Dare to dream: A vignette survey on self-selection in secondary education track choice[1]

Tamás Keller
TÁRKI Social Research Institute

Abstract
This paper investigates application to schools in the highest secondary track in Hungary. Even though there is free school choice in Hungary, pupils may not apply to schools in their preferred track as the fear of rejection might deter them. I investigate how pupils' preferences for the highest secondary track interact with their grades during the application process. The paper applies an experimental vignette study to handle the endogeneity in preferences. Respondents are primary school pupils before application to secondary education. They judge the likelihood of a hypothetical student described in the vignette to apply to the highest track. The results show no interaction between preferences and grades, which means that strong preferences do not increase the likelihood of application of those who have weak grades. This is interpreted as a sign of self-selection, which might be fueled by pupils' ignorance of the schools' demands on the grade level. The paper discusses the implications of the findings, primarily that schools should provide transparent information for applicants about the grades of former students who were admitted to that school.

Keywords
Secondary track choice, High-school application, Self-selection, Educational Inequality, Vignette study, Hungary

I. Introduction

In most European education systems, there is more than one track at the secondary level, usually divided into academic and vocational oriented tracks (Betts 2011). Prior scholarship in this field has shown that track choice is strongly connected to the parental social background (Dustmann 2004; Van de Werfhorst, Sullivan, and Cheung 2003). However, this body of research does not always distinguish track choice (admission) from the application, even though there are large social inequality at the application stage (Hoxby and Avery 2013; Hoxby and Turner 2015). While pupils are admitted to secondary schools usually based on their grades, application to secondary education does not require a certain grade level. Even though there are no official statistics about the grade level of those previously accepted to grammar schools in Hungary, I gathered statistics about schools of this analysis, which confirm that applicants are accepted with average or weak grades (see Table 1 in the Appendix). Therefore, I argue that since pupils have no information on what grades are needed for admission, the lack of this information might lead them not to apply for their preferred track. Ultimately therefore, some pupils who would be selected for a higher track do not apply to this track because of fear of rejection.

For this reason, this paper seeks to uncover how preferences modify the impact of pupils' grade during the application to the secondary grammar school track. It focuses on the question how preferences for the highest, academic oriented and college-bound secondary track

(grammar school) moderate (interact with) the impact of pupils' grades in applying to this track. The results show no interaction and this implies that preferences do not increase the likelihood of applying to the grammar school track if grades are weak. I interpret this as self-selection which might be fueled by pupils' ignorance about the exact ability requirements of the schools. This ignorance can raise ungrounded assumptions about the primacy of grades during the application process.

Pupils' preferences are, however, fully endogenous and depend on their social background and grades. Therefore, this paper employs an innovative method, the vignettes survey (Rossi and Anderson 1982; Jasso 2006). Here respondents rate several vignettes on a Likert scale. Vignettes are short descriptions about a hypothetical third-person. They differ in terms of the attributes of the person described, which are randomly assigned to the vignette-person. Therefore, preferences of the described persons are exogenous and show no correlation with all the other characteristics of the described vignette person or with the respondent. This makes it possible to analyze how the pupils' preferences moderate the impact of their grades in the application process since pupils' grades do not pre-determine their preferences.

Vignette surveys have already been used successfully in the labor market (Di Stasio, 2014; Di Stasio & van de Werfhorst, 2016) and educational research (Schulze and Schiener 2011; Finger 2016). Schulze and Schiener (2011) look at what advice trainee secondary school teachers in Germany offer to their pupils in terms of track choice. Finger (2016) analyzes how high school students' college aspirations in Germany translate into intention to apply to college. In the vignette survey, applied in this study, respondents were primary school pupils in grade 7, eleven months before the real application. They rated the likelihood of a described pupil to apply to the secondary grammar school track on an 11-grade scale ranging from 0 to 10. Respondents had to consider 16 vignettes. Thus, the sample size in this study is 2752.

This paper contributes to understanding of secondary track choice in several ways. It suggests that pupils might self-select a lower track for secondary level education since their actual application might be affected by factors which are important in admission but not in application. This is a different interpretation from rational choice theory (Breen and Goldthorpe 1997; Breen 1999), which assumes that rational actors would follow their preferences and opt for secondary schools in the highest track if they prefer the grammar school track.

It also extends our knowledge about the role of subjective beliefs in track choice (Tolsma, Need, and de Jong 2010; Need and Jong 2000; Keller 2016a). These works show that if a pupil believes that they are better than their peers, they are more likely to apply to a higher track. It has also been shown that subjective beliefs about own ability moderate the impact of grades in the application to tertiary education (Keller 2016b). Pupils, however, might adjust their self-perceptions to their potentials, therefore these works fail to answer the question how pupil's subjective preferences translate into application (Finger 2016) and how these preferences interact with pupils' grade.

The study uses the vignettes in a different way to prior research, where respondents evaluated in vignettes different portfolios such as university study programs (Finger 2016), descriptions about fourth grade pupils (Schulze and Schiener 2011), or job applicants (Di Stasio 2016) in their *own* role. In my design, however, respondents were asked to make hypothetical track choices assuming the role of the *described* person. Pupils are taking on a role they will actually play in real life. Preferences are randomly attached to the described vignette person, which enables me to assess an exogenous measure about preferences. Since real life pupils preferences are endogenous, their impact on secondary school application might be biased in prior research (Lannert 2004).

Lastly, the Hungarian example provides an ideal field to observe the role of pupils' preferences for secondary tracks. Unlike many other educational systems (Braun, Dwenger, and Kübler 2007), following preferences in Hungary should pay off (Kóczy 2010), since pupils are

admitted to secondary schools based on their order of preference for schools. Even though the system facilitates the track choice based on preferences, pupils with bad grades might self-select a lower track if their preferences do not compensate for their grades. Therefore, the Hungarian example has consequences for other stratified educational systems, especially if pupils have no knowledge of the actual admission hurdles in secondary education.

II. Secondary education in Hungary: application and admission

II. 1. Application to secondary education

There are three different tracks in the Hungarian secondary education: secondary grammar school track, secondary vocational track and vocational track (see Figure A1 in the online appendix). Pupils at age 14 choose a track, they select a school within the track and they apply for a program in the school (Kóczy 2010). By choosing a particular program, pupils have chosen a track as well because programs taught in a school can follow *only* one track. For the sake of simplicity, I will not differentiate programs within the same school later in the explanation, and I will use the term 'apply to a school' instead of applying for a program.

In the application process pupils fill out an official form where they indicate the names of secondary schools they would like to go to. Secondary schools should be ranked on this list corresponding to pupils' preference order between the schools; so, on the top of the list the most preferred schools are ranked. The preference list needs to be submitted to a governmental authority and in addition to that pupils should submit an application form to each secondary school on their list. The application procedure is administered by the primary schools, therefore there are no falsely submitted applications or missed deadlines.

Application is free and, the number of schools on the list is not limited. Pupils can apply to any school, not only the schools in the neighborhood (there are no real catchment areas). Pupils with their residence close to a particular secondary school do not have higher probability of admission compared to someone living further. The algorithm which matches pupils with their preferred school is a Gale–Shapley type matching (Gale and Shapley 1962). The governmental authority does this anonymously. Schools do not know the rank position of their school on the pupils' preference list, therefore they cannot act tactically since they do not have the right to decide about acceptance or refusal. Acceptance is decided by the governmental authority which matches pupils' preferences with schools' demands. Pupils are admitted by the first school in their list where they fulfil the admission requirements.

II. 2. Admission requirements and their implications

There are three possible distinct requirements for admission to secondary education in Hungary: prior school grades (1), written admission test (2) and personal interview (3). *Grades* are prior school marks in subjects selected by the secondary school. Schools have the right to determine the list of subjects they consider in the admission procedure. They usually require end-term grade in year 7 and mid-term grade in year 8. The *Written admission test* is a competence based test in math, and Hungarian grammar, each is 45 minutes long, which is centrally organized by the Educational Authority. The *oral interview* is a structured conversation with some teachers from the school, which is organized by the schools.

Not every secondary school demands all the requirements. The three requirements might be combined into three different *patterns* (later referred to as admission protocol): a) only

grades; b) grades and written admission test; c) grades, written admission test and oral interview. Approximately half of the secondary schools prescribe only grades as a basis of their admission protocol. The total attainable score of pupils in the admission procedure is the sum of the scores obtained separately on each component of the patterns. In all three patterns of admission requirements prior school grades are a significant part of the total attainable score (with 100%, 50% or 25% weight).

As plotted in Figure A2 in the online appendix, before the deadline of application to secondary education (February) schools *have to publish* their admission requirements (previous October). They publish the pattern of admission requirement they apply in their admission protocol. They also publish the list of subjects and the number of years of final grades to be considered. Schools publish this information online on their homepage. The Educational Authority publishes a searchable informational summary database on their homepage containing this information for every secondary school. A printed version of this information about all the secondary schools is sent to every primary school in Hungary.

Schools, however, *do not publish* actual grades or the attained final total score of those who were admitted into the school in previous years. Pupils therefore do know what needs to be submitted in the admission procedure, but they do not know anything about the actual cut off point in terms of grades and their own chances of being accepted. The lack of accurate information about their own admission prospects might feed perceptions about it. These perceptions, however, might be biased and lead to self-selection. Even though there are lists about the ranking of secondary schools in Hungary (Neuwirth and Horn 2007), these are based on exit (those who have graduated) not on entry information (those who were admitted). Pupils can only guess the admission chances for a particular school.

In this application system, rational actors should rank their preferences honestly. This means that possible (or perceived) admission chances should not change the preferences of applying for secondary education. Admission chances depend on the pool of applicants, which is not known before and they *are not published*.

III. Possible determinants of educational choices

Pupils presumably do not select exclusively based on their preferences when they apply to secondary education. Therefore, the research has to consider other factors that are in play. My aim is to define them separately and apply them as varying parts in the texts of vignettes. I chose these factors (*dimensions*) of educational track choices based on many different social theories. None of these theories are, however, used exclusively.

This paper acknowledges the important contribution of rational choice theory in the explanation of status inequality in educational decisions (Stocké 2010). However, this tradition is not exclusively followed in defining the applied dimensions of educational choices in this vignette study. Since respondents are 13-14 year old pupils, they are not regarded as mature enough to grasp such complicated constructs (determined by this theory) like the social status of their parents, the importance of status maintenance, or subjective success probability (Breen and Goldthorpe 1997). Instead the aim was to make the descriptions in the vignette as concrete as possible and to avoid rather abstract concepts. Furthermore, I reviewed the prior literature to establish other relevant factors which might explain educational decisions like distance (Spieß and Wrohlich 2008) and friends (Antonio 2004). I interpreted educational choices as a kind of cost-benefit calculation (Levin 1991).

First of all *preference*s are considered as a dimension in the vignettes'. Preferences measure whether the described person in vignettes aims to apply to secondary grammar school. Three categories are distinguished: a.) Will definitely apply to schools within the secondary grammar track (clear and positive preference), b.) Not sure whether to apply to schools in the

secondary grammar track (no clear preference), c.) Is definitely against applying to schools within the secondary grammar track (clear and negative preference). Pupils' preferences might be explained by their motivations. A further question is why pupils have a certain kind of motivation regarding school choice. Even though the paper acknowledges that this is an important research area to study (Eccles and Wigfield 2002; Eccles 2009), this study does not aim to explore and identify the factors which could explain why pupils have a certain kind of motivation. Inevitably appropriate preferences for further education requires realistic self-conception (Guo, Parker, Marsh, & Morin, 2015; Jackson, 2003) or self-assessment (Silverthorn, Dubois, and Crombie 2005; Sullivan 2006).

Educational decisions might also have *ability costs*. If somebody is not talented enough he or she is not likely to choose the most competitive and academically oriented educational track. Even though grades and ability are different concepts (Keller 2016b), ability could be proximate with grade point average. Grades are the visible part of the application process and are easily observable for pupils. They know their own grades, and usually also their classmates' grades. As a dimension, therefore, I will include the grade level of the person described in the vignettes. Four categories of grades will be deployed: a.) Excellent (all grade 5); b.) Good (mostly grade 4 and 5); c.) Satisfactory (mostly grade 3 and 4); d.) Bad (mostly grade 2 and 3).

Parental wishes could also contribute to the track choice. These wishes are perceived as the causal mechanism behind the effect of social status (Boudon 1974; Jackson et al. 2007; Schindler and Reimer 2010; Stocké 2007; Stocké et al. 2011) and are mostly understood as an attempt to avoid downward mobility (Breen and Goldthorpe 1997). Parental influence could be understood as an *innovation cost*, which pupils must pay in order to decide against their parents. Two variants of parental attitudes are described in the vignettes: a.) The parents want their child to apply to schools within the grammar school tack; b.) Application to schools within the grammar track is not important for the parents.

Pupils might prefer to choose secondary schools because their peers also choose a particular track (Antonio 2004). Therefore, educational decisions might also have *social cost*. In Hungary, elementary and secondary schools are different institutions. They have different principles, employ different teachers and are in different buildings. Pupils probably do not want to lose their friends once they transit from elementary to secondary education. Therefore, they might choose those tracks and within the track those schools which their classmates or friends also choose. I differentiated three different scenarios about peers' application-behavior: a.) Many classmates are applying to schools on the grammar school tack; b.) Some classmates are applying to schools within the grammar school track; c.) Nobody from the classroom is applying to schools within the grammar school track.

Secondary schools also have special characteristics, which might also modify the choice that would be optimal based solely on ability. Some secondary schools require the written admission test as part of their admission protocol. As matters stand, usually better quality schools require this admission test. Even though the test corresponds to pupils' actual knowledge as taught in schools it is necessary (and recommended by primary school teachers) to complete prior tests to practice and to develop special test-solving skills. This means that pupils aiming to choose the highest track face *investment cost*. In the vignettes, there are also schools a.) with and b.) without a written admission test.

Lastly primary schools might differ in the numbers of available secondary schools in a catchment area. In towns, there is usually more than one accessible school from each secondary track. However, even in this case, and especially in larger towns, travelling is an issue. Pupils from the suburbs of larger cities as well as those living in villages might commute to the chosen school on a daily basis. There are not too many boarding schools available in Hungary, and often low status parents cannot afford to send their children to these schools. Hence *opportunity costs* probably also modify educational choices. In the vignettes, I assumed that the particular

secondary grammar school is in a.) Walking distance; b.) Requires approximately 25 minutes of traveling from home; c.) Requires at least at least 1 hour travelling from home.

These theoretical determinates of educational choices are represented as *dimensions* in the vignettes (Table 1). The *level of dimensions* are the different categories within a particular dimension. Since every vignette contains only one level per dimension, the product of levels per dimension corresponds to the number of possible vignettes, also called as *vignette universe.* In this study, it equals to 432 possible combinations ($4\times3\times2\times3\times3\times2$).

[Table 1]

IV. The fieldwork

The fieldwork for the vignette survey was conducted in March 2016. Respondents are primary school pupils in the 7th grade. They are eleven months before real application. There are 222 pupils in six selected schools and twelve classrooms. Out of them 173 (due to absent pupils) participated in the survey. Table 2 contains the response rate in each classroom. Except for one classroom (Class 6 in School 2) the response rate in the survey was at least 60%. In 6 classrooms, out of the 12, more than 80% of pupils participated in the survey.

[Table 2]

Respondents are not a representative population of 7th grade Hungarian pupils. The selected classrooms and schools are however fairly different as Table 3 shows. The selected schools are nested in four different counties (including the capital) and are spread in 5 different settlements with differing population size (two schools are in the capital; all other schools are located in different settlements). There are also small, medium and large settlements in the sample.

[Table 3.]

Pupils filled out the questionnaire (paper and pencil) in their classroom during a normal lesson. The beginning of the questionnaire contained a brief explanation about the differences between possible secondary tracks available. Respondents were informed that they should only think about the application of the described person (not admission). On average pupils needed approximately 12 minutes to work through the 16 questions and the 8 demographic questions. The fieldwork was administered by trained interviewers who explained the task to pupils. The questionnaire contained 16 vignettes and some questions about the respondent (e.g. their own gender, their own grades, preferences, etc.). A sample vignette is shown in Figure 1. Missing data is also relative rare in the questionnaires. Altogether 12 persons failed to answer all the vignettes. Usually the answer for one vignette is missing.

[Figure 1]

Vignettes introduced randomness into the research at many levels. First, out of the vignette universe, randomly drawn vignette-samples (without replacement) were deployed in each classroom. Because the vignette universe is relatively small, and the drawn random vignette-samples are fairly large, the random samples were preferred over the D-efficient sample, which seeks the greatest amount of information to be representing out of the levels of the vignettes in order to maintain orthogonality between the dimensions. Under such

circumstances, however, random samples produce relatively similar results to the D-efficient (Auspurg and Hinz 2015: 34). Secondly, in each classroom, pupils filled out a different questionnaire version, which was randomly assigned to the respondents. Lastly the order of the dimensions within a vignette varied according to four patterns. These patterns were randomly assigned to each vignette in the questionnaire. This randomness aims to deal with the effect that dimensions mentioned first (or last) in the vignette might receive more attention.

V. Results

The dependent variable in the analysis is the estimated likelihood to apply to the highest secondary track. This likelihood is estimated by the respondents for the hypothetical third person described in the vignettes. The analysis covers three issues. The first concerns the differences between 'preferences to choose' a track and the 'intention to apply' for this track. This will be analyzed by comparing the mean values of estimated probability to apply by the different levels of preferences. The second asks why 'preferences to choose' and 'intention to apply' do not perfectly correspond. Here, multivariate random and fixed effects regression are employed, so the variance in respondents' unobserved characteristics are controlled for. Lastly, the aim is to investigate the interaction between preferences and the factors that also influence the pupils' application.

V. 1. The mismatch between 'preferences for' and 'intention to apply to' the secondary grammar school track

The first issue investigates the difference between how preferences translate to application intention. According to preferences for the highest secondary track there are significant differences in application intention. Table 4 shows the average intention to apply to schools within the grammar school track at different levels of preferences. Not surprisingly, while rating the vignettes respondents perceive that those with clear and positive preferences to apply to the grammar school track are more likely to choose this track than those who are not sure about it ($b = -1.32$; $p < 0.01$) or those who have clear negative preferences ($b = -2.41$; $p < 0.01$). The difference between those with negative and unclear preferences is also significant ($b = 1.1$; $p < 0.01$).

Even though the fictional candidate in the vignettes expresses clear and positive preferences for the secondary grammar track, only two out of three (66%) are judged by the respondents to apply to this track. This number is much lower than the figure found in prior – survey based – research (Lannert 2004: 72), and might reflect the suitability of factorial design to research the impact of educational preferences in application. This relatively low figure indicates that preferences are not binding in the application to secondary education. Once pupils decide about secondary education they consider quite a few factors besides their preferences.

[Table 4.]

V. 2. Why 'preferences for' and 'intention to apply' do not correspond

The second issue investigated why preferences for a track and the intention to apply to this track do not perfectly correspond. The findings reveal that besides preferences, pupils consider quite a few other factors in the application process. Table 5. summarizes the estimated probability to apply to the secondary track. Column 1 summarizes the OLS results. Random effect estimation is performed in column 2, where individuals are allowed to have different intercepts, but these intercepts are not directly estimated. In column 3 all individual differences (unobserved characteristics of respondents) are controlled for, which shows the result of fixed effect estimation.

Note that the assumption in random effect model is plausible since respondents received a random set of vignettes, and the dimensions of vignettes were combined randomly. Differences between the estimated coefficients of random and fixed effect estimations turned out to be not significant after performing a Hausman test (Chi2 = 13.99, p = 0.233). This means that unobserved individual differences did not significantly bias the effects. Throughout the analysis, therefore, the random effect model is considered as a reliable estimation. It models the differences between respondents correctly, but allows us to analyze the between-individual variance.

Preferences for the highest track do have a significant and positive effect on estimated intention to apply to the secondary grammar track. Compared to those who have no clear preferences (Table 5, Column 2), clear and positive preferences to choose the secondary track increase application-intentions by approximately 1.3 units (b= 1.334; p < 0.01), which would be equivalent to an almost 13 percentage point change. This is a large effect considering the standard deviation of application intention (last row of Table 4), since it is approximately one half of that. All else equal, clear and negative preferences (compared to not clear preferences) decrease the intention to apply by 1.065 units (p < 0.01). Furthermore, one could say that if someone clear and positive preference to apply to the grammar school track it would count as much as being very good in school (there is no difference between the two parameters: F=0.49, p = 0.48). Clear and negative preferences for this track hinders, however, the application as much as having very low school performance (F=1.25, p = 0.26) or lacking a supportive parental background (F=0.66, p = 0.41), since there is also no statistical difference between these parameters.

All the other dimensions influence application intention in the assumed direction: grades increase the application probability, as do parental wishes and peers' intention. The existence of a written admission test in a school, however, does not make any significant difference in the estimated application intention. It is possible that the schools that prescribe such an exam are the better-quality schools (this would probably increase pupils' motivation to apply to these schools). However, written admission tests could also deter pupils from applying, since they would need to invest energy in preparing for this test. These two mechanisms having different directions, therefore, they might cancel each other out.

Distances seem to operate only after a relatively large (at least 1 hour) distance, since compared to having a secondary track school within walking distance, 25 minutes travelling makes only a marginally (at the 10% level) significant decrease in application. When interpreting the results, one can argue that pupils consider quite a few factors when they decide about secondary education. Among those factors, personal preference is only one.

[Table 5.]

V. 3. How preferences might moderate the impact of these other factors

The last issue investigated was the interaction between preferences and the factors that also influence the pupils' application. Here I will visualize only some of the findings, and my calculations are based on the random effect models. However, all the possible second order interactions between preferences and the five other dimensions appear in Table A1 in the online appendix.

Figure 2. shows that preferences do not modify the impact of grades. The estimated probability to apply to the highest secondary track at each level of grades shows parallel lines at each level of school grades whatever preference level is indicated in the vignette. Since grades are not sensitive to preferences pupils might interpret them as too high a barrier. This indicates that pupils who believe that they do not have good enough grades might be less likely to apply to their preferred track regardless of their preferences.

[Figure 2]

Nevertheless, there is significant interaction between preferences and other determinants of the application, for example in case of parental attitude and own preferences (Figure 3). The slope of own preferences is larger among those whose parents are not supportive in applying to the highest track. While the difference between the two lines (parents who want their child to apply / those for whom it is not important) is 1.35 units if preferences are clear and negative, it becomes 0.55 under clear and positive preferences. The findings indicate that individual preferences might compensate for the lack of parental support.

[Figure 3]

Clear and positive preference for the secondary grammar track decreases the difference between those whose classmates apply mostly to schools in the secondary grammar track and those whose classmates do not apply to schools in this track. While the difference between the two lines (many classmates / no classmates) in Figure 4 is approximately 0.63 units having clear and negative preference, the gap is nearly 1 unit if preferences are not crystallized (no clear preference), and the same difference decreases to 0.27 units if there is clear and positive preference for the secondary grammar track. The non-linearity might be explained by the fact that if somebody has very clear preferences (either negative or positive) classmates might not have enough influence. However, if preferences are not yet crystallized, the preferences of classmates might have a moderating effect.

[Figure 4]

VI. Discussion

In this research, I employed an experimental design to investigate how preferences moderate the impact of grades in the choice for secondary grammar school. Since prior school grades play a significant role in schools' admission protocol, pupils might perceive their grades as not good enough to apply. Thus, those who have weak grades but strong preferences for the highest secondary track might be deterred from applying this track. Therefore, I tested empirically how preferences interact with grades during the application. Because preferences are endogenous, I

employed a vignette survey. Here preferences and grades are randomly attached to the vignette person, and respondent were asked to answer questions from the role of this person.

Not surprisingly, the findings presented here indicate that preferences have a large effect on pupils' application intentions. Surprisingly, however, even though the described vignette-person had clear and positive preferences to choose the grammar school track, respondents did not indicate a particularly high probability to apply to this track. Furthermore, even though preferences compensated for the negative effects of parental stimulation and for the lack of encouraging peer effects, they did not modify the impact of grades in the application procedure.

It is indeed remarkable that pupils perceive that it is easier to reconcile their own preferences with parental wishes (there is interaction), than align their own preferences with grades (there is no interaction). This finding is probably the consequence of asking pupils, instead of their parents, about educational decisions. Parents are much more driven by class specific values and beliefs (Breen 1999), which are hard to change and that have a large impact on decisions about further education. Regarding the peer-effect, the findings presented here show that the marginal effect of peers on pupils' own application intentions differs according to pupils' own preferences. This finding is in line with other research establishing heterogeneity in peer effect (Bruke 2013, Guo 2015).

The results do not suggest applying *without* the necessary knowledge or ability. The concern is much more that many pupils are reluctant to apply even *with* the necessary knowledge (Sjögren and Sällström 2004). The aim would be not to push all pupils to the highest track but to prevent them from choosing a lower track if they could be qualified for a higher track.

VI.1. Limitations

One clear limitation of the results presented here is that the vignette survey has been employed on a population of pupils. Even though the factorial survey design enabled me to study educational preferences under experimental circumstances, which might give an unbiased estimation on the role of preferences in application procedures, the 'voice' of parents in the choice situation was probably, at least partly, not heard. In the vignettes, pupils were confronted with two possible parental attitudes; however, the answers were rated by pupils. Clearly, parents have a clear say in their offspring's secondary track choice. Pupils might judge the situation described in the vignettes either partially or completely differently from their parents. Furthermore, when understanding parental attitudes about children's track choice, other dimensions – which are not included in this research – might also be important. Such dimensions could be how parents regard their children's ability, what kind of preferences they might have towards their offspring's future employment status, etc. (Stocké 2007). Therefore, the results provide an interpretation from the viewpoints of pupils.

Another possible limitation of the result is that in the research I focused exclusively on application to the secondary grammar school track. However, pupils not only choose among tracks, but among schools within the track and probably also among school classes within the school. Within the same track there are substantial differences between secondary schools. Especially in larger cities, there is more than one secondary school within the same track, but in smaller towns and villages (these settlements are also part of our sample) there might be only one secondary grammar school within a reasonable distance. So, while the choice of a track incorporates the choice of the school in small settlements, in larger cities there is more freedom in the decision. These results do not have any implications on how school choice is influenced by pupils' preferences. Given these limitations the results still clearly show that there is an element of self-selection in application.

VI.2. Conclusion

Throughout the paper, I argued that pupils' ignorance about schools' demand on the grade level might influence them not to apply to their preferred track because of the fear of rejection. However, if schools overcome applicants' ignorance by publishing the prior school grades of those admitted to that school in the past, the role of self-selection in the system might be mitigated. The availability of these statistics might encourage parents to support their children's ambitious track choices. This would probably also encourage teachers, who unfortunately often talk pupils out of applying to schools in the highest track if their grades are merely average. Besides transparent information about admission chances, policy reforms might motivate every interested pupil to apply to the highest secondary track. Ultimately, pupils should follow their preferences; they should dare to dream and not limit their perspectives by thinking about perceived admission requirements. They should apply to all the schools they like. If young people were to act according to their dreams, educational inequalities might decrease, since those who do not apply give themselves no chance at all.

My findings invite researchers to plan informational campaigns and test whether accurate information about actual admission hurdles into secondary education might mitigate self-selection. Prior information campaign (McGuigan, McNally, and Wyness 2014; Bettinger et al. 2009) gave information to pupils almost exclusively about the monetary returns of education. However, future research should clarify whether information about the schools' admission demands increase pupils' application to secondary grammar schools.

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Tables

Table 1: Dimensions and levels of vignettes

Dimension	Level
1. Preferences	a.) Will definitely apply to schools on the secondary grammar track (clear and positive preference) b.) Not sure whether to apply to schools on the secondary grammar track (no clear preference) c.) Is definitely against applying to schools on the secondary grammar track (clear and negative preference)
2. Grades	a.) Excellent (all grade 5) b.) Good (mostly grade 4 and 5) c.) Satisfactory (mostly grade 3 and 4) d.) Bad (mostly grade 2 and 3)
3. Parental wishes	a.) The parents want their child to apply to schools on the grammar school tack b.) Application to schools within the grammar track is not important for the parents
4. Peers intentions	a.) Many classmates are applying to schools on the grammar school tack b.) Some classmates are applying to schools on the grammar school track c.) Nobody from the classroom are applying to schools on the grammar school track
5. Distance from grammar school	a.) Walking distance b.) Requires approximately 25 minutes of traveling from home c.) Requires at least at least 1 hour travelling from home
6. Written admission test	a.) Yes b.) No

Table 2: Response rate by classrooms in the survey

School ID	Class ID	Total N	Participated (N)	Response rate (%)
School 1	Class 1	17	8	47.06%
	Class 2	22	20	90.91%
	Class 3	23	19	82.61%
	Class 4	26	21	80.77%
School 2	Class 5	14	11	78.57%
	Class 6	15	9	60.00%
School 3	Class 7	16	16	100.00%
	Class 8	18	15	83.33%
	Class 9	21	15	71.43%
School 4	Class 10	21	15	71.43%
School 5	Class 11	19	18	94.74%
School 6	Class 12	10	6	60.00%
Total		222	173	77.93%

Table 3. Descriptive information about the classrooms participated in the survey

School ID	Class ID	Rich children (%)	Roma children (%)	Female (%)	Will apply to grammar school (%)	Grammar school in walking distance	Specialization
School 1	Class 1	30	0	50	100	Yes	Yes
	Class 2	68	0	50	90	Yes	Yes
	Class 3	3	0	26	100	Yes	Yes
	Class 4	20	0	62	95	Yes	Yes
School 2	Class 5	0	80	45	0	Yes	No
	Class 6	0	80	78	10	Yes	No
School 3	Class 7	5	20	56	10	Yes	No
	Class 8	0	53	73	17	No	No
	Class 9	5	20	13	20	Yes	No
School 4	Class 10	20	80	60	5	No	No
School 5	Class 11	0	5	39	75	No	Yes
School 6	Class 12	0	60	67	30	No	No

Table 4: The estimated average intention to apply to schools within the grammar school track by different levels of preferences for this track

Preferences	Mean	SD	N
Clear and positive	6.63	2.69	913
No clear preference	5.31	2.48	918
Clear and negative	4.21	2.60	921
Total	5.38	2.77	2752

Table 5: Explaining the intention to apply to schools within the grammar school track, regression results

	(1) OLS	(2) Random effect	(5) Fixed effect
Preferences			
Clear and positive	1.359**	1.334**	1.323**
	(0.110)	(0.104)	(0.105)
No clear preference	Ref.	Ref.	Ref.
Clear and negative	-1.062**	-1.065**	-1.067**
	(0.110)	(0.104)	(0.106)
Grades			
Excellent	1.501**	1.445**	1.423**
	(0.127)	(0.120)	(0.121)
Good	0.973**	0.934**	0.918**
	(0.127)	(0.120)	(0.122)
Satisfactory	Ref.	Ref.	Ref.
Bad	-0.868**	-0.886**	-0.893**
	(0.128)	(0.121)	(0.122)
Parents			
Want their child to apply	Ref.	Ref.	Ref.
Application not important	-0.890**	-0.956**	-0.982**
	(0.090)	(0.085)	(0.086)
Peers' intentions			
Many is applying grammar school	0.605**	0.607**	0.608**
	(0.110)	(0.104)	(0.105)
Some is applying grammar school	0.387**	0.328**	0.304**
	(0.110)	(0.104)	(0.105)
Nobody is applying grammar school	Ref.	Ref.	Ref.
Written admission test			
Yes	Ref.	Ref.	Ref.
No	0.022	0.034	0.038
	(0.090)	(0.085)	(0.086)
Distance from grammar school			
Walking distance	Ref.	Ref.	Ref.
25 minutes of traveling	-0.161	-0.197+	-0.210*
	(0.109)	(0.104)	(0.105)
1 hour travelling at least	-0.748**	-0.760**	-0.764**
	(0.111)	(0.105)	(0.106)
Constant	5.270**	5.365**	5.409**
	(0.156)	(0.162)	(0.149)
Observations	2,752	2,752	2,752
R-squared	0.281		0.422
Individual FE	No	No	Yes
BIC	12608	12426	12006
ll	-6257	-6158	-5956
F	97.24**		106.2**
Wald chi2		1195**	

Standard errors in parentheses. ** p<0.01, * p<0.05, + p<0.1

Appendix Table 1: Statistics about the grammar schools nearby to the primary schools in the sample. Median and minimum GPA of those who had been admitted

Primary School ID	Grammar school		
	Median	Minimum	N of schools
School 3	4.12	2.88	3
School 4	4.33	2.80	3
School 6	4.15	2.85	4

Note: The GPA contains grades in five subjects: math, Hungarian literature, Hungarian grammar, history, and foreign language. There are five grades (no decimals), one is the worst five is the best. The distribution of grades in Hungary is left-skewed.

Figures

Figure 1: Sample vignette used in the survey

How likely do you find it that a pupil with the following characteristics would apply to schools on the secondary grammar school track after finishing grade eight in the primary school. Here, we are interested in the application regardless of whether the given pupil will or will not be admitted later.

Figure 2: Predicted average probability to apply secondary grammar school track by individual preferences and grades
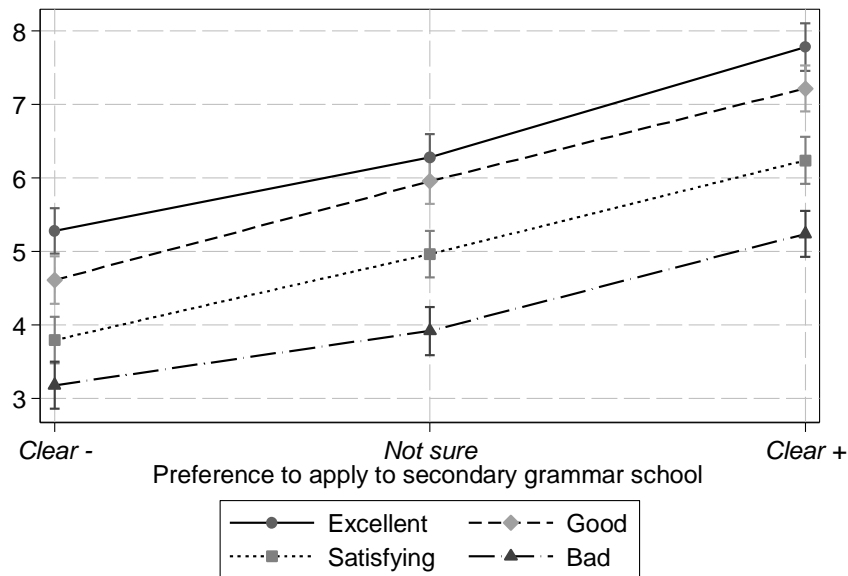
Figure 3: Predicted average probability to apply to secondary grammar track by individual preferences and parental wishes
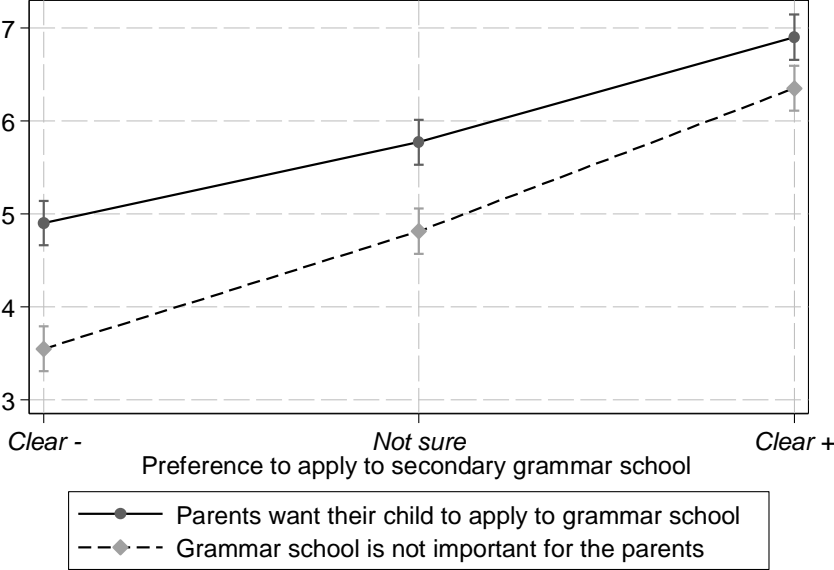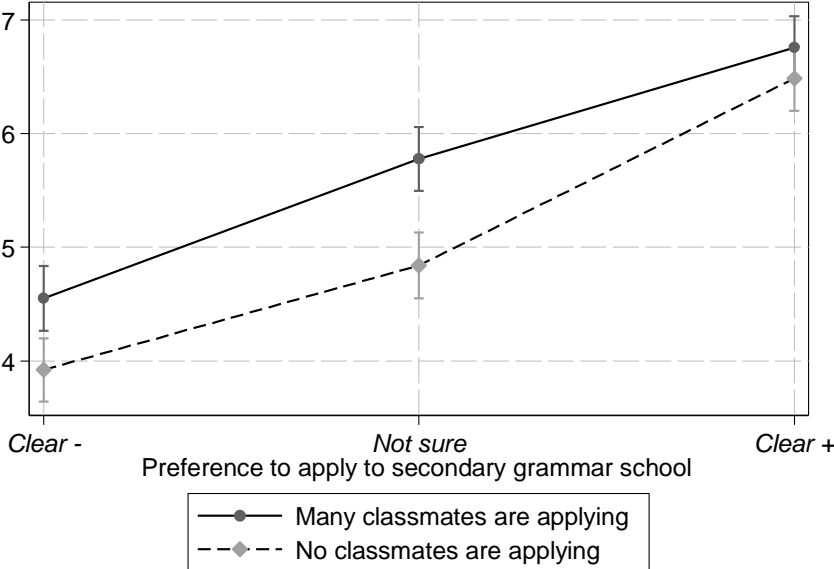

Figure 4: Predicted average probability to apply secondary grammar track by individual preferences and pears' intentions

Online Appendix

Tables
Table A1: Explaining the intention to apply to secondary grammar school, pairwise interaction with preferences, random effect regression results

	(1) Parents	(2) Grade	(3) Peer	(4) Admission	(5 Distance
Preferences					
Clear and positive	Ref.	Ref.	Ref.	Ref.	Ref.
	-1.129**	-1.495**	-0.980**	-1.295**	-1.339**
No clear preference	(0.147)	(0.208)	(0.177)	(0.146)	(0.178)
Clear and negative	-1.999**	-2.500**	-2.208**	-2.366**	-2.497**
	(0.147)	(0.206)	(0.178)	(0.146)	(0.178)
Grades					
Excellent	Ref.	Ref.	Ref.	Ref.	Ref.
Good	-0.515**	-0.562**	-0.516**	-0.512**	-0.513**
	(0.119)	(0.208)	(0.119)	(0.119)	(0.119)
Satisfactory	-1.449**	-1.539**	-1.454**	-1.445**	-1.445**
	(0.120)	(0.211)	(0.120)	(0.120)	(0.120)
Bad	-2.335**	-2.538**	-2.341**	-2.332**	-2.333**
	(0.120)	(0.208)	(0.120)	(0.120)	(0.120)
Parents					
Want their child to apply	Ref.	Ref.	Ref.	Ref.	Ref.
Application not important	-0.549**	-0.954**	-0.959**	-0.956**	-0.959**
	(0.147)	(0.085)	(0.085)	(0.085)	(0.085)
Peers' intentions					
Many is applying	Ref.	Ref.	Ref.	Ref.	Ref.
Some is applying	-0.277**	-0.270**	-0.059	-0.279**	-0.276**
	(0.103)	(0.104)	(0.180)	(0.104)	(0.104)
Nobody is applying	-0.604**	-0.599**	-0.269	-0.608**	-0.601**
	(0.104)	(0.104)	(0.178)	(0.104)	(0.104)
Written admission test					
Yes	Ref.	Ref.	Ref.	Ref.	Ref.
No	0.040	0.038	0.032	0.083	0.034
	(0.085)	(0.085)	(0.085)	(0.147)	(0.085)

Distance from grammar school					
Walking distance	Ref.	Ref.	Ref.	Ref.	Ref.
25 minutes of traveling	-0.201+	-0.197+	-0.198+	-0.196+	-0.399*
	(0.103)	(0.103)	(0.103)	(0.104)	(0.177)
1 hour travelling at least	-0.763**	-0.756**	-0.753**	-0.759**	-0.649**
	(0.105)	(0.105)	(0.105)	(0.105)	(0.182)
Preferences × Parents					
No clear preference × Application not important	-0.409*				
	(0.208)				
Clear and negative × Application not important	-0.803**				
	(0.208)				
Preferences × Parents					
No clear preference × Good		0.233			
		(0.290)			
No clear preference × Satisfactory		0.220			
		(0.296)			
No clear preference × Bad		0.173			
		(0.295)			
Clear and negative × Good		-0.104			
		(0.293)			
Clear and negative × Satisfactory		0.055			
		(0.293)			
Clear and negative × Bad		0.441			
		(0.292)			
Preferences × Peers					
No clear preference × Some is applying			-0.424+		
			(0.253)		
No clear preference × Nobody is applying			-0.668**		
			(0.256)		
Clear and negative × Some is applying			-0.238		
			(0.256)		
Clear and negative × Nobody is applying			-0.360		
			(0.253)		

Preferences × Written admission test					
No clear preference × No				-0.079	
				(0.208)	
Clear and negative × No				-0.068	
				(0.208)	
Preferences × Distance					
No clear preference × 25 minutes of traveling					0.257
					(0.252)
No clear preference × 1 hour travelling at least					-0.258
					(0.257)
Clear and negative × 25 minutes of traveling					0.344
					(0.252)
Clear and negative × 1 hour travelling at least					-0.062
					(0.255)
Constant	8.548**	8.833**	8.580**	8.728**	8.786**
	(0.170)	(0.192)	(0.177)	(0.170)	(0.179)
Observations	2,752	2,752	2,752	2,752	2,752
N of groups	173	173	173	173	173
BIC	12427	12467	12450	12441	12452
ll	-6150	-6155	-6154	-6158	-6155
Wald chi2	1216**	1204**	1205**	1195**	1202**

Standard errors in parentheses

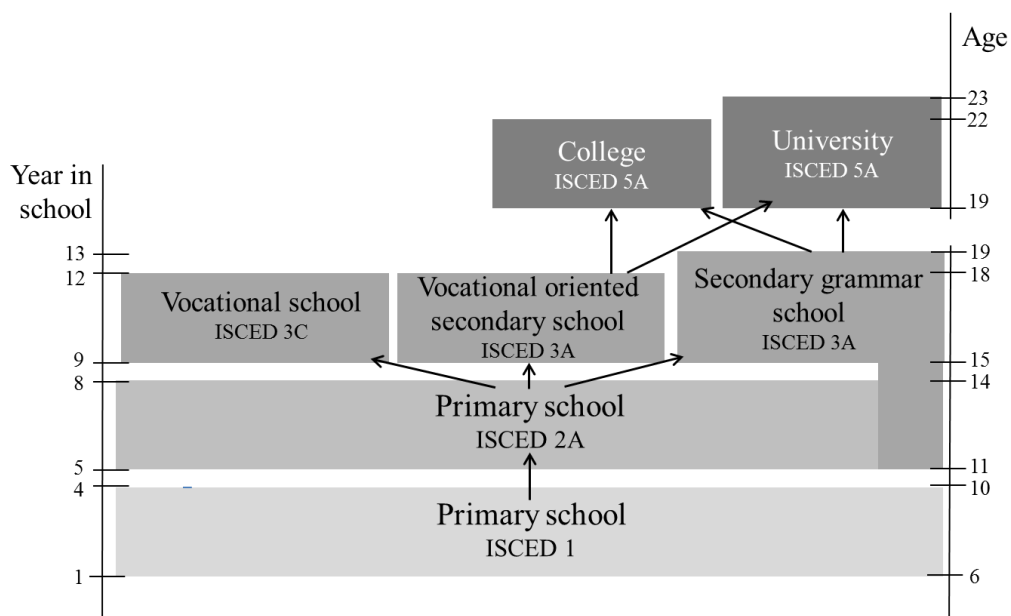** p<0.01, * p<0.05, + p<0.1

Figures

Figure A1: The Hungarian educational system

Figure A2: The application process