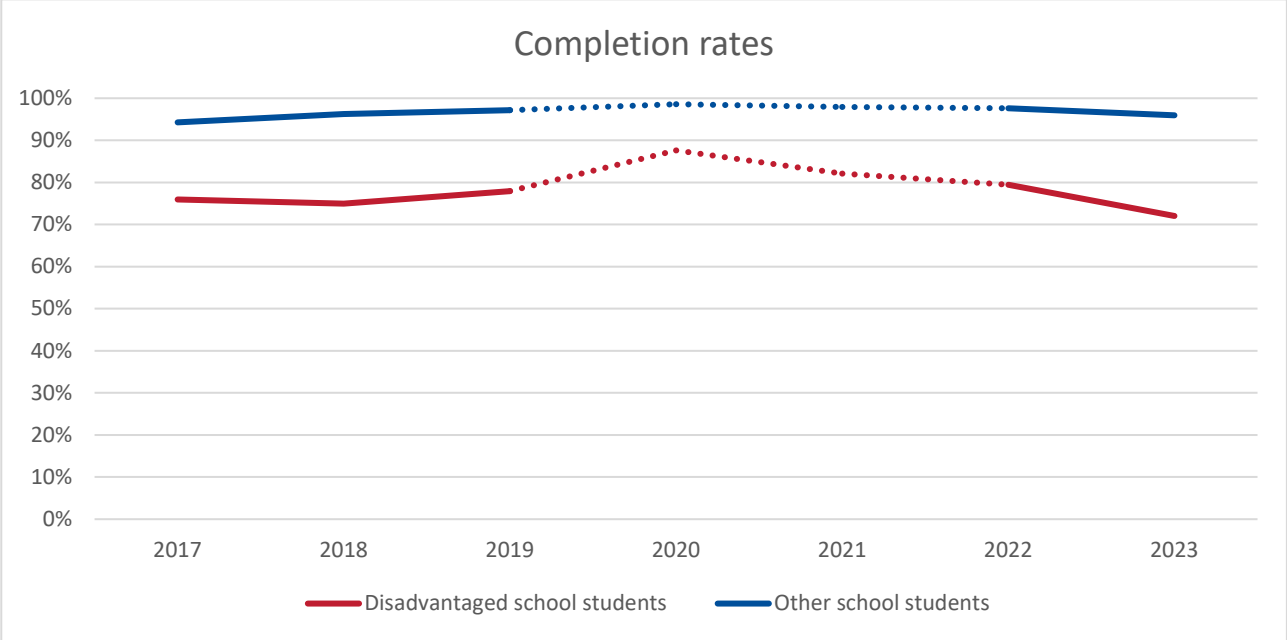
An alternative way of defining the group of socially disadvantaged children is based on different risk factors such as for example parents' socio-economic status (Ploug 2007, Kloppenborg and Wittrup, 2015).[8] This alternative definition relies only on underlying risk factors, such as for example parent characteristics, and some studies show that more than half of socially disadvantaged children as defined by risk factors actually grow up without becoming socially disadvantaged to the same extent as the risk factors would predict (Ejrnæs, 2016) and there is therefore ongoing discussion about how truly disadvantaged this group really is. I therefore focus on the group where we know for sure that each child has been assessed by a social worker and only include risk-factor based definitions of the group of disadvantaged children as a robustness check: 1) children, whose parents are without education and employment in their final school year; and 2) children who live in families with incomes below the poverty line in the year they start their final school year. There are approximately 2.000 children in the first group and approximately 4.500 in the second, corresponding to respectively approximately 4 and 8 percent of a cohort.

Results

First examining the completion rates for socially disadvantaged children and their peers in the raw data in Figure 2, I find completion rate gaps of approximately 20 percentage points in the period preceding the school closures. In 2019, approximately 78 and 97 percent, respectively, complete the final examinations in the two groups, and in 2023, completion rates are approximately 72 and 96 percent, which means there is an increase in the completion rate gap of approximately 5 percentage points from 19 to 24 percentage points.

[8] A third way is to define the group of socially disadvantaged children as children growing up in socially disadvantaged housing areas, but the group of children in socially disadvantaged areas finishing 9th grade in any one year is too small for the analysis in this paper.

Figure 2. Completion rates for grade level 9 final exam. Split according to disadvantaged children and others.



Based on register data. N(disadvantaged 2017)=2.223, N(other 2017)=52.096, N(disadvantaged 2018)=2.182, N(other 2018)=52.066, N(disadvantaged 2019)=2.430, N(other 2019)=53.585, N(disadvantaged 2020)=2.543, N(other 2020)=54.208, N(disadvantaged 2021)=2.721, N(other 2021)=53.701, N(disadvantaged 2022)=3.023, N(other 2022)= 54.513, N(disadvantaged 2023)=3.011, N(other 2023)=53.662. The completion dummy equals 1 if the student has completed the 10 different examinations in Danish, mathematics, English, natural sciences and two randomly chosen subjects, or if the student has a legal exception in one or more of the 10 examinations. In the years 2020-2022, examinations were either cancelled altogether (2020) or only held in Danish, Mathematics and English (2021-22) and special rules applied to grade-giving where teacher grades were used in lieu of examination grades, and so the completion rates are associated with some uncertainty which is illustrated by the dotted line in those years.

Next turning to the estimation results (Table 2), I find that the increase in the completion rate gap is strongly significant and remains - and even increases half a percentage point - when including controls for background characteristics of the child and family, such as gender, ethnic origin, household type and education and employment information for the parents, as well as mental health information and school absence, that may also influence completion rates for both groups of students. The results also show that the increase in the gap is significant separately both for foster care placement children (excluding preventive measures only), as well as for those with preventive measures (excluding foster care), and also when additionally taking individual-level school absence records into account (and thereby excluding private schools). The estimations also show that significantly fewer students complete overall in 2023 as compared to 2019, and that disadvantaged students complete to a lesser degree regardless of the cohort. Furthermore, the estimations show some expected signs, as for example that children from single-parent households or with mental health issues or with mother and/or father without education complete to a lesser degree, just like higher school absence in grade level 9 is associated with lower completion rates, while girls and children with employed parents complete to a slightly larger degree. The results in Table 2 are robust to alternative ways of defining the

group of socially disadvantaged children (Appendix A), with estimates of increases in the completion rate gaps of approximately 2,5 percentage points.

Table 2. Estimation results: completing the final examinations.

	Foster care and/or preventive measures			Foster care			Preventive measures		
	No controls	With controls	Exclude private schools	No controls	With controls	Exclude private schools	No controls	With controls	Exclude private schools
2023	-0.012***	-0.014***	-0.005***	-0.009***	-0.010***	-0.004***	-0.012***	-0.014***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Interaction	**-0.047*** **	**-0.054*** **	**-0.054*** **	**-0.065*** **	**-0.064*** **	**-0.068*** **	**-0.041*** **	**-0.049*** **	**-0.050*** **
	(0.012)	**(0.012)**	**(0.012)**	**(0.022)**	**(0.022)**	**(0.022)**	**(0.014)**	**(0.014)**	**(0.014)**
Disadv.	-0.192***	-0.150***	-0.103***	-0.191***	-0.154***	-0.118***	-0.196***	-0.154***	-0.105***
	(0.008)	(0.009)	(0.009)	(0.015)	(0.015)	(0.015)	(0.010)	(0.010)	(0.010)
Single parent		-0.009***	0.000		-0.007***	-0.001		-0.006***	0.002
		(0.002)	(0.002)		(0.001)	(0.001)		(0.002)	(0.002)
Girls		0.005***	0.008***		0.005***	0.006***		0.005***	0.008***
		(0.001)	(0.001)		(0.001)	(0.001)		(0.001)	(0.001)
MENAPT		0.010***	0.001		0.002	-0.004		0.014***	0.002
		(0.003)	(0.003)		(0.003)	(0.003)		(0.003)	(0.003)
Mental health		-0.086***	-0.057***		-0.060***	-0.041***		-0.079***	-0.052***
		(0.005)	(0.006)		(0.006)	(0.006)		(0.005)	(0.006)
Employed, mother		0.023***	0.009***		0.021***	0.009***		0.026***	0.010***
		(0.002)	(0.002)		(0.002)	(0.002)		(0.002)	(0.002)
No educ. mother		-0.024***	-0.020***		-0.022***	-0.017***		-0.026***	-0.021***
		(0.002)	(0.002)		(0.002)	(0.002)		(0.002)	(0.002)
Mental health, mother		0.010***	0.008***		0.007***	0.006**		0.010***	0.010***
		(0.003)	(0.003)		(0.003)	(0.003)		(0.003)	(0.003)
Subst. abuse, mother		0.022*	0.018		0.045***	0.042***		-0.008	-0.006
		(0.013)	(0.013)		(0.013)	(0.012)		(0.014)	(0.014)
No educ. father		-0.020***	-0.014***		-0.016***	-0.012***		-0.020***	-0.014***
		(0.002)	(0.002)		(0.002)	(0.002)		(0.002)	(0.002)
Employed, father		0.021***	0.016***		0.022***	0.017***		0.022***	0.017***
		(0.003)	(0.003)		(0.002)	(0.002)		(0.002)	(0.003)

	Foster care and/or preventive measures			Foster care			Preventive measures		
	No controls	With controls	Exclude private schools	No controls	With controls	Exclude private schools	No controls	With controls	Exclude private schools
Mental health, father		-0.001	-0.002		0.004	0.002		-0.000	-0.000
		(0.004)	(0.004)		(0.003)	(0.004)		(0.004)	(0.004)
Subst. abuse, father		0.017**	0.014*		0.017**	0.015**		0.012*	0.011
		(0.007)	(0.008)		(0.007)	(0.007)		(0.007)	(0.008)
Absence			-0.008***			-0.007***			-0.008***
			(0.000)			(0.000)			(0.000)
Constant	0.972***	0.944***	1.008***	0.977***	0.947***	1.002***	0.972***	0.940***	1.003***
	(0.001)	(0.003)	(0.004)	(0.001)	(0.003)	(0.003)	(0.001)	(0.003)	(0.004)
R-squared	.05322	.070598	.155717	.026611	.042888	.104994	.042149	.060376	.14371
N	112641	112641	86790	101293	101293	77324	111100	111100	85566

Based on register data. The completion dummy equals 1 if the student has completed the 10 different examinations in Danish, mathematics, English, natural sciences and two randomly chosen subjects, or if the student has a legal exception in one or more of the 10 examinations. Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Estimation results of the model (1) on the final examination grade point averages (GPAs) are in Appendix B and show that there are no significant increases in the achievement gap between disadvantaged children and their peers following the school closures. In Table 3 below is a description of the pupils that do not complete the final examinations in 2019 and 2023, respectively, split by disadvantaged and other in each cohort. The first row shows the GPAs of the teacher assessment grades and the following rows show a range of background characteristics of the non-completers. The result of no changes in the achievement gap is likely explained by the increase in the completion rate gap, as is also indicated by comparing teacher grade averages for the students that do no complete the final examinations in 2019 and 2023 (first row of Table 3): the ones that do not complete in 2023 are – measured by the teacher grades – on average academically slightly higher achieving students than the ones that did not complete in 2019 (with GPAs of 2,55 and 4,06 versus 2,23 and 3,61), implying that *had* they completed in 2023 to the same extent as in 2019, the average GPAs in 2023 would have been lower. The table furthermore shows that in terms of background characteristics such as mental health diagnoses and parent's education and employment, the group that does not complete in 2023 is less disadvantaged than the group that does not complete in 2019.

Table 3. Description of non-completers in final examinations.

	2019-cohort		2023-cohort	
Teacher grades GPA	Disadvantaged GPA	Other GPA	Disadvantaged GPA	Other GPA
Students that do not complete[9]	2,23	3,61	2,55	4,06
Characteristics	Disadvantaged Percent	Other Percent	Disadvantaged Percent	Other Percent
Girls	42	45	58	48
MENAPT	14	17	8	10
Mental health	33	14	25	7
Single parent household	47	30	47	32
Average school absence percentage	22	18	21	18
Mother no education	47	35	36	30
Mother not employed	49	34	42	28
Father no education	50	41	47	41
Father not employed	39	26	31	19

The variable MENAPT refers to the child having its origin (i.e. either immigrated from or parents immigrated from) from a country in one of: Middle East, North Africa, Pakistan or Turkey. The variable "mental health" is defined as the share of children that have at any point in their life prior to the 9th grade level received a psychiatric diagnosis. N(Disadvantaged, not complete 2019)=536, N(Other, not complete 2019)=1.510, N(Disadvantaged, not complete 2023)=842, N(Other, not complete 2023)=2.167.

Conclusion

The results in this paper show that the completion rate gap between socially disadvantaged children and their peers at the final examinations at the end of compulsory school in Denmark increased significantly following the COVID-19 school closures, by approximately 5 percentage points. This paper contributes to the literature on educational inequalities following COVID-19 school closures in three ways. First, it adds to the evidence of a widening social gradient in educational outcomes after the pandemic. Second, it shows that this gradient extends to completion of compulsory school examinations. Third, it focuses on the most socially disadvantaged students and demonstrates that their likelihood of completing compulsory school exams has declined further. These results are policy-relevant and potentially concerning insofar as participation in, and completion of, tests and examinations in school is important for learning as well as for progression in the education system. It is also policy-relevant in the Danish context, where progression to upper secondary education increasingly depends on examination grades, making the final examinations even more of a high-stakes exam.

[9] The average teacher grades GPA for the ones that *do* complete the final examinations are the same in the two cohorts for both groups: the average teacher GPA for disadvantaged children in 2019 and 2023 is 5,45 and 5,48, respectively, and for the group of other children it is 7,39 and 7,34.

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Appendix A. Robustness of results with alternate definitions of socially disadvantaged children

Table A1. Estimation results: completion of final exam for alternate definitions of the group of socially disadvantaged children

	No education or employment			Below poverty line		
	No controls	With controls	Exclude private schools	No controls	With controls	Exclude private schools
2023-cohort	-0.016***	-0.019***	-0.009***	-0.014***	-0.017***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Interaction	**-0.034*** **	**-0.032*** **	**-0.026** **	**-0.026*** **	**-0.028*** **	**-0.025*** **
	(0.012)	**(0.012)**	**(0.012)**	**(0.007)**	**(0.007)**	**(0.007)**
Disadvantaged	-0.095***	-0.007	-0.013	-0.080***	-0.040***	-0.031***
	(0.008)	(0.008)	(0.008)	(0.005)	(0.005)	(0.005)
Single parent		-0.014***	-0.003		-0.013***	-0.002
		(0.002)	(0.002)		(0.002)	(0.002)
Gender		0.004***	0.007***		0.004***	0.007***
		(0.001)	(0.001)		(0.001)	(0.001)
MENAPT		0.020***	0.008**		0.025***	0.012***
		(0.003)	(0.003)		(0.003)	(0.003)
Mental health		-0.119***	-0.080***		-0.119***	-0.079***
		(0.005)	(0.006)		(0.005)	(0.006)
Employed, mother		0.033***	0.014***		0.026***	0.010***
		(0.002)	(0.002)		(0.002)	(0.002)
Uneducated, mother		-0.030***	-0.023***		-0.028***	-0.022***
		(0.002)	(0.002)		(0.002)	(0.002)
Mental health, mother		0.001	0.002		0.001	0.003
		(0.003)	(0.003)		(0.003)	(0.003)
Subst. abuse, mother		-0.017	-0.009		-0.012	-0.006
		(0.013)	(0.013)		(0.013)	(0.013)

	No education or employment			Below poverty line		
	No controls	With controls	Exclude private schools	No controls	With controls	Exclude private schools
Uneducated, father		-0.023***	-0.016***		-0.022***	-0.015***
		(0.002)	(0.002)		(0.002)	(0.002)
Employed, father		0.027***	0.018***		0.022***	0.016***
		(0.003)	(0.003)		(0.003)	(0.003)
Mental health, father		-0.004	-0.002		-0.005	-0.004
		(0.004)	(0.004)		(0.004)	(0.004)
Subst. abuse, father		0.006	0.006		0.007	0.007
		(0.008)	(0.008)		(0.008)	(0.008)
School absence			-0.009***			-0.009***
			(0.000)			(0.000)
Constant	0.967***	0.930***	1.004***	0.970***	0.942***	1.011***
	(0.001)	(0.004)	(0.004)	(0.001)	(0.003)	(0.004)
r2	.010395	.039558	.136195	.017007	.043491	.13892
N	112641	112641	86790	112641	112641	86790

Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Appendix B. Grade point average (GPA) estimation results.

Grades in the Danish school system follow the so-called 7-point grading scale: -3, 0, 2, 4, 7, 10 and 12 corresponding to F, Fx, E, D, C, B and A, respectively. The mean and standard deviation of the grade point average distribution for those who complete are 7.57 and 2.43 in 2019, and 7.41 and 2.43 in 2023, respectively.

Table B1. Estimation results for the average GPA in mandatory exams. With and without private schools.

	Foster care and/or preventive measures		No education or employment		Below poverty line	
	With controls	Exclude private schools	With controls	Exclude private schools	With controls	Exclude private schools
2023-cohort	-0.203***	-0.089***	-0.222***	-0.098***	-0.221***	-0.099***
	(0.014)	(0.016)	(0.014)	(0.016)	(0.015)	(0.017)
Interaction	**-0.031**	**0.051**	**0.092**	**0.116**	**0.055**	**0.075**
	(0.080)	**(0.085)**	**(0.090)**	**(0.091)**	**(0.056)**	**(0.060)**
Disadvantaged	-0.987***	-0.713***	0.031	0.099	-0.522***	-0.484***
	(0.061)	(0.065)	(0.068)	(0.070)	(0.043)	(0.045)
Single parent	-0.271***	-0.152***	-0.284***	-0.158***	-0.280***	-0.156***
	(0.017)	(0.019)	(0.017)	(0.019)	(0.017)	(0.019)
Gender	0.875***	0.895***	0.870***	0.892***	0.872***	0.893***
	(0.014)	(0.016)	(0.014)	(0.016)	(0.014)	(0.016)

	Foster care and/or preventive measures		No education or employment		Below poverty line	
	With controls	Exclude private schools	With controls	Exclude private schools	With controls	Exclude private schools
MENAPT	-0.617***	-0.677***	-0.577***	-0.657***	-0.513***	-0.592***
	(0.033)	(0.034)	(0.033)	(0.034)	(0.033)	(0.034)
Mental health	-0.421***	-0.255***	-0.560***	-0.347***	-0.558***	-0.347***
	(0.040)	(0.046)	(0.040)	(0.045)	(0.040)	(0.045)
Employed, mother	0.423***	0.357***	0.489***	0.411***	0.400***	0.323***
	(0.023)	(0.025)	(0.024)	(0.026)	(0.024)	(0.026)
Uneducated, mother	-0.644***	-0.648***	-0.688***	-0.687***	-0.652***	-0.644***
	(0.023)	(0.026)	(0.024)	(0.026)	(0.024)	(0.026)
Mental health, mother	-0.105***	-0.053	-0.149***	-0.082**	-0.145***	-0.080**
	(0.030)	(0.033)	(0.030)	(0.033)	(0.030)	(0.033)
Subst. abuse, mother	0.016	-0.008	-0.211**	-0.163	-0.166	-0.123
	(0.103)	(0.110)	(0.103)	(0.109)	(0.103)	(0.109)
Uneducated, father	-0.650***	-0.650***	-0.672***	-0.668***	-0.657***	-0.651***
	(0.020)	(0.022)	(0.020)	(0.022)	(0.020)	(0.022)
Employed, father	0.268***	0.265***	0.323***	0.316***	0.247***	0.236***
	(0.024)	(0.027)	(0.025)	(0.028)	(0.025)	(0.027)
Mental health, father	-0.126***	-0.098**	-0.138***	-0.104**	-0.141***	-0.107***
	(0.038)	(0.041)	(0.038)	(0.041)	(0.038)	(0.041)
Subst. abuse, father	-0.247***	-0.126	-0.305***	-0.167**	-0.303***	-0.163**
	(0.072)	(0.079)	(0.072)	(0.078)	(0.072)	(0.078)
School absence		-0.085***		-0.087***		-0.087***
		(0.002)		(0.002)		(0.002)
Constant	6.999***	7.374***	6.893***	7.292***	7.053***	7.453***
	(0.034)	(0.039)	(0.035)	(0.040)	(0.035)	(0.040)
r2	.120502	.162406	.115155	.159874	.11737	.161685
N	107269	82834	107269	82834	107269	82834

Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table B2. Estimation results for the average grades in written Danish. With and without private schools.

	Foster care and/or preventive measures		No education or employment		Below poverty line	
	With controls	Exclude private schools	With controls	Exclude private schools	With controls	Exclude private schools
2023-cohort	-0.332***	-0.260***	-0.346***	-0.266***	-0.343***	-0.266***
	(0.014)	(0.016)	(0.014)	(0.016)	(0.015)	(0.017)
Interaction	**0.032**	**0.065**	**0.051**	**0.056**	**0.019**	**0.053**
	(0.074)	**(0.079)**	**(0.081)**	**(0.085)**	**(0.053)**	**(0.057)**

	Foster care and/or preventive measures		No education or employment		Below poverty line	
	With controls	Exclude private schools	With controls	Exclude private schools	With controls	Exclude private schools
Disadvantaged	-0.842***	-0.575***	0.079	0.148**	-0.573***	-0.548***
	(0.056)	(0.060)	(0.063)	(0.067)	(0.040)	(0.044)
Single parent	-0.178***	-0.087***	-0.191***	-0.092***	-0.187***	-0.090***
	(0.017)	(0.018)	(0.017)	(0.019)	(0.017)	(0.018)
Gender	1.281***	1.299***	1.277***	1.297***	1.279***	1.298***
	(0.014)	(0.016)	(0.014)	(0.016)	(0.014)	(0.016)
MENAPT	-0.915***	-0.943***	-0.882***	-0.928***	-0.807***	-0.852***
	(0.031)	(0.033)	(0.031)	(0.033)	(0.031)	(0.033)
Mental health	-0.359***	-0.223***	-0.491***	-0.304***	-0.486***	-0.303***
	(0.039)	(0.044)	(0.038)	(0.043)	(0.038)	(0.043)
Employed, mother	0.405***	0.367***	0.467***	0.416***	0.364***	0.312***
	(0.022)	(0.025)	(0.023)	(0.025)	(0.023)	(0.025)
Uneducated, mother	-0.636***	-0.634***	-0.679***	-0.672***	-0.634***	-0.620***
	(0.022)	(0.025)	(0.023)	(0.025)	(0.022)	(0.025)
Mental health, mother	-0.017	0.032	-0.057**	0.007	-0.051*	0.010
	(0.029)	(0.032)	(0.029)	(0.032)	(0.029)	(0.031)
Subst. abuse, mother	0.113	0.085	-0.078	-0.041	-0.026	0.006
	(0.097)	(0.104)	(0.097)	(0.103)	(0.097)	(0.104)
Uneducated, father	-0.588***	-0.597***	-0.609***	-0.614***	-0.590***	-0.594***
	(0.019)	(0.021)	(0.019)	(0.021)	(0.019)	(0.021)
Employed, father	0.319***	0.292***	0.371***	0.341***	0.282***	0.247***
	(0.024)	(0.026)	(0.024)	(0.027)	(0.024)	(0.026)
Mental health, father	-0.030	-0.010	-0.042	-0.016	-0.047	-0.020
	(0.037)	(0.040)	(0.037)	(0.040)	(0.036)	(0.040)
Subst. abuse, father	-0.132*	-0.060	-0.183***	-0.095	-0.178**	-0.088
	(0.069)	(0.075)	(0.069)	(0.075)	(0.069)	(0.075)
School absence		-0.056***		-0.058***		-0.057***
		(0.001)		(0.001)		(0.001)
Constant	5.770***	6.015***	5.669***	5.938***	5.857***	6.128***
	(0.033)	(0.037)	(0.034)	(0.039)	(0.034)	(0.038)
r2	.154238	.179149	.150423	.177483	.153242	.179979
N	109722	84703	109722	84703	109722	84703

Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table B3. Estimation results for the average grades in oral Danish. With and without private schools.

	Foster care and/or preventive measures		No education or employment		Below poverty line	
	With controls	Exclude private schools	With controls	Exclude private schools	With controls	Exclude private schools
2023-cohort	-0.070***	0.049**	-0.089***	0.047**	-0.090***	0.044*
	(0.020)	(0.023)	(0.020)	(0.023)	(0.021)	(0.024)
Interaction	**0.021**	**0.167**	**-0.095**	**-0.082**	**0.023**	**0.031**
	(0.109)	**(0.116)**	**(0.127)**	**(0.130)**	**(0.080)**	**(0.085)**
Disadvantaged	-1.306***	-0.981***	0.267***	0.346***	-0.591***	-0.524***
	(0.082)	(0.089)	(0.094)	(0.097)	(0.060)	(0.064)
Single parent	-0.305***	-0.166***	-0.324***	-0.173***	-0.321***	-0.173***
	(0.024)	(0.027)	(0.024)	(0.027)	(0.024)	(0.027)
Gender	1.917***	1.965***	1.911***	1.962***	1.913***	1.963***
	(0.020)	(0.022)	(0.020)	(0.022)	(0.020)	(0.022)
MENAPT	-0.205***	-0.298***	-0.157***	-0.276***	-0.073	-0.193***
	(0.046)	(0.049)	(0.046)	(0.050)	(0.046)	(0.050)
Mental health	-0.583***	-0.379***	-0.781***	-0.510***	-0.778***	-0.510***
	(0.055)	(0.063)	(0.055)	(0.063)	(0.055)	(0.063)
Employed, mother	0.506***	0.409***	0.608***	0.493***	0.490***	0.377***
	(0.033)	(0.036)	(0.033)	(0.037)	(0.033)	(0.037)
Uneducated, mother	-0.704***	-0.708***	-0.776***	-0.772***	-0.719***	-0.708***
	(0.032)	(0.036)	(0.033)	(0.036)	(0.032)	(0.036)
Mental health, mother	-0.082*	-0.026	-0.145***	-0.069	-0.137***	-0.065
	(0.042)	(0.046)	(0.042)	(0.046)	(0.042)	(0.046)
Subst. abuse, mother	0.006	0.028	-0.289**	-0.181	-0.234	-0.133
	(0.146)	(0.153)	(0.145)	(0.151)	(0.146)	(0.152)
Uneducated, father	-0.723***	-0.720***	-0.758***	-0.749***	-0.735***	-0.724***
	(0.028)	(0.031)	(0.028)	(0.031)	(0.028)	(0.031)
Employed, father	0.306***	0.295***	0.395***	0.379***	0.288***	0.269***
	(0.034)	(0.038)	(0.036)	(0.039)	(0.035)	(0.038)
Mental health, father	-0.140***	-0.118**	-0.161***	-0.133**	-0.161***	-0.131**
	(0.053)	(0.059)	(0.054)	(0.059)	(0.054)	(0.059)
Subst. abuse, father	-0.134	0.008	-0.215**	-0.050	-0.210**	-0.046
	(0.101)	(0.111)	(0.101)	(0.111)	(0.101)	(0.111)
School absence		-0.102***		-0.106***		-0.105***
		(0.002)		(0.002)		(0.002)
Constant	6.959***	7.491***	6.788***	7.356***	7.006***	7.570***
	(0.048)	(0.055)	(0.050)	(0.057)	(0.050)	(0.056)
r2	.124436	.157094	.119778	.154899	.121228	.155956
N	109665	84643	109665	84643	109665	84643

Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table B4. Estimation results for the average grades in Mathematics. With and without private schools.

	Foster care and/or preventive measures		No education or employment		Below poverty line	
	With controls	Exclude private schools	With controls	Exclude private schools	With controls	Exclude private schools
2023-cohort	-0.644***	-0.516***	-0.675***	-0.533***	-0.676***	-0.537***
	(0.018)	(0.020)	(0.018)	(0.020)	(0.018)	(0.021)
Interaction	**-0.147**	**-0.095**	**0.089**	**0.086**	**0.097**	**0.110**
	(0.090)	**(0.096)**	**(0.101)**	**(0.104)**	**(0.066)**	**(0.070)**
Disadvantaged	-1.177***	-0.763***	0.022	0.085	-0.636***	-0.569***
	(0.068)	(0.073)	(0.075)	(0.078)	(0.049)	(0.052)
Single parent	-0.421***	-0.291***	-0.443***	-0.302***	-0.438***	-0.299***
	(0.021)	(0.023)	(0.021)	(0.024)	(0.021)	(0.023)
Gender	-0.437***	-0.418***	-0.443***	-0.422***	-0.441***	-0.421***
	(0.017)	(0.020)	(0.017)	(0.020)	(0.017)	(0.020)
MENAPT	-1.059***	-1.106***	-1.003***	-1.077***	-0.928***	-1.005***
	(0.038)	(0.040)	(0.038)	(0.040)	(0.038)	(0.040)
Mental health	-0.740***	-0.529***	-0.940***	-0.650***	-0.934***	-0.649***
	(0.048)	(0.055)	(0.048)	(0.054)	(0.048)	(0.054)
Employed, mother	0.461***	0.366***	0.546***	0.427***	0.441***	0.328***
	(0.028)	(0.031)	(0.029)	(0.031)	(0.029)	(0.031)
Uneducated, mother	-0.707***	-0.713***	-0.764***	-0.756***	-0.720***	-0.710***
	(0.028)	(0.031)	(0.029)	(0.031)	(0.028)	(0.031)
Mental health, mother	-0.181***	-0.134***	-0.239***	-0.168***	-0.233***	-0.165***
	(0.036)	(0.039)	(0.036)	(0.039)	(0.036)	(0.039)
Subst. abuse, mother	-0.152	-0.237*	-0.430***	-0.417***	-0.376***	-0.370***
	(0.128)	(0.133)	(0.126)	(0.132)	(0.126)	(0.131)
Uneducated, father	-0.779***	-0.765***	-0.808***	-0.785***	-0.790***	-0.767***
	(0.024)	(0.026)	(0.024)	(0.027)	(0.024)	(0.026)
Employed, father	0.399***	0.391***	0.468***	0.448***	0.379***	0.360***
	(0.030)	(0.032)	(0.031)	(0.034)	(0.030)	(0.033)
Mental health, father	-0.237***	-0.193***	-0.252***	-0.199***	-0.257***	-0.204***
	(0.045)	(0.049)	(0.045)	(0.049)	(0.045)	(0.049)
Subst. abuse, father	-0.379***	-0.268***	-0.456***	-0.318***	-0.451***	-0.312***
	(0.087)	(0.094)	(0.086)	(0.093)	(0.086)	(0.093)
School absence		-0.090***		-0.093***		-0.093***
		(0.002)		(0.002)		(0.002)
Constant	7.300***	7.708***	7.167***	7.624***	7.359***	7.805***
	(0.041)	(0.047)	(0.043)	(0.049)	(0.043)	(0.048)
r2	.113819	.151197	.107844	.148569	.109903	.150203
N	109666	84866	109666	84866	109666	84866

Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table B5. Estimation results for the average grades in English. With and without private schools.

	Foster care and/or preventive measures		No education or employment		Below poverty line	
	With controls	Exclude private schools	With controls	Exclude private schools	With controls	Exclude private schools
2023-cohort	0.192***	0.290***	0.173***	0.277***	0.171***	0.275***
	(0.021)	(0.024)	(0.021)	(0.024)	(0.021)	(0.025)
Interaction	**0.199***	**0.208***	**0.367*****	**0.362****	**0.196****	**0.195****
	(0.116)	**(0.126)**	**(0.136)**	**(0.142)**	**(0.084)**	**(0.091)**
Disadvantaged	-0.998***	-0.777***	-0.446***	-0.366***	-0.455***	-0.410***
	(0.090)	(0.099)	(0.103)	(0.109)	(0.064)	(0.070)
Single parent	-0.058**	0.040	-0.074***	0.030	-0.068***	0.034
	(0.025)	(0.028)	(0.025)	(0.028)	(0.025)	(0.028)
Gender	0.417***	0.417***	0.413***	0.415***	0.414***	0.416***
	(0.020)	(0.023)	(0.020)	(0.023)	(0.020)	(0.023)
MENAPT	-0.286***	-0.308***	-0.225***	-0.264***	-0.200***	-0.239***
	(0.048)	(0.052)	(0.049)	(0.053)	(0.048)	(0.053)
Mental health	-0.075	0.017	-0.217***	-0.084	-0.213***	-0.082
	(0.058)	(0.067)	(0.058)	(0.067)	(0.058)	(0.067)
Employed, mother	0.350***	0.305***	0.381***	0.326***	0.346***	0.292***
	(0.034)	(0.038)	(0.034)	(0.039)	(0.034)	(0.039)
Uneducated, mother	-0.627***	-0.638***	-0.639***	-0.645***	-0.640***	-0.642***
	(0.034)	(0.038)	(0.034)	(0.039)	(0.034)	(0.038)
Mental health, mother	-0.070	-0.029	-0.113**	-0.059	-0.110**	-0.058
	(0.044)	(0.049)	(0.044)	(0.049)	(0.044)	(0.049)
Subst. abuse, mother	0.259*	0.227	0.053	0.072	0.078	0.094
	(0.157)	(0.167)	(0.158)	(0.167)	(0.158)	(0.167)
Uneducated, father	-0.544***	-0.549***	-0.553***	-0.553***	-0.554***	-0.554***
	(0.029)	(0.032)	(0.029)	(0.032)	(0.029)	(0.032)
Employed, father	-0.027	-0.015	-0.020	-0.011	-0.034	-0.027
	(0.036)	(0.040)	(0.037)	(0.041)	(0.036)	(0.040)
Mental health, father	-0.110**	-0.073	-0.113**	-0.071	-0.124**	-0.081
	(0.055)	(0.061)	(0.055)	(0.061)	(0.055)	(0.061)
Subst. abuse, father	-0.243**	-0.129	-0.304***	-0.178	-0.297***	-0.169
	(0.105)	(0.117)	(0.105)	(0.117)	(0.105)	(0.117)
School absence		-0.056***		-0.058***		-0.058***
		(0.002)		(0.002)		(0.002)
Constant	7.985***	8.153***	7.952***	8.143***	8.010***	8.199***
	(0.050)	(0.057)	(0.051)	(0.059)	(0.051)	(0.059)
r2	.030029	.040671	.027912	.039469	.028358	.039842
N	109057	84318	109057	84318	109057	84318

Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

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