

Shadow education in the context of early tracking: between-track differences in the Czech Republic

Vít Šťastný

To cite this article: Vít Šťastný (2023) Shadow education in the context of early tracking: between-track differences in the Czech Republic, *Compare: A Journal of Comparative and International Education*, 53:3, 380-398, DOI: [10.1080/03057925.2021.1922271](https://doi.org/10.1080/03057925.2021.1922271)

To link to this article: <https://doi.org/10.1080/03057925.2021.1922271>



© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



[View supplementary material](#)



Published online: 17 May 2021.



[Submit your article to this journal](#)



Article views: 1635



[View related articles](#)



[View Crossmark data](#)

Shadow education in the context of early tracking: between-track differences in the Czech Republic

Vít Štátný 

Institute for Research and Development of Education, Faculty of Education, Charles University, Prague 1, Czech Republic

ABSTRACT

Previous research on the implications of early-tracking education systems has not specifically focused on how studying in academic and non-academic tracks shapes the features and characteristics of shadow education (private tutoring) that students are involved in. The study compares the scale and features of private tutoring and the underlying factors of its reception among lower-secondary students in the two tracks. Analysing a representative sample of 1,280 senior grade students, the study found significant differences in scale, subjects and reasons for tutoring during their lower-secondary studies, which may partly explain the prevailing gaps in between-track student achievements. Early tracking is likely to contribute to increasing the overall scale of PT by introducing selective entrance examinations, which nurture the demand for PT. While parental education, books at home, city size and educational aspirations were significant predictors of private tutoring for regular-track students, they were insignificant for academic-track students.

KEYWORDS


Early tracking; shadow education; private tutoring; entrance examinations

Introduction

Many education systems in the world use various ways to group students according to their achievements and/or capacities for learning. Whilst this may seem to be a sensible response to academic diversity among students from an organisational perspective, as it makes it easier for the teacher to tailor the instructional approaches within more homogeneous groups (Gamoran et al. 1995), a large body of research convincingly shows that this practice, termed ability grouping or tracking, often has unintended effects, foremost of which are increased social inequality and achievement heterogeneity, especially in the most rigid form of the (early) grouping of students into different (hierarchically structured) school types (Becker, Neumann, and Dumont 2016; Maaz et al. 2008; Van de Werfhorst 2019).

Another body of research has been produced on the topic of shadow education – a metaphorical term used for different types and forms of private supplementary tutoring, that is, tutoring in academic school subjects, which is additional to the regular school instruction and which is provided for a fee (Bray 1999, 2020). The phenomenon has

CONTACT Vít Štátný  vit.statny@pedf.cuni.cz  Institute for Research and Development of Education, Faculty of Education, Charles University, Myslíkova 7, Prague 1 110 00

 Supplemental data for this article can be accessed [here](#).

© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

received significant attention in the scholarly literature in the past decade, and while some positive aspects have been identified (such as increases in human capital, the provision of individualised learning support etc.), focus has been largely placed on its negative implications for the equality of educational opportunities, as better-off families can afford both higher quantities and qualities of shadow education, its backwash on the educational system or unethical practices related to the provision of shadow education by schoolteachers (e.g. Bray 2020; Kobakhidze 2018).

This paper studies the phenomenon of shadow education in the context of an early tracked education system and explores the relationships between shadow education and between-school tracking, thus bringing these two relatively separate bodies of research together. As far as the author is aware, although one study (Zhang and Bray 2018) discussed shadow education in relation to tracking, it focused on within-school tracking, or ability grouping, rather than between-school tracking, especially in its early form. In Europe, early tracking is practised in the education systems of Netherlands, Austria, Germany, Slovakia, Hungary or the Czech Republic (EURYDICE 2020). Although there is substantial research evidence on shadow education from these countries (e.g. Jansen, Elffers, and Volman 2020; Feistritz 2020; Entrich and Lauterbach 2020; Kubánová 2006; Györi 2020), it has not directly addressed the question of differences in shadow education features between academic or regular-track students. Where differences are reflected upon, they are limited to comparisons of the scale of the phenomenon among students of different tracks/school types (e.g. Feistritz 2020; Hille, Spieß, and Staneva 2016) and lack any more detailed analysis of between-track shadow education features. Also, previous literature conceptualised shadow education as a tool to better prepare for high stakes tests. Much attention has been paid to this function of shadow education at the transition to tertiary education (e.g. Loyalka and Zakharov 2016; Prakhov and Yudkevich 2019; Smyth 2009), but fewer studies (e.g. Ireson and Rushforth 2011; Hajar 2020) have examined this role of shadow education at lower levels of the education system.

Using the Czech Republic as an example of an education system in which part of the students leave the mainstream track to pursue academically oriented *gymnasia* after the 5th or 7th grade (i.e. when they are 10 or 12 years old), the present paper compares the characteristics of shadow education in the lower-secondary academic and non-academic tracks at the ISCED 2 level of education and investigates the role of shadow education both in preparation for entrance examinations to the lower-secondary academic track and during lower-secondary studies. More specifically, the following research questions are addressed:

- (1) How do the features of private tutoring (scale, subjects, content, reasons and motivations of students for participating in it, and intensity and usage) differ between the two tracks?
- (2) How do the predictors of involvement in shadow education differ between these two tracks?

The paper commences with a literature review of the effects of early tracking and its relationships with shadow education and presents the context of the Czech education system. The article then explains the methodological aspects of the empirical study and

sets out its findings on between-track differences in features and predictors of shadow education. Finally, the findings and their implications are discussed in relation to the broader literature.

Effects of early between-school tracking

The term *tracking* refers to various forms of structural differentiation for instructions (Gamoran 2010). One common form of tracking is the division of students of one class on a subject-by-subject basis (also called ability grouping or setting); tracking can also take the form of the within-school grouping of students (e.g. into different classes according to their performance) or explicit between-school grouping or between-school tracking, in which different school types are designed for specific student groups that are often hierarchically structured by performance (Gamoran 2010; Maaz et al. 2008; Wößmann 2009). Between-school tracking is common in many countries at the upper-secondary level, but earlier tracking at the lower-secondary level is less frequent.¹

Tracking and its effects on overall performance and equality of opportunity has been a widely debated topic. Van de Werfhorst and Mijs's (2010) review of the relevant literature that analysed data from large-scale international studies found that 'both the variability among students and the dependence of achievement on social class and race/ethnicity are higher in educational systems that track students in different school types and school locations relative to systems that offer comprehensive schools', and further add that 'educational differentiation usually leads to lower, rather than higher, average achievement in a number of subjects' (421). These inequalities may be caused by different mechanisms. Usually, the quantity and quality of the instruction in different tracks is variable, students in higher tracks are usually served by more experienced or more qualified teachers, and the time devoted to basic knowledge at the expense of more in-depth knowledge varies significantly among tracks. Also, teachers' expectations are lower in lower tracks, and that further affects pedagogical practices, self-esteem or the motivation of students. In addition, learning and school socialisation effects are related to the peer group, as the tracks are often also socio-economically segregated in the sense that a student's chance of being enrolled in a high-track school increases with the educational level of the parents. This results in relatively homogeneous developmental environments, with higher learning rates in high tracks (Felouzis and Charmillot 2013; Maaz et al. 2008; Sevilla and Polesel 2020).

Placements into high (academic) tracks at the lower-secondary level may be conditioned by students' prior achievements, parents' preferences, elementary-school teachers' recommendations or (standardised) entrance examinations. In the latter case, private tutoring is one of the important means employed especially by middle-class families to prepare their children for the exam competition and to secure their placement in prestigious selective schools, as the subsequent section elaborates.

Shadow education and between-school tracking

The role of shadow education in preparing for entrance examinations as well as unequal access to it by different socio-economic groups is well documented in the scholarly literature.² For example, Prakhov and Yudkevich (2019) demonstrated how access to

higher education in Russia can be limited for lower-income students, as their better-off counterparts may afford pre-entry courses at university, which were found to improve their test results. In England, Ireson and Rushforth (2011) mapped the nature and prevalence of the phenomenon in three transition points (year 6, 11 and 13) and found that 71% of students who ever had a private tutor claimed it was to do well in an entry exam into secondary school. Hajar (2020) documented how the existence of grammar schools in the UK contributed to the prevalence of private tutoring among year 6 students. Guill and Lintorf (2019) examined the role of high-stake testing at the transition to various lower-secondary tracks by comparing German federal states (Bundesländer), which differ in the level of selectiveness for the lower-secondary admissions. Guill and Lintorf found that in regions where the transition from primary to secondary school is high in stakes,³ the probability of being privately tutored was higher than in other regions.

The effects of early-tracking on shadow education are seldom investigated. Betts (2011, 345–346) assumed that ‘... in a system without tracking, more affluent parents may spend considerably on private tutoring because they want to find ways to create a separating equilibrium in which their children obtain the top grades in school and gain either the best postgraduation jobs or admission to the best universities. Such spending might fall once tracking were introduced because parents viewed placement of their children into the upper track as a substitute for private tutoring.’ On the other hand, high-track schools often feature a high concentration of students from affluent families, and the interaction between the social class mix and the expectational climate may result in a ‘hot house’ effect in which students might feel under pressure to excel academically, which further fuels the demand for private tutoring (Smyth 2009). Studies at the upper-secondary level seem to confirm the latter argument, as they usually report higher proportions of privately tutored students in academic tracks compared to non-academic ones (e.g. in Slovakia, Kubánová 2006, in Poland; Długosz 2017, or in Austria, Feistritz 2020), and similar results are yielded at the lower-secondary level in countries that maintain early tracking, though the differences are often not substantial. In Germany, 19% of lower-secondary academic-track students took tutoring (during the past six months) compared to 17% in the non-academic track (Hille, Spieß, and Staneva 2016, 114). In Austria, the difference was somewhat higher, as paid tutoring was taken by 24% of lower-secondary academic-track students and only 19% of regular-track students in the current school-year, (Feistritz 2020, 28). Regarding the between-track differences in motivations for private tutoring, Długosz (2012) reported that private tutoring of upper-secondary Polish students in the academic track was more often oriented on passing the school’s final examinations and transitioning to universities, whilst in the vocational track, private tutoring was mainly remedial in nature, often because students neglected to learn.

Context of the research site

The selective education system is traditional in the Czech context. Although lower-secondary schools were comprehensive (single-structure) during the Communist era (1948–1989), multi-year gymnasia (lower-secondary grammar schools) were reintroduced shortly after the Velvet Revolution to follow-up on the previous tradition of

gymnasia dating back to the interwar period (for more details, see Greger and Walterová 2007). The scheme of the current education system is depicted in Figure 1.

From grades 1 to 5 (primary education), Czech students attend the first level of basic schools, which are often combined with the second level (lower-secondary education). After the 5th or 7th grade, they may opt for eight- or six-year gymnasia (grammar school, academic track). In the school year of 2018/2019, multi-year gymnasia students represented 10.2% of students in lower-secondary compulsory education (Ministry of Education, Youth and Sports 2019, 105).⁴ Admission to multi-year gymnasia after the 5th or 7th grade is conditioned by passing a centralised state examination in mathematics and Czech language (this part is generally weighted to at least 60% of the total score, depending on the principal's decision) and may be supplemented by other criteria. The overall success rate in the first round of applications is about 36%,⁵ but the admission rates may differ significantly across gymnasia. At the upper-secondary level, students may choose from various academically and vocationally oriented tracks. Those already studying at multi-year gymnasia may continue their studies in the same track without taking additional exams. Otherwise, tracks concluded with the *maturita* examination, which allows students to pursue tertiary studies, require an entrance examination to be passed.

The differentiation of the education system at the lower-secondary level has strengthened the differentiation of student achievements and of environments for teaching and learning. Straková (2010) compared the TIMMS and PISA results of Czech students between 1995 and 2007 and concluded that, while the overall average achievements in reading did not change significantly over the years, the average results of students in different school types changed significantly. Whilst the average achievement of students in multi-year gymnasia increased in time, an opposite was found in the case of basic-school students. The PISA 2018 results showed huge differences among 15-year-old students in different types of schools not only in reading literacy, but also in numeracy, in which the multi-year gymnasia's average result was 596 while basic school students scored only 470 (Blažek et al. 2019). Students of the academic lower-secondary track also

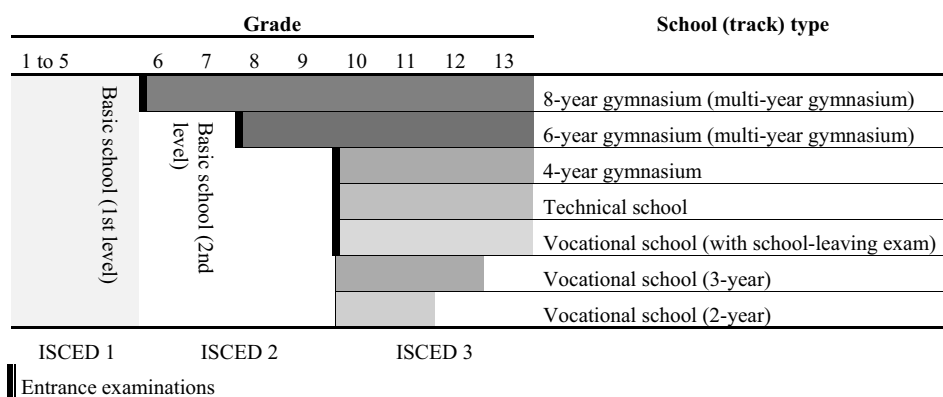


Figure 1. Structure of the Czech primary and secondary education system (simplified).

Note: typical age of students at the beginning of basic school: 6 years; 8-year gymnasium: 11 years; 6-year gymnasium: 13 years; upper-secondary schools: 15 years.

Source: Kostecký, Mikešová, and Bernard (2018, 97), adjusted by the author

demonstrate significantly better foreign-language skills compared to those in the non-academic track. A study by the Czech School Inspectorate (2019) showed that the average success rate in the language proficiency tests of multi-year gymnasia differed by more than 20 percentage points in English and by 28 percentage points in German compared to basic-school students in the last grade.

Although both lower-secondary tracks fall under compulsory education, they provide quite different learning environments. According to the TALIS 2018 survey (Boudová, Šťastný, and Basl 2019), Czech teachers in multi-year gymnasia hold more positive views about the disciplinary climate in their classrooms compared to their counterparts in basic schools, who also report a lower average proportion of lesson time devoted to instruction (83% compared to 87% in multi-year gymnasia), with more time spent disciplining the students (10% compared to 7%).

Only a few studies have investigated shadow education in the Czech Republic. At the primary level, Strakova and Greger (2013) found that 5th grade students employ various strategies to prepare for admission to multi-year gymnasia. Tutoring (by someone else than a student's relative) was taken at least once per month by 54% of applicants, about one third participated in a preparatory course provided by the multi-year gymnasium.⁶ At the lower-secondary level, Terreros (2018) surveyed 9th grade basic-school students ($n = 1,016$), of which 45.8% reported taking private tutoring during lower secondary education. Among the most common motivations to take private tutoring was the improvement of school grades and preparation for entrance examinations. However, Terreros's research did not cover students of multi-year gymnasia, so no between-track comparison was possible. At the upper-secondary level, between-track differences of the shadow education phenomenon were found by Šťastný (2016). In a representative sample ($N = 1,265$) of upper-secondary students, not only did higher proportions of academic-track students (45%) report taking private lessons or preparatory courses (38% in the technical track), but their motivations differed as well. Students in the technical track were more likely to indicate preparation for school-leaving exams as a reason for taking private tutoring lessons, whilst academic-track students more often reported the enrichment purpose of private tutoring.

Methods

Data

The data for this study were collected within a larger research project focused on investigating relationships between mainstream and shadow education. The project employed a convergent parallel mixed-methods design (Creswell 2012) and collected both quantitative data (from teachers and senior-grade students) and qualitative data (from school managers). This study is based on quantitative data gathered via a questionnaire survey of students.

Sampling and data collection

The study employed a stratified two-stage probability sampling design. The sampling frame was obtained from the Ministry of Education and consisted of 3,037 schools (2,725 basic schools and 312 multi-year gymnasia) and schools were divided into six strata

according to the following criteria: school type (second level of basic schools or lower level of multi-year gymnasia) and school size (for basic schools, these categories were small: ≤ 74 students, medium: ≤ 160 students and large: > 160 students; for multi-year gymnasia: small: < 111 students, medium: ≤ 127 students, large: > 127 students). The principals of selected schools were contacted first via email, and if no response was received, then via phone. Schools that declined to participate in the research were replaced by another randomly selected school from the same stratum. A total of 68 schools were randomly selected from across the strata and consequently invited to participate in the research. The final sample consisted of 43 schools of different sizes and types which agreed to participate. In order to be able to reliably compare the groups of students in the two tracks, an oversampling of multi-year gymnasia was performed (they constitute 26% of the sample schools, whilst their share in the population is 10%). The rate of return on school level was 63%.

Each school was visited personally by a member/members of the research team, who interviewed the school management representative and distributed paper-pencil questionnaires to senior grade students of lower-secondary education in the selected schools.⁷ This mode of questionnaire administration had several advantages, including the fact that researchers were able to thoroughly explain the survey objectives and key concepts personally, thus helping the respondents build trust and put more effort into answering the questionnaire items. It increased the rate of return and also helped to decrease the bias that may result from school staff administering the questionnaires, as students may be more prone to hide information about their participation in private tutoring from their teachers (Bray, Kwo, and Jokić 2015).

Table 1 characterises the student population of the senior grade of the ISCED 2 level in the school year of 2018/2019, from which the sample was drawn, and the composition of the final unweighted student sample with regard to the corresponding track.

The return rate at the second stage of sampling was 88%, as 1,280 of the 1,455 eligible students returned the questionnaire and gave usable responses. The number of students in the sample represents 1.44% of the survey population. In accordance with the intention to oversample the gymnasium students to allow for meaningful comparisons, their overall share (i.e. six- and eight-year gymnasium students combined) in the final sample is 2.5 times higher than their share in the population.

Research instrument

The core of the research instrument used for this study was a modified and adapted version of the questionnaire used in the international comparative survey edited by Silova, Būdiene, and Bray (2006) and further adapted for the Czech context by Štástný

Table 1. Student sample and population composition.

	Population	Sampled	Returned	Population %	Sampled %	Returned %
8-year gymnasium	8,971	308	282	10%	21%	22%
6-year gymnasium	2,395	140	129	3%	10%	10%
Basic school	77,458	1,007	869	87%	69%	68%
Total	88,824	1,455	1,280	100%	100%	100%

Source: Ministry ... 2020, tables C1.13.1 and D1.2.6 for population, data on sample from field research

(2016) and Terreros (2018). The first draft was prepared by the researchers working on the project, each item thoroughly discussed during several rounds of review. Items related to the topics and themes contained in the original questionnaire were reviewed, some of them removed or added to correspond with the overall objectives of the research project. The draft questionnaire was reviewed by four students from the target age group, both from basic schools and multi-year gymnasias, and both with and without private tutoring experience. These reviews took the form of cognitive interviews and, after each session, the questionnaire items were adjusted in order to clarify language, avoid misunderstandings and minimise the risk of misinterpretation. After several rounds of such reviews, the questionnaire was piloted in one basic-school 9th grade classroom.

Analytical strategy

Similarly to the research of Silova, Būdiene, and Bray (2006), this study focused on two types of shadow education: private tutoring lessons (paid by parents directly to a private tutor) and private tutoring courses (that are paid to tutoring companies, language agencies etc.); and both concerned only the academic subjects (Mathematics, languages etc.).

The first research question, which focused on comparing the features of these two types of shadow education in regular versus academic tracks, was addressed using basic descriptive statistics (percentages, means, Chi-Square tests). To answer the second research question, that is, to compare the strength of predictors of private tutoring between academic and non-academic track students, two logistic regression models were estimated separately for both groups. More precisely, TUTORING was designated as a dependent variable in the models for students' participation (1) or non-participation (0) in private tutoring lessons or courses during their lower-secondary studies (ISCED 2). The value of TUTORING was 1 if the students gave an affirmative answer to at least one of following questions:

Did you participate in any of the following types of private tutoring during your studies at the lower level of gymnasium or at the second level of basic school?

- (a) Private lessons (you or your parents pay the teacher directly, you take part in the lessons alone or with several other pupils).
- (b) Private courses for a school subject (your parents pay a private tutoring agency, language school ...).

If both questions were answered negatively, the value was 0. This question was placed first in the questionnaire in order to assure a high response rate, and it was also a branching question for subsequent items relevant only to tutored students.

The choice of predictors of private tutoring participation (independent variables) was inspired by the conceptual framework of previous research in the Czech Republic (Štátný 2016). City size, grade average, educational aspirations, gender and cultural capital (operationalised as the number of books at home and highest level of parental education) were included, as much of the previous scholarly literature found them to be significant predictors of taking private tutoring (see e.g. Bray 2020 or Bukowski 2017 for

an overview). The basic descriptive statistics of the applied variables and their coding are shown in the Appendix. Although most of the variables were ordinal (or categorical), they were treated as continuous in the logistic regression models (Williams 2020). Data from questionnaires were analysed in SPSS version 20.

Limitations of the research

The presented research has limitations that have to be acknowledged. First, it is a cross-sectional study among students at the end of lower-secondary education, but the questions asked about their experience with private tutoring during lower-secondary studies. Thus, some information about their previous use of private tutoring in earlier grades may be slightly biased as they had to rely on their memory (Bray, Kwo, and Jokić 2015). Second, the questionnaire data collection began about five months before the entrance examinations to upper-secondary schools. Thus some regular track students, who were answering the questionnaire, may have been undecided about taking part in private tutoring or enrolment in a preparatory course, but with the entrance examinations approaching, they may have made a last-minute decision that was not reflected in the data. Therefore, the prevalence of private tutoring in the basic schools visited at the beginning of data collection might be slightly higher than the results would suggest.

Results

Between-track differences in features of private tutoring

The overall share of students in the whole sample who reported a direct experience with private lessons or courses was 47% (N = 604). The scale of private tutoring participation differed significantly in the two tracks ($\chi^2 [1, N = 1280] = 9.031, p = 0.003$). While in the academic track, 53% (N = 219) of students took private courses or lessons, in the regular track, only 44% (N = 385) reported doing so. When considering the participation in private lessons only, the difference (40% in academic and 35% in regular track) was statistically insignificant ($\chi^2 [1, N = 1280] = 2.92, p = 0.088$) at $\alpha = 0.05$, but it differed significantly in the case of participation in private courses ($\chi^2 [1, N = 1280] = 9.25, p = 0.002$), with 20% of basic school students compared to 27% of multi-year gymnasium students reporting this for their lower-secondary studies.

Senior grade students were asked to recall and indicate the lower-secondary grades in which they took private tutoring. Figure 2 compares the shares of students who took private tutoring in the corresponding grades and tracks. To better illustrate the patterns, the academic track is further distinguished between six- and eight-year gymnasias. The patterns clearly differ between academic and regular tracks. In basic schools the shares rise steadily from 6th to 9th (last) grade, in which 33% of basic school students took tutoring, mostly (in 55% of the cases) to prepare for the entrance examinations to upper-secondary schools. Among six-year gymnasium students, there is a significant spike to 37% in the 7th grade, with about a third of these cases reported as entrance examination preparation, most likely to the multi-year gymnasium. Finally, the eight-year gymnasias have overall higher shares of PT takers, and 36% of them reported taking private tutoring in the fifth grade to prepare for the entrance examinations. The scale of shadow

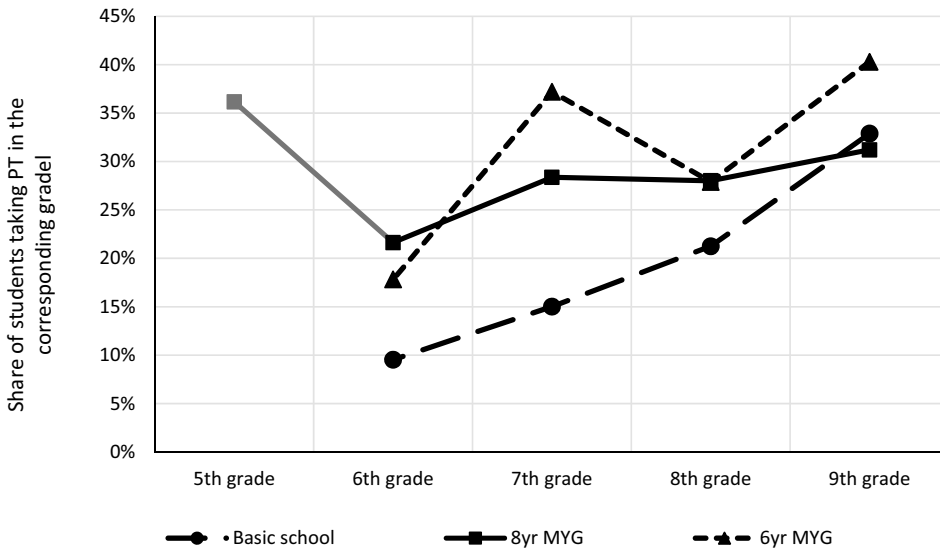


Figure 2. Shares of students who reported taking private tutoring in the corresponding grades. Note: 5th grade responses are applicable to 8 yr MYG respondents only and indicate whether they took private tutoring to prepare for entrance examinations to MYG. However, no further information was gathered by the questionnaire on the nature and features of this tutoring.

education in the senior grades is roughly equal among eight-year gymnasium students or even higher among six-year gymnasium students than among basic school students, even though their parents do not have to invest in tutoring to prepare for entrance examinations.

Comparisons of tutored subjects, reasons for taking private tutoring, motivations, content and intensity during lower-secondary education are conducted with the sub-samples of tutored students only, both in basic schools ($N = 385$) and in multi-year gymnasia ($N = 219$). Students who took private tutoring in more than one subject during their ISCED 2 studies were asked to choose the one in which they took tutoring most often, and their answers, on which the following results are based, are related to that subject.

Figure 3 shows the differences in proportions of private tutoring takers in various subjects for tutoring. Whilst academic-track students more often engage in tutoring in English or other foreign languages (the percentage point differences are 21 or 16, respectively), regular-track students more often take tutoring in mathematics and Czech language (the difference is 28 p. p. or 23 p. p., respectively). Judging from the differences in the curriculum of the tutoring that the students reported taking, Figure 3 suggests that the tutoring has enrichment purposes for higher shares of academic-track students than of regular-track students – almost half of multi-year gymnasium students (49%) have had in their tutoring the curriculum not covered in regular school lessons, compared to only 36% of basic school students. Preparation in advance of the school curriculum was more common in the academic track than in the regular one (38% vs. 28%). Vice versa, school curriculum was covered in 73% cases of tutoring of regular-track students, but only 65% of academic-track students. For 56% of regular-track tutored students, the private tutoring

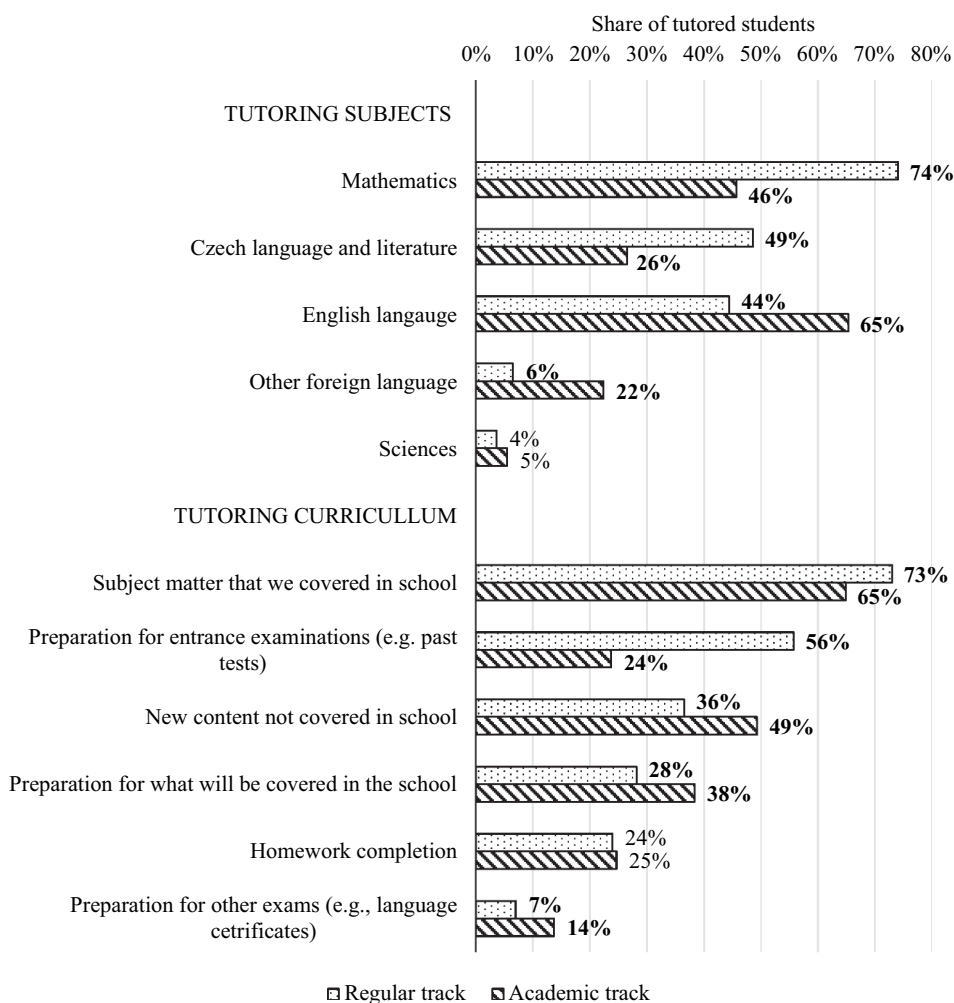


Figure 3. Between-track differences in tutoring subjects and curriculum. Note: Differences significant at $p < 0.05$ or lower are bolded.

curriculum covered preparation for entrance examinations, which they took in their 9th grade, compared to only 24% of academic-track students.⁸

This corresponds also with the reported reasons for which the students took private lessons or courses. Whilst only 27% of basic school tutored students took private tutoring because they wanted to learn something more than is taught at school, the same was reported by 45% of tutored multi-year gymnasium students ($\chi^2 [1, N = 604] = 18.73, p < 0.001$). Vice versa, 42% of tutored regular-track students took tutoring because ‘they needed to catch up, as they did not understand it at school’, but only 29% of academic-track students reported doing so ($\chi^2 [1, N = 604] = 10.98, p < 0.001$).

Other significant differences were found in the duration of private tutoring.⁹ Whilst for the tutored academic-track students, the median duration of their last tutoring in the selected school subject was seven to twelve months, in the case of tutored regular-track students, the median duration was shorter, that is, four to six months.

Between-track differences in predictors of private tutoring

The second part of the analysis compared predictors of taking private tutoring for regular-track students and for academic-track students (descriptive statistics may be found in the Appendix). The results of two logistic models that predict taking private tutoring are shown in Table 2.

The results show that predictors' substantive (as well as statistical) significance differ in both groups. Generally, whilst most of the selected predictors are significantly associated to private tutoring participation among regular-track students, this is not the case for academic-track students. This is also reflected in the overall variance explained by the predictors entered in the models (indicated by Nagelkerke R^2), which is higher in the model for predicting PT participation of regular-track students (14%) compared to students in the academic track (9%). Among regular-track students, the probability of taking private tutoring rises with the number of inhabitants (the size) of the township in which the school is located, but the likelihood in engaging in private tutoring is not affected by the township size among academic-track students. Grade average is significant in both cases, but stronger in the case of academic-track students: if the student's average of grades from mathematics, Czech language and English dropped in their school report for the previous year by one point (on a five-point scale), the odds ratios of taking private tutoring increase on average 1.37 times among regular-track students, but 2.27 times among academic-track students (other variables held constant). Higher educational aspirations (i.e. the highest level of formal education that the student desires to attain) are positively related to taking private tutoring in basic schools, but among academic-track students, these aspirations are irrelevant after accounting for control variables. Furthermore, girls were more likely to receive private tutoring in both the regular track and the academic track, but the coefficient was significant only among students who attend multi-year gymnasias, where the odds ratios to find a privately tutored girl are on average 1.76 times higher than finding a privately tutored boy. If other variables are constant, the odds ratios of finding a student who experienced private tutoring lessons or courses during ISCED 2 are also higher in basic school students' households with a higher reported number of books at home (95% CI for $\exp(B) = 1.03\text{--}1.32$; $p < 0.05$) and higher level of parental education (95% CI for $\exp(B) = 1.26\text{--}1.99$; $p < 0.05$), yet these two predictors are insignificant in multi-year gymnasias.

Discussion

Shadow education at the lower-secondary level of education in the Czech Republic seems to be shaped by between school-level tracking. The analysis of the cross-sectional data from student questionnaires found significant differences both in features and predictors of taking private supplementary tutoring between students in academic (eight-year and six-year gymnasias) and regular track (basic schools) in lower-secondary education. Several discussion points will be made regarding the implication of the findings.

First, the study results do not support the assumption made by Betts (2011) that tracking may decrease parental demand for private tutoring, as they might view the upper-track placement as a substitute. Rather, the study found that the opposite is true,

Table 2. Logistic regression models predicting participation in private lessons or courses during ISCED 2 – a comparison of regular and academic track.

	Regular track (basic schools)					Academic track (multi-year gymnasias)				
	B	S.E.	Wald	Sig.	Exp(B)	B	S.E.	Wald	Sig.	Exp(B)
City size (1–5)	.281	.054	26.882	.000	1.324	.145	.085	2.899	.089	1.156
Grade average (1–5)	.318	.126	6.404	.011	1.374	.820	.221	13.766	.000	2.271
Education aspirations (1–3)	.449	.152	8.782	.003	1.567	.049	.512	.009	.924	1.050
Gender (ref. to male)	.287	.155	3.437	.064	1.332	.566	.215	6.958	.008	1.762
Books at home (0–5)	.155	.063	5.984	.014	1.167	.082	.105	.620	.431	1.086
Parental education (1–3)	.458	.116	15.500	.000	1.581	.094	.221	.183	.669	1.099
Constant	–4.123	.644	41.053	.000	.016	–2.871	1.707	2.829	.093	.057
N (included in analysis)		800				394				
Correctly predicted cases (%)		54				54				
Nagelkerke R ²		0.14				0.09				
Cox and Snell R ²		0.10				0.07				

showing higher shares of academic track students who take private tutoring compared to regular track students, practically throughout the lower secondary grades. Furthermore, the tutored subjects and the purpose of the private tutoring is differentiated. Simply put, while academic-track students take more enrichment tutoring, regular-track students engage in the practice rather for remedial purposes. As a result, the between-track achievement heterogeneity documented in the Czech education system (Straková 2010) may be partly a result of this differentiated use of shadow education between students of academic and regular tracks. Taking English as an example, the Czech School Inspectorate's testing of English in a representative sample showed significant difference of more than 20 p.p. in the success rate between 9th grade students in basic schools and students in corresponding grades of multi-year gymnasia. Thus, the Czech School Inspectorate (2019, 15, translation) conclusion that 'the teaching of foreign languages in multi-year gymnasia is qualitatively more distant to tuition in basic schools than teaching in the other observed subjects' may only be a partial explanation. Knowing that participation in shadow education may under some circumstances positively influence individual student achievements (Bray 2014), this factor of the differentiated scale and purpose of shadow education between tracks is seldom accounted for when discussing achievement heterogeneity resulting from early tracking not only in the Czech Republic, but also in the international literature. Thus, further research that explores the factors underlying between-track achievement heterogeneity shall scrutinise this phenomenon to better explain, why students in the academic track score systematically higher in certain subjects compared to students in other tracks even after controlling for other important variables.

Second, the study confirms an existing link between early tracking, selective entrance examinations and private tutoring, identified already in previous literature, which was clearly visible in the fluctuation of the scale of tutoring at transition points. The early-tracked Czech education system allows to apply for the academic track on two occasions during lower-secondary education, both of which are conditioned primarily by the passing of a selective entrance examination. Thus, the early-tracking system creates additional opportunities for shadow education supply and demand to grow, and some students may even take exams three times during their compulsory education (in the 5th, 7th and 9th grade). If the Czech education system was de-tracked, the competition between students might be reduced, and the use of shadow education for entrance exam preparation, which is often aimed at particular test requirements and not at deep learning and understanding (Bukowski 2017), would likely decrease at least in the 5th and 7th grades.

Third, the analysis of factors underlying participation in private tutoring found that important factors such as city size, educational aspirations, or cultural capital (books at home, highest parental education) do not matter in relation to access to private tutoring for academic-track students, unlike students in the regular track. It might be tempting to view these results as evidence that early placements in the academic track are a means for expanding equitable access to shadow education. However, such an interpretation would be too simplistic when taking into account that students who apply and concentrate in multi-year gymnasia are usually from families in which parents are already ambitious. Although they are not necessarily always highly educated, they may realise the importance of education and perceive it as a means to provide an upwards social mobility for their children (Katrňák 2004), which is then reflected not only in their effort to place their

children in the academic track, but also in further investments in shadow education for their children once they are admitted. The environment of higher educational expectations in academic tracks (Gamoran 2010) may also explain why the grade average plays a more important role in predicting shadow education participation among academic-track students compared to the regular-track ones. Furthermore, girls were found to be more likely to take private tutoring in both tracks, but with stronger effects in multi-year gymnasias. These results reflect the generally higher ambitions and academic aspirations of Czech girls compared to boys, which is reflected not only by their higher relative chances of transition to gymnasias, but also by higher chances in aspiring for tertiary education compared to boys (Matějů and Simonová 2013).

Conclusion

To conclude, the findings of the research can be seen to add further arguments against early tracking, in which the passing of entrance examinations is a key condition for admission to the academic track, as they suggest that an education system organised in such a way nurtures the shadow education sector and puts additional pressure on students and family budgets and that shadow education may partly underlie the achievement gaps between the students of the two tracks, at least in some subjects. Thus, the findings from the study have wider relevance also for other countries whose education systems include early tracking – such as Austria, Germany or Hungary – and may contribute to the current de-tracking debates in these countries.

Notes

1. Some countries, typically those whose education system is based on the Austro-Hungarian model (Germany, Austria or the Czech Republic), start tracking students earlier, that is, already at the lower-secondary level at the age of 10, 11 or 12.
2. Transition rates and the nature of examinations at the entrance to a specific school or track underlie much of the demand for private tutoring. Increasing the proportions of admitted applicants may reduce demand for tutoring, but the relationship is not so straightforward, because rather than whether the student proceeds to the next level of education, the type or quality of the new institution is the key issue (Bray 2009, 77).
3. Guill and Lintorf explain that German admission procedures differ from one state to another. There are neither final exams at primary schools nor admission exams for secondary schools, but primary-school teachers issue recommendations allegedly based on the students' ability and motivation to learn. However, while in some states the choice of a different track is possible with no further effort (low stake recommendation), in other federal states refusing the recommendation would require passing an additional selective entrance exam (high stake recommendation).
4. There were 41,611 students who attended multi-year gymnasias and 367,846 students in the second level of basic schools.
5. In 2018/2019, 40,610 students applied to the eight- or six-year academic track, of which 14,690 were admitted (see Ministry of Education, Youth and Sports 2020).
6. Strakova and Greger (2013) analysed a representative student sample originating from the Czech longitudinal study of education (CLOSE), see <https://pages.pdf.cuni.cz/uvrv-en/close-czech-longitudinal-study-in-education/> for details.
7. That is, 9th grade in basic schools, 4th grade in eight-year gymnasias and 2nd grade in six-year gymnasias.

8. Of these 24%, 40% of six-year gymnasium students took tutoring to prepare for entrance exams (i.e. in the 7th grade, when they were still regular-track students and were preparing for admission to the six-year gymnasium), while only 14% of eight-year gymnasium students did so (those who took private tutoring in the 5th grade were not included as the 5th grade is formally a part of ISCED 1).
9. Students were asked to report how long their tutoring (in the specific subject) lasted, with options from less than two weeks to more than twelve months. The values were coded in the following manner: 8 – more than 12 months; 7 – seven to twelve months; 6 – four to six months; 5 – two to three months; 4 – one month; 3 – three weeks; 2 – two weeks; 1 – less than two weeks.

Acknowledgments

This work was supported by the Czech Science Foundation (GA ČR) under grant no. 18-00939S, *The link between mainstream and shadow education: the case of Czech lower-secondary schools*.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by the Czech Science Foundation [18-00939S].

ORCID

Vít Šťastný  <http://orcid.org/0000-0001-6300-7099>

References

- Becker, M., M. Neumann, and H. Dumont. 2016. “Recent Developments in School Tracking Practices in Germany: An Overview and Outlook on Future Trends.” *Orbis Scholae* 10 (3): 9–25. doi:10.14712/23363177.2017.8.
- Betts, J. 2011. “The Economics of Tracking in Education.” In *Handbook of the Economics of Education*, edited by E. Hanushek, S. Machin, and L. Woessmann, 341–381. San Diego: Elsevier.
- Blažek, R., Z. Janotová, E. Potužníková, and J. Basl. 2019. “Mezinárodní šetření PISA 2018: Národní zpráva [International Survey PISA 2018: National Report].” Prague: Czech School Inspectorate. https://www.csicr.cz/Csicr/media/Prilohy/PDF_el._publikace/Mezin%3%a1rodn%3%ad%20%5%a1et%5%99en%3%ad/PISA_2018_narodni_zprava.pdf
- Boudová, S., V. Šťastný, and J. Basl. 2019. “Mezinárodní šetření TALIS 2018: Národní zpráva [International Survey TALIS 2018: A National Report].” Prague: Czech School Inspectorate. https://www.csicr.cz/Csicr/media/Prilohy/PDF_el._publikace/Mezin%3%a1rodn%3%ad%20%5%a1et%5%99en%3%ad/Narodni-zprava-z-setreni-TALIS-2018_web.pdf
- Bray, M. 1999. *The Shadow Education System: Private Tutoring and Its Implications for Planners*. Paris: UNESCO International Institute for Educational Planning.
- Bray, M. 2009. *Confronting the shadow education system: What government policies for what private tutoring?* Paris: UNESCO International Institute for Educational Planning.
- Bray, M. 2014. “The Impact of Shadow Education on Student Academic Achievement: Why the Research Is Inconclusive and What Can Be Done about It.” *Asia Pacific Education Review* 15 (3): 381–389. doi:10.1007/s12564-014-9326-9.

- Bray, M. 2020. "Shadow Education in Europe: Growing Prevalence, Underlying Forces, and Policy Implications." *ECNU Review of Education* 209653111989014. doi:10.1177/2096531119890142.
- Bray, M., O. Kwo, and B. Jokić, Eds. 2015. *Researching Private Supplementary Tutoring: Methodological Lessons from Diverse Cultures*. Hong Kong: Comparative Education Research Centre.
- Bukowski, P. 2017. "Shadow Education within the European Union from the Perspective of Investment in Education." *European Expert Network on Economics of Education*. http://www.eenee.de/dms/EENEE/AHQ/AHQ_bukowski_02_2017/AHQ_bukowski02_2017.pdf
- Creswell, J. 2012. *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. Boston: Pearson.
- Czech School Inspectorate. 2019. "Rozvoj jazykové gramotnosti na základních a středních školách ve školním roce 2018/2019: Tematická zpráva [The Development of Language Literacy in Basic and Upper-secondary Schools in Academic Year 2018/2019: A Thematic Report]." Prague: Czech School Inspectorate. https://www.csicr.cz/Csicr/media/Prilohy/PDF_el._publikace/Tematick%C3%A9%20zpr%C3%A1vy/TZ-jazykova-gramotnost-2018-2019.pdf
- Czech Statistics Bureau. 2019. "Počet obyvatel v obcích - k 1. 1.2019 [Number of Inhabitants in Townships as of 1. January 2019]." <https://www.czso.cz/csu/czso/pocet-obyvatel-v-obcic-ha0wri436p>
- Długosz, P. 2012. "Korepetycje maturzystów pogranicza w latach 2008–2011." *Kultura I Edukacja* 88 (2): 88–106.
- Długosz, P. 2017. "Korepetycje uczniów jako przykład praktyki w polu edukacyjnym–Polska, Ukraina, Węgry." *Kwartalnik Pedagogiczny* 63 (2): 108–133. doi:10.5604/01.3001.0010.3290.
- Enrich, S., and W. Lauterbach. 2020. "Gender- and SES-Specific Disparities in Shadow Education: Compensation for Boys, Status Upgrade for Girls? Evidence from the German Life Study." *Orbis Scholae* 14 (2): 13–38. doi:10.14712/23363177.2020.10.
- EURYDICE. 2020. *The Structure of the European Education Systems 2020/21*. Brussels: European Commission.
- Feistritzer, G., Ed. 2020. *AK-Studie: Nachhilfe in Österreich 2020*. Vienna: Institut für Empirische Sozialforschung gmbh.
- Felouzis, G., and S. Charmillot. 2013. "School Tracking and Educational Inequality: A Comparison of 12 Education Systems in Switzerland." *Comparative Education* 49 (2): 181–205. doi:10.1080/03050068.2012.706032.
- Gamoran, A. 2010. "Tracking and Inequality." In *The Routledge International Handbook of the Sociology of Education*, edited by M. Apple, S. Ball, and L. Gandin, 213–228, London and New York: Routledge.
- Gamoran, A., M. Nystrand, M. Berends, and P. LePore. 1995. "An Organizational Analysis of the Effects of Ability Grouping." *American Educational Research Journal* 32 (4): 687–715. doi:10.3102/00028312032004687.
- Greger, D., and E. Walterová. 2007. "In Pursuit of Educational Change: The Transformation of Education in the Czech Republic." *Orbis Scholae* 1 (2): 11–44. doi:10.14712/23363177.2018.165.
- Guill, K., and K. Lintorf. 2019. "Private Tutoring When Stakes are High: Insights from the Transition from Primary to Secondary School in Germany." *International Journal of Educational Development* 65: 172–182. doi:10.1016/j.ijedudev.2018.08.001.
- Győri, J. G., Ed. 2020. "Árnyékoktatás – Tanulmány/Shadow education – Study [Special issue]." *Educatio* 29 (2). <https://akjournals.com/view/journals/2063/29/2/2063.29.issue-2.xml>
- Hajar, A. 2020. "The Association between Private Tutoring and Access to Grammar Schools: Voices of Year 6 Pupils and Teachers in South-east England." *British Educational Research Journal* 46 (3): 459–479. doi:10.1002/berj.3587.
- Hille, A., K. Spieß, and M. Staneva. 2016. *Immer mehr Schülerinnen und Schüler nehmen Nachhilfe, besonders in Haushalten mit mittleren Einkommen. DIW Wochenbericht*. Berlin: German Institute for Economic Research.
- Ireson, J., and K. Rushforth. 2011. "Private Tutoring at Transition Points in the English Education System: Its Nature, Extent and Purpose." *Research Papers in Education* 26 (1): 1–19. doi:10.1080/02671520903191170.

- Jansen, D., L. Elffers, and M. L. L. Volman. 2020. "A Place between School and Home: Exploring the Place of Shadow Education in Students' Academic Lives in the Netherlands." *Orbis Scholae* 14 (3): 39–58. doi:10.14712/23363177.2020.11.
- Katrnáček, T. 2004. *Odsouzení k manuální práci: vzdělanostní reprodukce v dělnické rodině* [Sentenced to Manual Work: Educational Reproduction in a Manual Worker's Family]. Praha: SLON.
- Kobakhidze, N. 2018. *Teachers as Tutors*. Hong Kong: CERC.
- Kostecký, T., R. Mikešová, and J. Bernard. 2018. "Střední školy v regionech Česka: Ovlivňuje periferní poloha nabídku škol, poptávku po nich a úspěšnost jejich studentů?" [Secondary schools in the regions of the Czech Republic: Does the peripheral location affect the supply of schools, demand for them and the success of their students?]. In *Nic se tady neděje . . .*, edited by J. Bernard, 92–122. Praha: SLON.
- Kubánová, M. 2006. "Slovakia." In *Education in a hidden marketplace: Monitoring of private tutoring*, edited by I. Silova, V. Büdiene, and M. Bray, 279–303. New York: Open Society Institute.
- Loyalka, P., and A. Zakharov. 2016. "Does Shadow Education Help Students Prepare for College? Evidence from Russia." *International Journal of Educational Development* 49: 22–30. doi:10.1016/j.ijedudev.2016.01.008.
- Maaz, K., U. Trautwein, O. Lüdtke, and J. Baumert. 2008. "Educational Transitions and Differential Learning Environments: How Explicit Between-school Tracking Contributes to Social Inequality in Educational Outcomes." *Child Development Perspectives* 2 (2): 99–106. doi:10.1111/j.1750-8606.2008.00048.x.
- Matějů, P., and N. Simonová. 2013. "Koho znevýhodňuje škola: chlapce, nebo dívky? Rozdíly v dovednostech, školních výsledcích a vzdělanostních aspiracích dívek a chlapců devátých tříd základních škol [Who is Shortchanged in School: Boys or Girls? Gender Gaps in Skills, Grading and Educational Aspirations Among Pupils of 9th Grade of Elementary Schools]." *Orbis Scholae* 7 (3): 107–138.
- Ministry of Education, Youth and Sports. 2019. "Výroční zpráva o stavu a rozvoji vzdělávání v České republice v roce 2019." [Annual report on the state and development of education in the Czech Republic in 2019]. <https://www.msmt.cz/file/53494/download/>
- Ministry of Education, Youth and Sports. 2020. "Statistická ročenka školství - výkonové ukazatele [Statistical yearbook of education system - performance indicators]." <http://toiler.uiv.cz/rocenka/rocenka.asp>
- Prakhov, I., and M. Yudkevich. 2019. "University Admission in Russia: Do the Wealthier Benefit from Standardized Exams?" *International Journal of Educational Development* 65: 98–105. doi:10.1016/j.ijedudev.2017.08.007.
- Sevilla, M. P., and J. Polesel. 2020. "Vocational Education and Social Inequalities in Within-and Between-school Curriculum Tracking." *Compare: A Journal of Comparative and International Education* 1–19. doi:10.1080/03057925.2020.1798214.
- Silova, I., V. Büdiene, and M. Bray, Eds. 2006. *Education in a Hidden Marketplace: Monitoring of Private Tutoring in the Nine Countries of the Former Socialist Bloc*. New York: Open Society Institute.
- Smyth, E. 2009. "Buying Your Way into College? Private Tuition and the Transition to Higher Education in Ireland." *Oxford Review of Education* 35 (1): 1–22. doi:10.1080/03054980801981426.
- Štastný, V. 2016. "Fenomén soukromého doučování jako stínový vzdělávací systém v České republice." [The Private Supplementary Tutoring Phenomenon as a Shadow Education System in the Czech Republic] Dissertation thesis, Charles University, Prague. <https://dspace.cuni.cz/bitstream/handle/20.500.11956/85652/150037392.pdf?sequence=1>
- Straková, J. 2010. "Dopad diferenciací vzdělávacích příležitostí v povinném vzdělávání na vývoj nerovností ve výsledcích žáků v ČR po roce 2000." *Pedagogika* 60 (1): 21–37.
- Strakova, J., and D. Greger. 2013. "Faktory ovlivňující přechod žáků 5. ročníků na osmileté gymnázium." *Orbis Scholae* 7 (3): 73–85. doi:10.14712/23363177.2015.14.

- Terreros, B. 2018. "Soukromé doučování z pohledu žáků českých základních škol: Výsledky dotazníkového šetření u žáků 9. tříd ZŠ ve Středočeském a Ústeckém kraji." [Private tutoring from the point of view of pupils in Czech elementary school. The results of the research of pupils in the 9th grade of elementary schools in the Central Bohemian and Ústí and Labem Regions] *E-Pedagogium* 18 (3): 78–92. doi:10.5507/epd.2018.034.
- Van de Werfhorst, H. 2019. "Early Tracking and Social Inequality in Educational Attainment: Educational Reforms in 21 European Countries." *American Journal of Education* 126 (1): 65–99. doi:10.1086/705500.
- Van de Werfhorst, H., and J. Mijs. 2010. "Achievement Inequality and the Institutional Structure of Educational Systems: A Comparative Perspective." *Annual Review of Sociology* 36: 407–428. doi:10.1146/annurev.soc.012809.102538.
- Williams, R. 2020. "Ordinal Independent Variables." In *Sage Research Methods*, edited by P. Atkinson, S. Delamont, A. Cernat, J. Sakshaug, and R. Williams. <https://methods.sagepub.com/foundations/ordinal-independent-variables>
- Wößmann, L. 2009. "International Evidence on School Tracking: A Review." *CESifo DICE Report* 7 (1): 26–34.
- Zhang, W., and M. Bray. 2018. "Equalising Schooling, Unequalising Private Supplementary Tutoring: Access and Tracking through Shadow Education in China." *Oxford Review of Education* 44 (2): 221–223. doi:10.1080/03054985.2017.1389710.