# Extension of the Indicator-system on the Hungarian public education released in 2017 – NP/2019-18/BUD

*Final version*

Budapest, 25/11/2019

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# Introduction

This paper contains some of the updated indicators of the 2017 indicator system on the Hungarian public education and introduces some new indicators. The focus of this collection of indicators is on the aspects of equity in public education in Hungary.

The Annex of the paper contains detailed description of estimation methodology of each indicator and a description of the data sources.

We make available the data in a separate folder in Excel format.

# Summary

The main findings of the paper are the followings:

- After 2013, the share of drop-out students increased for the 17-19-year-old males and females. The drop-out rate is the highest in vocational training schools, which also display the largest increase over time (*Indicator 1).*

- The share of students with special education needs rose continuously between 2012 and 2018. All types of disorder are much more common in the vocational training programs and the HID programs than in the other two upper secondary school types (vocational secondary and academic secondary) (*Indicator 2*). The share of SEN students receiving mainstream education increased and the share of SEN students receiving special education decreased, though in the last six years it appears to remain unchanged (*Indicator 7).*

- The segregation indices of disadvantaged and cumulatively disadvantaged students increased continuously between 2008 and 2018. The segregation index of the SEN students decreased during the same period. The segregation of both Roma and students receiving regular child protection support[1] increased between 2008 and 2018, The dissimilarity indices show very similar results *(Indicator 5).*

[1] The allowance includes a 6,000 HUF voucher for convenience food, clothing and school supplies, given twice a year; free textbooks and meals for general school children; free textbooks and 50% food contribution for children

- Between 2004 and 2018, the ratio of private students increased. The highest ratio is to be found in primary education. (*Indicator 6*).

- There was a sharp decrease in the share of disadvantaged students following 2012, most likely as a consequence of the changes in the official classification of students in the disadvantaged and cumulatively disadvantaged categories in 2013. The shares of these students are basically equal between grades 1 and 7. In grade 8 a slight drop can be observed. However, the largest change is after the general school level. The most likely reason is that disadvantaged students are less likely to follow their secondary school studies. The shares of disadvantaged and cumulatively disadvantaged students are the largest in church schools founded in 2012 or later ("new" church schools), and the lowest in church schools founded before 2012 ("old" church schools) (*Indicator 10).*

- The share of Roma has been quite stable between 2008 and 2018 in the General schools. In state operated general schools the share of Roma pupils is higher than in church schools established before 2013; church schools established after 2013, however, have an even higher share of Roma pupils than that of the state schools (*Indicator 11*).

- The share of students receiving regular child protection allowance (RCPA) has been declining since its peak in 2011 in general schools. The newly-founded church schools stand out as having the highest share of students receiving RCPA *(Indicator 12).*

- Our results show that there is a marked difference in teaching quality between HSDS and non-HSDS schools. The share of teachers speaking foreign languages was higher in non-HSDS schools than in HSDS schools over the whole period (*Indicator 13*). The share of teachers who did not have an appropriate qualification was much higher in HSDS than in non-HSDS schools, however the share also increased in non-HSDS schools after 2016 *(Indicator 14).*

- There is a striking difference in the share of schools with outstanding performance by HSDS status among general schools. Non-HSDS schools are 3-5 times more likely to have outstanding performance than HSDS schools (*Indicator 15*).

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at high school; extra points when applying for higher education and a monthly cash benefit for the adoptive guardian to the value of 22% of the minimum amount of the old-age pension

-- After 2012, there was a sharp decline in the share of disadvantaged and cumulatively disadvantaged students among applicants and admitted to higher education *(Indicator 8 and Indicator 9).*

- The share of applicants to higher education who have at least one intermediate (level B2) language exam and the share of students admitted who have a B2 language certificate has increased continuously, but still about 40-50 percent (depending on type of secondary school) of applicants and students admitted do not have a language exam (*Indicator 3 and Indicator 4*)..

## Applied terms in the paper

A number of indicators were calculated with the specific aim of highlighting differences between regions. To this end, the following *regional categories* were used: (1) districts to be developed with complex programmes, (2) districts to be developed, (3) disadvantaged districts, (4) non-disadvantaged districts.
The definitions of the regional categories are from government regulation 290/2014. The categories are based on a complex indicator that incorporates information on social and demographic status, housing and living conditions, labour market conditions, economy, infrastructure, and environmental conditions. Among deprived districts, the most disadvantaged group is labelled as “districts to be developed with complex programmes”, the intermediate group is labelled as “districts to be developed”, whereas the least disadvantaged group is labelled as “disadvantaged districts”.[2]

The majority of the indicators were calculated according to which *entity operates the school*. These fell into the following categories: (1) state or local government; (2) church ‘old’ , that is, schools established before 2013 and operated by a church; (3) church ‘new’, that is, those established in or after 2013 and operated by a church, and (4) other operators.

[2] See: https://net.jogtar.hu/jogszabaly?docid=a1400290.kor

*Schools with high share of students living in adverse socio-economic conditions* are designated schools with a high share of disadvantaged students (HSDS) and the values of most of the indicators in HSDS and non-HSDS schools are then compared.
Originally, we found appropriate to define schools as HSDS schools in which the share of cumulatively disadvantaged students is more than 25%. However, given that since September 2013 the status of disadvantaged students has been more strictly regulated, different thresholds should be used for the pre-reform and post-reform years. Therefore, the question of how the changes in the official classification have influenced the share of cumulatively disadvantaged students in the cohorts who were in grades 1-3 in 2012 (the last year before the new regulation) was examined. It was found that approximately 20% of the cumulatively disadvantaged students have lost disadvantaged status, HSDS schools in the pre-reform years (2008-2012) are therefore defined as schools in which the share of cumulatively disadvantaged students is more than 32%, and the 25% threshold is used only for the post-reform years (2014-2018). Given that 2013 may be regarded as an intermediate year, HSDS and non-HSDS schools are not defined for that year *(see Indicator 10*).

*Students with special educational needs*: students requiring special treatment who, based on the expert opinion of the committee of experts, are handicapped or have perceptual, mental deficiencies or speech disorders, or have multiple disabilities in cases of the simultaneous occurrence of several deficiencies, or have autism spectrum disorder or any other psychological disorder (serious disorder concerning learning or the control of attention or behaviour) (Act CXC of 2011 on National Public Education).
*Disadvantaged students*: children entitled to permanent child protection allowance who meet one of the following conditions: a) the parents have at most primary education, b) the parents have been registered as job-seekers for at least 12 months within the last 16 months, c) the family lives in inadequate housing conditions or neighbourhood (for the details see Article 67/A, Act XXXI of 1997 on the Protection of Children and the. Administration of Public Guardianship).
*Cumulatively disadvantaged students*: 1) children entitled to permanent child protection allowance who meet two of the conditions listed above; 2) children under foster care; 3) young adults receiving aftercare, (for the details see Article 67/A, Act XXXI of 1997 on the Protection of Children and the. Administration of Public Guardianship).

# Education system in Hungary

The Act 2011 on Public Education and The Act 2011 on Vocational Training - both entered into force in 2013 - restructured the education system in Hungary. *Figure A* shows the Hungarian education system since 2013.

Pre-school education is provided in ***kindergarten***s ("óvoda") for children between 3 and 6 years of age and is compulsory from age 3.

On completion of 6 years, children enter the 8-grade single structure ***general school*** ("általános iskola"). The general school comprises the primary or ISCED 1 level (Grade 1-4) and the lower secondary or ISCED 2 level (Grade 5-8). For children who cannot be integrated in mainstream programmes because of specific or multiple disabilities special education programmes and – for some types of disabilities – special institutions are available.

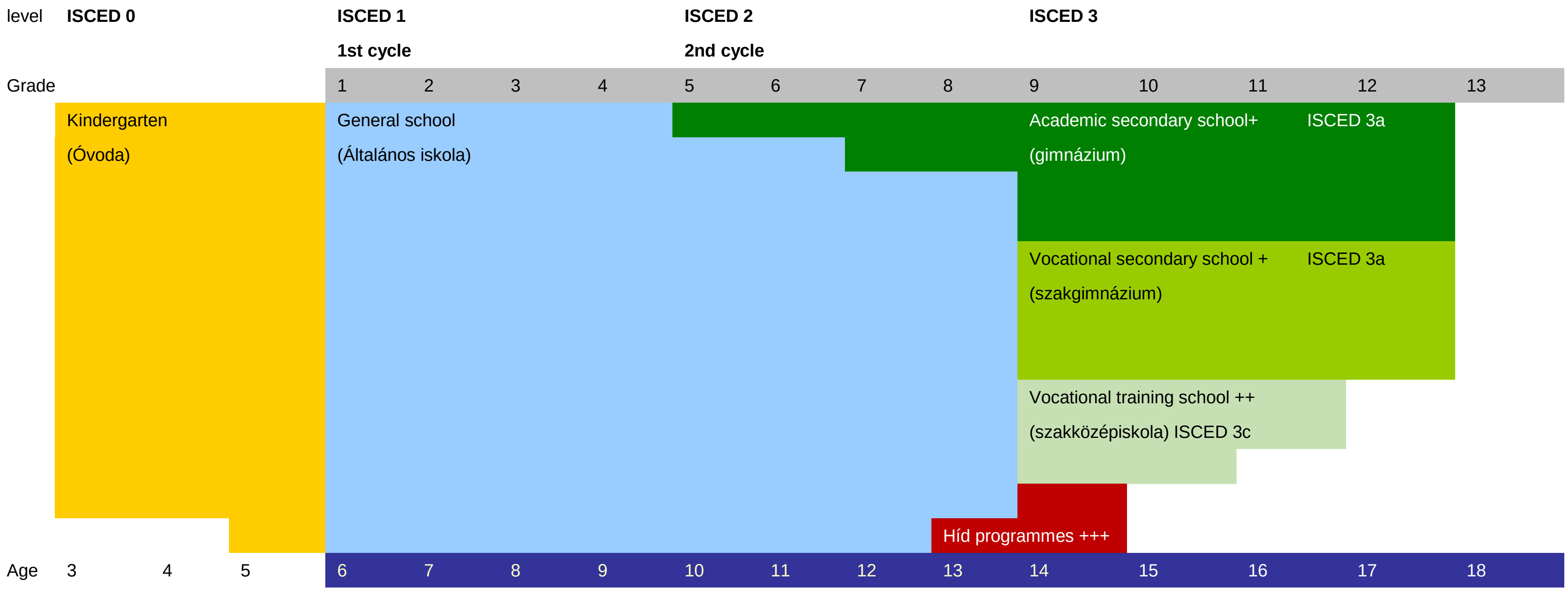
On completion of general school, students can choose between three main types of upper secondary education: ***academic secondary school*** ("gimnázium"); ***vocational secondary school*** ("szakgimnázium"); and ***vocational training school*** ("szakközépiskola").

The ***academic secondary school*** prepares for the secondary school leaving examination ("érettségi vizsga"). The academic secondary school is provided typically for pupils aged 14-18, usually covering grades 9-12. However, academic secondary schools are also allowed to offer longer programmes starting earlier (from Grade 5 or 7).

The ***vocational secondary school*** prepares for the secondary school leaving examination and also for post-secondary non-tertiary vocational education.

The ***vocational training school*** prepares for an ISCED 3 level vocational qualification but not for further education. At the secondary level, special vocational schools provide labour market-oriented programmes for those who cannot be integrated in mainstream upper secondary program.

**Figure A. The education system in Hungary since 2013**




+: Some schools offer an extra grade teaching a foreign language before secondary school education (i.e. between grade 8 and 9).

++: Shorter programmes are offered to students with special education needs.

+++: Second chance programmes for drop-out students, below the compulsory education age. The 1-year long programme is available for students who completed the general school. The 2 years long programme is offered for students who have completed grade 6 in the general school and reached age 15.

## Indicator 1: The share of students who drop out

The European Union defines early school leavers as people aged 18-24 who have completed at most lower secondary education and are no longer involved in education or training.[3] The early school leaving rate of a particular cohort can be projected once the vast majority of the cohort has completed secondary education. The share of drop-out students by age can be assumed to be a good predictor for the evolution of the early school leaving rate in upcoming years and gives insight into the main factors behind early school leaving.

The indicator of the share of drop-out students describes the share of students in a given cohort who have dropped out of a lower or upper secondary school. We define dropping out as not having been enrolled in school for at least six consecutive months[4]. In order to show the most recent data, the indicator is calculated in each year in December. Dropping out does not include students shifting from one education programme or track to another.

It is important to note the characteristics and limitations of this indicator. First and foremost, it overestimates the actual cumulative drop-out rate in each cohort to some extent. There are several reasons for this: 1. Some students drop out but return to school later and complete their studies. 2. Students from families moving abroad and completing their studies there are not recorded in the domestic school system and therefore fall in the drop-out group. 3. A small group of students completing vocational training school cannot be identified unambiguously in the dataset. Overall, the indicator is calculated from a linked administrative dataset covering a 50% population sample[5].

*Figure 1.1* shows the drop-out rate by age (for ages 15-19) at the end of each year, 2013-2017. Age refers to the then-current age of students. After 2013 the drop-out share increases for the 17-19-year-olds. This may reflect the reduction of the age up to which education is

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[3] This definition was agreed by EU Education Ministers in the Council in 2003 (Council conclusions on "Reference levels of European Average Performance in Education and Training (Benchmarks)", May 2003.

[4] The definition is closely related to that used in Fehérvári, Anikó (2015) *Lemorzsolódás és a korai iskolaelhagyás trendjei*, Neveléstudomány 2015/3, pp. 31-47.

[5] SEBŐK ANNA (2019): A KRTK Kapcsolt Államigazgatási Paneladatbázisa. Közgazdasági Szemle, 66/11, pp. 1230–1236.

compulsory from 18 to 16 years or other concurrent policy changes. The new compulsory education rule applies to students who did not start secondary school until the 2011/12 school year. As most of the older students in 2013 were likely to have started secondary education before 2012, the increase can be observed only from 2014. It should be noted that the drop-out share in the 16-year-old group does not increased. In part this flows from the definition of dropping out itself: clearly, students born in the second half of the year cannot be out of school for six months between their $16^{th}$ birthday and the end of the year. Moreover, even after the reduction in the age of compulsory education, dropping out of school immediately after one's sixteenth birthday seems to be a rare event[6].

*Figure 1.2* shows the share of drop-out students by gender. In the 15-17-year-old age groups there are no marked differences in terms of gender, while at the ages of 18 and 19 the drop-out rate is slightly higher among boys.

*Figure 1.3* shows the share of drop-out students by school type. School type refers to the first secondary school of the student, inasmuch as school type can be identified in the data. Unsurprisingly, the drop-out rate is the highest in vocational training schools, with these also displaying the largest increase over time.

Finally, *Figure 1.4* shows the share of drop-out students by district type (. In disadvantaged districts, and above the age of 16, the share of drop-out students is about 30% above the values in non-disadvantaged districts. Within the disadvantaged group, the drop-out share is even higher in districts to be developed and districts to be developed with complex programmes, and rates in these two groups are almost identical.

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[6] Hermann Zoltán (2019): A tankötelezettségi korhatár csökkentésének hatása a lemorzsolódásra, in: Munkaerőpiaci Tükör 2018, KRTK, Budapest

**Figure 1.1 Dropping out of school by age, 2013-2017, percent**

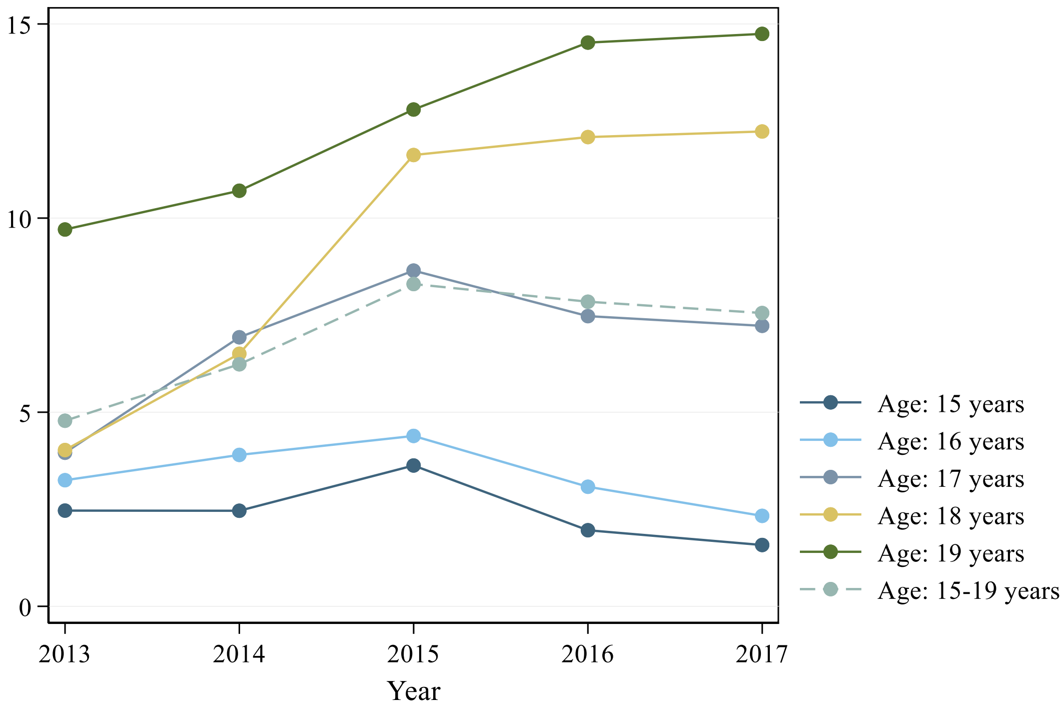
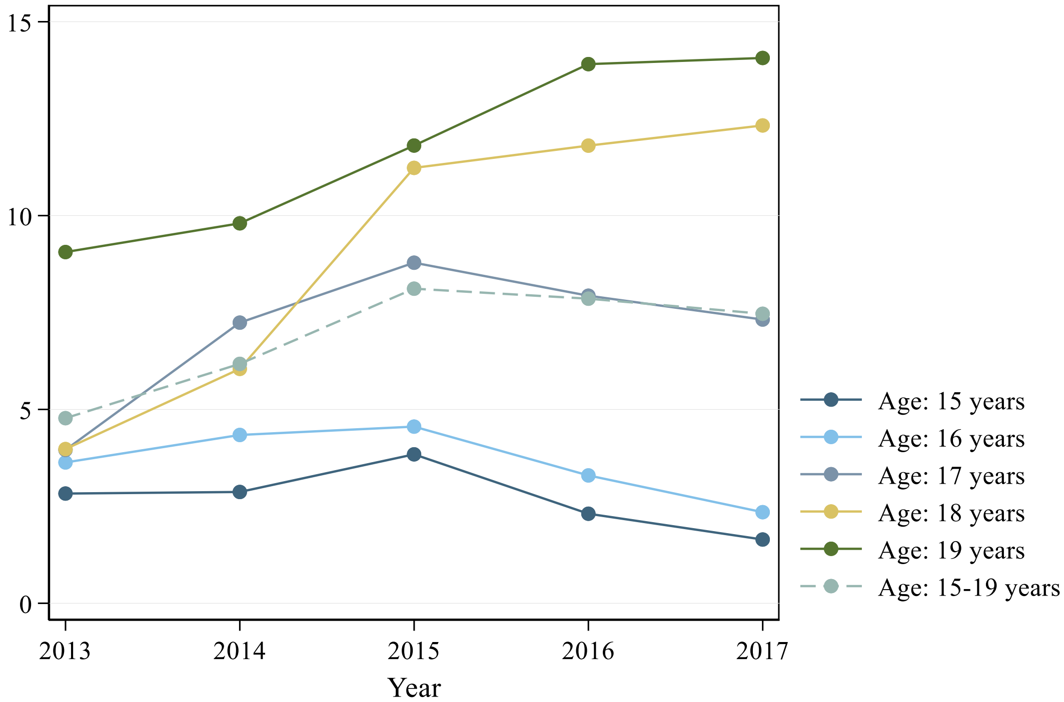


**Figure 1.2 Dropping out of school by age and gender, 2013-2017, percent**

**a) Girls**




**b) Boys**

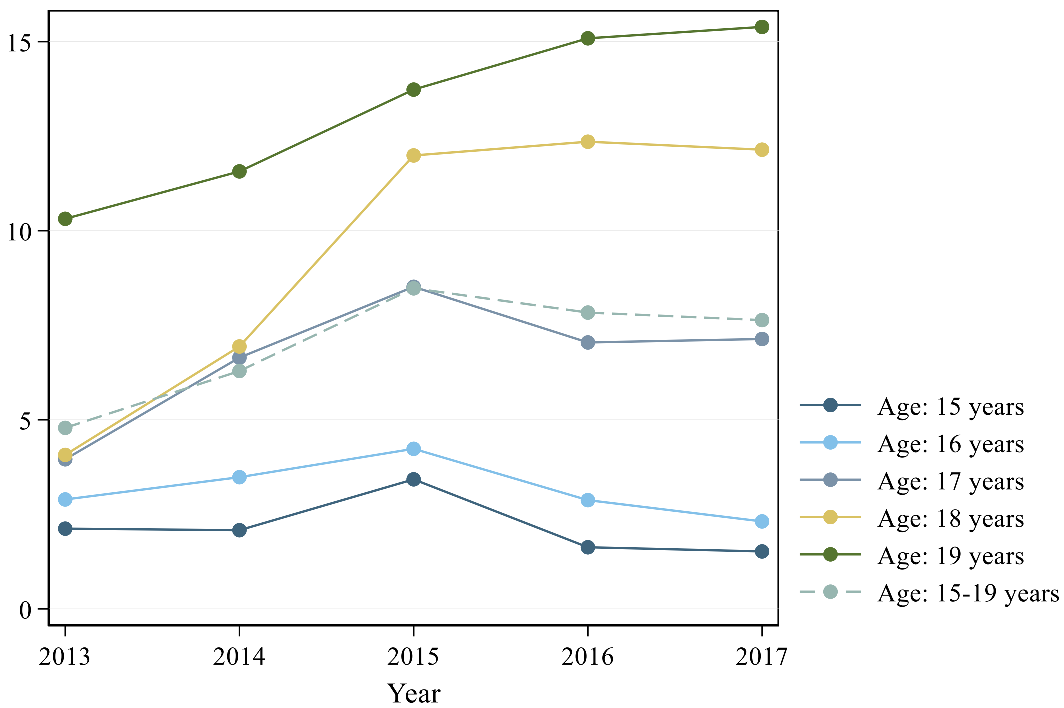
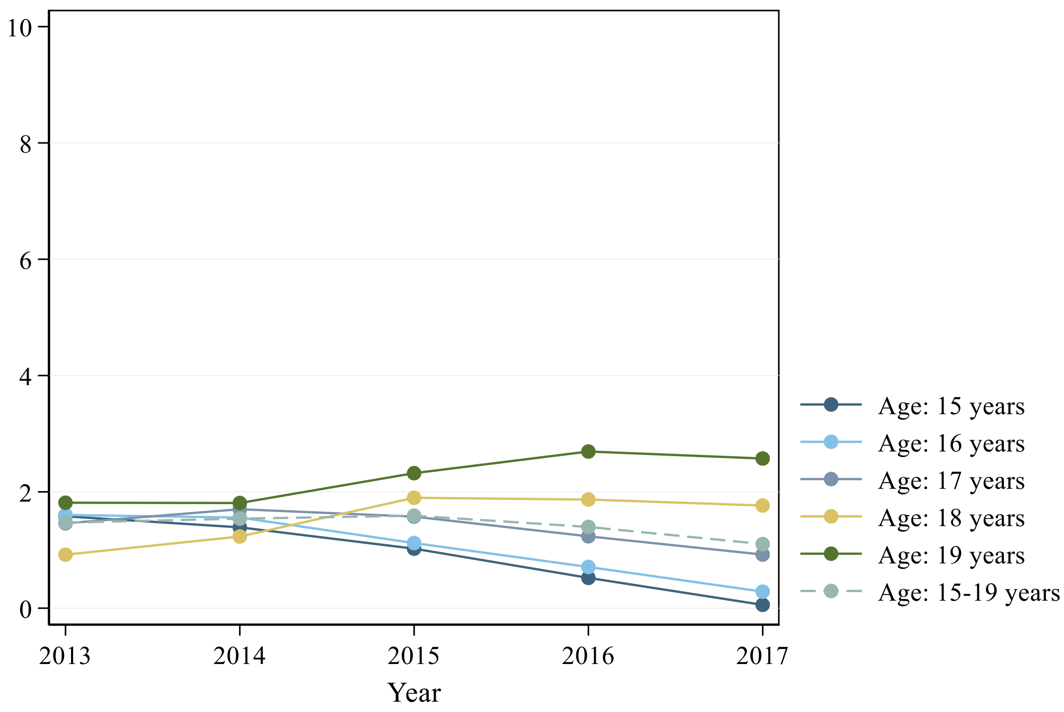
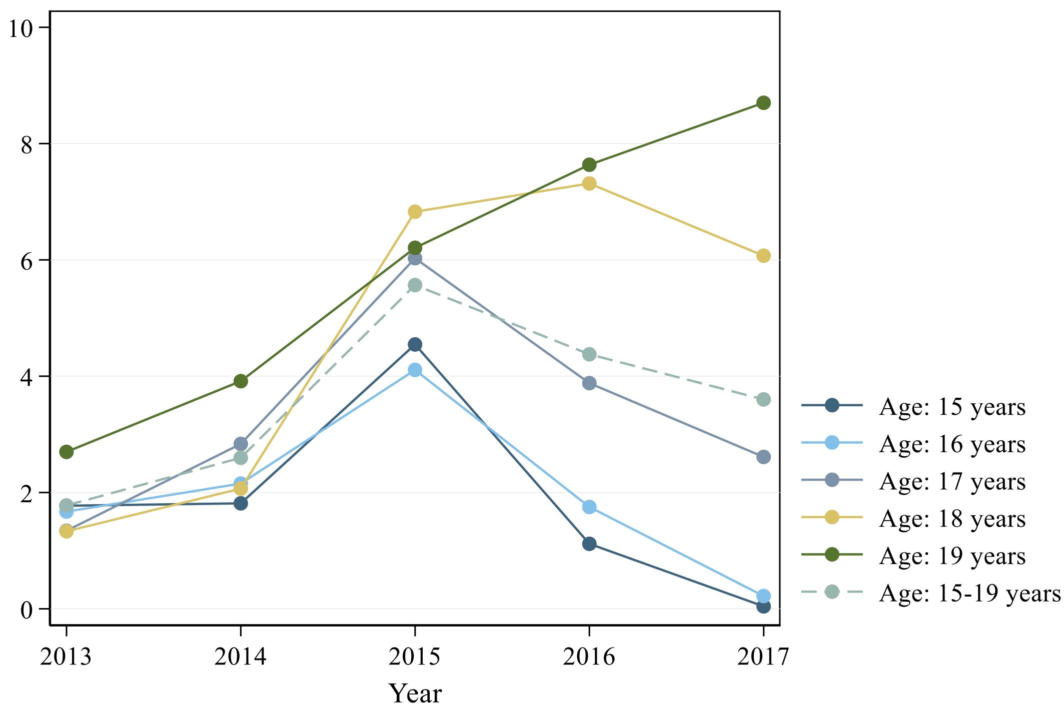


**Figure 1.3 The share of students dropping out of school by age and school type, percent**

**a) Academic secondary schools**




**b) Vocational secondary schools**



### c) Vocational training schools

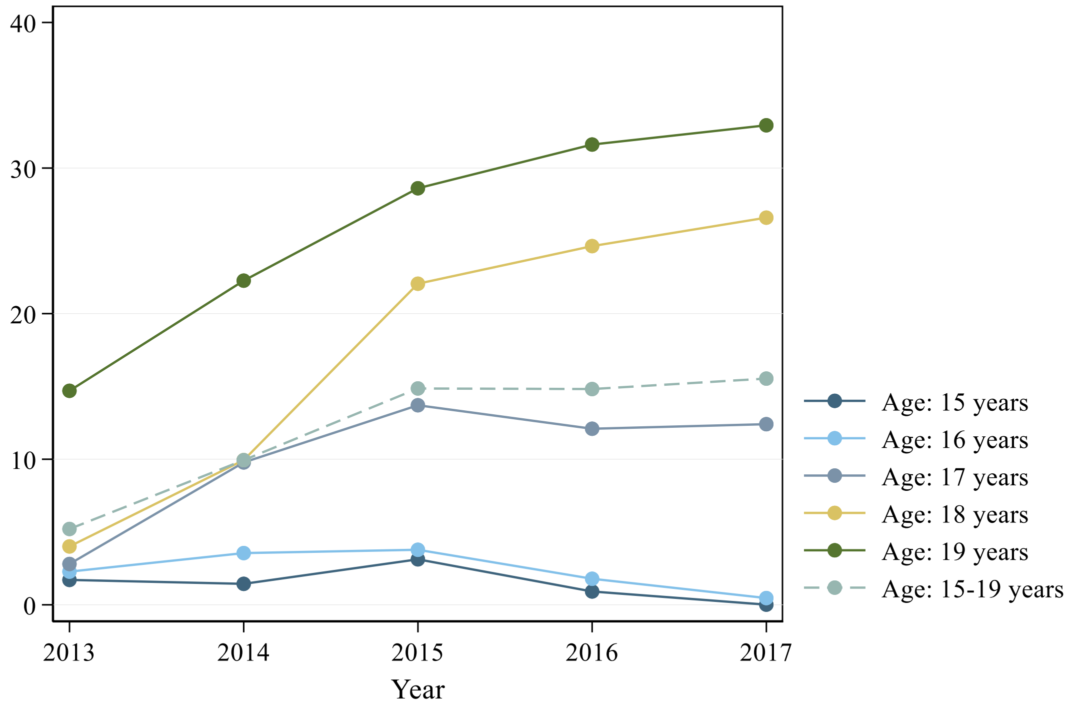
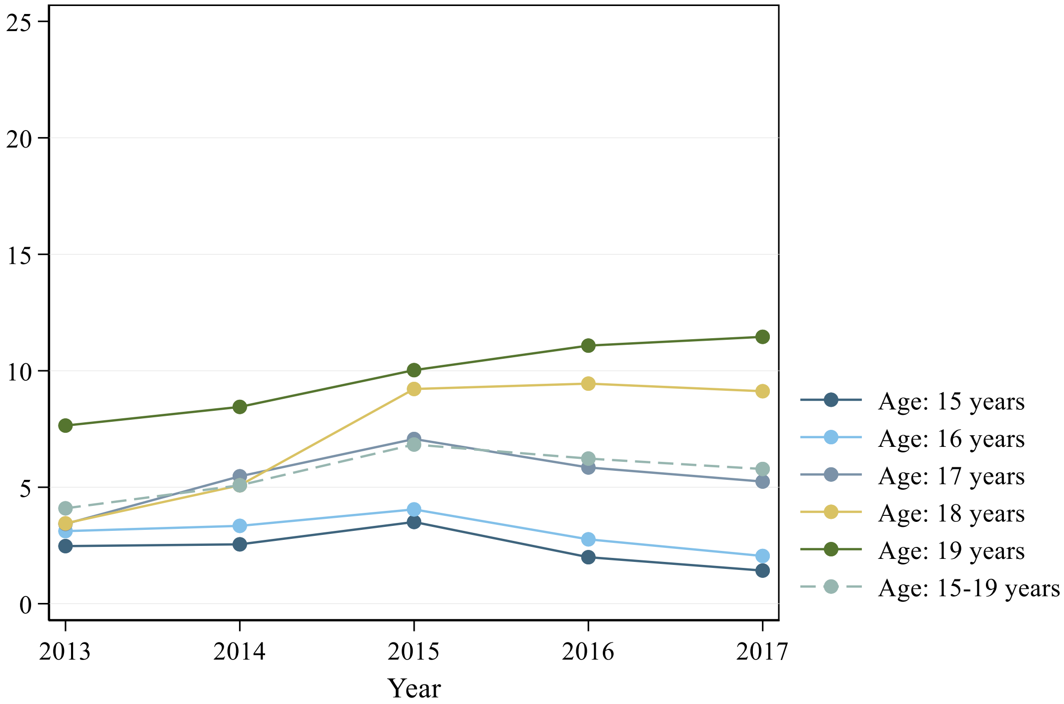
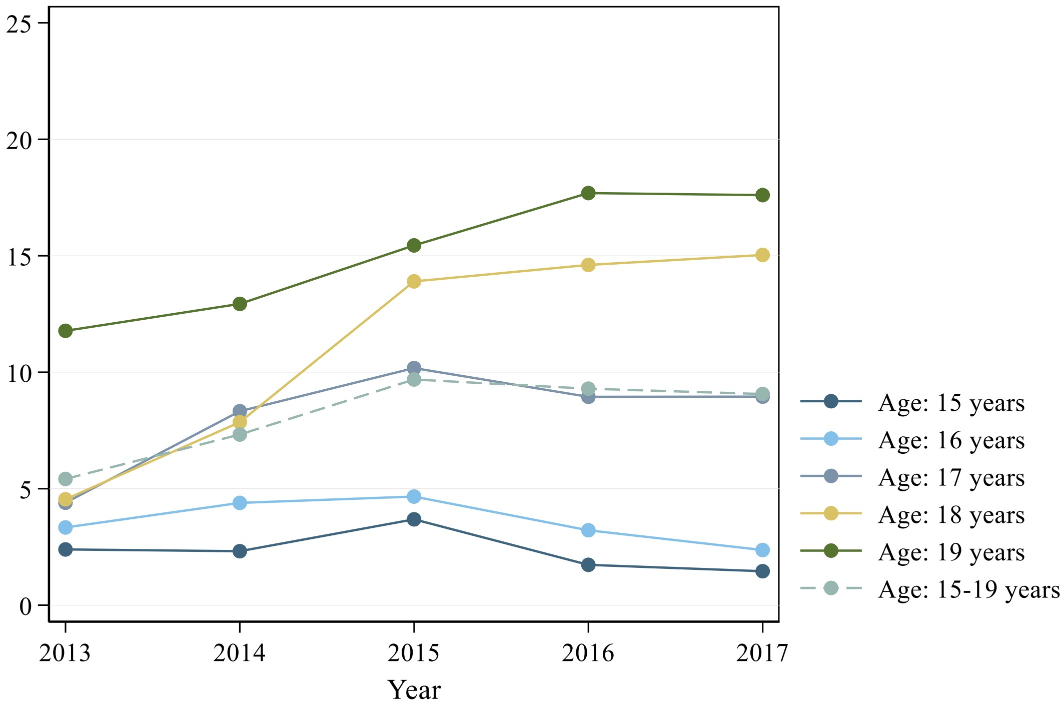


**Figure 1.4 The share of students dropping out of school by age and district type, percent**

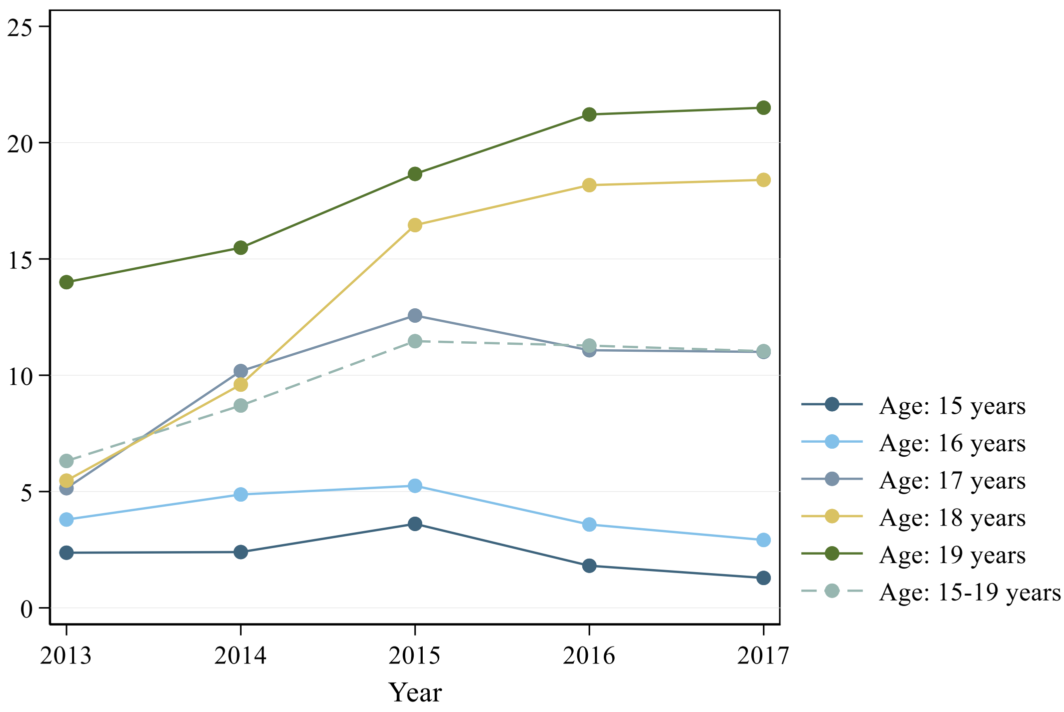
**a) Non-disadvantaged districts**



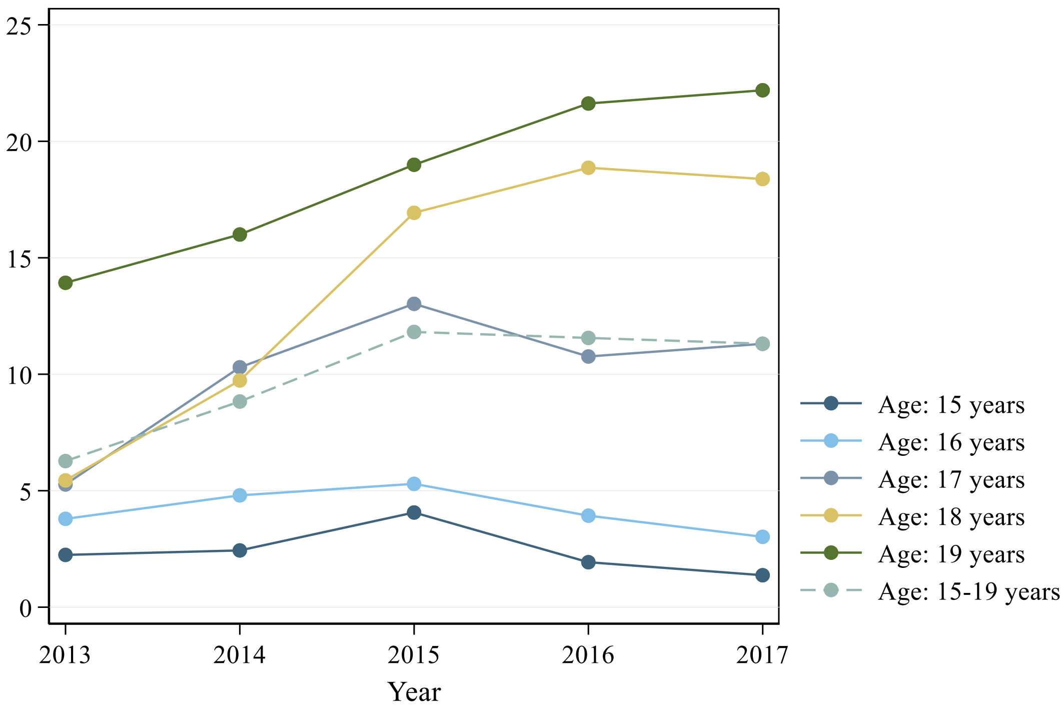

**b) Disadvantaged districts**



**c) Districts to be developed**




**d) Districts to be developed with complex programmes**



# Indicator 2: The ratio of students with psychological developmental disorders

Psychological developmental disorder (PDD) – the common name for students with (i) attention-deficit hyperactivity disorder, (ii) dyslexia, dyscalculia or dysgraphia and (iii) behavioural regulation disorder – has only been enumerated in official education statistics since 2012. Before 2012, behavioural and developmental disorders were recorded on the basis of their cause (organic vs. non-organic) and not their symptoms. Students with PDD are identified in the context of diagnosing students with special education needs (SEN). Their data are collected in a separate table describing the reasons for the SEN status as, for instance, the type or degree of disability. This requires a legal procedure in which an expert committee attempts to identify the reasons for the SEN status. If a student has multiple reasons for their SEN status, only the most acute is recorded; that is, a student can only be included in the statistics once. As PDD is usually a disorder of a milder degree compared to many other reasons for which students are assigned SEN status (e.g. autism, other forms of intellectual disability or physical disabilities), this number is a lower-bound estimate of all students in the education system with PDD.

*Figure 2.1* shows that the share of all students of students with SEN rose continuously from 4.7% in 2012 to over 5.7% in 2018. Around half of these students were diagnosed with PDD (see Figure 2.2, right axis), but the ratio of students with PPD among the SEN students also displays an increase over time. As *Figure 2.2* shows, the increase in the share of students with SEN reflects the increase in the share of students with PDD from 2 to 3% of all students and from 44.5 to 51.5% of SEN students.

*Figure 2.3* depicts the percentage of these students by grade. Apparently, there are more and more students with PDD through the grades of primary and lower secondary education (grades 1-8), and there are significantly fewer students with PDD at the secondary level (grades 9-12). In kindergarten (K on the figure) or in grades over 12 there are hardly any students with PDD.

The most prevalent sub-categories of PDD are dyslexia, dysgraphia or dyscalculia. Their share increases from 1.75% to 2.42%, while the share of students with "attention-deficit hyperactivity disorder" (ADHD) increases only marginally, from 0.18% to 0.34%, and the share of those diagnosed with "behavioural regulation disorder" (BRD) remains constant at around 0.15% (*Figure 2.4*).

*Figures 2.5 to 2.7* show the same statistics by school type. All three types of disorder are much more common in the vocational training programs and the HID programs than in the other two upper secondary school types (vocational secondary and academic). The general increase in the share of PDD students is driven by the increase of the share of PDD students with dyslexia, dysgraphia or dyscalculia in the vocational training programs, with this rising from under 4% in 2012 to over 6% in 2018 (*Figure 2.5*). Also, in the case of dyslexia, dysgraphia or dyscalculia, general schools have higher average than the academic and the vocational secondary tracks. This suggests that students with these types of PDD are selected into vocational training (or later HID) programs. In the case of ADHD (*Figure 2.6*) and BRD (*Figure 2.7*), the share of students remains constant and very small, well under 1%, over the observed period, so any fluctuations should not be considered as having great significance.

*Figures 2.5b, 2.6b and 2.7b* show the percentage of all girls with PDD. It would appear that somewhat fewer girls are diagnosed with these types of disorders than boys. This difference is the most obvious among students in vocational training programs (and the HID program), where the ratio of all students with dyslexia, dysgraphia or dyscalculia is around 4-5%, while it is only around 2-3.5% among girls, albeit a rapid increase of girls with dyslexia, dysgraphia or dyscalculia in vocational training schools is visible, rising from 2.2% in 2012 to over 5.5% in 2018.

*Figures 2.8, 2.9 and 2.10* show the percentage of PDD students within regional categories. While the comparison of the share of ADHD and BRD students across regional categories is of questionable significance, due to their very low share, it does seem that the share of students with dyslexia, dysgraphia or dyscalculia (the most common of the PDD categories) is the lowest in the most disadvantaged districts which are to be developed with complex programs (*Figure 2.8*). The largest increase of the share of students with dyslexia, dysgraphia or dyscalculia was seen in the disadvantaged districts – from 2.5% in 2012 to over 3.5% in 2018 – but the trends are also similar in the districts to be developed and in the non-disadvantaged districts, albeit at a lower level.

**Figure 2.1. Share of all students with SEN (K.-13+), percent**

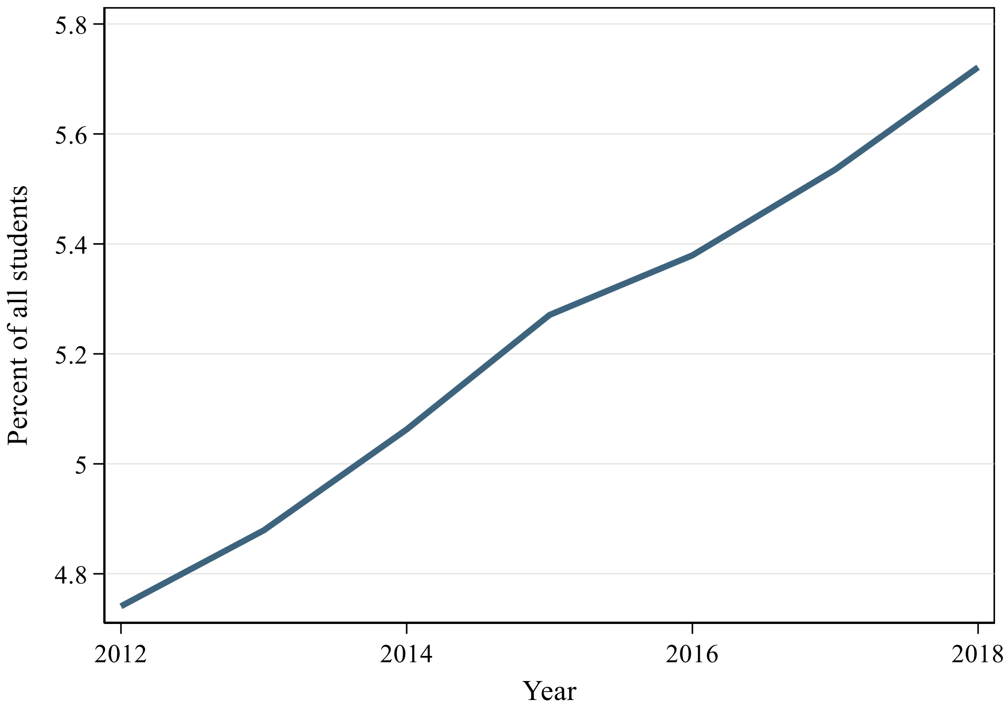



**Figure 2.2. Share of students with PDD of all students and share of students with PDD of all students with SEN, percent**

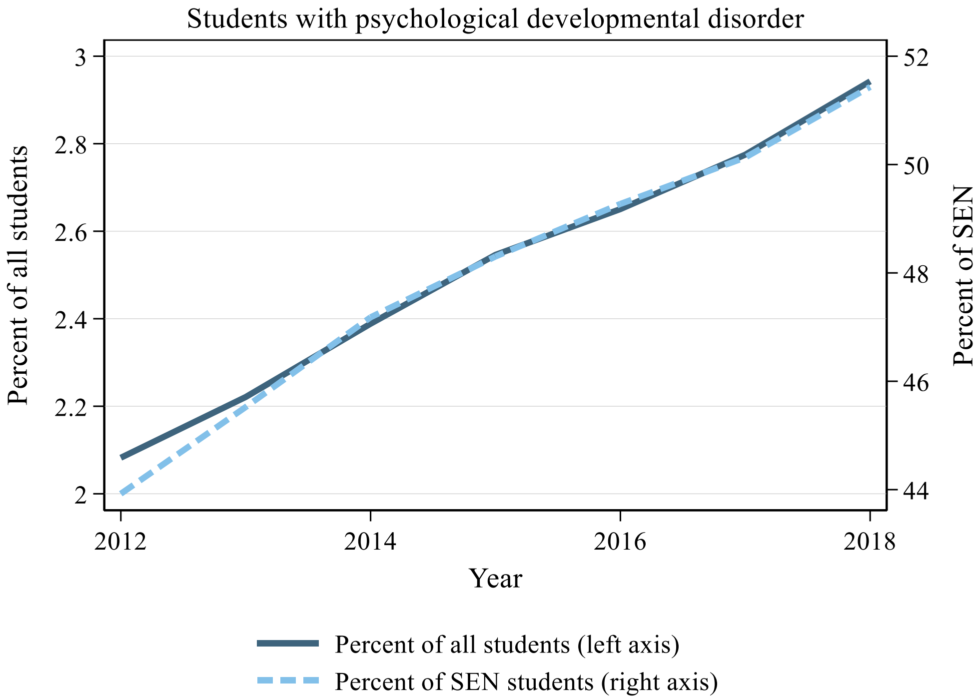


**Figure 2.3. Share of students with PDD by grade and year, percent**

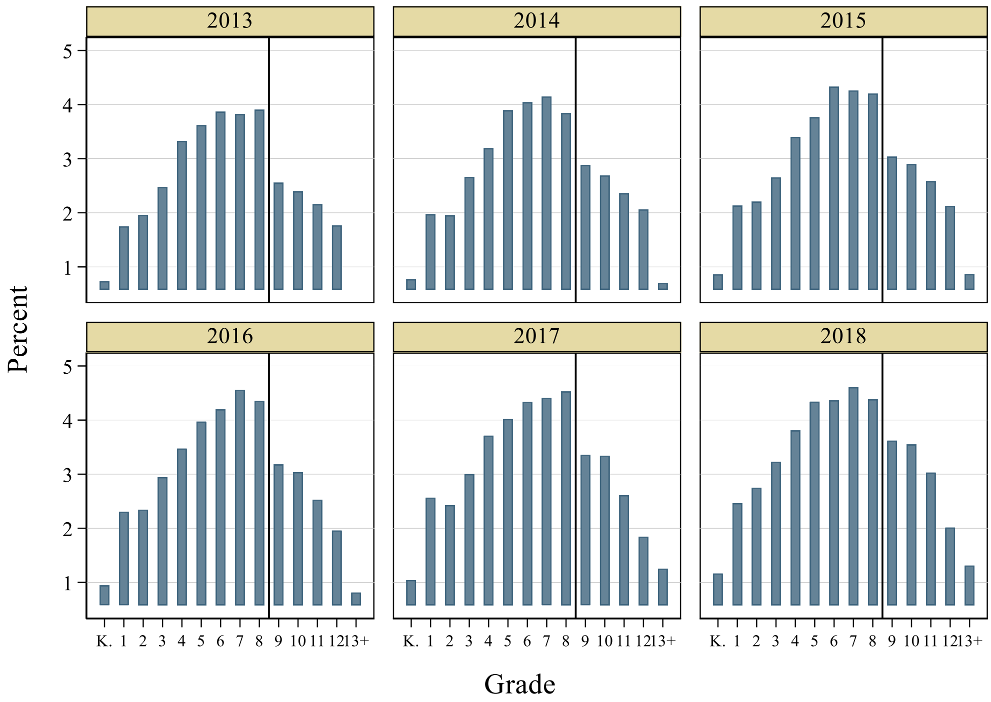



**Figure 2.4. Share of students with PDD by type of disorder as a percentage of all students**

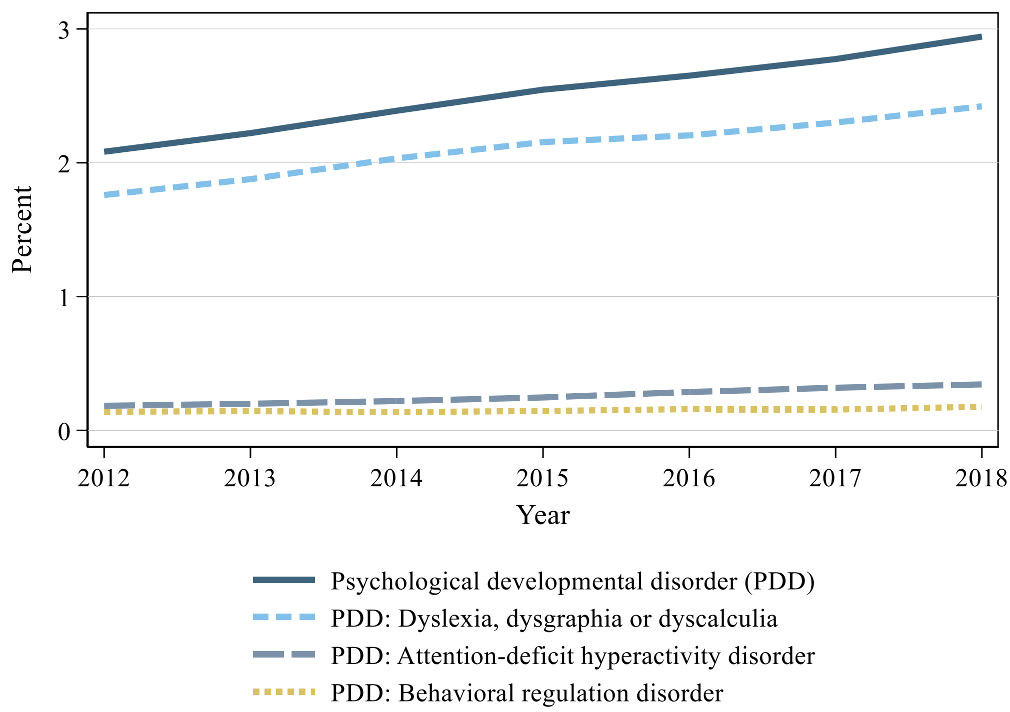
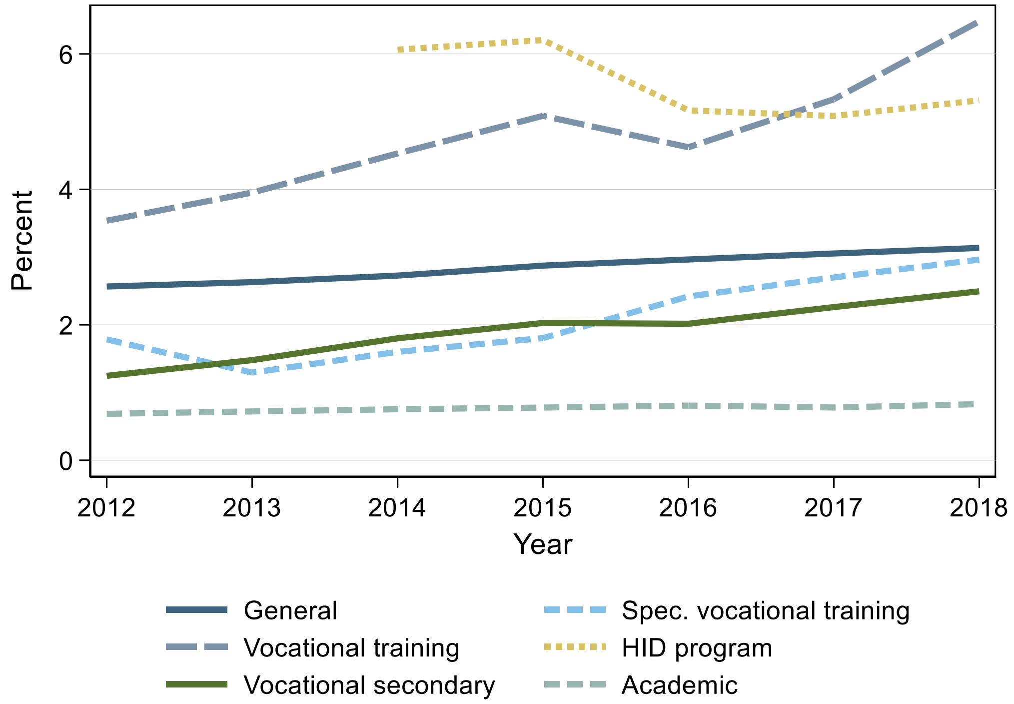


**Figure 2.5. Share of students with dyslexia, dysgraphia or dyscalculia by school type, percent**

a) **All students**




b) **Girls only**

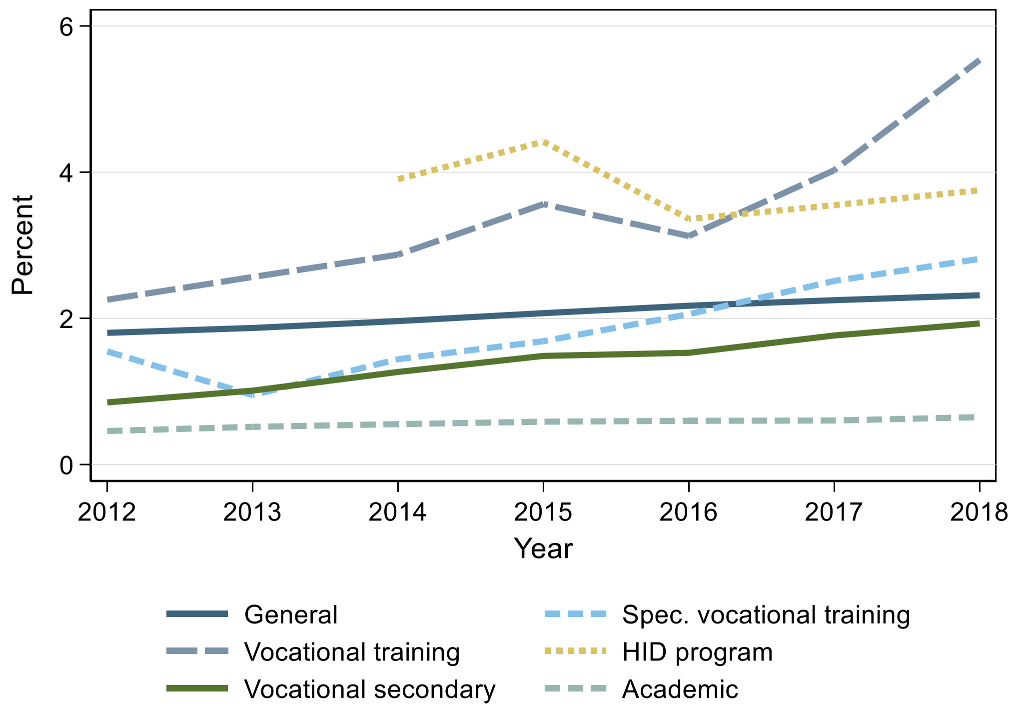
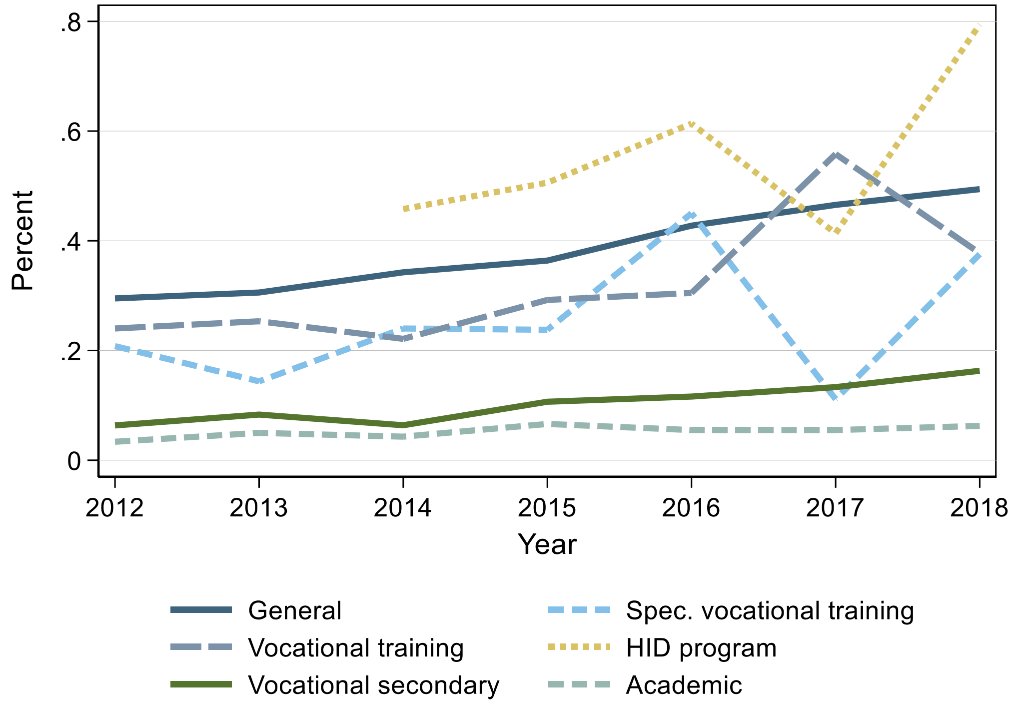


**Figure 2.6. Share of students with attention-deficit hyperactivity disorder by school type, percent**

**a) All students**




**b) Girls only**

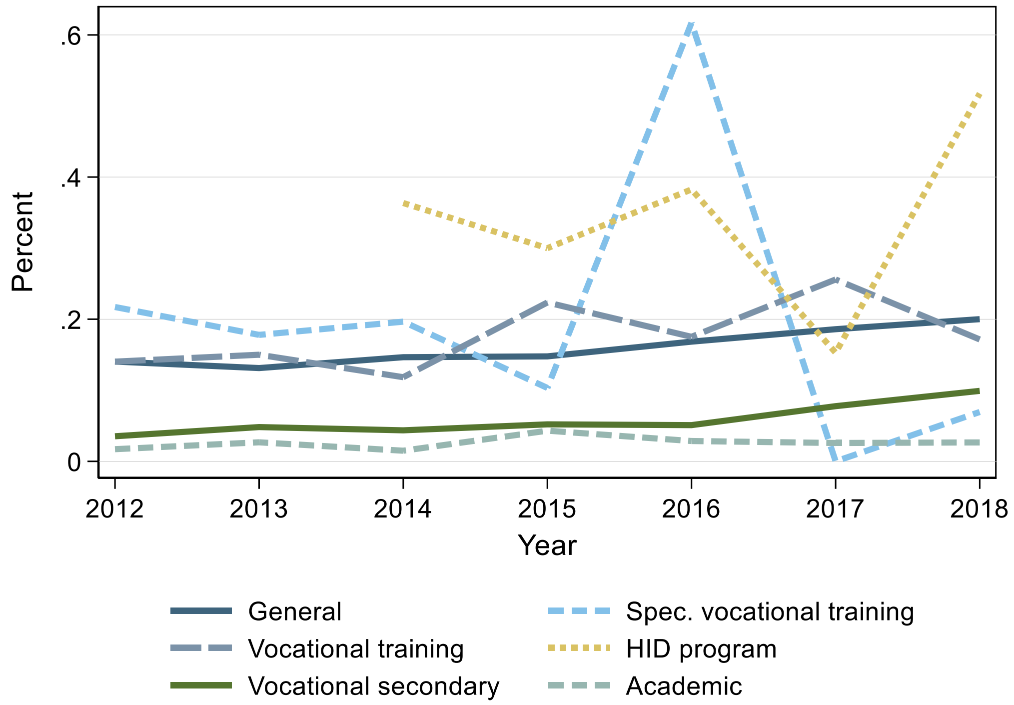
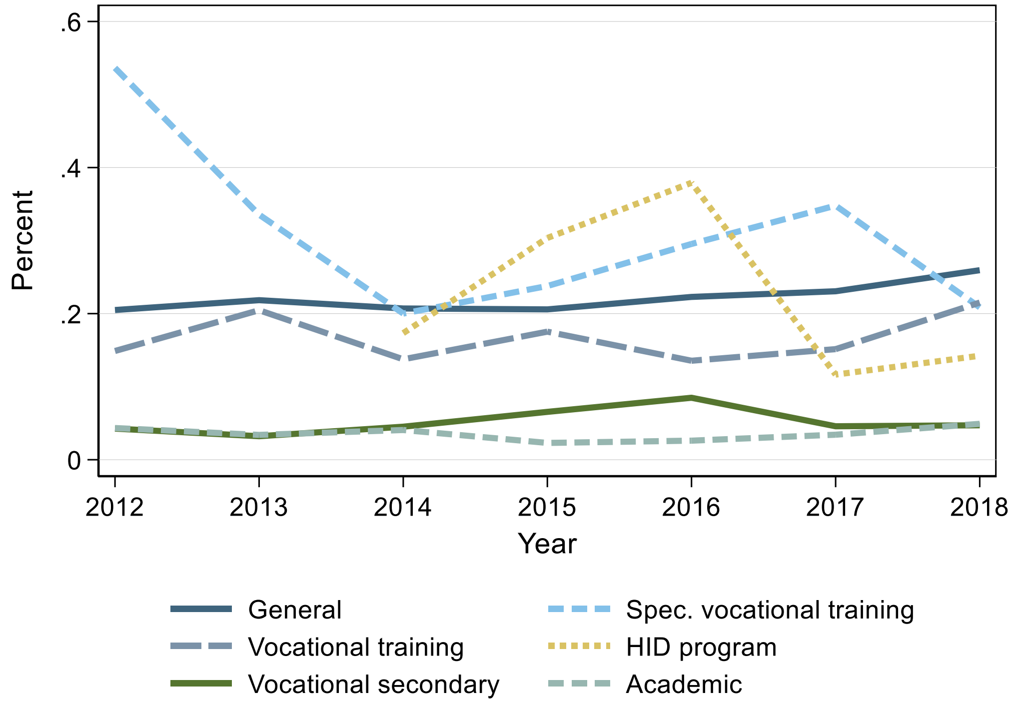


**Figure 2.7. Share of students with behavioural regulation disorder by school type, percent**

**a) All students**




**b) Girls only**

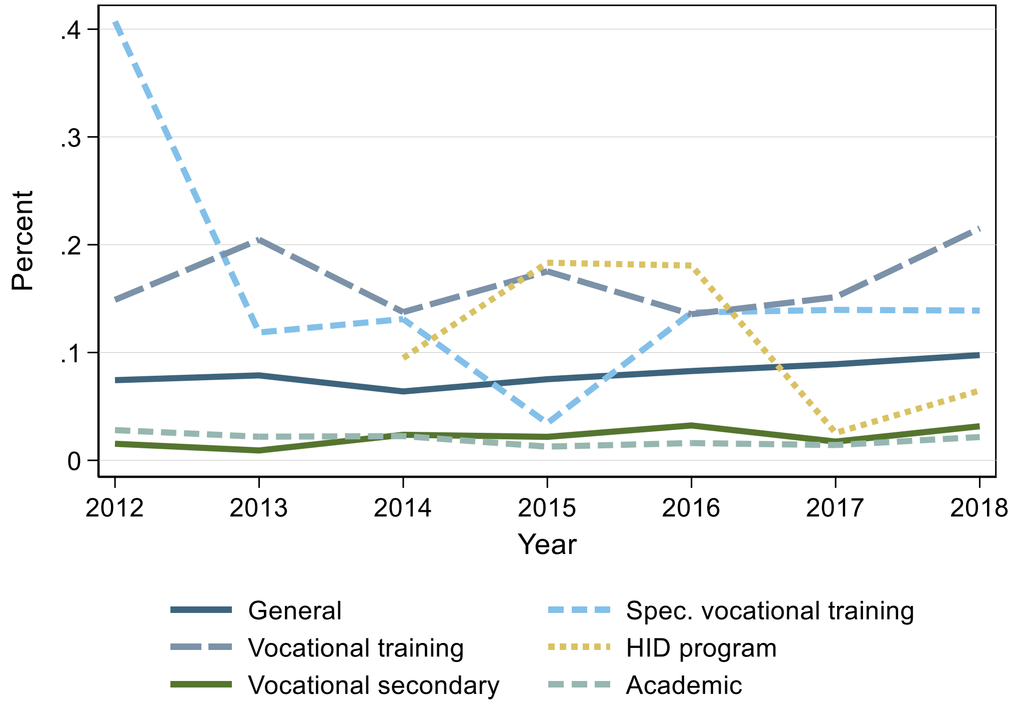


**Figure 2.8. Share of students with Dyslexia, dysgraphia or dyscalculia by regional category, percent**

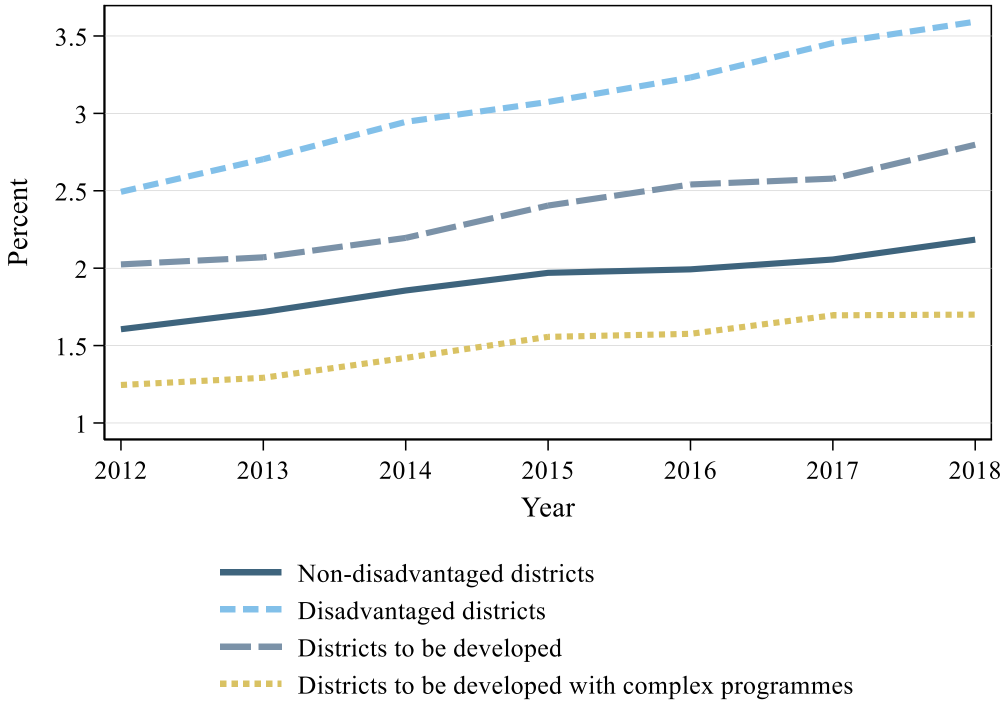



**Figure 2.9. Share of students with attention-deficit hyperactivity disorder by regional category, percent**

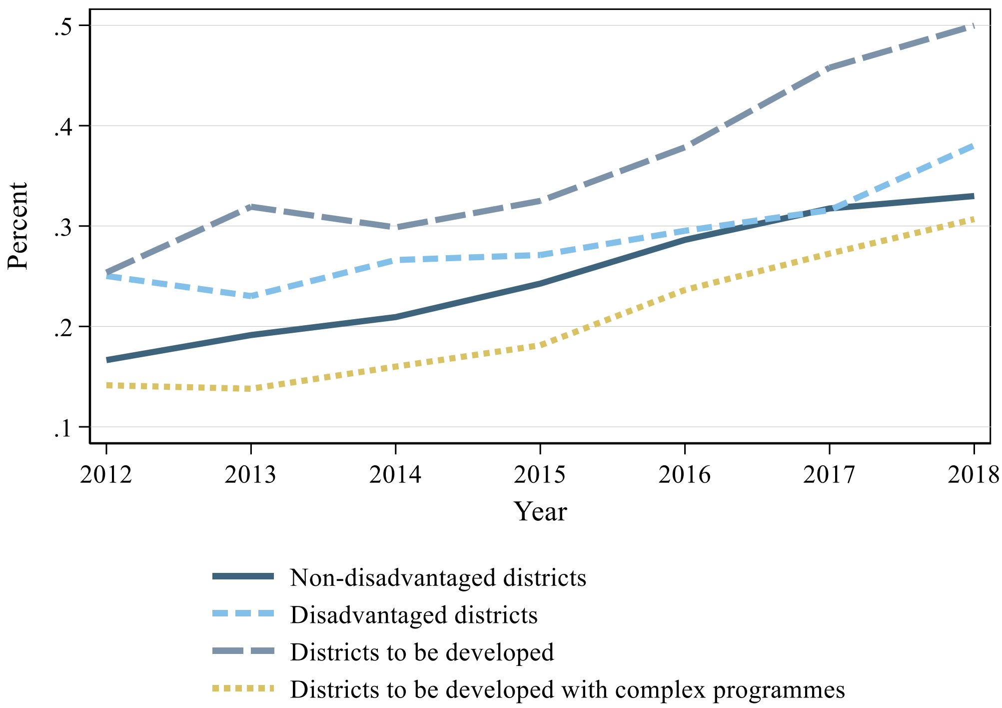
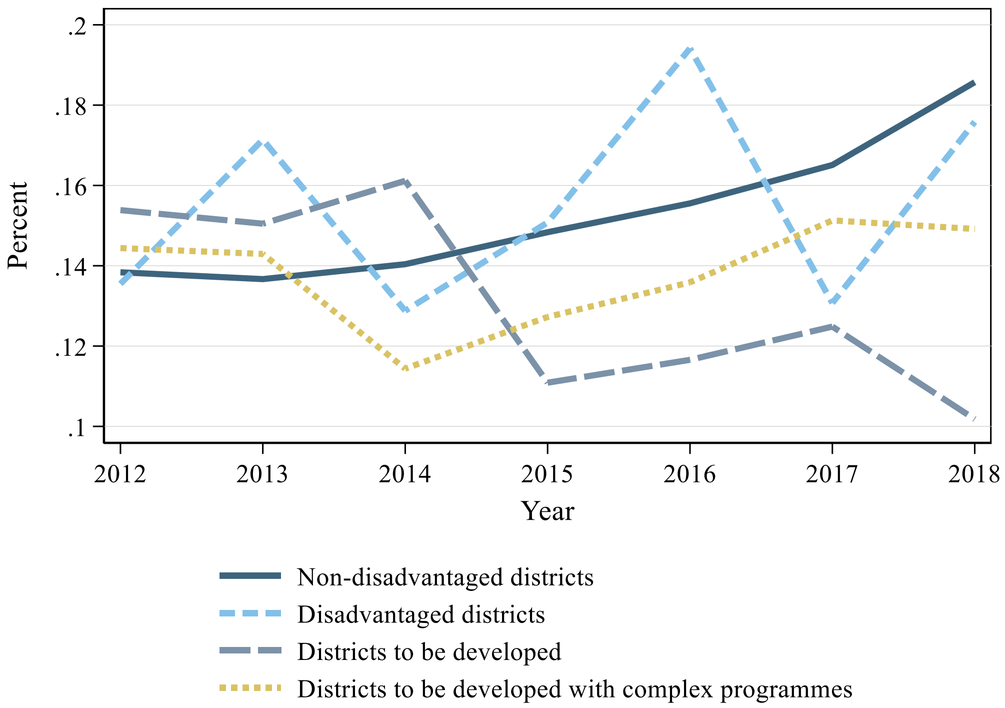


**Figure 2.10**. **Share of students with behavioural regulation disorder by school type, percent**



## Indicator 3: The ratio of higher education applicants with at least a B2 level language exam

*Indicator 3* shows the share of applicants to higher education who have at least one intermediate (level B2) language exam. The indicator reflects the efficiency of language teaching at secondary schools and may also be used as an indicator of equity. Obtaining a qualification from a language exam increases the chances of admission to higher education, as extra points are given for this, increasing the total admission score of the applicant. Differences in the shares of applicants and students admitted with a language qualification over the years, expressed in terms of type of secondary school attended and gender, reflect differences in the probability of applying and being admitted to higher education for these groups.

Previously, according to a Government Decree[7], at least one B2 level language would have been required for admission to higher education, but the plan was revoked by the government in November 2019.

This indicator was calculated in two different ways, each using data from a different sample of applicants[8]. First, data for all admission rounds were used, for both full time and part time education, including all applicants applying for higher vocational training, bachelor or so-called undivided ("osztatlan") programmes[9], that is, those who were applying for their first degree. Second, data from the autumn, or "normal" round of applicants were used, including those for both full- and part-time education, and for students who had passed the matriculation exam in the year of application, and were applying for higher vocational training, bachelor or undivided programmes. The aim of calculating the indicators using the second method was to exclude the double counting of the language exams and to capture the changes in the efficiency of language education at the secondary school level. (In the calculations performed as part of

[7] Government Decree on higher education admission procedures No. 423/2012. (XII. 29.)

[8] Every year there are three admission rounds to higher education. The main, autumn, or "normal procedure", for programs starts in September; an additional round takes place at the end of summer for vacant places on programs starting in September; and there is a third round in the winter for programs starting in February. The second and third rounds are less significant, and concern only a small number of institutions and programs.

[9] An undivided one-tier programme leads to a master's degree with no bachelor level. e.g.: law, medicine, forest engineering and teacher training.

the present research, all language exams were considered for which the applicants get extra admission scores.) In the case of the first method, the double counting of language exams might occur when a student has already applied in the first, “normal round” to higher education, but fails in that round, then makes a fresh application in the second or third rounds. Using the first method, a student who has a language qualification, but who applies in all rounds is counted three times, although they have only one language qualification. In all years, students who have passed language exams in different years and are from different cohorts apply for places in higher education. The language exams of those who have passed their matriculation exam in the year of the application approximate the changes in the effect of language teaching of secondary education better than using the data for all applicants.

*Figure 3.1* shows the share of applicants who have language qualifications based on calculations using the two samples described above. Taking all applicants together (applying for full time or part time, in any admission round), the share of applicants who have a language qualification increased between 2007 and 2017, reaching nearly 42 per cent in 2017. Of those students who passed their matriculation exam in the year of application, the share of applicants with a language qualification increased by more than 10 percentage points, to around 53 per cent in 2017. In spite of the increase, this means that in 2017, 47 percent of students who passed their matriculation exam in 2017 would not have met the requirements to apply for higher education because of the lack of a language qualification, had the new regulation on higher education admission come into force. Among all applicants, this share would have been 58 percent.

The share of applicants with a language qualification is quite similar among men and women (*Figure 3.2*), while there is a large difference between graduates of different types of schools *(Figure 3.3.)*: it is much higher among graduates of academic secondary schools than among graduates of vocational secondary schools (*Figure 3.3*). This might indicate the difference in the results of language teaching between the two types of secondary schools among other reasons. In 2017 among applicants from academic secondary schools in the normal admission round who passed their matriculation exam in the year of application, about 57% had a B2 language certificate, while among applicants from vocational secondary schools this was the case for only about 27%.

This means that in 2017 about 43 % of students who passed their matriculation exam in 2017 and who finished their studies in 2017 in academic secondary schools would not have had the necessary qualifications when applying to higher education because of the lack of a language qualification, had the new regulation on higher education admission been in force. Among students from vocational secondary schools, 73% would not have had the necessary qualifications to apply to higher education.

**Figure 3.1. The share of applicants to higher education who have a B2 language certificate, %**

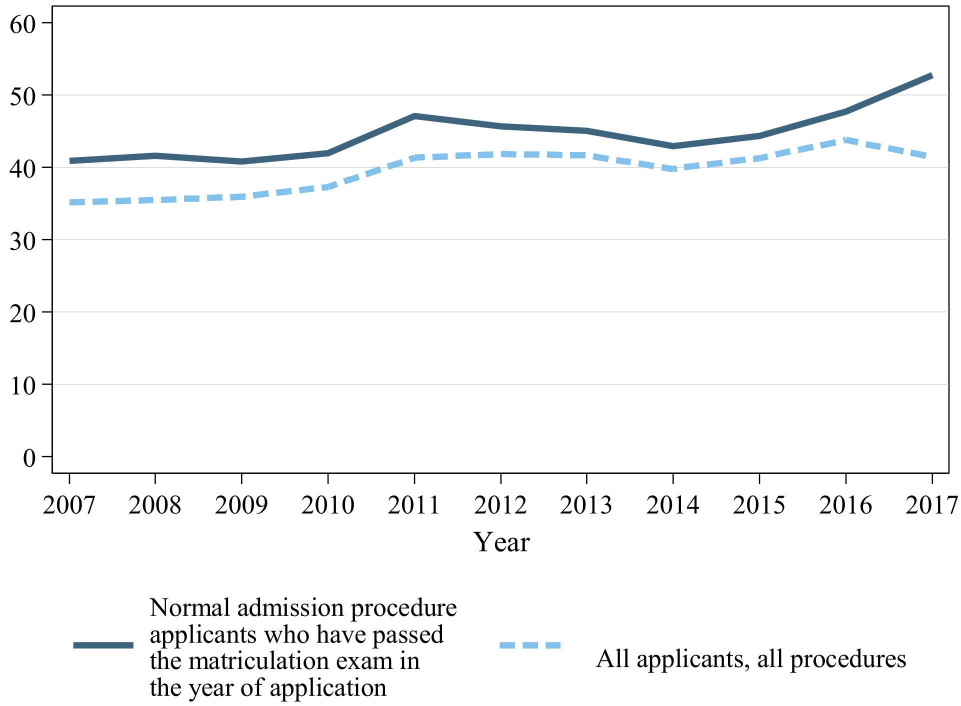


**Figure 3.2. The share of applicants to higher education who have a B2 language certificate by gender. Normal admission procedure. Applicants who passed the matriculation exam in the year of application, %**

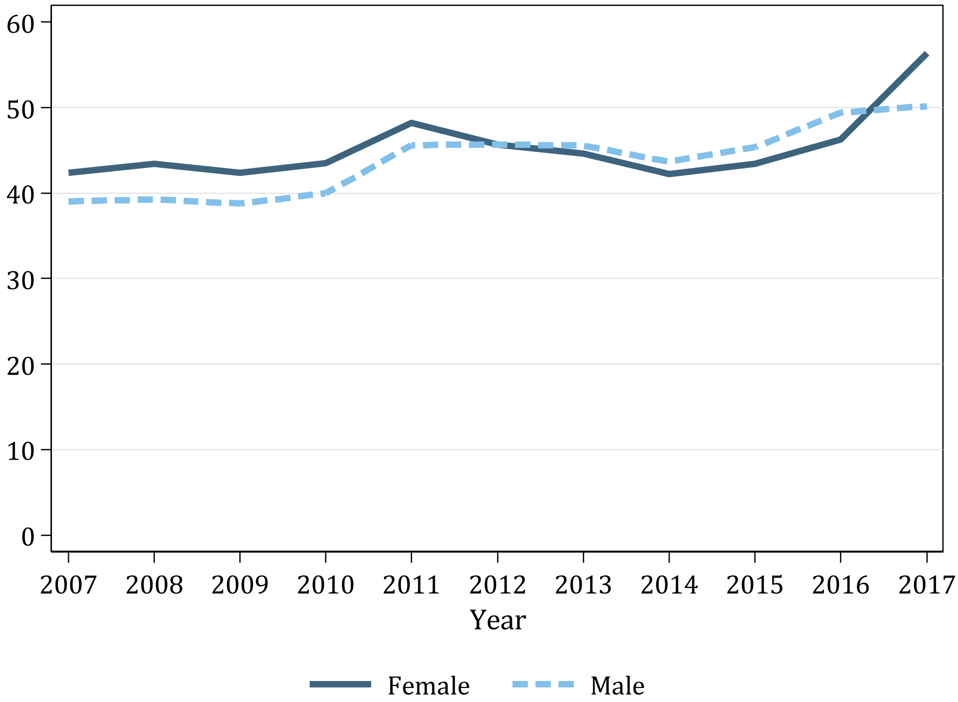
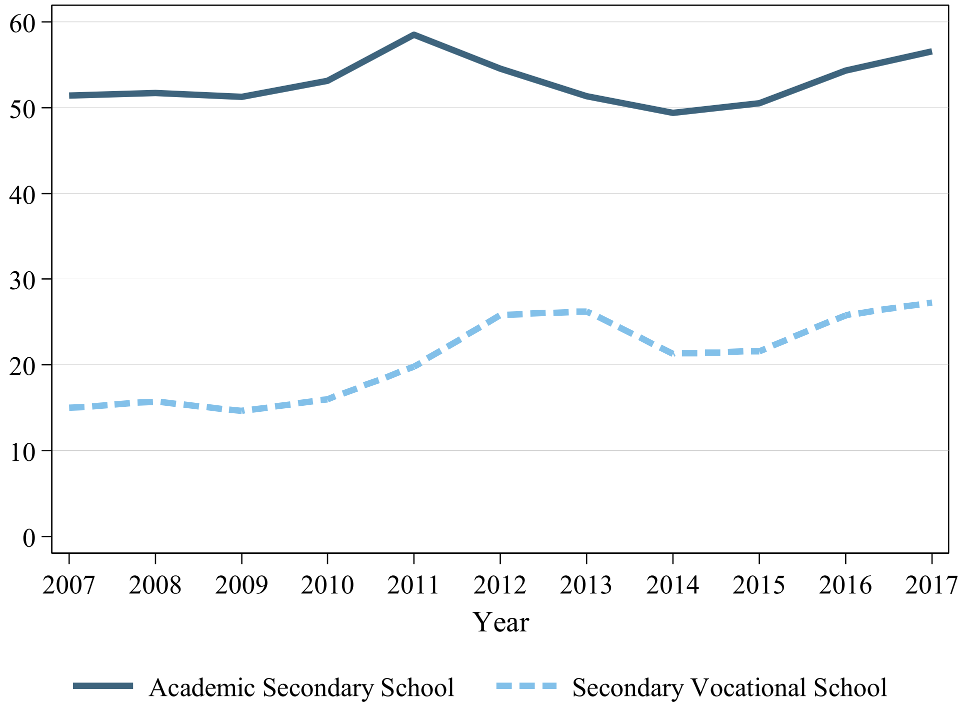



**Figure 3.3. The share of applicants to higher education who have a B2 language certificate by type of secondary school. Full time education. Normal admission procedure. Applicants who passed the matriculation exam in the year of application, %**



# Indicator 4: The ratio of students admitted to higher education with at least a B2 level language exam

*Indicator* 4 shows the share of students admitted with at least one intermediate (level B2) language qualification.

Among all students admitted, the share of students who have a language qualification increased from 40 to 55 percent between 2007 and 2016, then between 2016 and 2017 a 4-percentage point decrease could be observed. In 2017, 52 percent of admitted students had at least one B2 level language exam. As for students who had passed their matriculation exam in the year of application, the share of students among those admitted who had a language qualification increased from 47 to 64 per cent *(Figure 4.1).*

Between 2007 and 2011 a higher share of female applicants who were admitted had a language exam than did male applicants. After 2011, men outperformed women, but the advantage of men disappeared in 2017, when again a larger share of women had language qualification (*Figure 4.2*).

Of those admitted, 64.5% had a B2 language certificate among students from academic secondary schools, and 42 percent among students from vocational secondary schools (*Figure 4.3*).

**Figure 4.1. The share of students admitted who have a B2 language certificate, %**

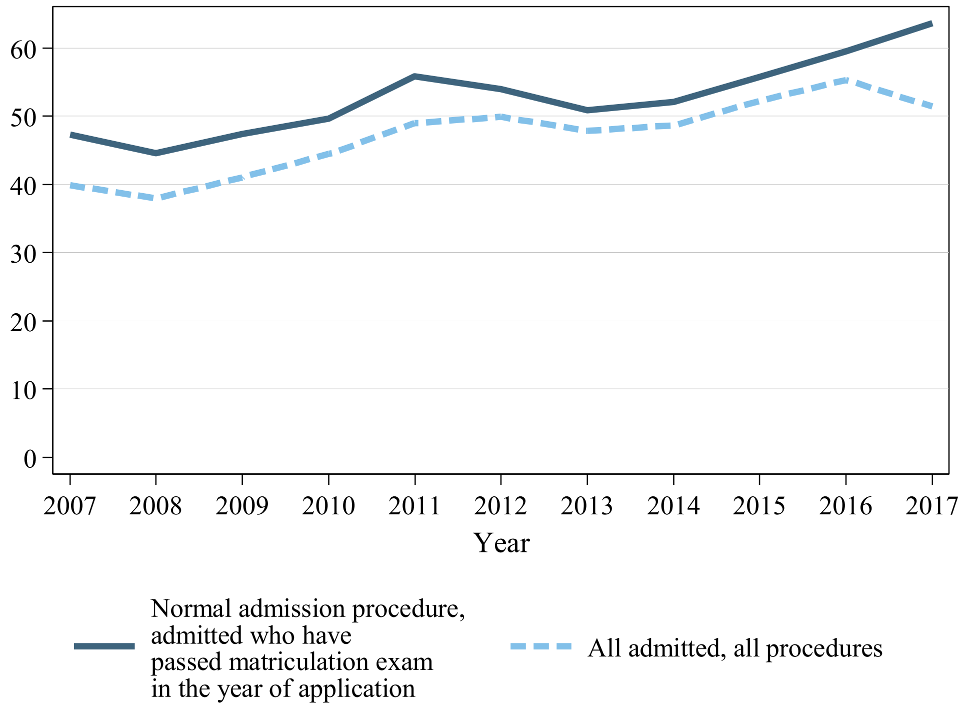



**Figure 4.2. The share of students admitted who have a B2 language certificate by gender. Normal admission procedure. Admitted who passed the matriculation exam in the year of application, %**

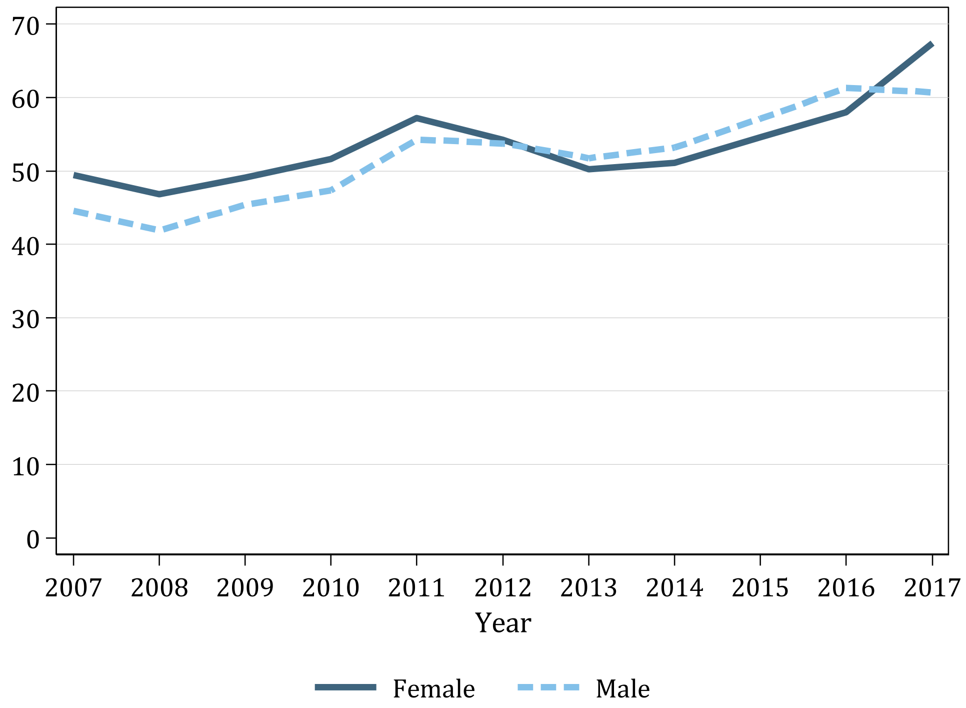
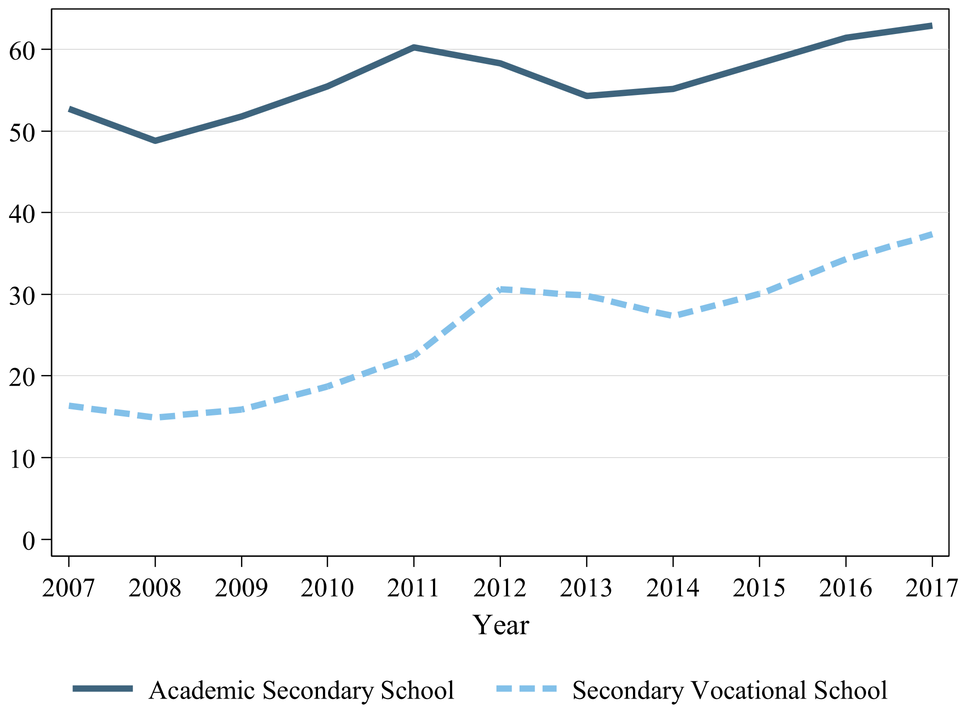


**Figure 4.3 The share of students admitted who have a B2 language certificate by type of secondary school. Full time education. Normal admission procedure. Applicants who passed the matriculation exam in the year of application, %**



## Indicator 5: Segregation

Between-school segregation is measured using segregation (S) and dissimilarity (D) indices.

The segregation index (S) is a widely used measure of school segregation. It is based on the exposure rate of majority students to minority students (E):

$$E = \sum_{i=1}^{I} \left( \frac{K_i}{N_i} \cdot \frac{N_i - K_i}{N - K} \right)$$

where $i$ denotes schools, $N$ is the total number of students, $N_i$ is the number of students in school $i$, $K$ is the total number of minority students, and $K_i$ is the number of minority students in school $i$. The exposure index is the weighted average of the composition of schools, where the average is taken with weights equal to the shares of majority student enrolment. The minimum value of E is 0, and the maximum value of E is $p$ (the ratio of minority students in the whole country).[10] The segregation index is intended to solve the problem that the maximum value of E depends on $p$ (the share of minority students). S takes the exposure index and normalizes it to its theoretical maximum. Formally,

$$S = 100 \cdot \frac{\frac{K}{N} - E}{\frac{K}{N}} = 100 \cdot \frac{p - E}{p}$$

The higher the level the index, the higher the level of segregation. Specifically, S is represented by a value between 0 (perfect integration, even distribution of minority students) to 100 (complete segregation, separate schools/classes for minority and majority students). The segregation index can be interpreted as the percentage of possible contacts between minority and majority students that are made impossible by segregation.

The dissimilarity index (D) is another common measure of segregation, it measures the evenness with which two groups are distributed across schools. It is calculated as follows:

$$D = 100 \cdot \frac{1}{2} \cdot \sum_{i=1}^{I} \left| \frac{K_i}{K} - \frac{(N_i - K_i)}{(N - K)} \right|$$

[10] If minority and majority students attend completely separate schools (schools where the share of minority students is either 100% or 0%), E would be 0. It would indicate that an average majority student attends a school with no minority schoolmates. If the distribution of minority students is even (every school has the same majority-minority composition), E would be equal to $p$ (the share of minority students).

The dissimilarity index ranges from 0 (complete integration) to 100 (complete segregation). Conceptually, the value of the dissimilarity index measures the percentage of one group's population that would need to change school in order to be distributed the same way as the other group.[11]

Since students' ethnicity, at the individual level, is not recorded in the Hungarian administrative datasets, three different definitions of minority student status are used to describe the segregation process in Hungary: (i) disadvantaged students, (ii) cumulatively disadvantaged students, and (iii) students with special educational needs. The segregation index and the dissimilarity index are calculated for general school level students (grade 1-8), and between-school segregation[12] is reported using information from the administrative dataset of KIRSTAT.

These estimations are complemented by additional calculations based on the school-site-level questionnaires of the Hungarian National Assessment of Basic Competencies (NABC). Information for these questionnaires is provided by the school principals. Among others, they report the total number of students and estimate the fraction of Roma students and students receiving regular child protection allowance. On the basis of this information, it is possible to calculate S and D for general school level (i) Roma students and (ii) students receiving regular child protection allowance. It should be noted that an important feature of the NABC dataset is that schools designated for the special education of SEN students are not obliged to fill out the questionnaires. As the share of SEN students receiving special education is decreasing over time, a larger and larger share of schools is included in the NABC data, which could, in turn, influence the segregation and the dissimilarity indices.[13] As the NABC data are incomplete and the shares of different minority populations are based on the estimate of the school principal and not on actual administrative data, these results are rather indicative.

[11] One of the advantages of the dissimilarity index over the segregation index is that D satisfies the 'weak' form of composition invariance that states that if the number of persons of one group in each school increases by a constant factor and the number and distribution of persons of the other group is unchanged, segregation is unchanged. However, the value of D will change if the overall share of minority students changes, but their distribution across schools remains the same. That is, even the dissimilarity index fails to satisfy the 'strong' form of composition invariance criterion.

[12] Within-school segregation (between classes) could not be analyzed as the necessary data were not provided by the data owner.

[13] In schools designated to SEN students, the share of Roma and students receiving regular child protection allowance is likely to be higher than average. If, after the closure of these schools, former students tend to attend schools with an above average share of Roma students and/or students receiving regular child protection allowance, segregation measured by S and D will appear to increase, even though the actual segregation is decreasing (due to the closing of special schools dedicated to SEN students). It is simply caused by the fact that special schools dedicated to SEN students are missing from NABC data.

Therefore, changes in S and D over the period of 2008-2018 are shown, but the NABC data is not used in further calculations. Those are based only on the KIRSTAT data.

The segregation index follows different trajectories between 2008 and 2018, and these differences depend on the definition of minority status (*Figure 5.1*). The segregation indices of disadvantaged and cumulatively disadvantaged students increased in this period, from 27.7 to 40.0 and 26.6 to 37.1, respectively. The largest increase can be observed between 2012 and 2014, which is probably related to the change in the legal regulation of the disadvantaged student status.[14] However, even after 2014 a slight continuous increase in the degree of segregation of both disadvantaged and cumulatively disadvantaged students can be observed.

The trajectory of the change in the segregation index of the SEN students is the opposite. It decreased from 36 to 29 between 2008 and 2018. The decline is closely related to the significant decrease in the share of schools with a special educational programme and the share of the SEN students who attend these schools despite the increase in the overall share of students with SEN (see Indicator 2.).

When the changes in the dissimilarity index between 2008 and 2018 are considered, very similar results may be observed (*Figure 5.2*). The dissimilarity indices based on disadvantaged and cumulatively disadvantaged students increased over time, even after 2014. But the dissimilarity index based on the between-school distribution of SEN students constantly decreased between 2008 and 2018.

The segregation of Roma students and students receiving regular child protection support, as measured by the segregation index and the dissimilarity index, are shown in *Figure 5.3* and *Figure 5.4*. Both measures of segregation indicate that the segregation of both Roma and students receiving regular child protection support increased between 2008 and 2018. The change in the degree of segregation of students receiving regular child protection support seem to be greater in the second part of the period, whereas in the case of Roma students, this change is slightly more pronounced in the first part of the period.

[14] Since September 2013, the disadvantaged student status has been more strictly regulated: students are required to meet stricter criteria to be classified as disadvantaged or cumulatively disadvantaged. As a result, at the primary level the share of disadvantaged and cumulatively disadvantaged students declined between 2012 and 2014. The least disadvantaged students lost their status due to the change in the law. If these students are more likely to attend schools with an above average share of non-disadvantaged students (after the change in the law), the change in the classification may have caused a significant increase in the segregation index without any "real" change in the composition of the schools. However, a more detailed study would be needed to properly analyze the causal effect of the 2013 law change, and that is beyond the scope of this report.

In the next step, the segregation index is decomposed by geographical/institutional levels.[15] The lowest level explored is the school, and the other two levels studied are the settlements and the micro-regions. The decomposition procedure of the segregation index by geographical/institutional levels is only performed for cities and towns (more precisely, for schools in cities and towns): villages are excluded, since almost all of them have only one general school, and within-settlement segregation cannot therefore be studied. Since village schools are excluded, the total segregation (S) calculated in the decomposition exercise is different from the total segregation calculated for all Hungarian schools discussed above.

Since the distribution of minority students at the level of larger geographical/institutional areas (e.g. micro-regions) strongly influences the possible distribution of minority students at the lower levels (e.g. municipalities), the aim of the decomposition is to measure the segregation on the lower levels conditioned on the distribution of minority students on the higher geographical/institutional level. For example, between-school segregation in cities and towns would be 0 if each school had the same degree of diversity (proportion of minority students) as the city or town it is located in. Since S can be additively decomposed, the sum of the segregation index attributed to each geographical level can be added up to obtain the total segregation index:

$$S = S^{mic} + S^{set} + S^{s}$$

where S is the total segregation, $S^{mic}$ is the segregation attributed to the micro-regional level, $S^{set}$ is the segregation attributed to settlements (cities and towns), and $S^{s}$ is the segregation within settlements. In other words, decomposition sheds light on the issue of to what extent the total segregation index is attributable to (i) the between-school segregation within cities and towns, (ii) the between-cities/towns segregation within micro-regions, and (iii) the between-micro-region segregation. The latter two components might be due predominantly to residential segregation patterns, but free school choice can also influence them.

The results of the decomposition are shown in *Figure 5.5*. In 2018, the figures for the total degree of segregation (S) of the disadvantaged and cumulatively disadvantaged students calculated for schools in cities and towns are 30.4 and 29.4, respectively. According to the decomposition, a sizeable part of these figures for segregation is a reflection of the fact that the disadvantaged and cumulatively disadvantaged students cluster in different micro-regions

[15] The dissimilarity index is not decomposable.

($S^{mic}$). However, only a small part of the segregation can be attributed to the separation of the disadvantaged and cumulatively disadvantaged students between cities and towns within the micro-regions ($S^{set}$). This means that even if the share of the disadvantaged and cumulatively disadvantaged students in each city and town were equal to their micro-region's average, the segregation index would not be significantly lower. The between-school segregation within cities and towns represents a large component of the overall degree of segregation ($S^{s}$): a sizeable part in the segregation index is due to the fact that disadvantaged, and cumulatively disadvantaged students attend different schools within cities and towns.

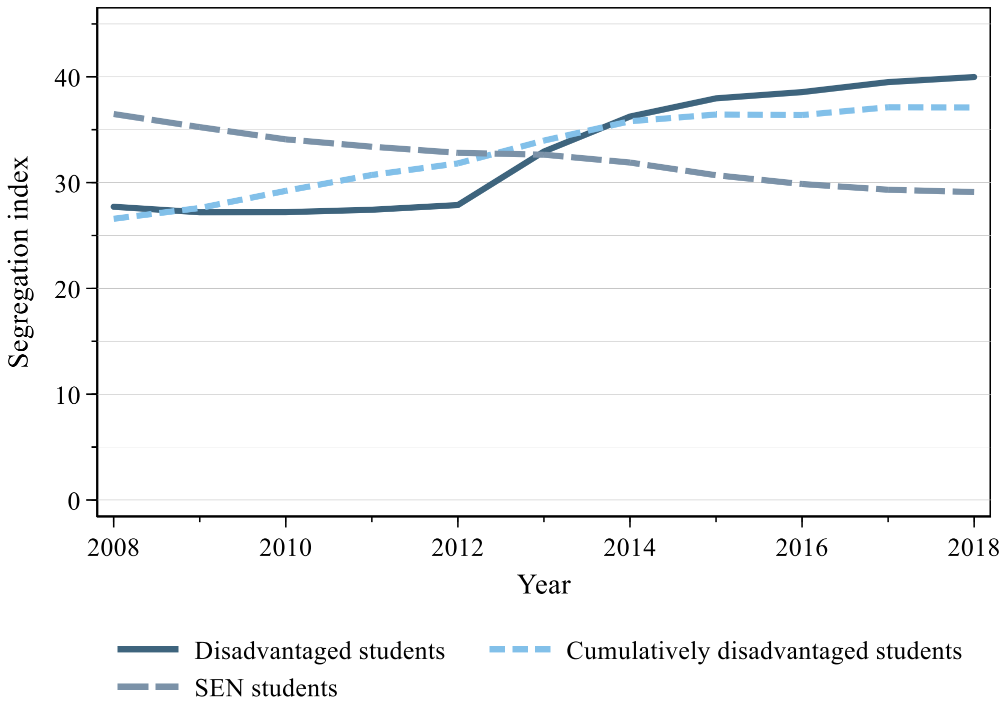
Decomposing the segregation index of SEN students gives a different result. In 2018, the total segregation of SEN students calculated for schools in cities and towns was 36.4. The distribution of SEN students is quite even across micro-regions, and across cities and towns within micro-regions, so the contributions of these levels ($S^{mic}$ and $S^{set}$) to the value of the total segregation index are almost negligible. The separation between schools within cities and towns ($S^{s}$) is the main determinant of the segregation index.

*Figure 5.6* examines the segregation index and the dissimilarity index in deprived and non-deprived districts. For each district of Hungary S and D were calculated, then averaged over district categories using N of students as weights. As both indices are influenced not only by the distribution but also by the total share of minority students, S and D were compared to their 2008 values (scaled to 100). Regarding changes in the degree of segregation of disadvantaged students, it may be seen that the largest changes take place at around the time of the 2013 change in the law. Before and after the administrative change, no considerable differences between the trends by district categories can be observed. In addition, the segregation index and the dissimilarity index sometimes show slightly different trajectories. Similar conclusions may be drawn regarding the segregation of cumulatively disadvantaged students. However, in relation to changes in the degree of SEN students' segregation, there are some noticeable differences. The declining trends in the indices of non-disadvantaged districts, disadvantaged districts, and districts to be developed with complex programmes are similar to the overall national changes. But the average segregation index and the average dissimilarity index in the intermediately deprived group (districts to be developed) are only slightly lower in 2018 than in 2008. This suggests that the degree of segregation of SEN students in these districts declined less than in other districts.

In this report, we used the dissimilarity index (D) and the segregation index (S) to describe between-school segregation in Hungary. Despite the fact that all measures of segregation have its own strength and weakness, and capture different aspects of segregation, both indices show that between-school segregation of disadvantaged and cumulatively disadvantaged students increased between 2008 and 2018.[16] Although the largest increase can be observed between 2012 and 2014, which is very likely to be related to the change in the legal regulation of the disadvantaged student status, even after 2014 there is a slight continuous increase. The change in the segregation of SEN students is the opposite: it is decreasing over the whole period. Using different data sources, we also examined the segregation of Roma students and students receiving regular child protection support. Both seem to increase between 2008 and 2018, however, these estimations based on the school-site-level questionnaires of the NABC. One important caveat is that the NABC data do not cover the entire student population and the coverage is likely to change over time, which could influence the trajectory of the segregation measures (most likely tilts upward). Finally, we note that school segregation and its change over time are the results of a complex interplay of demographic, residential, and educational policy factors. To understand the details of these processes and the main forces behind the changes needs much deeper researches, an investigation which lies beyond the scope of this report.

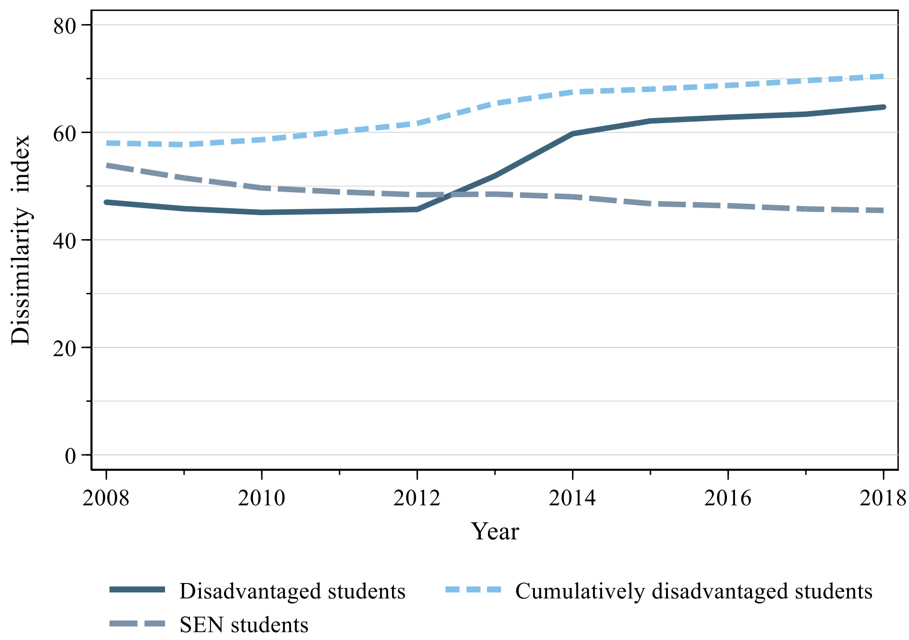
[16] We note that other measures of segregation (Theil's H, Atkinson index, Gorard's Segregation Index) show similar patterns. These indices are not shown here.

**Figure 5.1 The segregation index (S) based on KIRSTAT data**



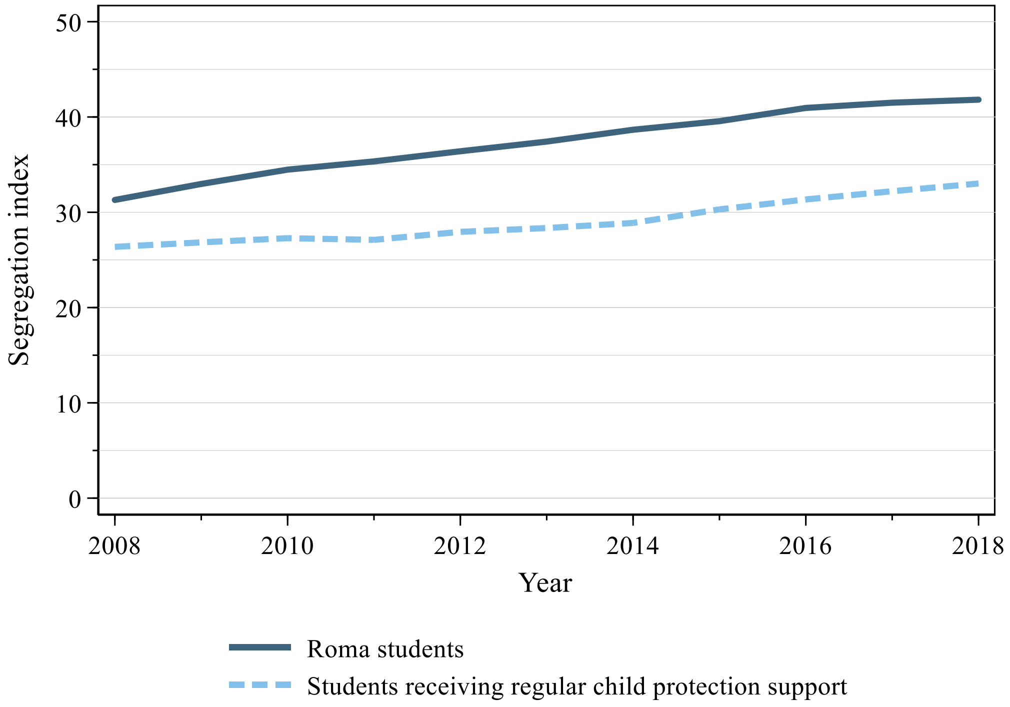

Notes: From September 2013, disadvantaged and cumulatively disadvantaged student status was more strictly regulated. As a result, the share of disadvantaged and cumulatively disadvantaged students declined. The change in the classification may, in itself, have caused an increase in the segregation index.

**Figure 5.2 The dissimilarity index (D) based on KIRSTAT data**



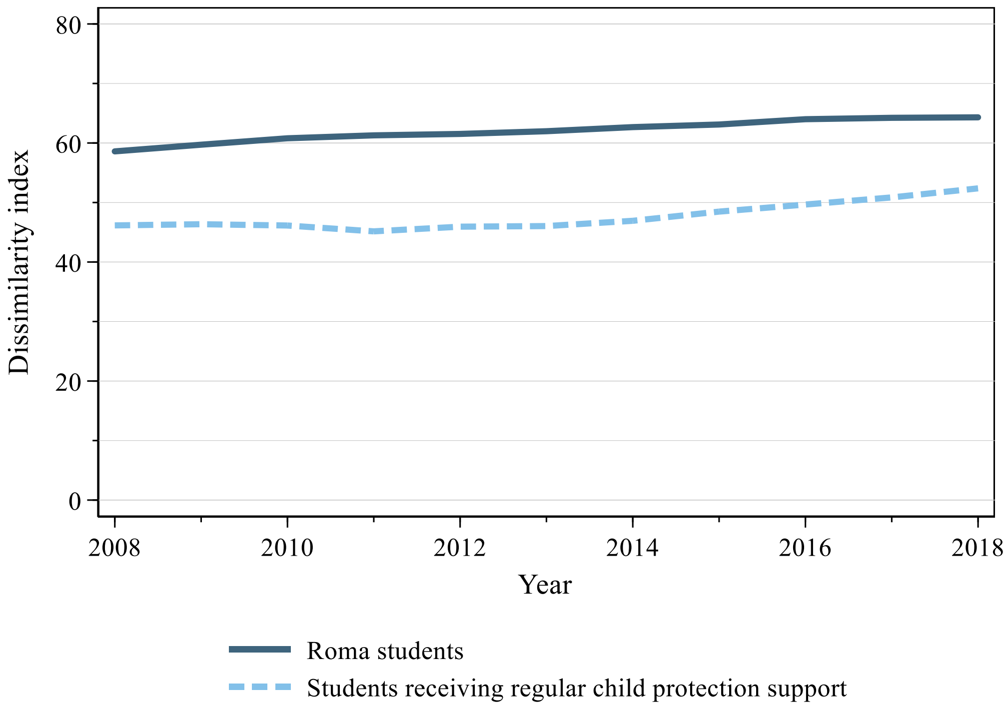

Notes: From September 2013, the disadvantaged and cumulatively disadvantaged student status was more strictly regulated. As a result, the share of disadvantaged and cumulatively disadvantaged students declined. The change in the classification may, in itself, have caused an increase in the dissimilarity index.

**Figure 5.3 The segregation index (S) based on NABC data**



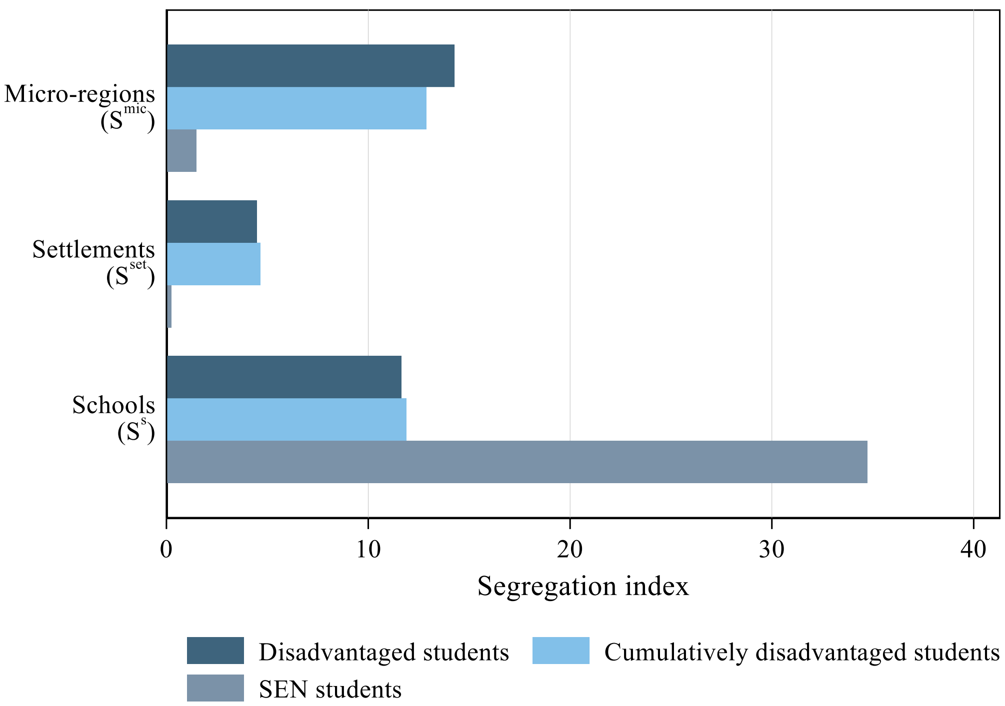

Notes: Based on NABC data that do not contain information on schools designated for SEN students.

**Figure 5.4 The dissimilarity index (D) based on NABC data**



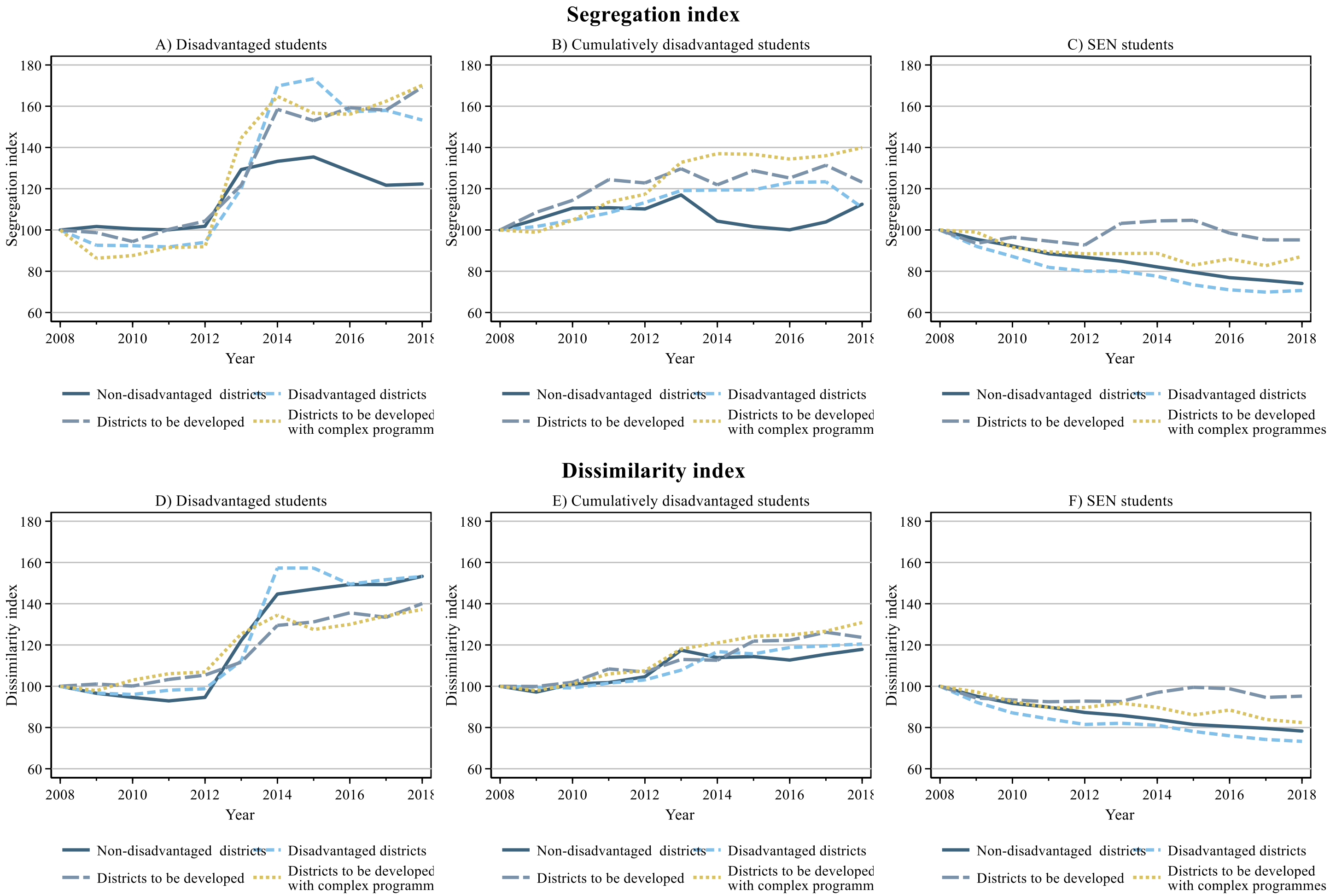

Notes: Based on NABC data that do not contain information on schools designated for SEN students.

**Figure 5.5 Decomposition of the segregation index (S), 2018**




Notes: Village schools are excluded; therefore, settlements consist of cities and towns.

**Figure 5.6 Changes in the segregation index (S) and the dissimilarity index (D) by regional category (2008=100)**




Notes: 2008=100. S and D are calculated for each district and averaged by district categories using N of students as weights. From September 2013, the disadvantaged and cumulatively disadvantaged student status is more strictly regulated. As a result, the share of disadvantaged and cumulatively disadvantaged students declined. The change in the classification may, in itself, have caused an increase in the indices.

# Indicator 6: The ratio of private students

*Indicator 6* measures the ratio of private students as a percentage of full-time students in public education. Two kinds of private students are distinguished: (i) those who are private due to parental initiative/choice, and (ii) those who are private on the basis of the recommendation of an expert committee or medical specialist.

Between 2004 and 2008, the ratio of private students increased from 0.47% to 0.64%, but remained relatively stable after that, until 2015 (*Figure 6.1*). From that date up to 2018, a constant increase is observed. These changes primarily were driven by the ratio of private students who enjoy that status due to parental initiative. The ratio of private students who enjoy this status due to the decision of an expert committee did not change significantly in the period 2004-2018.

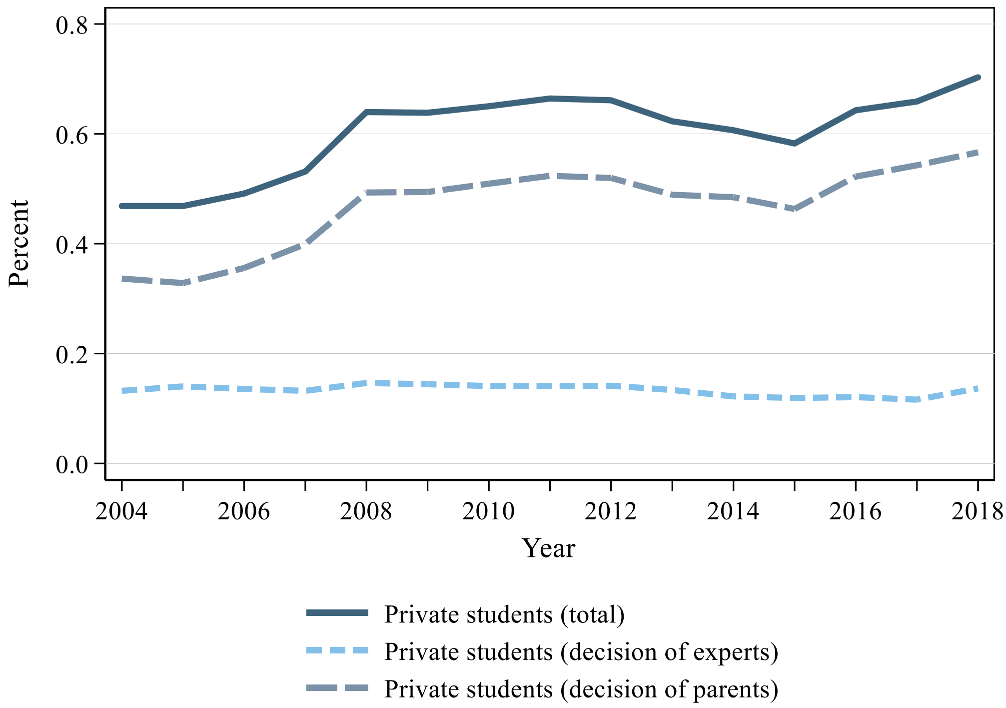
Examining the ratio of private students by program level and school type in 2018, it may be seen that the highest figures in are to be found in primary education (*Figure 6.2*). At the secondary level, the ratio of private students with this status due to the recommendation of an expert committee is more or less similar between the tracks, whereas the ratio of private students due to parental choice is highest in academic secondary schools.

The ratio of private general school students is highest in Nógrád, Baranya, Budapest and Borsod-Abaúj-Zemplén counties, and the lowest in Vas and Győr-Moson-Sopron counties (*Figure 6.3*).

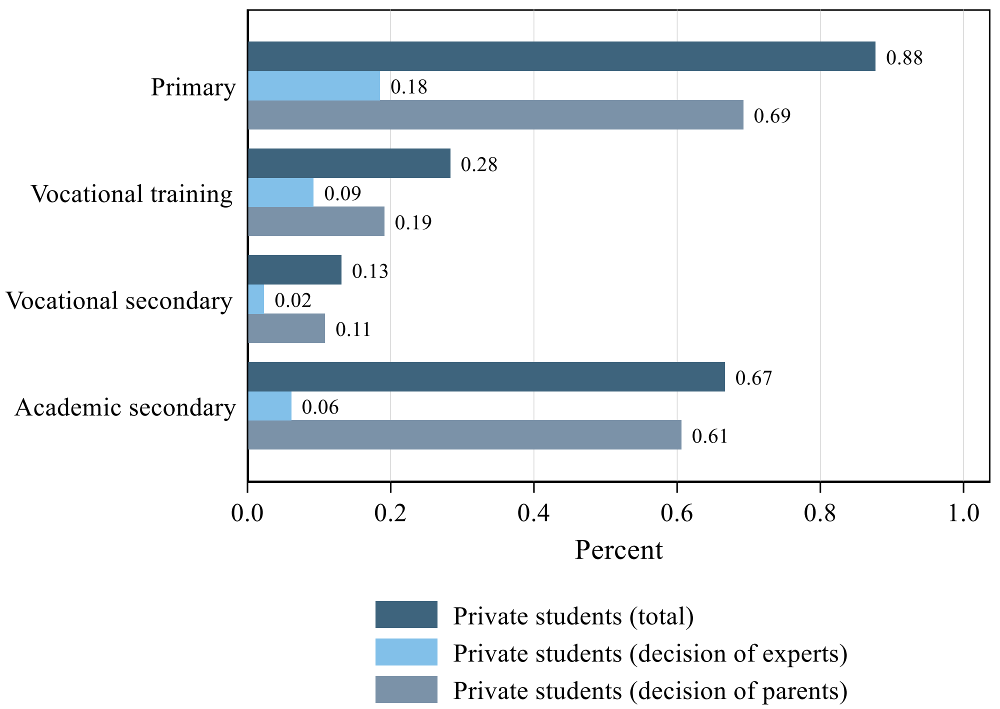
*Figure 6.4* depicts the ratio of private students attending general schools by school provider. Before 2013, virtually no differences can be seen between the trajectories. However, after 2013 there is a large increase in the share of private students in non-public, non-church (other) schools. At the same time a slight but constant decrease can be observed in the church schools founded before 2012 ("old" church schools), which is the opposite of the general national trend.

There are some differences between the trajectories of the ratio of private students in relation to the disadvantaged status of smaller geographic regions in the period 2004-2018 (*Figure 6.5*). The largest increase can be observed in disadvantaged districts and districts to be developed; the ratio of private students, however, changed little in the most disadvantaged districts (districts to be developed with complex programmes).

## Figure 6.1 The ratio of private students

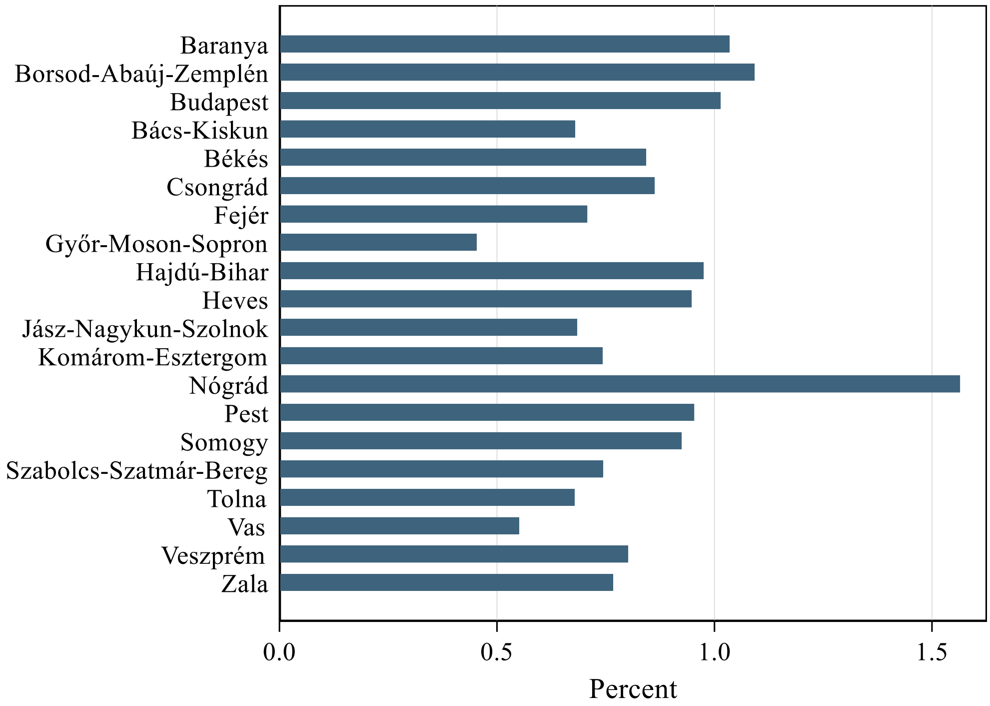



## Figure 6.2 The ratio of private students by school type, 2018



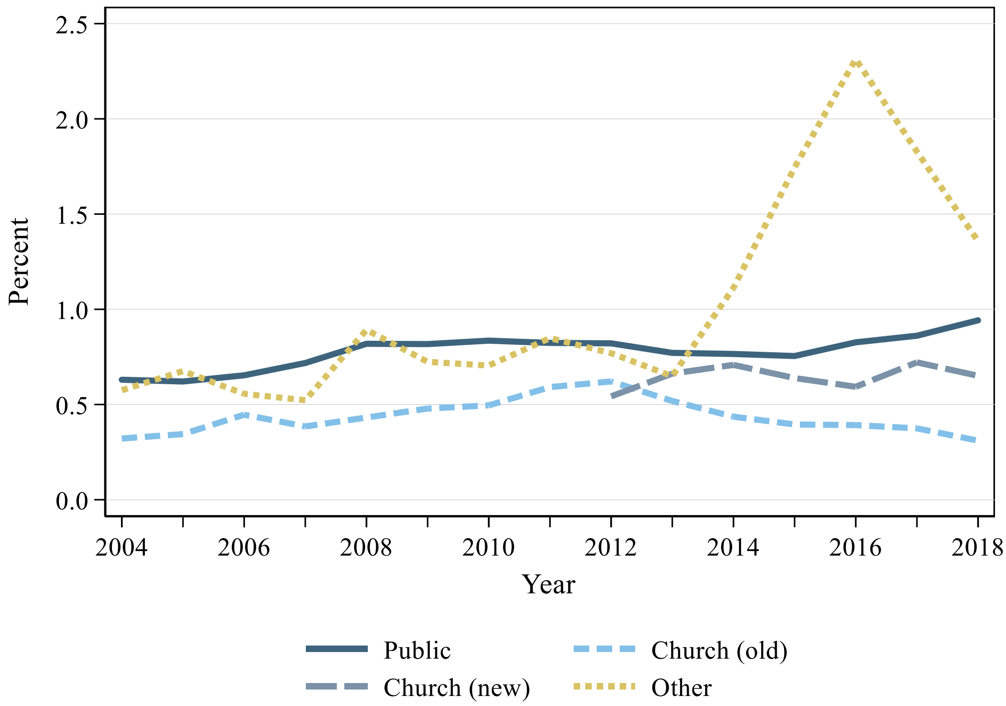

Notes: Students in the 6- and 8-year academic track are in the "academic secondary" category (regardless of their grade level). Special vocational training schools are in the vocational training category.

**Figure 6.3 The ratio of private students in general schools by county, 2018**



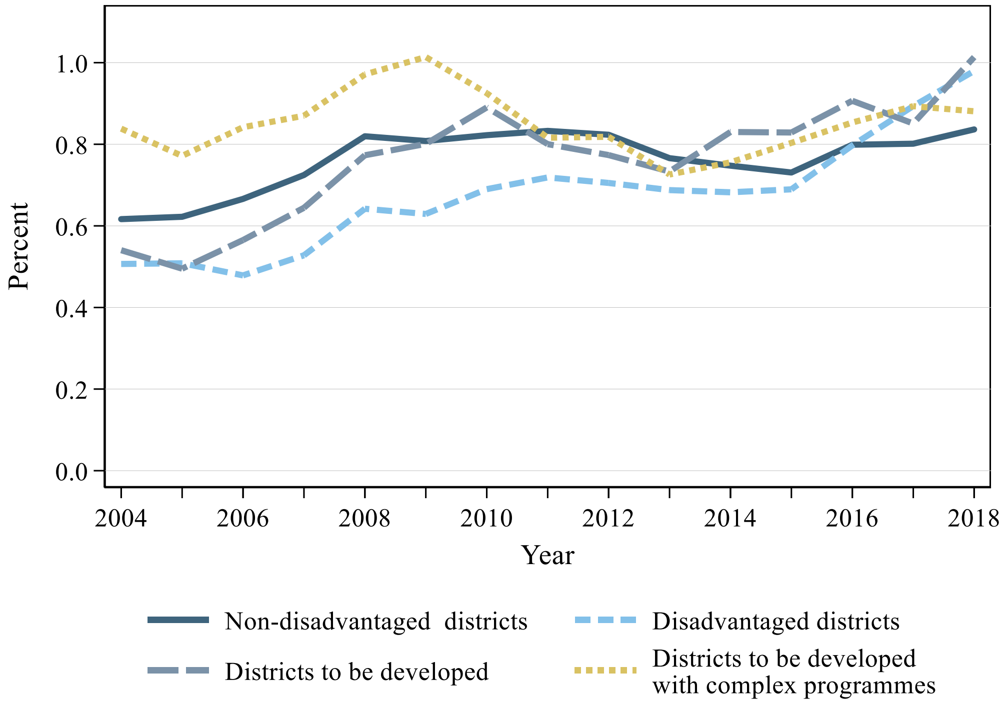

Notes: General school students only.

**Figure 6.4 The ratio of private students in general schools by school provider**




Notes: General school students only. Church (new) = church schools founded in 2012 or later. Church (old) = church schools founded before 2012.

**Figure 6.5 The ratio of private students in General schools by regional category**




Notes: General school students only.

## Indicator 7: The ratio of SEN students receiving special and mainstream education

*Indicator 7* measures the ratio of SEN students as a percentage of full-time students who (i) receive special education and (ii) study in mainstream classes (receive mainstream education).

*Figure 7.1* shows that the percentage of SEN students increased from 3.6% to 6.9% between 2001 and 2018. There is a striking difference between the change in the ratio of SEN students receiving special and mainstream education. In 2001, the percentage share of SEN students receiving mainstream education was 0.7%, but this increased to 4.9% by 2018. Over the same time period, the share of SEN students receiving special education decreased from 3% to 2%, though in the last six years it appears to remain unchanged.

The share of SEN students receiving special and mainstream education differs substantially by school type (*Figure 7.2*). In general schools, 5.4% of all students are SEN students receiving mainstream education and 2.2% are SEN students receiving special education while the share of SEN students is below 1% in the 6- and 8-year academic tracks, and all of them receive mainstream education. At the secondary level, the share of SEN students receiving special education is 0% or almost 0% in the academic tracks, and in vocational secondary schools, whereas this figure reaches 9.4% in vocational training schools. The share of SEN students receiving mainstream education is much higher (10%) in vocational training schools than in other tracks, where it varies between 1% and 4%.[17]

Examining the indicator according to grade level, one can see that the share of SEN students on a special educational program is quite stable from grades 1 to 8 (around 2%, slightly higher in the higher grades), but the share of SEN students receiving mainstream education increases by around 50% between grades 1 and 8: 3.9% in grade 1 and 5.9% in grade 8 (*Figure 7.3*). Screening and diagnosing the SEN students can be challenging and requires expertise and time, and some of the SEN students are not identified during the preschool years, but only later, during their first years of general school. This might be the main reason why the total share of the SEN students increases until grades 5-6, then levels off after that until grade 8. There is a large change after the primary level. From grade 8 to grade 9, the share of SEN students falls

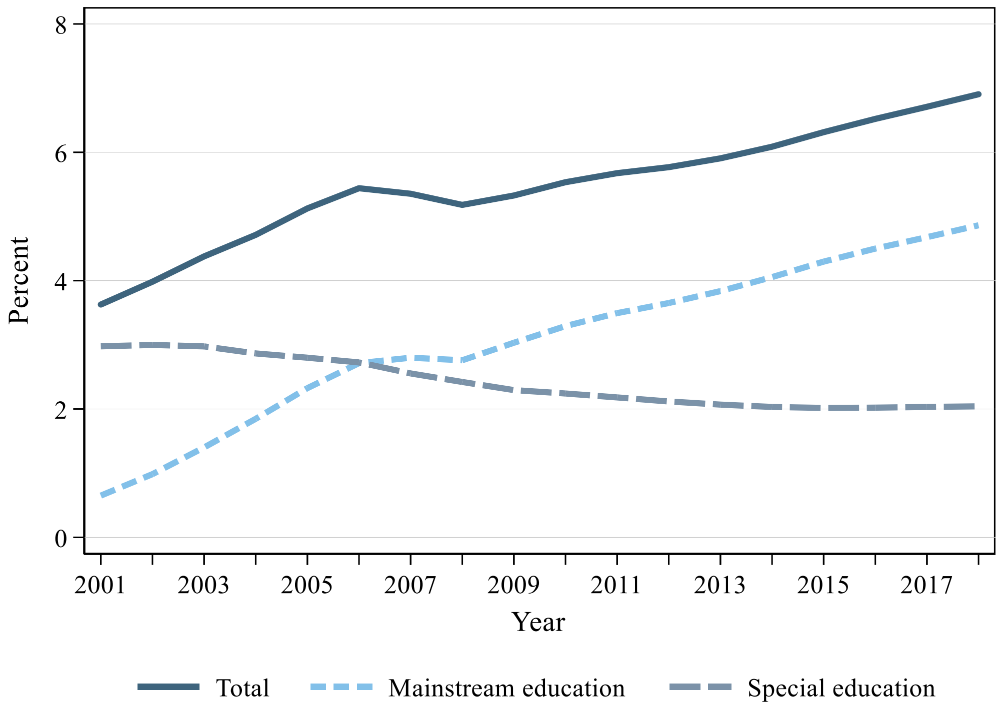
[17] Except the special vocational training schools, where the share of SEN students receiving mainstream education is 0%, as, "by definition", all students receive special education.

slightly (by 0.6 percentage points), but there is a considerable difference between the changes in the shares of SEN students receiving mainstream and special education. The share of SEN students on a special educational program becomes larger (2.4% vs. 3.1%), whereas the share of SEN students receiving mainstream education becomes lower (5.9% vs. 4.5%). These changes suggest that some SEN students who received mainstream education at the primary and lower secondary level receive special education at the upper secondary level. The decreasing share of SEN students on a special educational program after grade 9 might be caused by dropping out or grade repetition.

A substantial difference in the share of SEN students by school providers among the general school level students in 2018 is also observable (*Figure 7.4*). The share of SEN students receiving special education is lowest in church schools. The percentage share of SEN general school students receiving special education is below 1% in church schools, whereas it is above 2% in the public schools and "other" (non-public, non-church) schools, respectively. However, there is a difference between church schools founded before 2012 and in or after 2012 in terms of share of SEN students receiving mainstream education. Newly founded church schools have a similar share of SEN students receiving mainstream education than public schools and "other" (non-public, non-church) schools, whereas "old" church schools have a lower share.

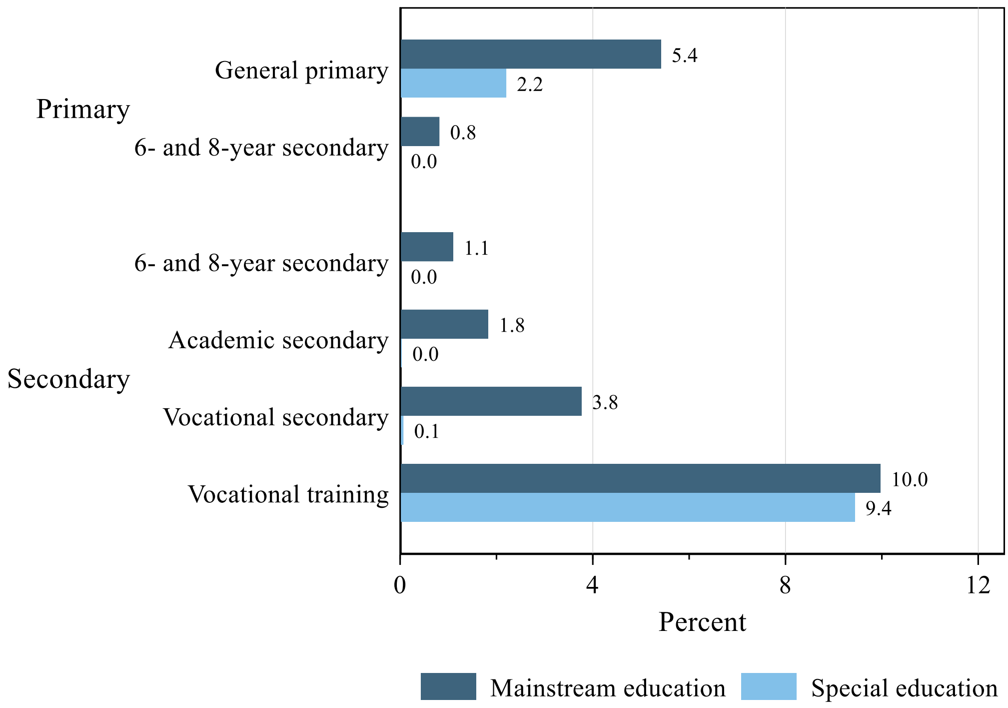
Looking at the ratio of SEN students receiving special and mainstream education by the disadvantaged status of smaller geographic regions, a larger increase is to be seen in the ratio of SEN students receiving mainstream education in the three categories of disadvantaged districts than in non-disadvantaged districts between 2001 and 2018 (*Figure 7.5*). The decrease in SEN students receiving special education is larger in the disadvantaged regions.

**Figure 7.1 The ratio of SEN students receiving special and mainstream education**




Notes: as a percentage of full-time students

**Figure 7.2 The ratio of SEN students receiving special and mainstream education by school type, 2018**




Notes: Special vocational training schools are in the vocational training category.

**Figure 7.3 The ratio of SEN students receiving special and mainstream education by grade, 2018**

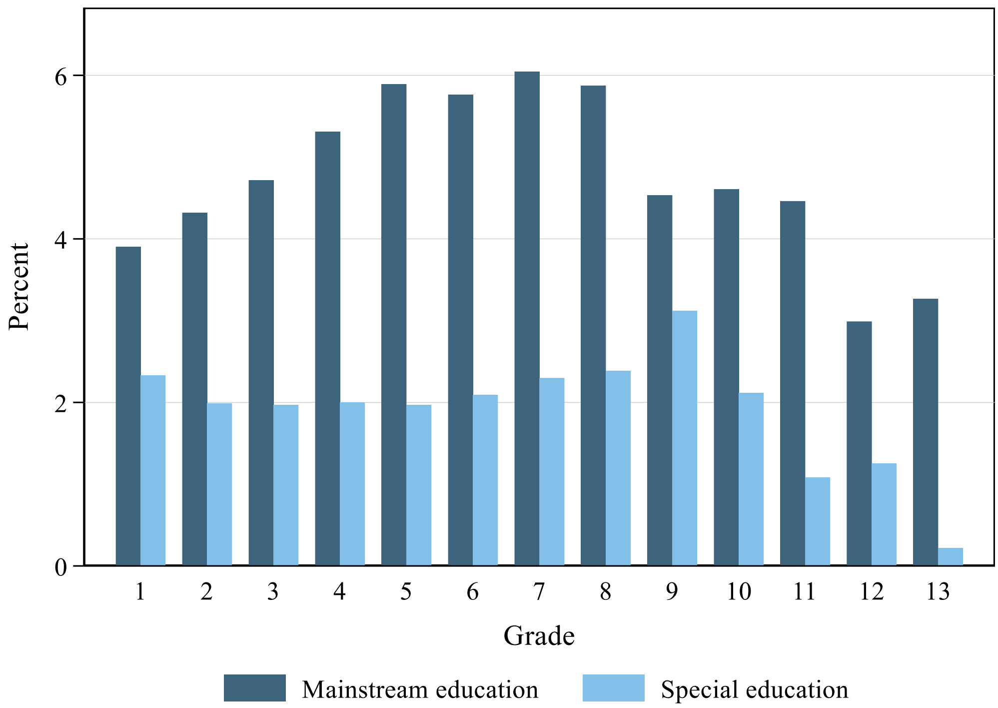
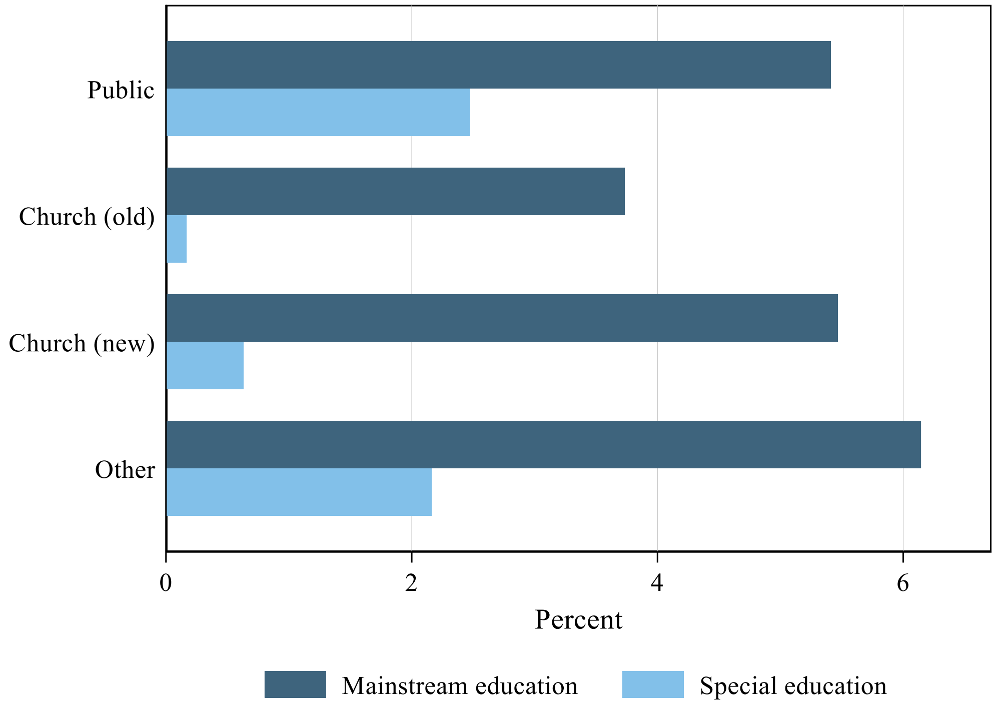
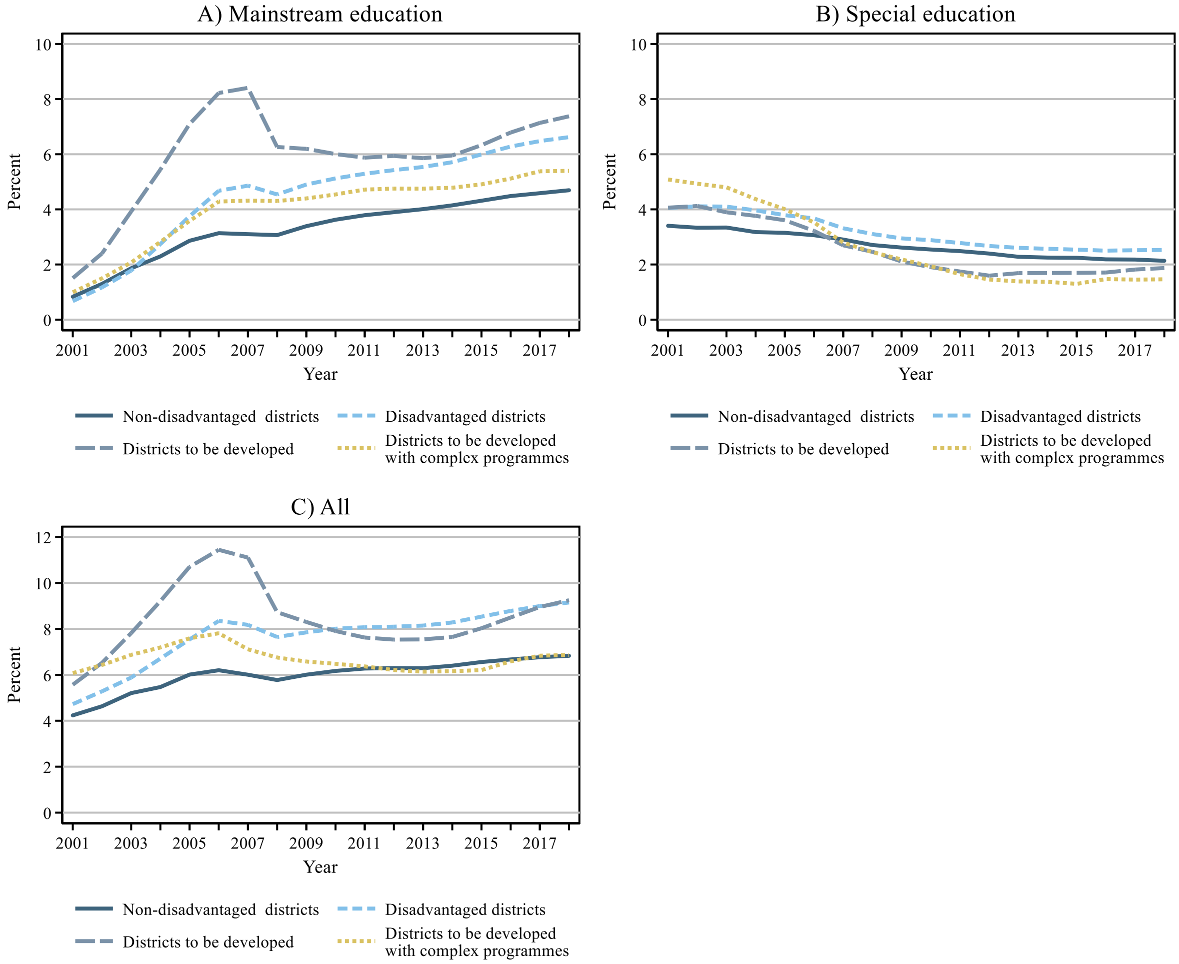


**Figure 7.4 The ratio of SEN students receiving special and mainstream education by school provider, 2018 (general school level)**




Notes: General school level only. Church (new) = church schools founded in 2012 or later. Church (old) = church schools founded before 2012.

## Figure 7.5 The ratio of SEN students receiving special and mainstream education by regional category (general school level)




Notes: General school level only.

## Indicator 8: The share of disadvantaged and cumulatively disadvantaged students in public education

*Indicator 8* shows the share of disadvantaged and cumulatively disadvantaged students in public education as a percentage of full-time students.

*Figure 8.1* shows changes in the share of disadvantaged and cumulatively disadvantaged students between 2008 and 2018. There was a sharp decrease in the share of disadvantaged students following 2012, most likely as a consequence of the changes in the official classification of students in the disadvantaged and cumulatively disadvantaged categories. From September 2013, the status of 'disadvantaged student' is more strictly regulated: students are required to meet stricter criteria to be classified as disadvantaged or cumulatively disadvantaged. As a result, at the primary level, the share of disadvantaged students declined from 34% to 17% between 2012 and 2014 (i.e. a decline of around 50%), whereas the share of cumulatively disadvantaged students decreased from 13% to 10% (i.e. a decrease of around 25%). Both shares decreased slightly further during the following years. In 2018, the share of disadvantaged students was 14% and the share of cumulatively disadvantaged students was 7%.

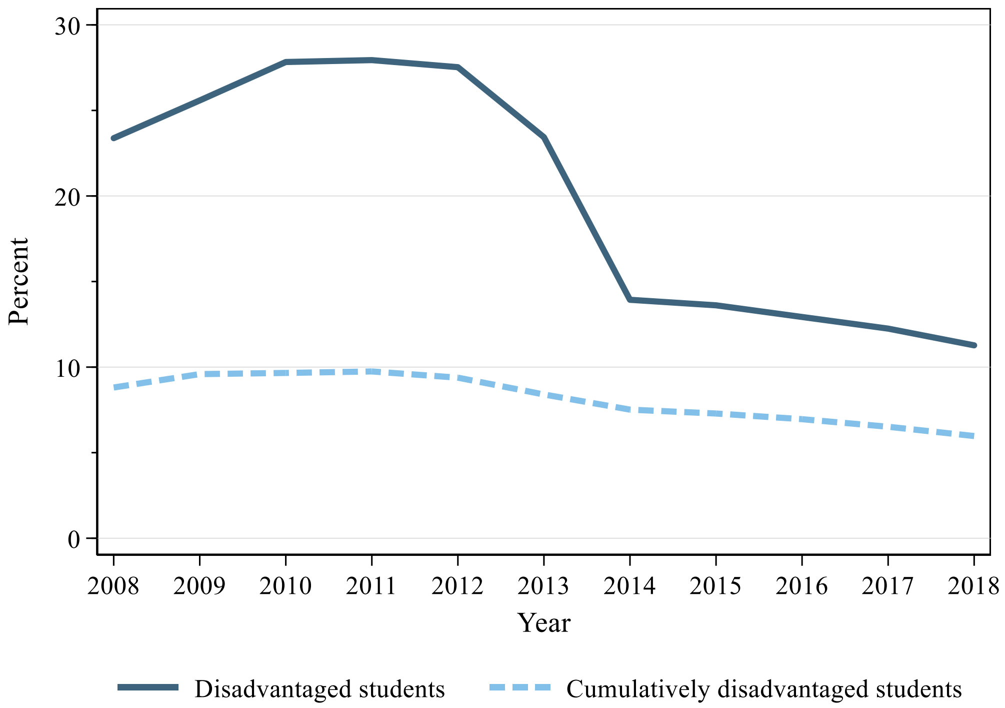
*Figure 8.2* depicts the shares by program level and school types. One can observe a drop in the share of disadvantaged students in all school types after the changes in the official classification. After 2014 the share of disadvantaged students levelled off in vocational training schools, indicating that the probability of following secondary school studies in vocational schools had increased more for disadvantaged students than for other students since in total the share of disadvantaged students decreased. Similar trajectories may be observed in the share of cumulatively disadvantaged students in primary level education. However, the share of cumulatively disadvantaged students did not change substantially in secondary level education in the period of 2008-2018. In the vocational training track even a slight increase can be observed. Again, this indicates that the probability of following secondary school studies in vocational schools had increased more for disadvantaged students than for other students.

*Figure 8.3* examines the differences between regional categories. Not surprisingly, the shares of disadvantaged and cumulatively disadvantaged students (in the primary level) are the largest in the most disadvantaged districts (i.e. districts to be developed with complex programmes), and the lowest in non-disadvantaged districts.

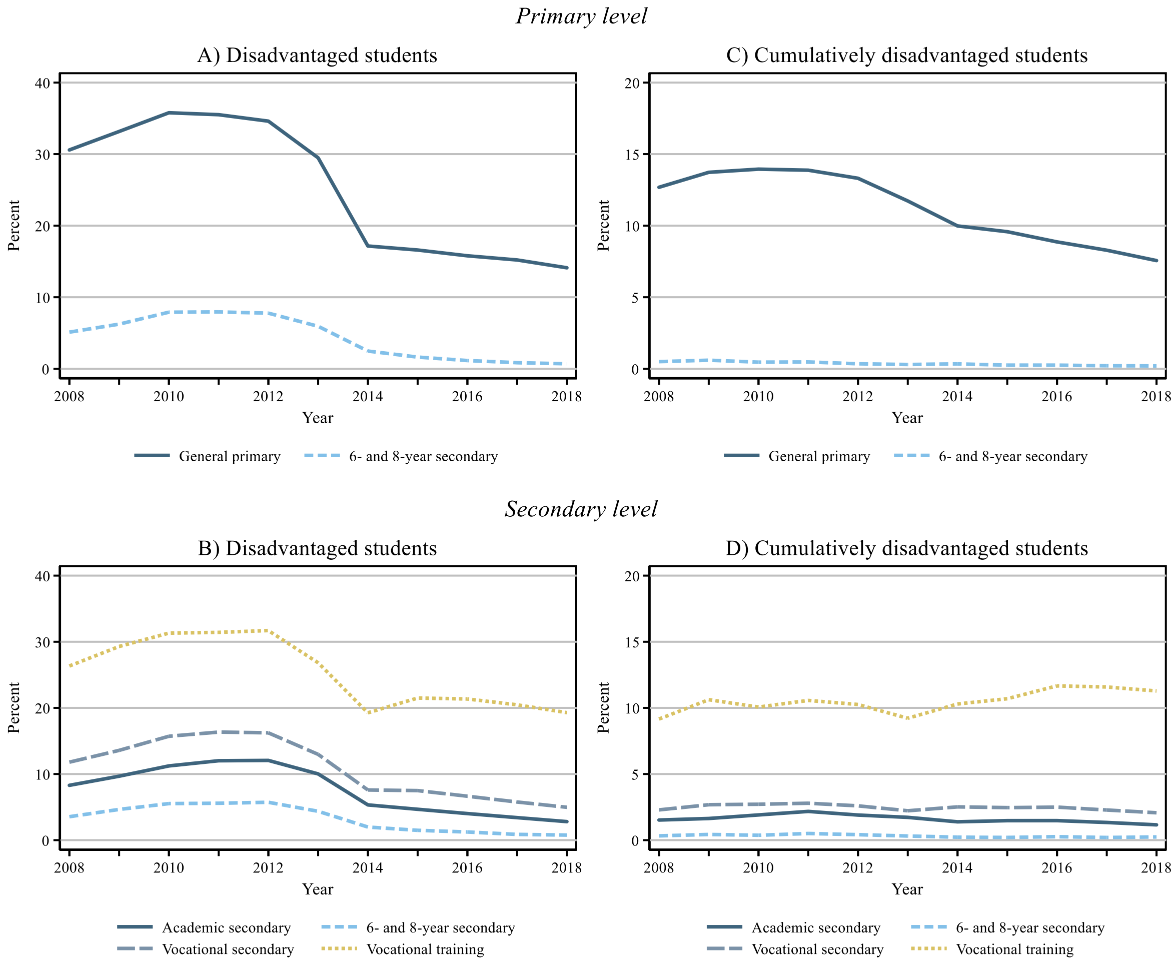
Among students in the general school level, there is a sizeable difference by school provider (*Figure 8.4*). The shares of disadvantaged and cumulatively disadvantaged students are the largest in church schools founded in 2012 or later ("new" church schools), and the lowest in church schools founded before 2012 ("old" church schools). After 2014, the general trend is the decline in the share of disadvantaged and cumulatively disadvantaged students. However, non-public, non-church schools seem to be exceptions, and in these the shares increased substantially in the period of 2014-2018.

*Figure 8.5* shows the share of disadvantaged and cumulatively disadvantaged students by grade (in 2018). The shares of these students are basically equal between grades 1 and 7. In grade 8 a slight drop can be observed. However, the largest change is after the general school level. There are significantly lower shares of disadvantaged and cumulatively disadvantaged students at the secondary level. Going from grades 8 to 9, the share of disadvantaged students falls by 1.3 percentage points (9.1% vs. 7.8%), whereas the share of cumulatively disadvantaged students becomes 1 percentage point lower (5.0% vs. 4.0%).

**Figure 8.1 The share of disadvantaged and cumulatively disadvantaged students in public education**

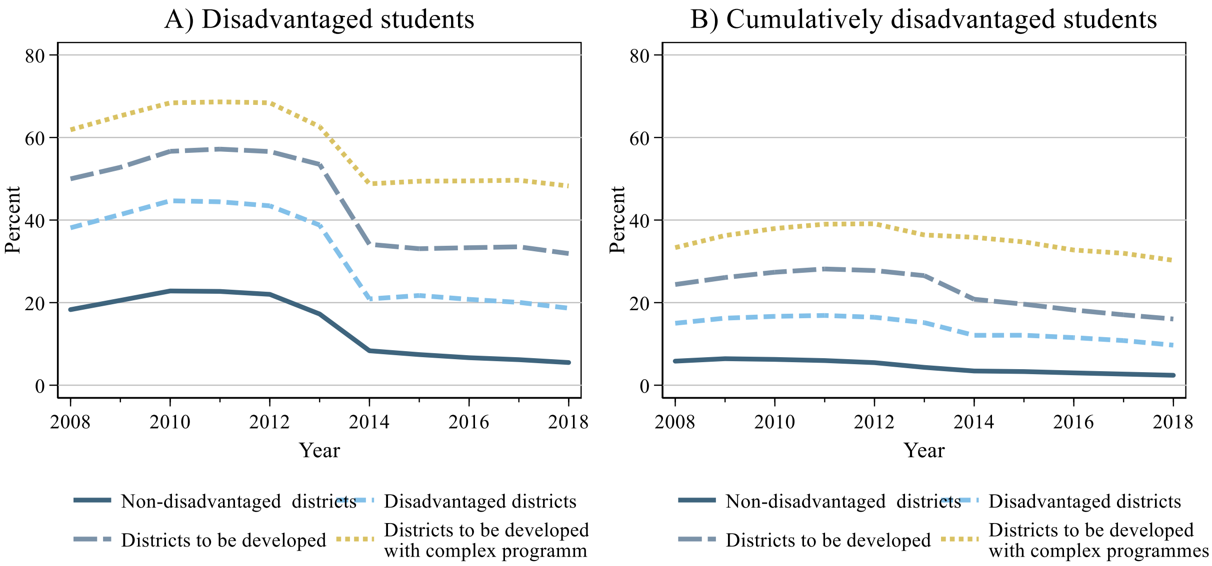


## Figure 8.2 The share of disadvantaged and cumulatively disadvantaged students by school type



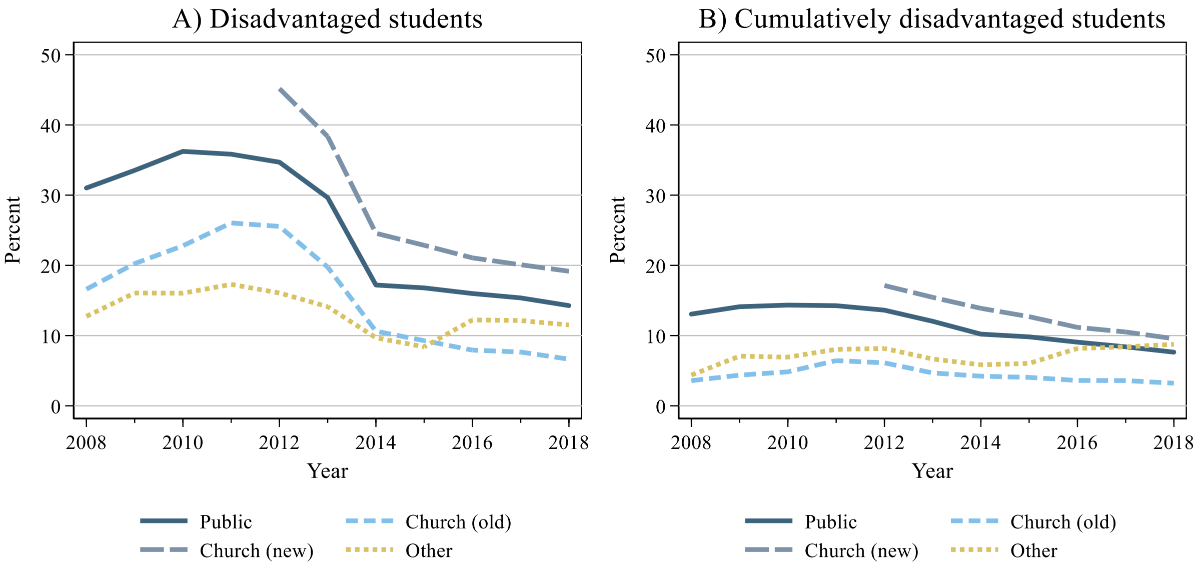

Notes: Special vocational training schools are in the vocational training category.

**Figure 8.3 The share of disadvantaged and cumulatively disadvantaged students by regional category (general school level)**



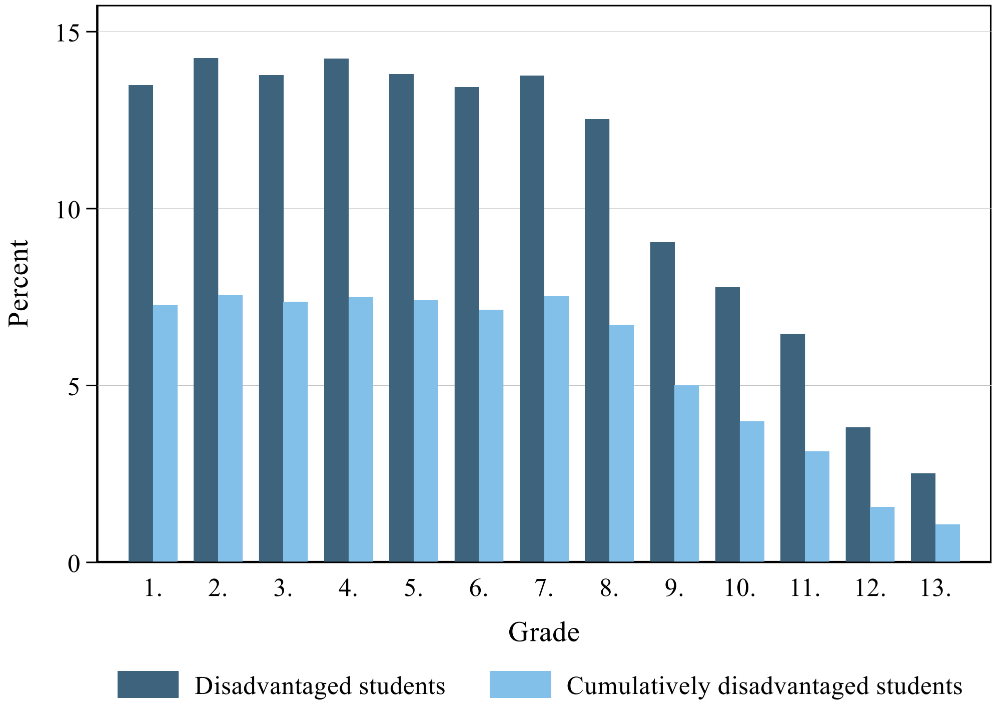

Notes: General school level only.

**Figure 8.4 The share of disadvantaged and cumulatively disadvantaged students by school provider (general school level)**




Notes: General school level only. Church (new) = church schools founded in 2012 or later. Church (old) = church schools founded before 2012.

**Figure 8.5 The share of disadvantaged and cumulatively disadvantaged students by grade, 2018**



# Indicator 9: The share of disadvantaged and cumulatively disadvantaged students among applicants to higher education

*Indicator 98* shows the share of disadvantaged and cumulatively disadvantaged students among applicants to higher education.  The indicator was calculated using the same two methods as for Indicators 3 and 4, using data from a different sample of the applicants in the different calculations. First, data was used for all admission rounds, that is, for all applicants who applied for higher vocational training, or to BA or undivided programmes, i.e. those who applied for their first degree in both full time and part time education. Second, data from the autumn, or "normal" round of applicants was used; these were students who had passed the matriculation exam in the year of application, and who applied for higher vocational training, or to BA or so-called undivided *("Osztatlan")* programmes both in full-time and part-time education.

*Figure 9.1* shows the share of disadvantaged and cumulatively disadvantaged students among applicants to higher education using the two samples described above.

Between 2007 and 2011, the share of disadvantaged and cumulatively disadvantaged students among applicants increased in both samples. In 2012 the share of disadvantaged students among all applicants (all admission procedures) was about 7 percent, while among students who made their application via the 'Normal' admissions procedure, the share was about 10 percent. This difference reflects the fact that disadvantaged, and cumulatively disadvantaged students were less likely to make an application in the second and third admission rounds. After 2012, there was a sharp decline in the share of disadvantaged and cumulatively disadvantaged students among applicants. By 2017, the ratio of disadvantaged and cumulatively disadvantaged applicants among all applicants was only 1.0. percent and among applicants who applied in the 'Normal' admission round and who had passed their matriculation exam in the year of application was 2 percent.

Between 2007 and 2013 a larger share of disadvantaged female students applied to higher education than male students, but after 2013 the decrease in this share was sharper for women than for men. In 2017 the ratio of disadvantaged and cumulatively disadvantaged students was 0.9 percent for female and 1.1 percent for male students (*Figure 9.2.*).

Between 2007 and 2012, there was a slight difference in the share of applicants of disadvantaged students by secondary school type (*Figure98.3.*). Among applicants who had finished their secondary school studies in a vocational secondary school, the share of disadvantaged and cumulatively disadvantaged students was higher than among applicants who had finished their secondary school studies in an academic secondary school, but following 2012, this difference disappeared. In 2017 only 1.2 percent of applicants from vocational secondary schools and 1.2 percent of applicants from academic secondary schools were disadvantaged or cumulatively disadvantaged.

**Figure 9.1 The share of disadvantaged and cumulatively disadvantaged students among applicants to higher education (%)**

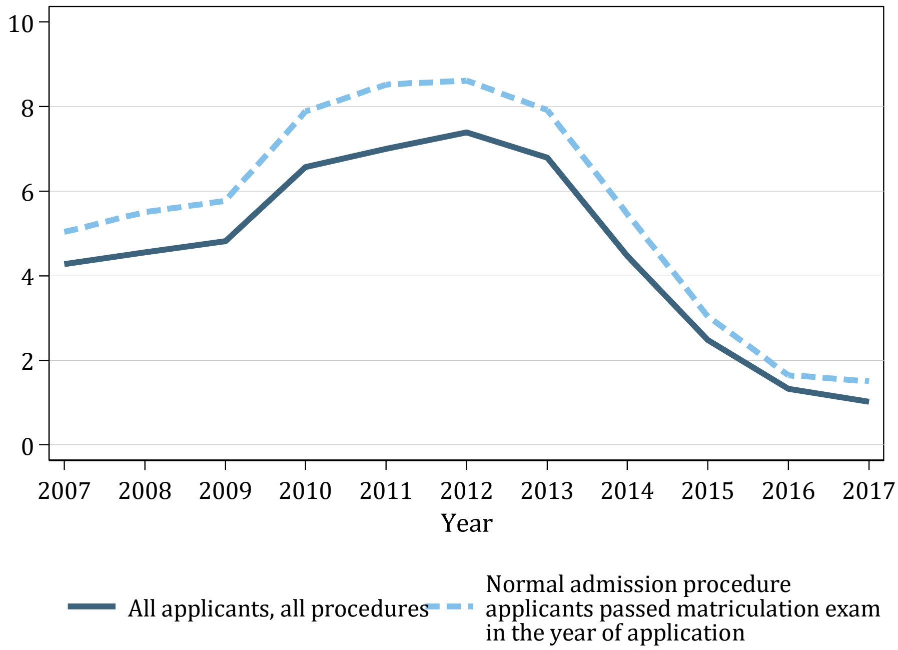


**Figure 9.2. The share of disadvantaged and cumulatively disadvantaged students among applicants to higher education by gender, all procedures, all students (%)**

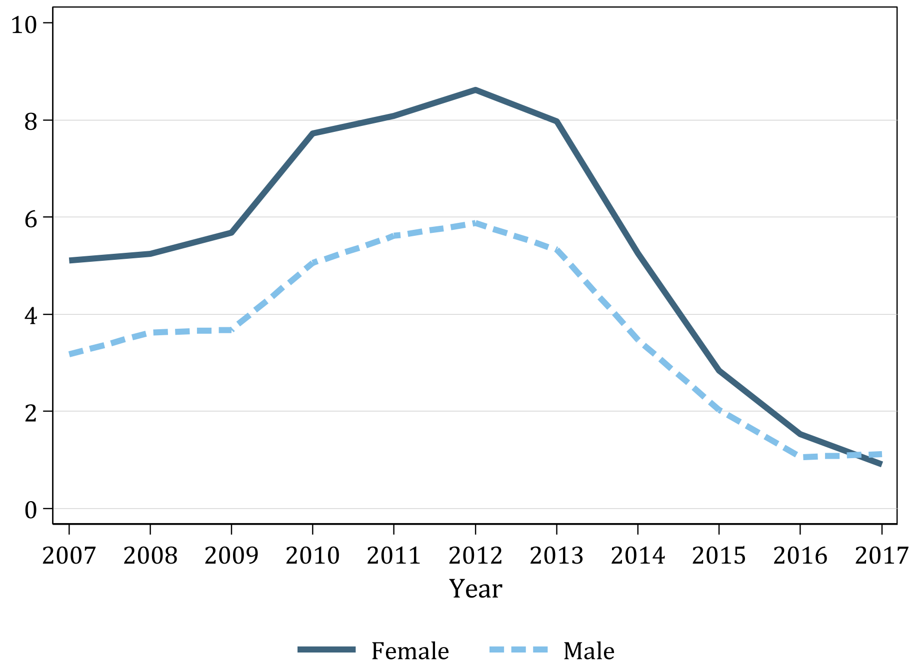
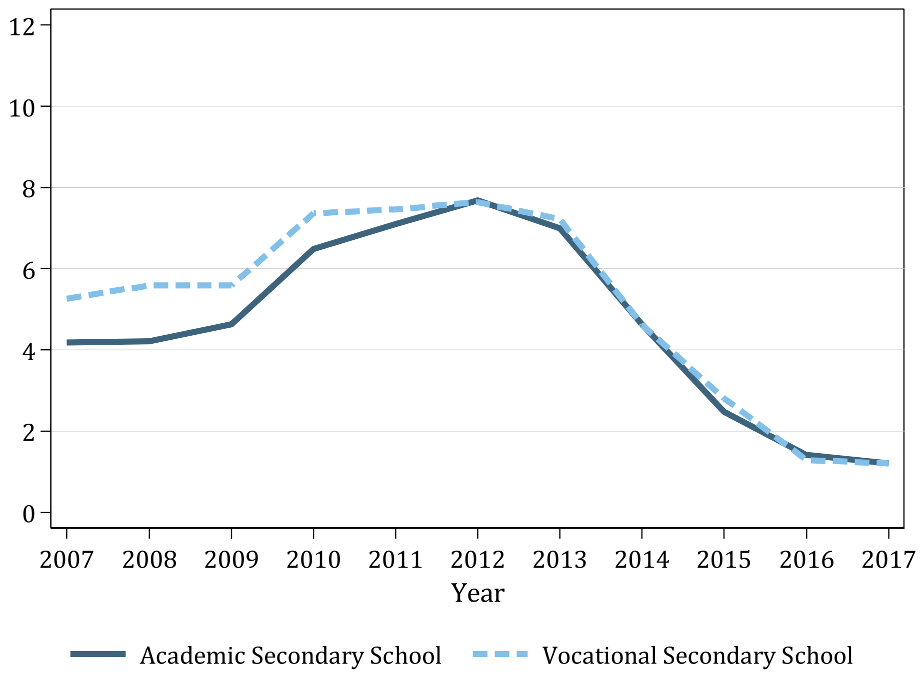



**Figure 9.3. The share of disadvantaged and cumulatively disadvantaged students among applicants to higher education by type of secondary school, all procedures, all students (%)**



# Indicator 10: The share of disadvantaged and cumulatively disadvantaged students among those admitted to higher education

*Indicator 10* shows the share of disadvantaged and cumulatively disadvantaged students among students admitted to higher education.

After 2012, the share of disadvantaged and cumulatively disadvantaged students fell steadily, and by 2017 only 1.4 percent among all admitted students and 1.4 percent of admitted students who had passed their matriculation exam in the year of application were from a disadvantaged or cumulatively disadvantaged background *(Figure 101)* The decrease is much more significant than it could be expected based on the general development of share of disadvantaged students in public education (see Figure 8.1)

In 2017 the previously visible difference by gender all but disappeared, and among all admitted male students 1.2 percent were disadvantaged or cumulatively disadvantaged, while among admitted female students 1 percent were from this background (*Figure 10.2*). There was no difference by type of secondary schools in the share of disadvantaged students among students admitted (*Figure 10.3).*

**Figure 10.1 The share of disadvantaged and cumulatively disadvantaged students among those admitted to higher education (%)**

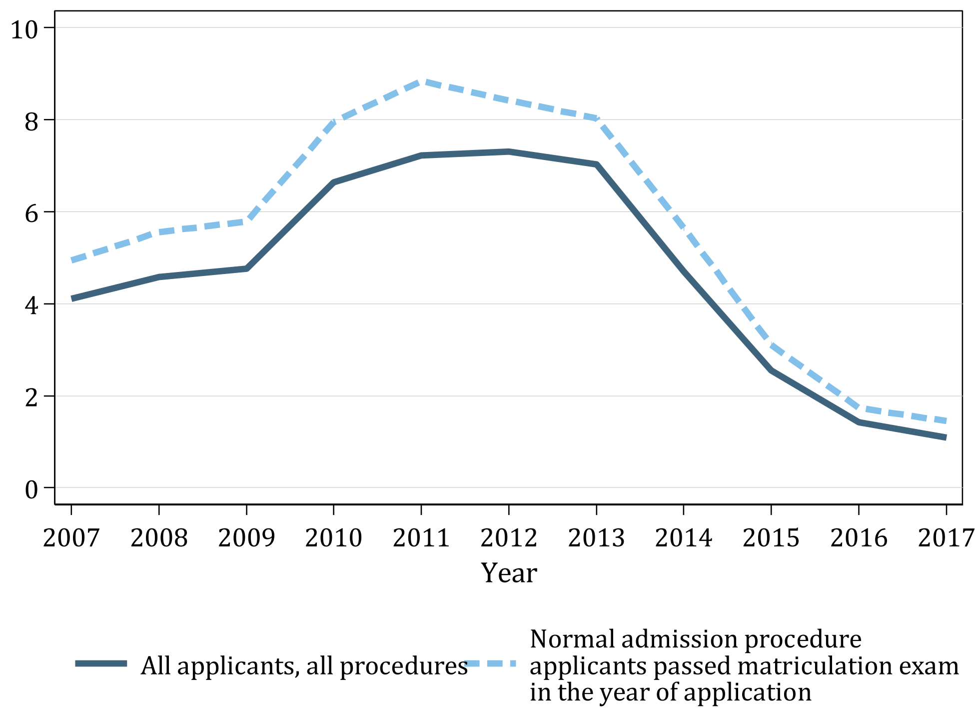


**Figure 10.2. The share by gender of disadvantaged and cumulatively disadvantaged students among those admitted to higher education, all procedures, all students (%)**

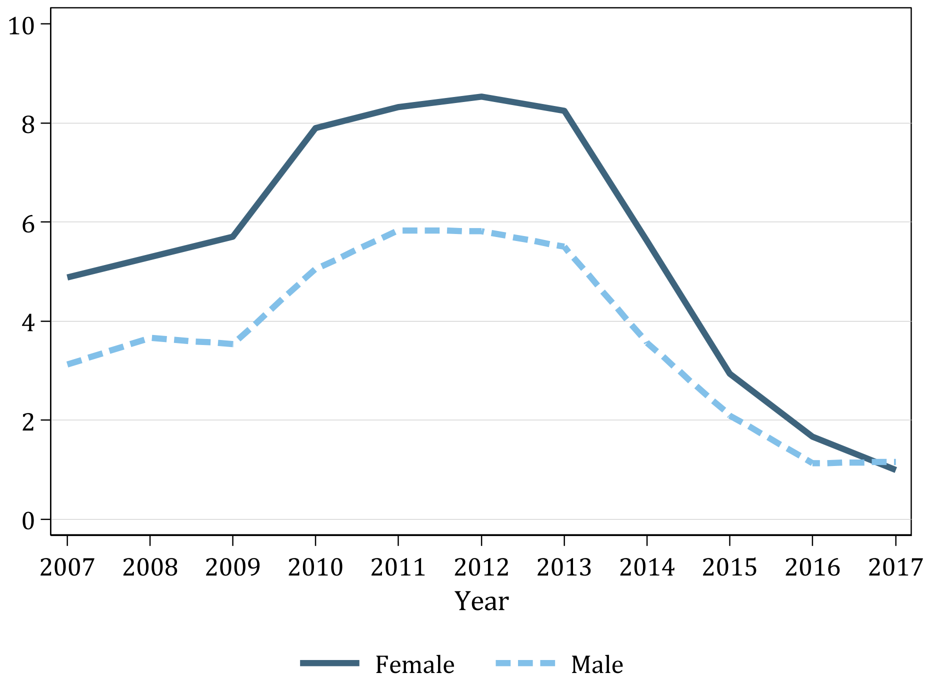
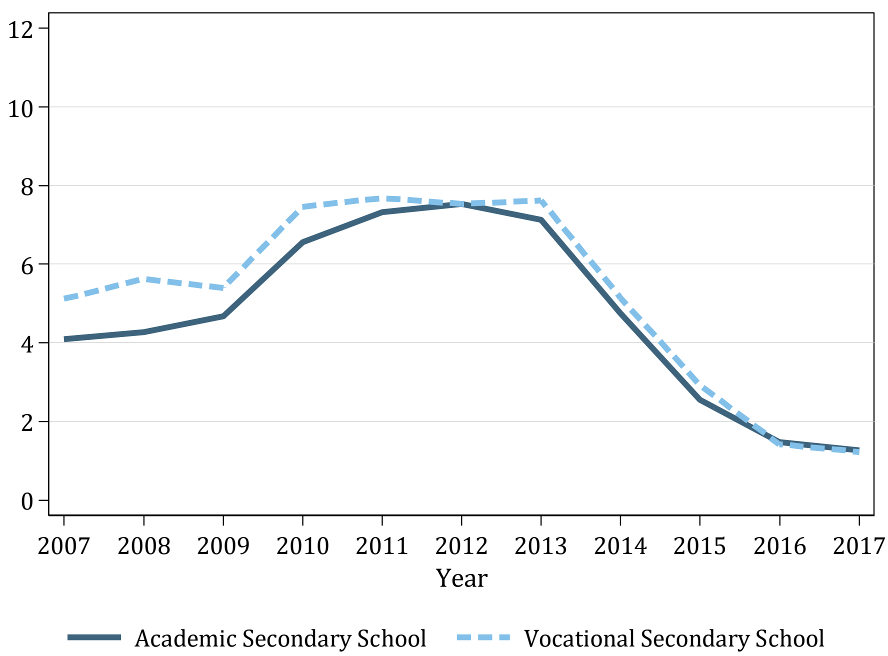



**Figure 10.3. The share of disadvantaged and cumulatively disadvantaged students among those admitted to higher education by type of secondary school, all procedures, all students (%)**



## Indicator 11: The share of Roma students

Indicator 11, the share of Roma students, is based on the approximations of Hungarian school principals. In the site-level background questionnaire of the National Assessment of Basic Competencies all principals are asked to give an approximation of the share of Roma students within the different educational programs offered on the given school site. Obviously, this is a highly subjective measure that must be evaluated with care. However, the time trend of this indicator might offer an insight into the processes concerning the share of Roma pupils within the different programs.

*Figure 11.1* shows that in the General schools the share of Roma has been quite stable over the observed 10 years. As the average size of the General school sites does not change rapidly, this indicates that the proportion of the Roma population within this age cohort is quite stable. On the other hand, as can be seen in *Figure 11.1*, the share of Roma students in the vocational training schools has increased by more than 50% from 18.5% in 2008 to around 28% in 2015. This is most likely due to the decreasing size of the vocational training school sites. That is, if the number of Roma students within the vocational training schools was stable over those 10 years, while the number of non-Roma within this school type decreased, this could have resulted in an increasing share of Roma students within the average school site.

*Figure 11.2* depicts the same shares across school operators in general schools. Apparently, state operated general schools have a higher share of Roma than church schools established before 2013; church schools established after 2013, however, have an even higher share of Roma than that of the state schools. The share of Roma in general schools operated by other entities (foundation, private, etc.) fluctuates quite rapidly, due mainly to the low number of such schools, but it is also true that there is an increasing share of Roma within this type of general school.

State and church operated academic schools have much lower shares of Roma than academic schools operated by other entities (*Figure 11.3*), but the share of Roma in vocational secondary schools is not very different across school operators (*Figure 11.4*). It is also much lower than in vocational training schools (*Figure 11.5*), where the state schools have on average 10 percentage point fewer Roma than church schools or schools operated by other entities.

Figure 11.6 and 11.7 shows the ratio of schools with more than 50% of Roma students. Overall the ratio of these schools has increased from just over 9% to over 13%, which is a 6-percentage point increase. This increase is due to the increase of state schools and schools operated by other entities that have majority Roma student population.

**Figure 11.1. Share of Roma students by school type, percent**

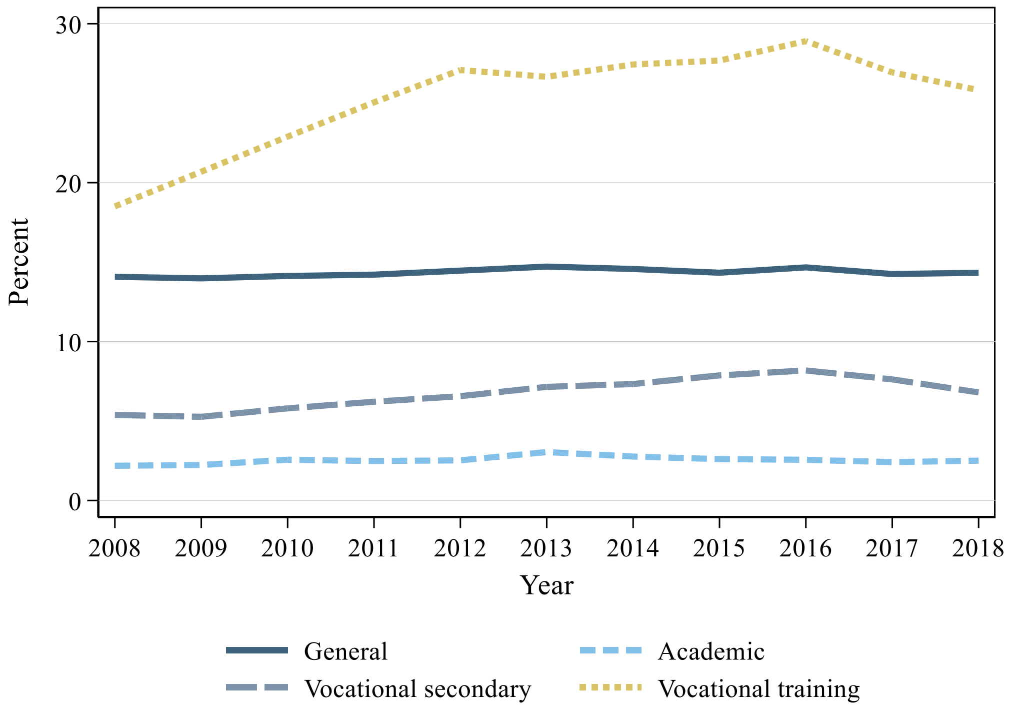



**Figure 11.2. Share of Roma students by school operator in general schools, percent**

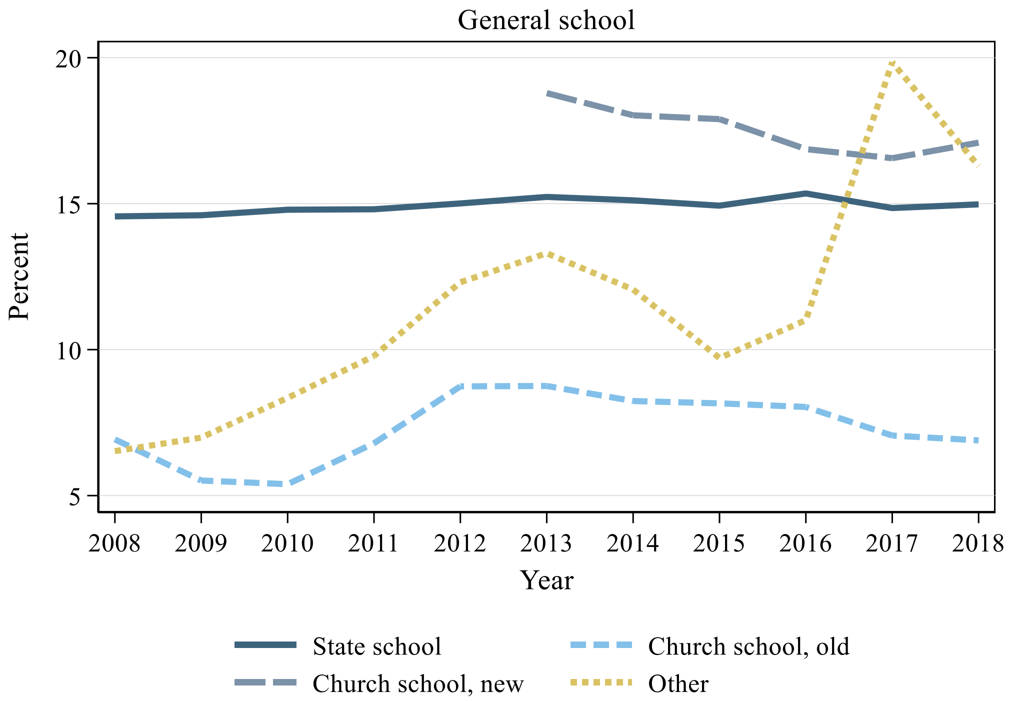


**Figure 11.3. Share of Roma students by school operator in academic schools, percent**

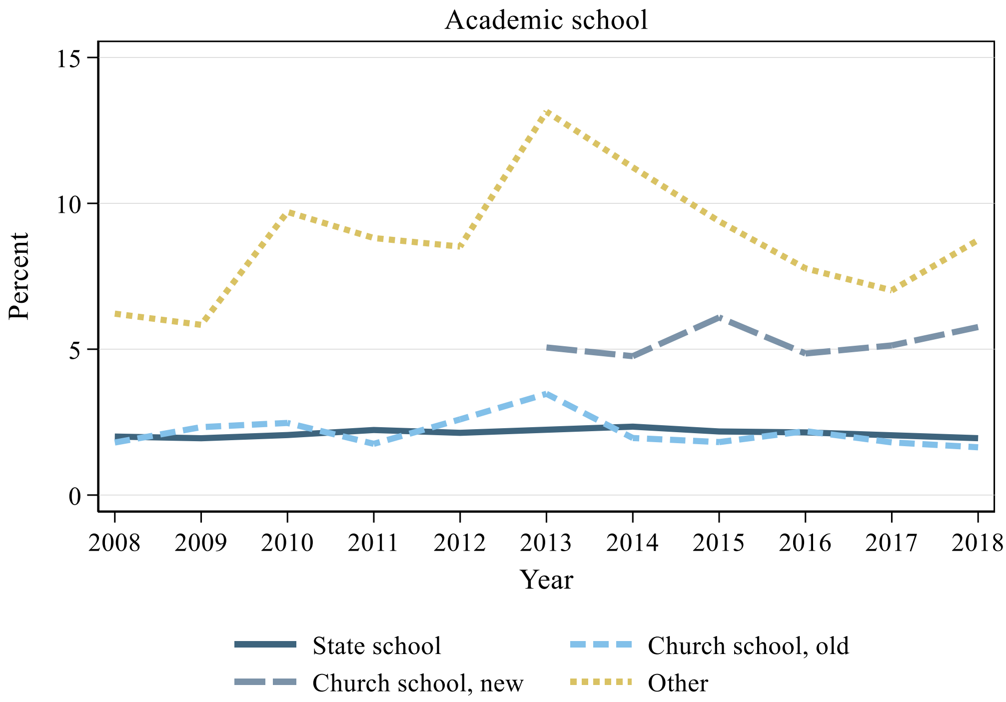



**Figure 11.4. Share of Roma students by school operator in vocational secondary schools, percent**

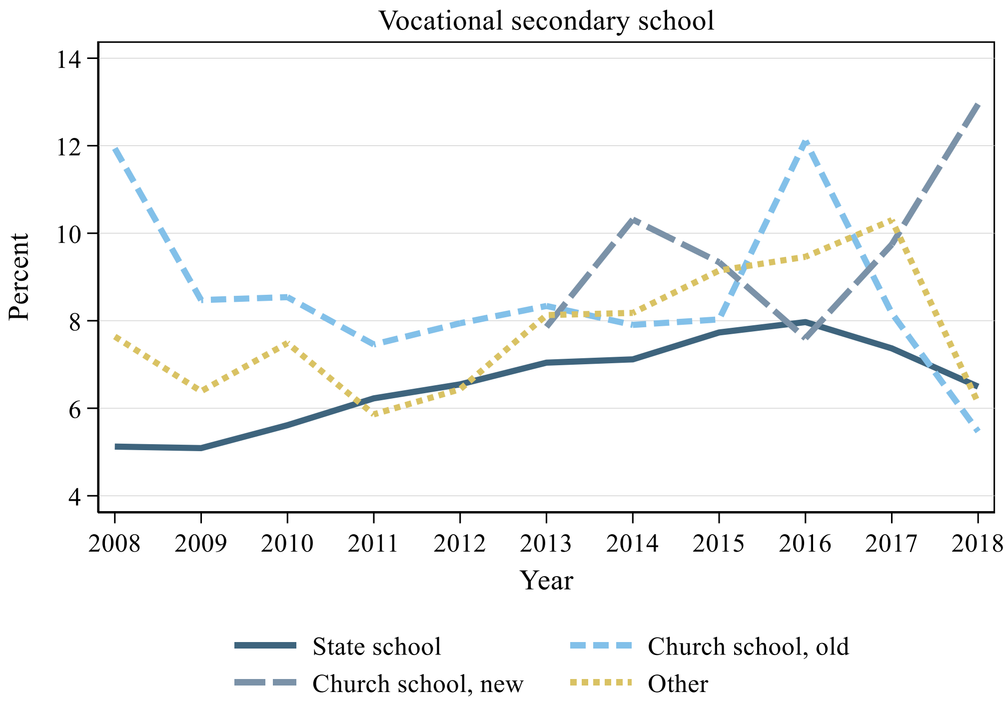


**Figure 11.5. Share of Roma students by school operator in vocational training schools, percent**

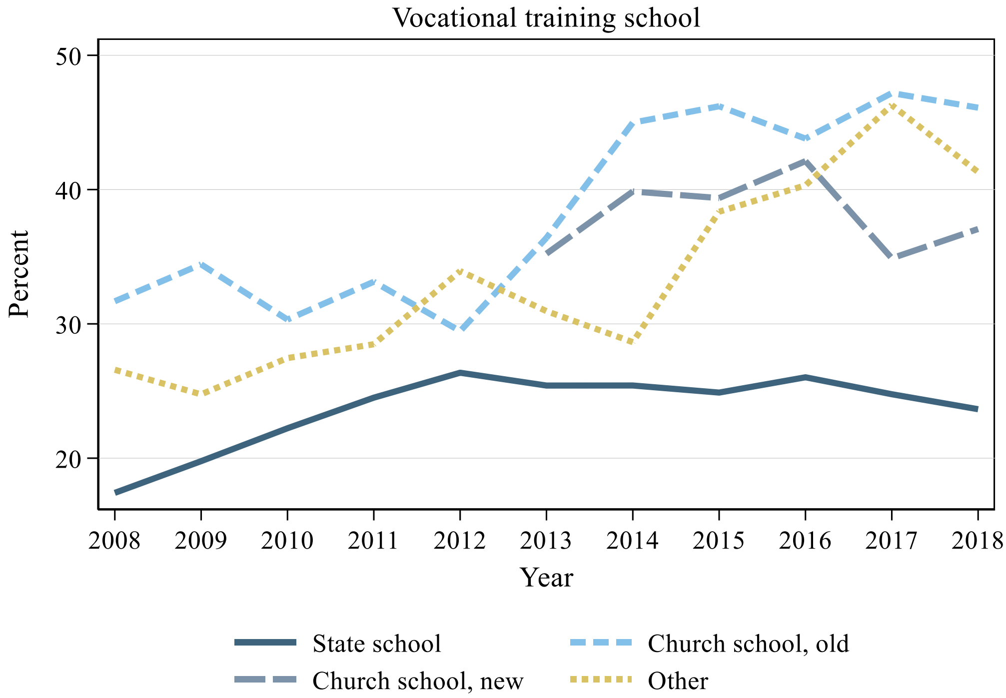


**Figure 11.6. Share of schools with a majority of Roma students, percent**

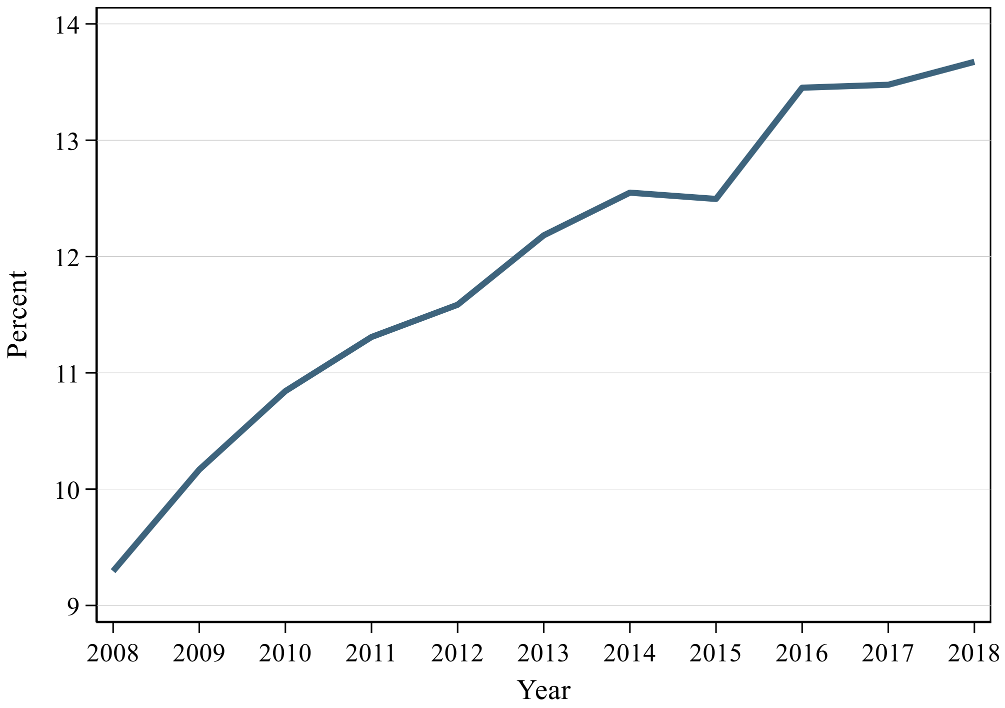
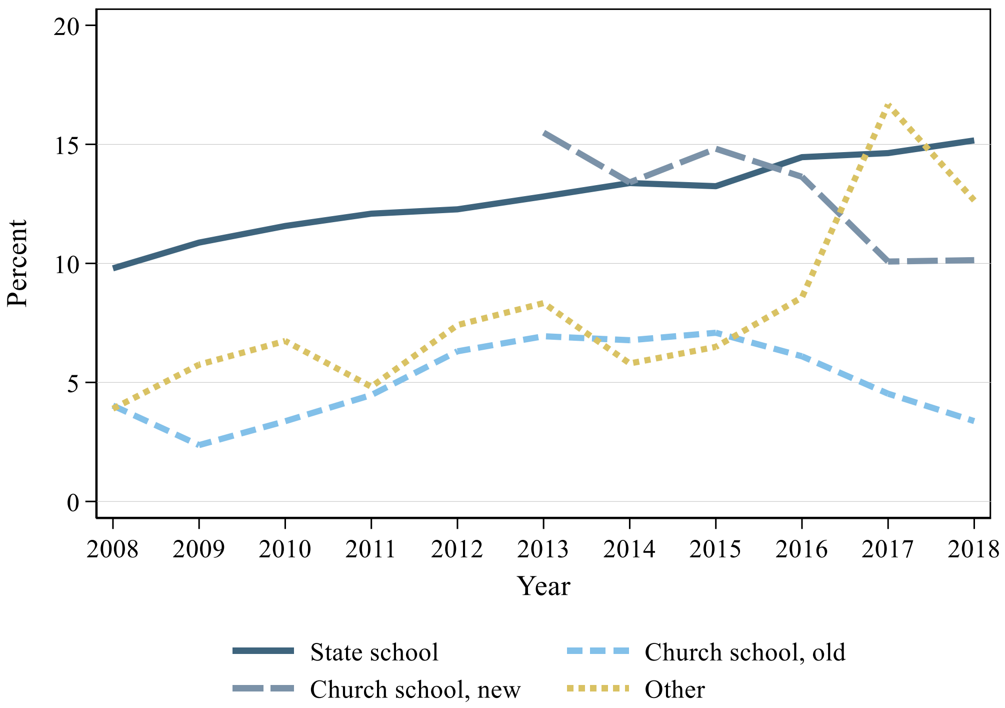



**Figure 11.7.**

**Share of schools with a majority of Roma students, by school operator, percent**



## Indicator 12: Share of students receiving regular child protection allowance

The regular child protection allowance (RCPA, "*rendszeres gyermekvédelmi kedvezmény*") is allocated to families in which the monthly per capita income does not exceed 140% of the minimum old-age pension and the parent or legal guardian is single, or where the child is permanently ill or seriously disabled or the child is over 18 and is still studying. It can also be given to families in which the per capita income does not exceed 130% of the minimum amount of the old-age pension and their assets do not exceed a certain statutory value.

*Figure 12.1* shows that the share of students receiving RCPA has been declining since its peak in 2011 in general schools. In 2011 around 35% students received such an allowance, a number which had declined to 23% by 2018. Similar trends are apparent in all school types, albeit the decline starts at a later year, around 2013, when the same cohort of students enters secondary school. In vocational training schools, the share of students receiving RCPA is similar to that of the general schools, while in the vocational secondary school it is much lower, around half of that of the vocational training schools, and in the academic schools it is even lower than that. In the academic schools only one in every ten students is entitled to RCPA.

*Figures 12.2 to 12.5* show the same ratios broken down according to school operator. Within the newly funded church schools the share of students receiving RCPA was extremely high in general schools, reaching 46% in 2013, and declining steadily thereafter. State schools followed, with around 35% of RCPA students in 2013, while there were fewer than 30% students receiving RCPA in the old church schools, and around 20% in other schools.

Among the academic schools, the newly-founded church schools stand out as having the highest share of RCPA students, while in the case of all other types of school operators the numbers are very similar (*Figure 12.3*).

Among the vocational secondary (*Figure 11.4*) and vocational training (*Figure 11.5*) schools there are very few non-state maintained schools, so the ratio of RCPA students fluctuates within wide limits, but apparently RCPA students in the vocational training schools maintained by other entities increased over the studied period, despite the general declining trend in the overall ratio of RCPA students.

**Figure 12.1. Share of students receiving regular child protection allowance by school type, (%)**

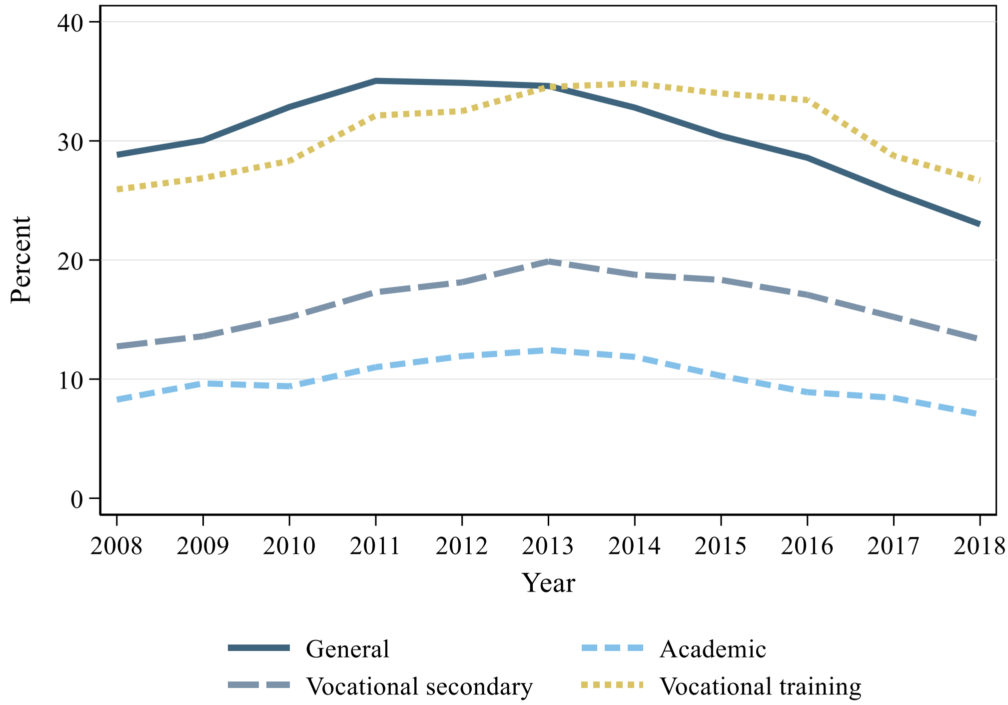



**Figure 12.2. Share of students receiving regular child protection allowance by school operator in general schools, (%)**

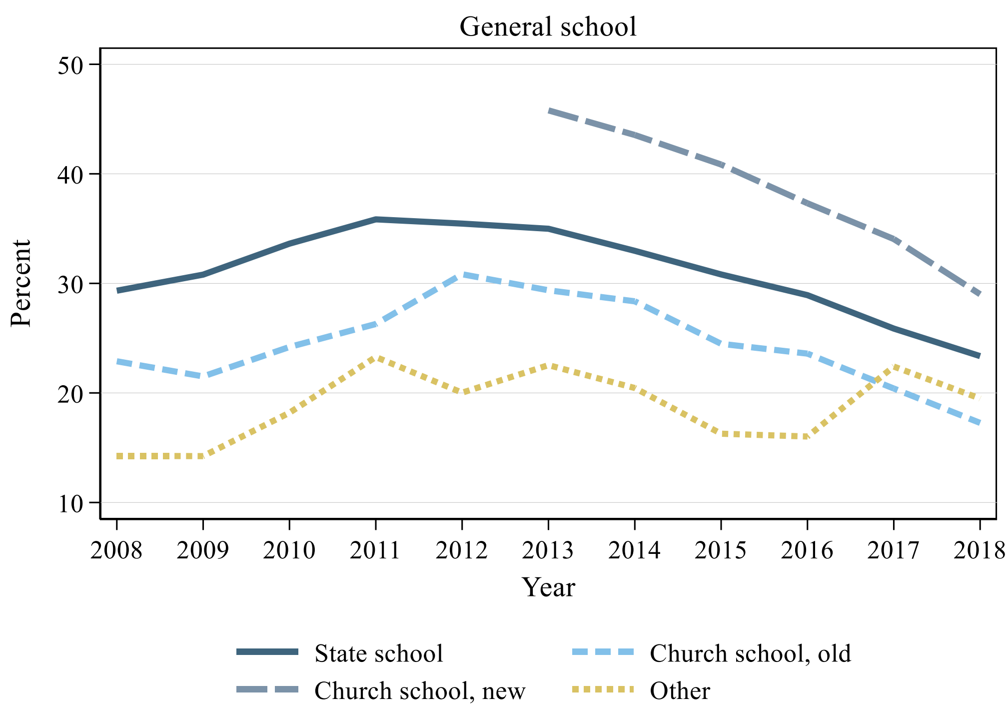


**Figure 12.3. Share of students receiving regular child protection allowance by school operator in academic schools, (%)**

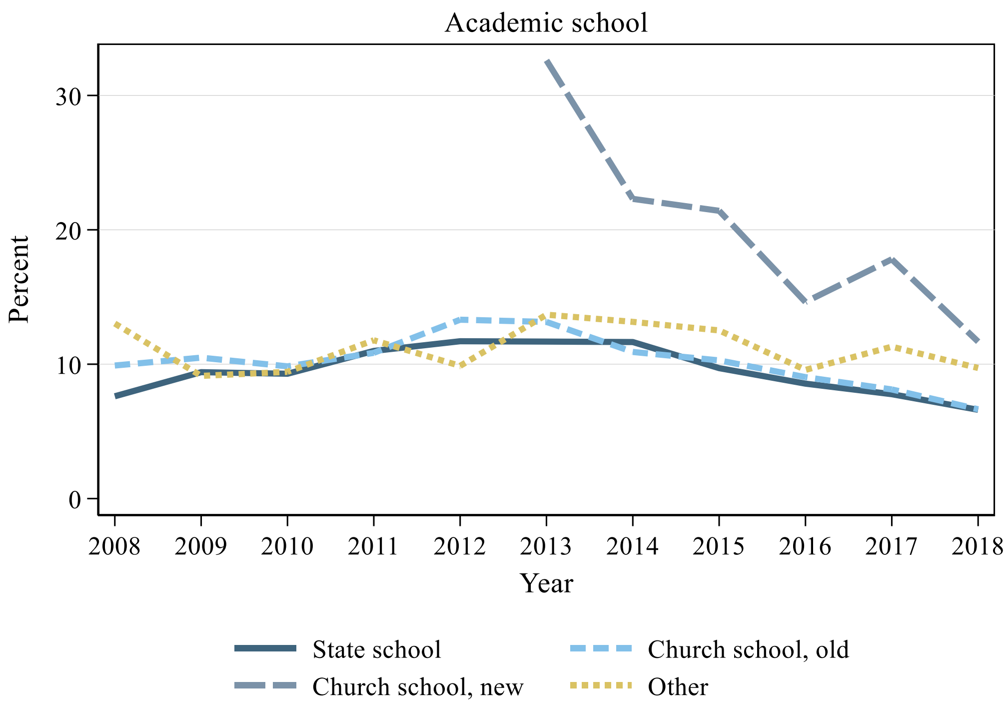



**Figure 12.4. Share of students receiving regular child protection allowance by school operator in vocational secondary schools, (%)**

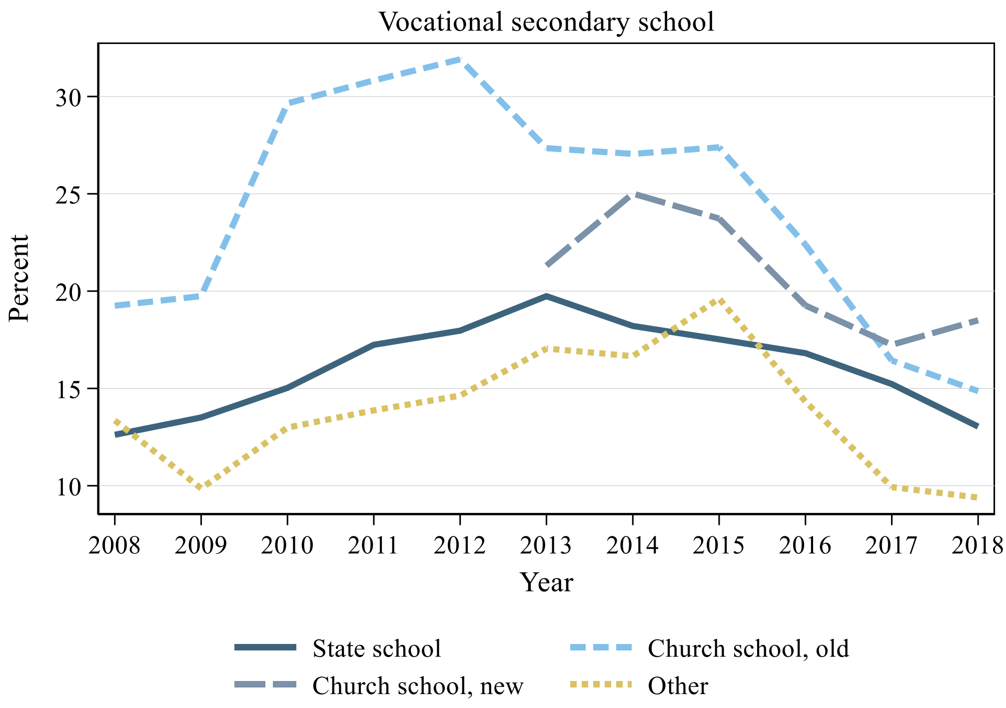
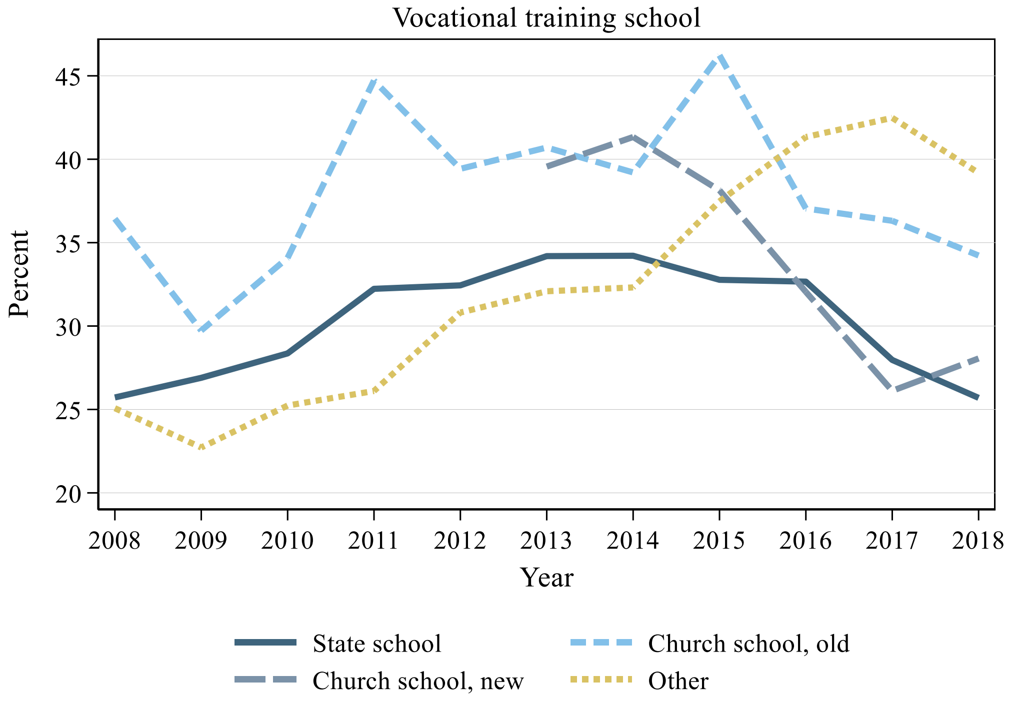


**Figure 12.5. Share of students receiving regular child protection allowance by school operator in vocational training schools, (%)**



## Indicator 13: The share of teachers speaking foreign languages

*Indicator 13* shows the share of teachers who speak foreign languages. This indicator is one of the proxy indicators intended to attempt an estimate of teacher quality in different schools, the reasoning being that teachers who speak foreign languages may have a broader perspective on the world and education and better access to continuous professional development than teachers who speak only Hungarian.

*Figure 13.1* shows the share of teachers who speak foreign languages in schools with a high share of disadvantaged students (HSDS schools) and in non- HSDS schools. (Note, that HSDS and Non-HSDS schools refer only to general schools). The share of teachers speaking foreign languages grew between 2008 and 2018 (probably because of a demographic shift in the teacher population, with older teachers, who were less likely to speak foreign languages retiring, and younger teachers with at least one B2 language qualification – as part and parcel of obtaining their degree – found employment in schools). But there was a steady, and then growing difference between HSDS and non-HSDS schools. The share of teachers speaking foreign languages was higher in non-HSDS schools than in HSDS schools over the whole period. Between 2008 and 2012, the difference was about 7 percentage points, and between 2014 and 2018 about 10 percentage points (*Figure 10.1*).

*Figure 13.2* shows the share of teachers speaking foreign languages in HSDS and non-HSDS schools by school operators. The difference between HSDS and non-HSDS schools can be observed for all school operators, but the largest is for the category “Other operator”, which refers mainly to private schools or schools maintained by foundations.

*Figure 13.3.* shows the share of teachers speaking foreign languages by type of school. The largest share can be observed in Academic Secondary Schools, and the lowest in kindergartens. In vocational training schools after 2010 the share was even lower than in general schools and following 2016 the rate of growth of the share of teachers speaking foreign languages levelled off as well, as in vocational secondary schools, where the rate of growth levelled off after 2014.

*Figures 13.4 – Figure 13.8* show the share by type of school and school operator.

**Figure 13.1. The share of teachers speaking foreign languages in HSDS schools and in non-HSDS schools**

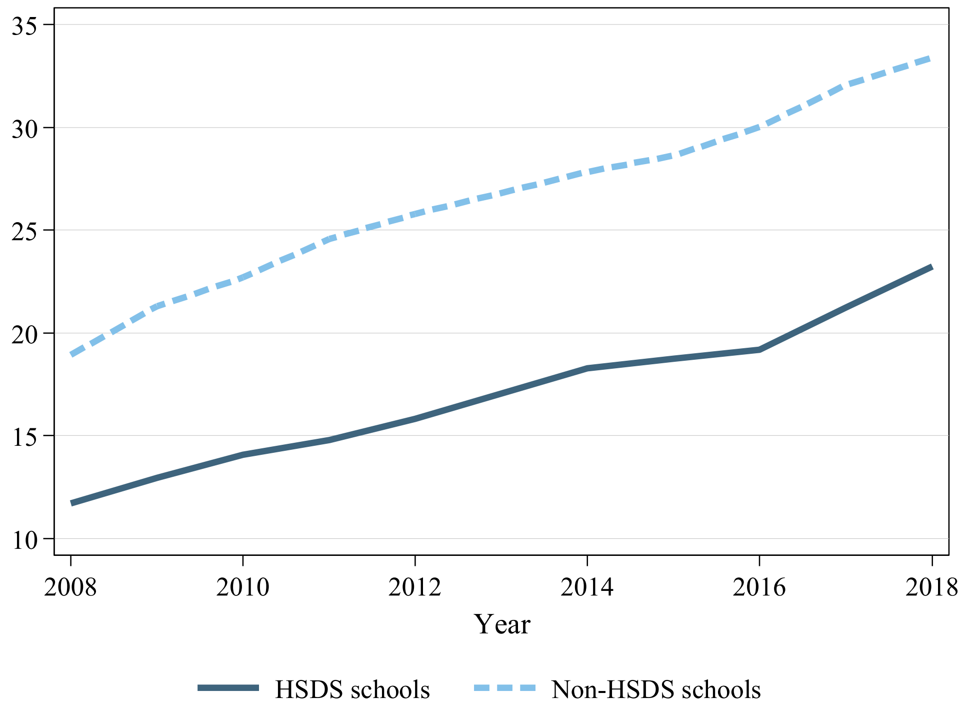
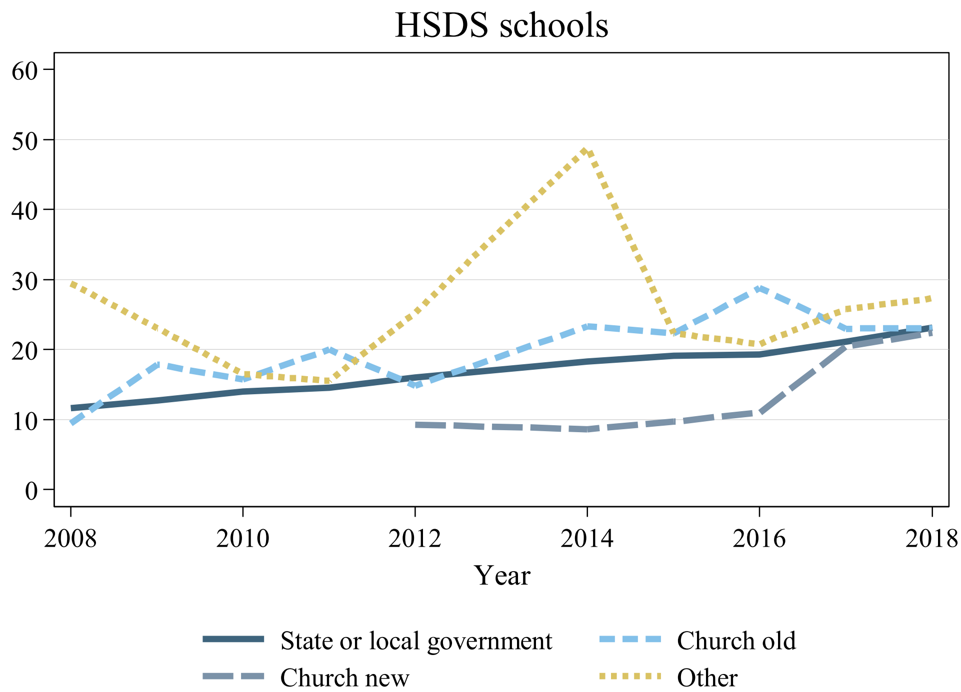



**Figure 13.2. The share of teachers speaking foreign languages in HSDS schools and in non-HSDS schools by school operator**



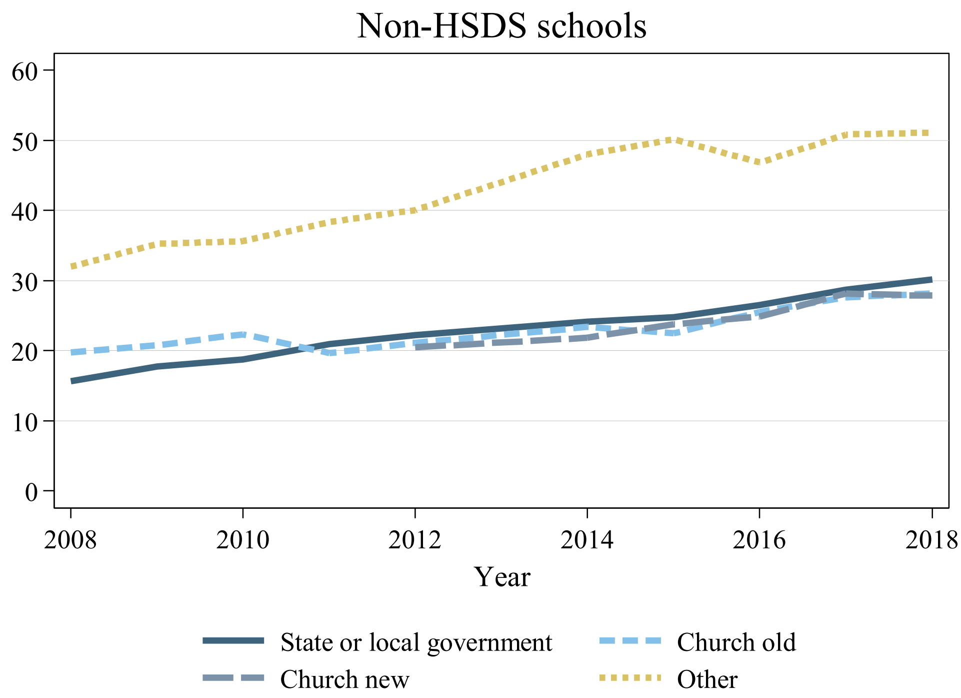



**Figure 13.3. The share of teachers speaking foreign languages by type of school**

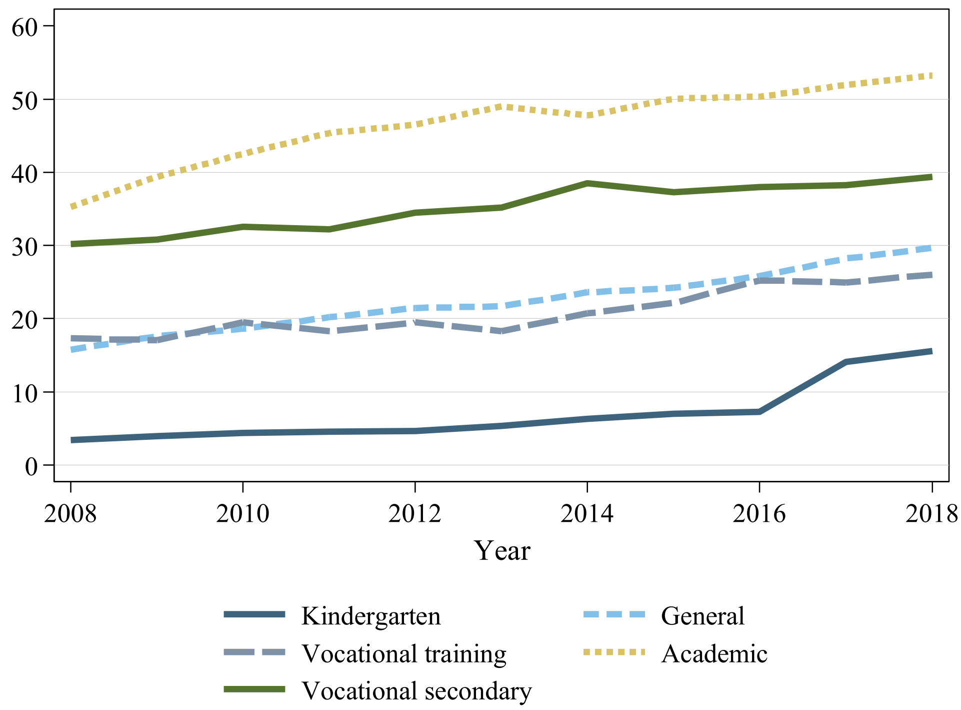


**Figure 13.4. The share of teachers speaking foreign languages in kindergartens by school operator**

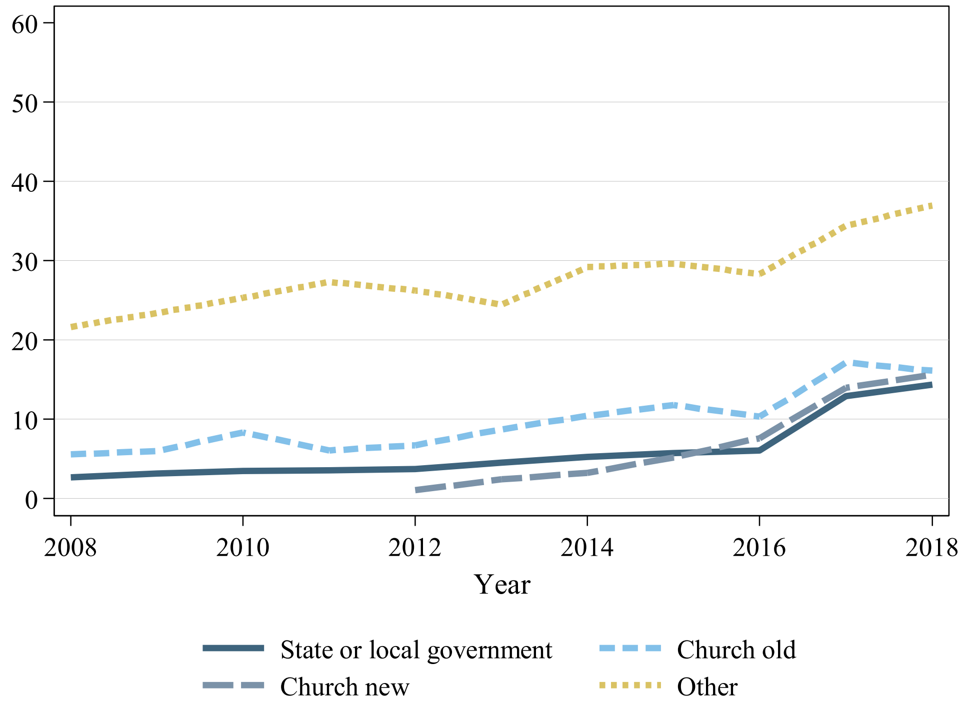



**Figure 13.5. The share of teachers speaking foreign languages in general schools by school operator**

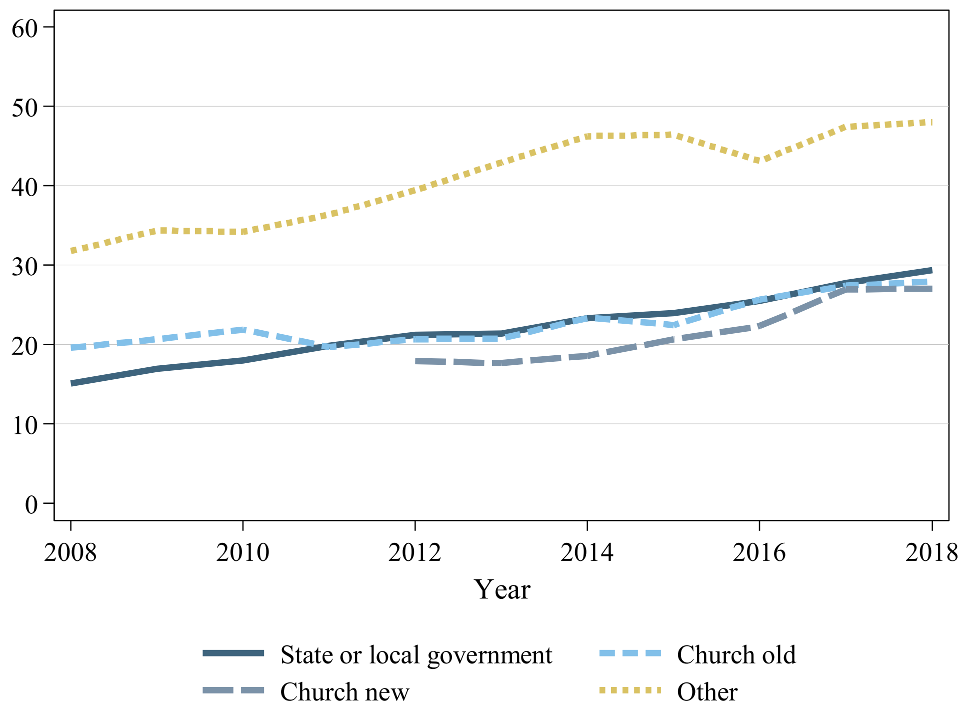


**Figure 13.6 The share of teachers speaking foreign languages in vocational training schools by school operator**

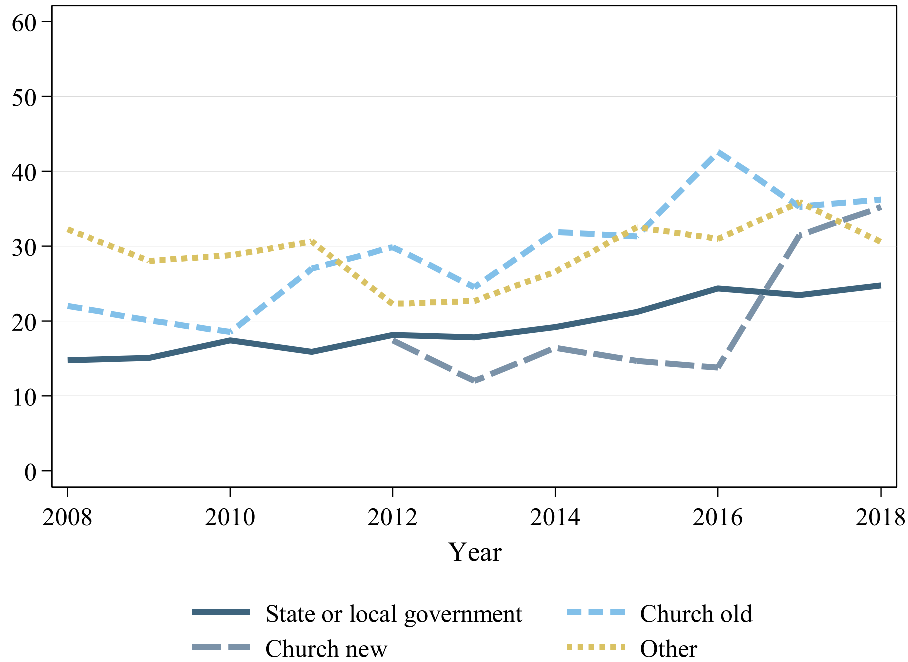



**Figure 13.7 The share of teachers speaking foreign languages in academic secondary schools by school operator**

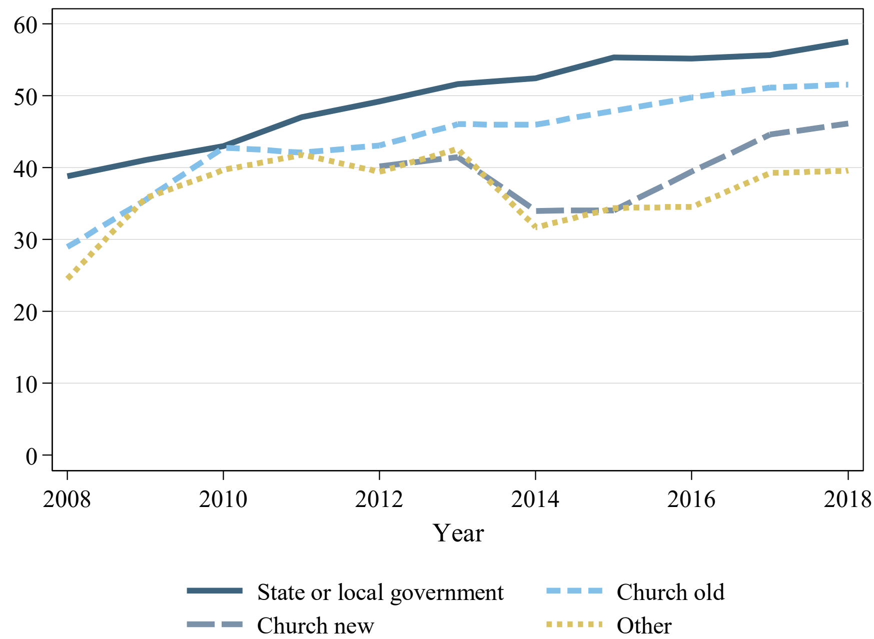
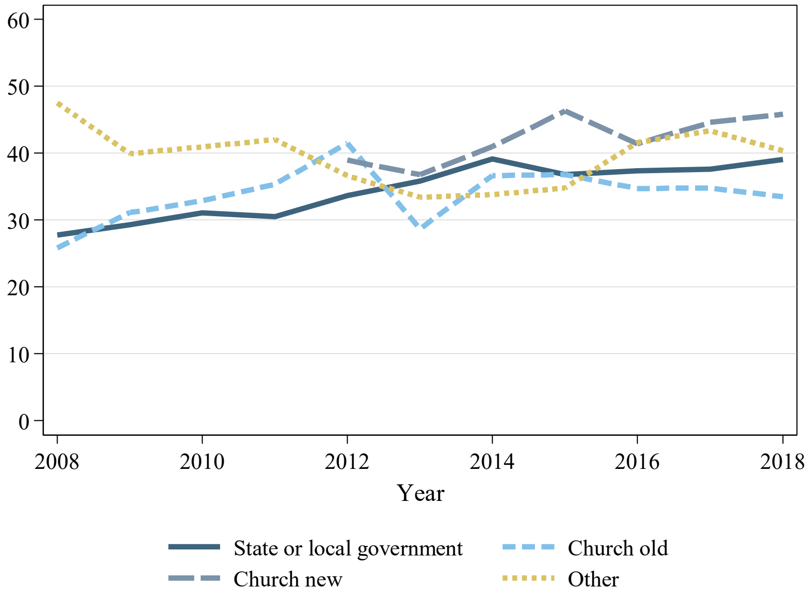


**Figure 13.8 The share of teachers speaking foreign languages in secondary vocational schools by school operator**



## Indicator 14: The share of teachers without appropriate qualification

*Indicator 14* shows the share of teachers without an appropriate qualification. The indicator gives an indication of the extent of teacher shortages in Hungarian public education and furthermore, is a quality indicator as well, as it seems likely that teachers without an appropriate qualification are less effective than teachers who have an appropriate qualification.

Here, "inappropriate qualification" should be understood to mean a teacher teaching at primary level (grades 1-4) who is not qualified as a primary school teacher, and if a subject teacher has not qualified as teacher specifically in that subject, or if the teacher is a qualified subject teacher, but does not have a degree in the subject they are teaching (for example a History teacher is teaching Biology), a phenomenon which seems to be becoming more widespread in schools where there are teacher shortages.

Figure 14.1 shows the share of primary school teachers without an appropriate qualification in HSDS and non-HSDS schools between 2009 and 2018. The share is rather small, below 2 percent, but after 2012 a growing trend can be observed in HSDS schools.

Figure 14.2 shows the average of the share of subject teachers without an appropriate qualification in HSDS and non-HSDS schools in all subjects. *Figure 14.3* shows the share of Maths, foreign languages and Science subject teachers in HSDS and non-HSDS schools.

In HSDS schools the share of teachers without an appropriate qualification increased from less than 8 percent to 12 on average, but in Maths, foreign languages and Science subjects the increase was even sharper. In 2018, about 18 percent of Science teachers, 16 percent of Foreign language teachers and 14 percent of Maths teachers did not have an appropriate qualification. In 2018, in non-HSDS schools the share was much smaller, on average 4 percent of subject teachers did not have an appropriate qualification, and about 6 percent of Maths, Foreign language and Science teachers in these schools. Nevertheless, the share also increased in non-HSDS schools after 2016.

*Figure 14.4*. shows the share of subject teachers without an appropriate qualification by type of schools. *Figure 14.5* shows the share by type of school separately for different subjects (Maths, foreign languages and Science) and *Figure 14.6* shows the share of vocational subject teachers without appropriate qualification in Vocational Training Schools and Vocational Secondary Schools.

After 2016 the share increased in all types of schools in all subjects. The increase was the largest in Vocational Training Schools. The increase in the share of vocational subject teachers without an appropriate qualification was extremely sharp in vocational subjects, both in Vocational Training Schools and in Vocational Secondary Schools, between 2016 and 2017, and there was a large drop in the share in the following year, which might have been a consequence of changes in the regulation of these types of schools in general, and changes in the regulation of what constitutes an "appropriate qualification" for vocational teachers in particular.

(Figures for the share of teachers with an inappropriate qualification by types of school ***and*** school operator are not presented, but these data can be found in the excel data-tables.)

**Figure 14.1. The share of primary school (Grades 1-4) teachers without qualified teacher status (WQTS) in schools with a high share of disadvantaged students (HSDS) and in non-HSDS schools**

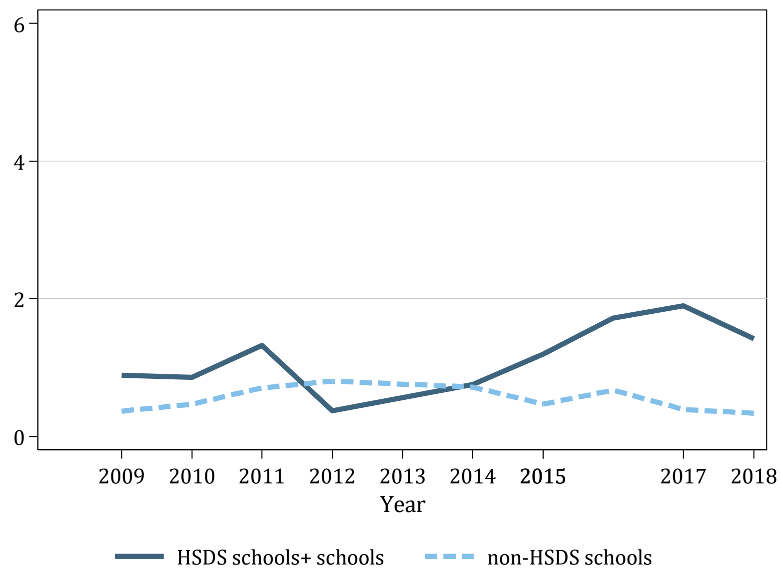


**Figure 14.2. The share of subject teachers without a degree in their subject in HSDS and non-HSDS schools – all subjects**

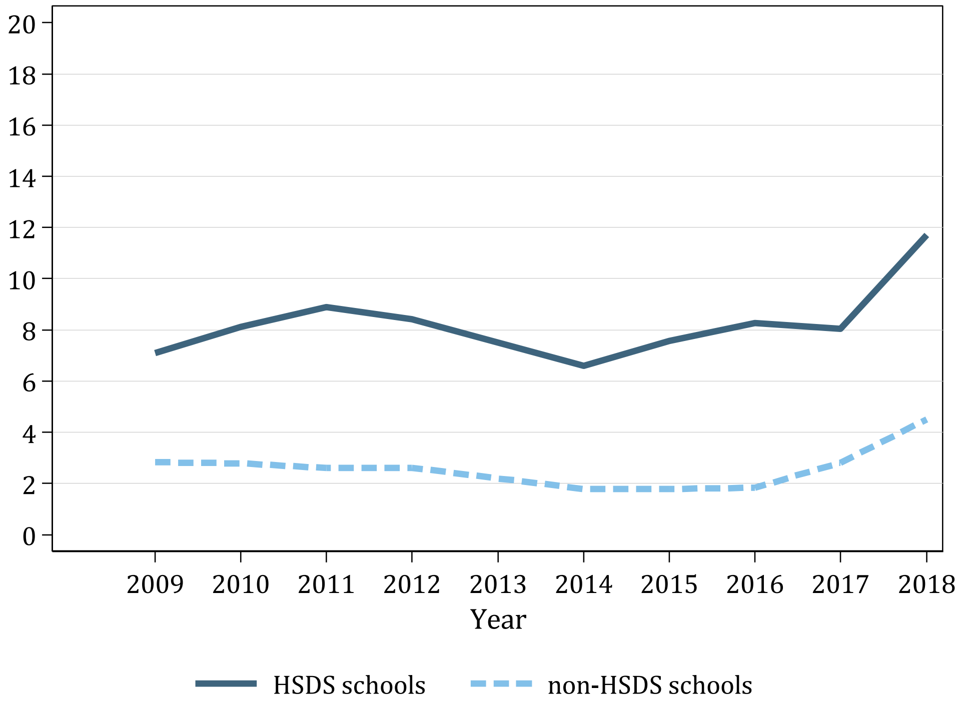
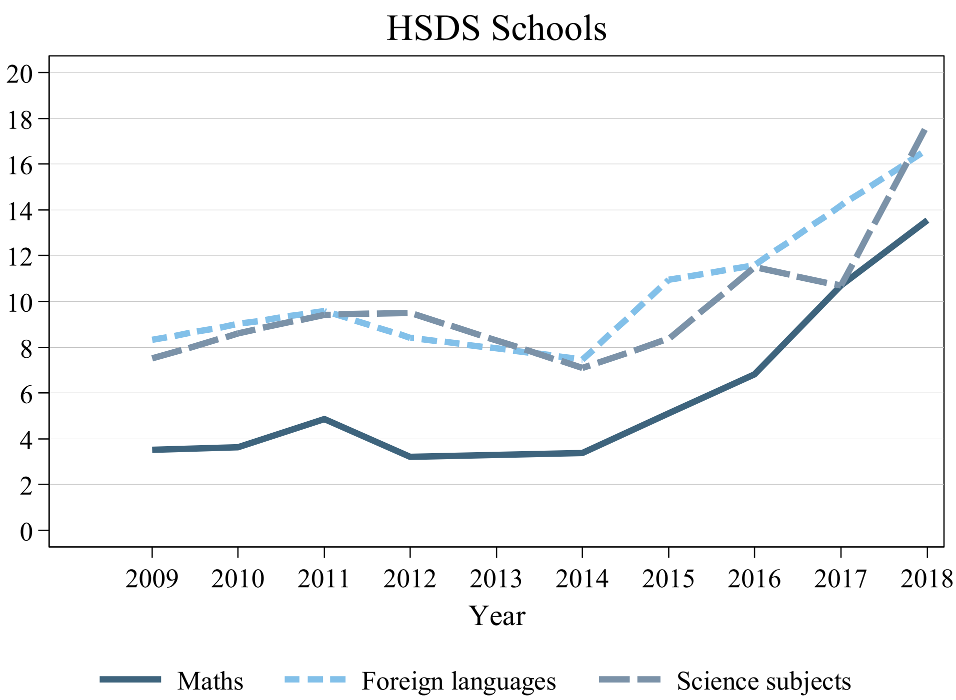



**Figure 14.3 The share of subject teachers without a degree in their subject in HSDS and non-HSDS schools – Maths, foreign languages, Science**



Non-HSDS Schools

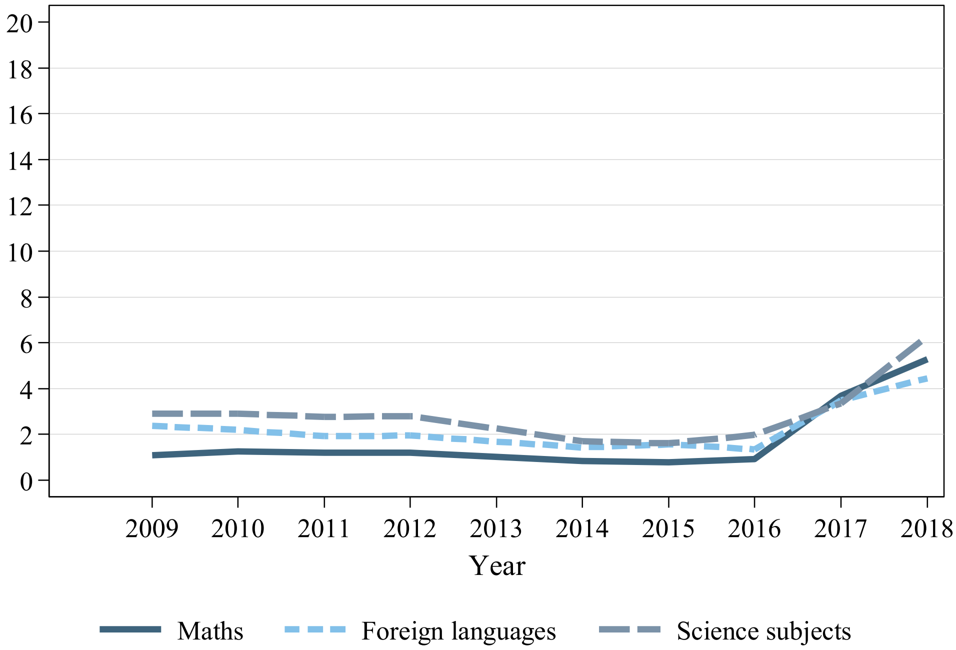



**Figure 14.4 The share of subject teachers without a degree in their subject by type of school – all subjects**

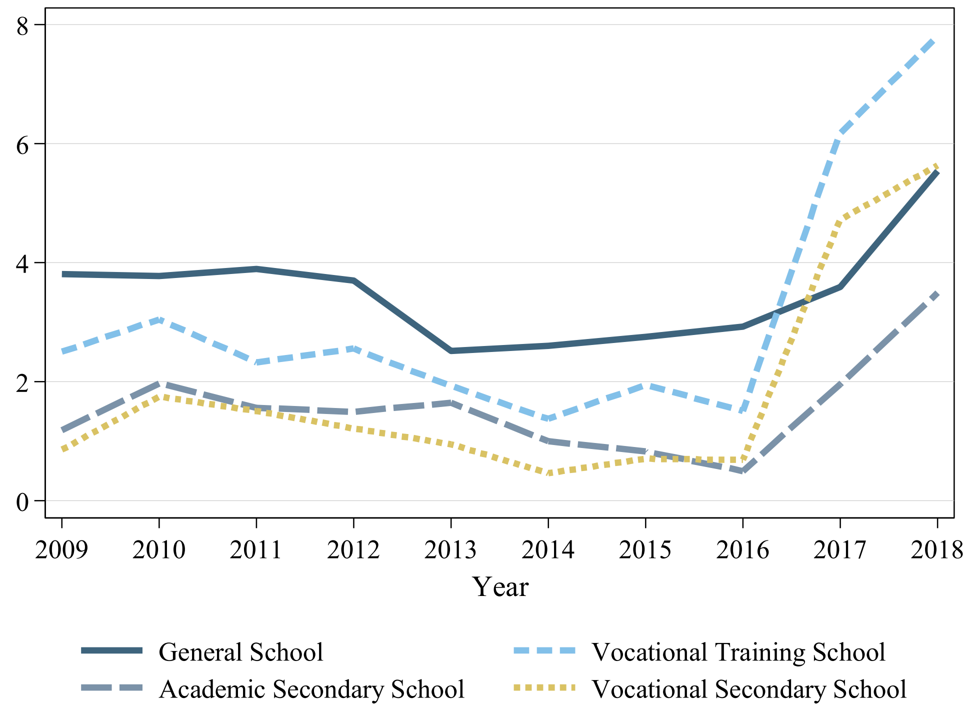


**Figure 14.5. The share of subject teachers without a degree in their subject by type of school – Maths, foreign languages, Science**

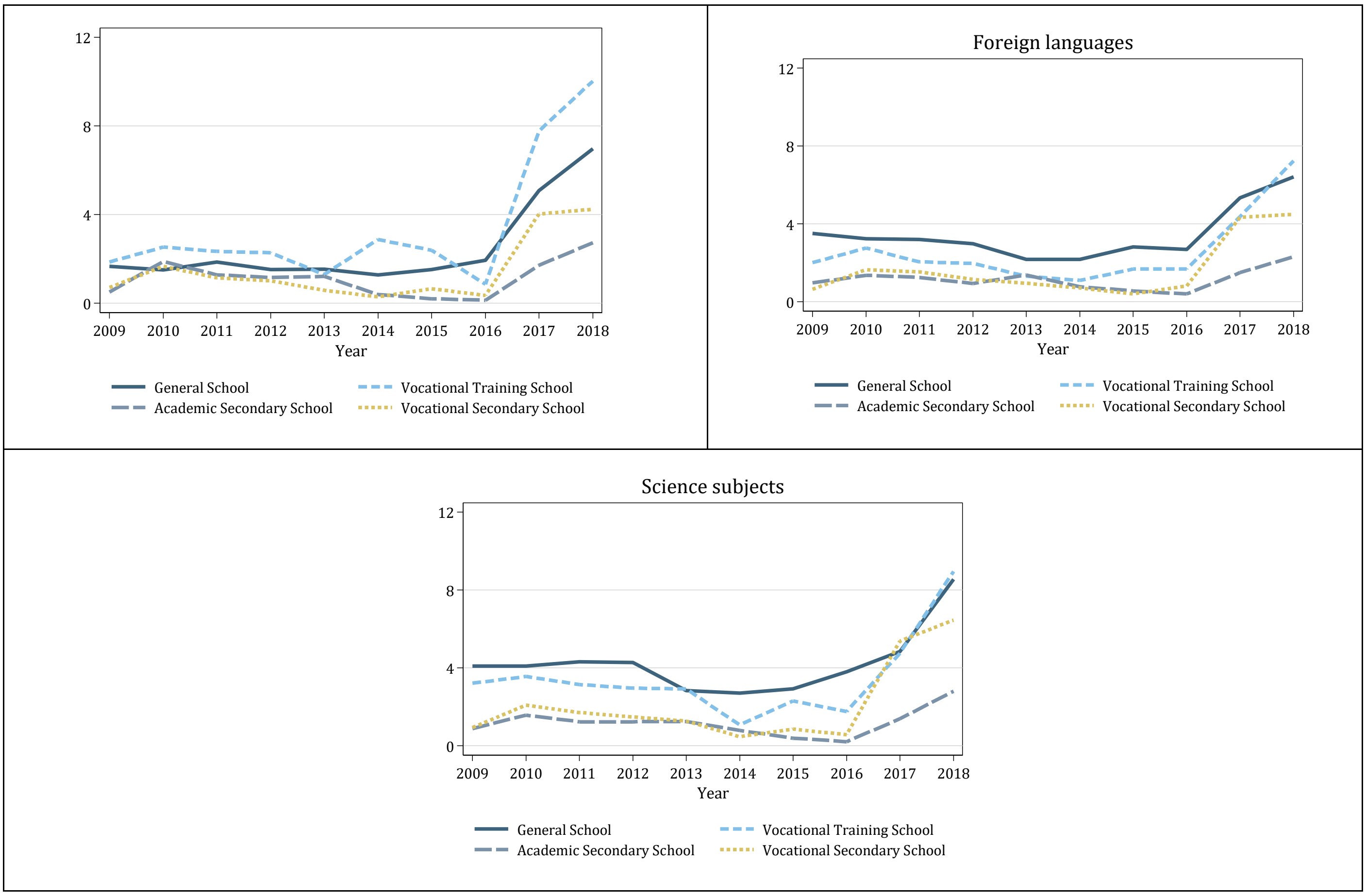
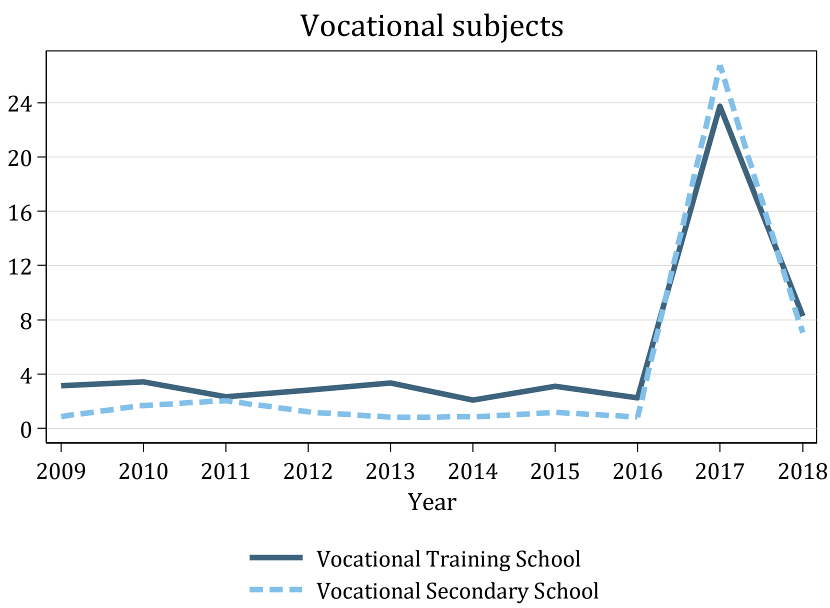



**Figure 14.6 The share of vocational subject teachers without an appropriate qualification by type of school**



## Indicator 15 Schools rated as having Outstanding Performance

*Indicator 15* describes the share of schools rated as having outstanding performance within different groups of schools. Outstanding performance, as defined here, provides a rough measure of school quality. Therefore, comparison across groups may reveal some differences in the incidence of highly effective pedagogical work and school leadership.

Outstanding performance is defined and measured by the Education Office, using student achievement data from the National Assessment of Basic Competences (NABC). Student achievement is measured in maths and reading literacy in grades 6, 8 and 10, using standardised tests. Expected achievement in grade 8 for General Schools (grade 10 for Secondary Schools) is predicted from prior test results (grade 6 scores for General Schools and grade 8 for Secondary Schools), and schools performing well above the expected level are classified as outstanding[18]. As the threshold in the difference of actual and expected results is set arbitrarily, the overall level of the indicator is not informative, and therefore only relative differences across groups of schools may be discerned using this measure.

Outstanding performance is measured for school sites, by school type, i.e. a school with several sites may have a unit providing outstanding performance, while the other units might be of average or even below average quality. Therefore, here HSDS status is defined at the school

[18] The Education Office also provides an alternative measure, based on expected test results given the family background composition of schools. This measure is not used here for two reasons. First, it is not capable of measuring differences in educational quality between the groups of HSDS and non-HSDH schools, as the level of expected student achievement is adjusted to school composition. Second, it is not suitable for quality comparisons across tracks in secondary education, either, as it does not take into account sorting based on prior achievement.

site level, using NABC data[19]. We present the share of outstanding schools in 2016 and 2017 (academic year 2015/16 and 2016/17)[20].

It is important to note that standardised test scores, as well as the outstanding performance classification based on these are prone to measurement error, and hence should be interpreted with caution. A clear sign of measurement error is the fact that persistence of outstanding performance is rather low. Only about half of general schools and about two-fifths of secondary schools classified as outstanding in 2016 or 2017 attained this accolade at least twice in a five-year period, and only a fraction of schools was included in the outstanding list in two consecutive years (2016 and 2017). Nevertheless, relative differences across groups of schools, as presented below, are essentially the same if the qualification for outstanding performance is restricted to schools attaining the status at least twice in a five-year period.

Figure 15.1 shows the share of outstanding schools by school type. The share is somewhat higher among general schools, especially in Maths and in the year 2016. In secondary education, Academic and Vocational Secondary Schools display similar shares, while vocational training schools lag far behind in the latter group outstanding school performance is a rare exception.

It is interesting to note that outstanding performance in mathematics and reading literacy do not necessarily go together. In both general and secondary schools only about one-fifth of outstanding schools attained the designation of outstanding in both subjects.

Figure 15.2 shows outstanding performance by HSDS status among general schools. There is a striking difference across these groups, with non-HSDS schools 3-5 times more likely to have outstanding performance than HSDS schools.

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[19] Similar to the general definition offered here, a school site is assigned HSDS status if the share of disadvantaged students is equal to or above 25%. However, this is measured for grade 6 and 8 students only in General Schools, and grade 10 students for secondary schools, while the general school level measure covers all grades of the school.

[20] The Education Office Report also provides lists of outstanding schools for 2015 and 2018. On the 2015 list only schools are identified, school sites are not. For 2018 HSDS status at the school site level cannot be measured.

Figure 15.3 shows outstanding performance by school operator and education level. In secondary education outstanding performance has higher incidence in the group of public schools than among church schools, though the differences are small. Outstanding performance occurs less frequently among other school operators, and this is probably related to the higher share of students with learning difficulties in several foundation schools. Among general schools no clear pattern can be observed.

**Figure 15.1 Share of schools with outstanding performance by school type, percent**

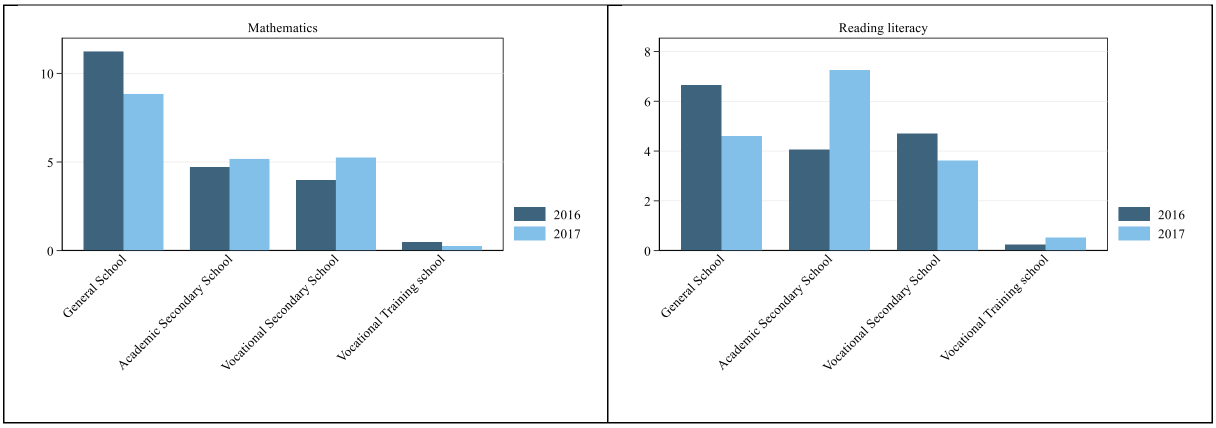


**Figure 15.2 Share of schools with outstanding performance by HSDS status, general schools, percent**

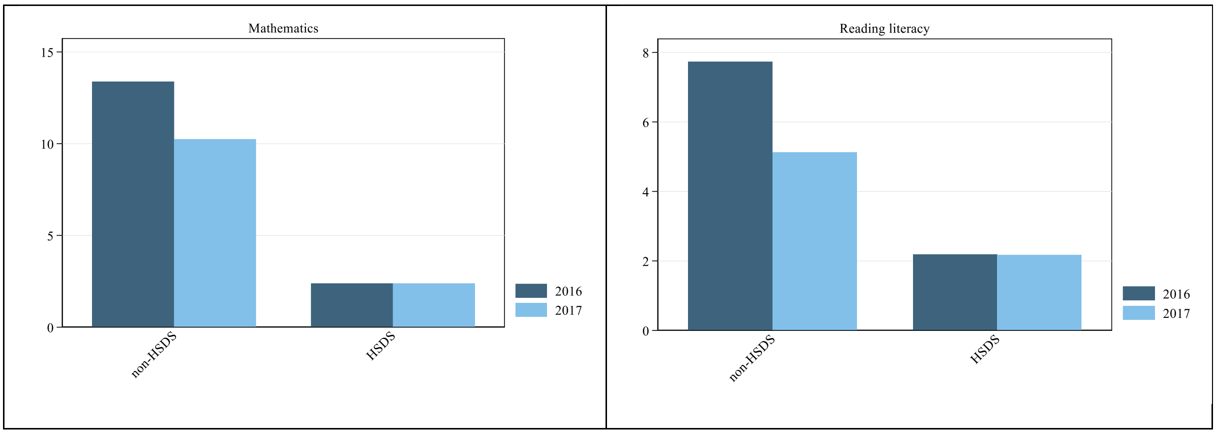

**Figure 15.3 Share of schools with outstanding performance by education level and school operator, percent**