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ESSAYS ON

EDUCATIONAL INSTITUTIONS AND INEQUALITY OF OPPORTUNITY

By

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I hereby declare that this work contains no materials accepted for any other degrees in any other institutions. This thesis contains no materials previously written and/or published by another person unless otherwise noted.

Daniel Horn
May, 2010

ABSTRACT

This thesis looks at the causes and consequences of the selective educational institutions on the inequality of opportunity in general, and the effects of the early selective tracks in Hungary and the possible reasons of their evolution, in particular. Throughout this thesis inequality of opportunities are understood as the effect of students' socioeconomic background on their performance. The higher the effect of family background on children's outcomes, the greater the degree of inequality. Although many factors play a role in shaping inequality of opportunity, the institutional structure of education is one of the most straightforward policy tools to deal with inequality.

The first chapter reviews the most recent literature on educational institutions and their link to the inequality of opportunity. The most unambiguous finding of the literature is that selective educational institutions associate strongly with inequality.

In the second chapter I use the PISA 2003 data to test the association of educational institutions with the inequality of opportunity and the effectiveness. Despite the small number of countries (29 OECD countries), the results are policy relevant. Of them the most important is that earlier age of selection into different school-types and the number of school-types are significantly associated with higher inequality of opportunity.

The third chapter looks at the case of Hungary where early selection replaced the more comprehensive school system, a rare development in international perspective. The early selective tracks cream-skim the best students at age 10 and at age 12 instead of the official age 14. Using a unique panel dataset I show that early selective tracks are more beneficial for higher status families. These tracks have a higher value-added in reading and mathematical literacy and in continuing studies in tertiary education. Their student composition is of higher status and higher skilled students. Thus they lead to an increase in the inequality of

opportunities. Weaker tests show that while students' of early selective tracks gain, those left in general tracks loose.

The last chapter looks at the evolution of the current Hungarian system, including the early selective tracks, and it tries to answer the question: why and how such a system could evolve. I argue that three factors were important: (1) historical conditions (2) decentralization and (3) democracy. The two historical conditions are the memory of the elite 8-year-long academic schools, the *gimnázium*s, and the decentralized administrative structure of the Austro-Hungarian monarchy.

As a result of democratization and decentralization after the post-communist transition, higher status people could shape local policies easier than before, which led to the proliferation of the early selective tracks and to the increasing selectivity of the education system.

In addition, the two main political powers emerging at the post-communist transition, the conservatives and the liberals, have both supported the establishment of early selective tracks on different ideological grounds, and this quasi compromise was implicitly approved by the socialists.

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CHAPTER 1 – EDUCATIONAL INSTITUTIONS AND INEQUALITY OF OPPORTUNITY – LITERATURE REVIEW[1]

Introduction

This chapter examines the relationship between systems of education across the EU and equality of opportunity, based on a review of the existing literature.[2] In order to keep the analysis focused, I use a rather specific notion of inequality of opportunity.[3] Throughout this thesis inequality of opportunity is understood as the effect of students' socioeconomic background on their performance. This definition is not only practical – it is relatively straightforward to generate inequality indices using national and international datasets –, but it is also appealing on theoretical grounds: an important feature of the education system is the extent to which it reduces or increases the advantage of children from higher status families. Moreover, this understanding of the inequality of opportunity is in accordance with that of the OECD PISA[4] studies (2004c) and that of other authors (e.g. Ammermüller, 2005; Bishop & Mane, 2004; Brunello & Checchi, 2006; Eric A. Hanushek & Wössmann, 2005; Ianelli, 2002; Marks, 2005). The higher the effect of family background on child outcomes, the greater the degree of inequality. The typical outcome measures analyzed in this literature are educational outcomes such as test scores or educational attainment. This approach assumes directly or

[1] This chapter is based on a Research Note "Are some educations systems more equitable than others?" that I have written for the European Commission - Directorate-General "Employment, Social Affairs and Equal Opportunities".

2 Most of the cited papers use international or European data, except for the methodological ones that are typically based on U.S. data.

[3] The broad definition of equity used by some studies is too general for the purpose of this thesis. For instance the OECD Equity report state that "Educational equity refers to an educational and learning environment in which individuals can consider options and make choices throughout their lives based on their abilities and talents, not on the basis of stereotypes, biased expectations or discrimination. The achievement of educational equity enables females and males of all races and ethnic backgrounds to develop skills needed to be productive, empowered citizens. It opens economic and social opportunities regardless of gender, race, ethnicity or social status" (Vellacott & Wolter, 2004, 5). See the OECD homepage for the reports.

[4] PISA – Programme for International Student Assessment, see www.oecd.org/pisa

indirectly that educational performance and attainment are closely connected to future status or living standards.

A closely related approach groups people into social classes and assess the relationship between the parents' class and their children's class (Breen & Goldthorpe, 2001; Erikson & Goldthorpe, 2002; Goldthorpe, 1996). Here, the less the association between the two the lower the inequality of the system, or the higher the social mobility.

Other understandings of equality in education include equality of treatment, equality of achievement or academic success, and equality of social fulfillment. The equality of treatment is input oriented. It assumes that everyone is capable of undertaking basic learning and therefore benefit from basic education. This principle accepts unequal results given that each student is able to benefit from learning conditions of equivalent quality. The second principle, equality of achievement or academic success, is output oriented. It assumes that education can modify individual learning characteristics (cognitive or affective), and that there are differences only in learning styles, thus education can aim at equalizing outcomes. It accepts some positive discrimination if it aims at equalizing essential skills. The third, equality of social fulfillment, is also output oriented but presumes that there are differences in individual, motivational and cultural characteristics, without any hierarchy between them. That is, everyone (clusters of people with different "profiles") seeks different goals in life, and education should aim at achieving different goals. It accepts that there are differences between these goals, for instance there are "elite" culture and "sub-culture", and suggests individual instruction as solution (see *Equity of the European Educational Systems, A Set of Indicators*, 2005).

Most international surveys on education, like the OECD PISA studies (OECD, 2005d), calculate measures of both equality of opportunity and equality of achievement for the

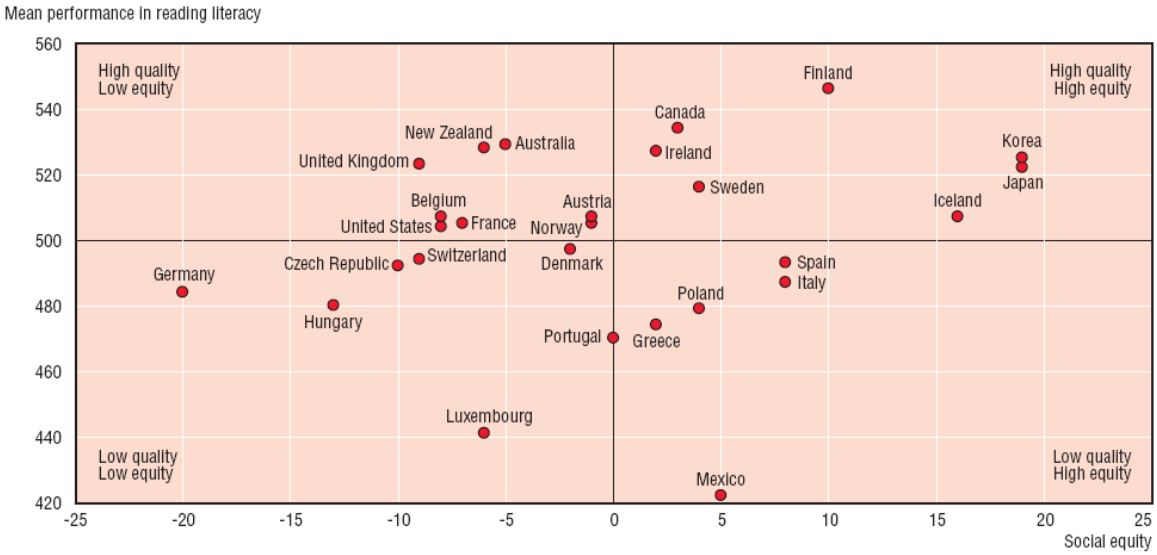
participating countries. While equality of achievement is typically based on a single variable (e.g. between-school variance in test scores), equality of opportunity is based on the relationship of at least two variables (family background and outcome). I believe that educational policy has to focus not only on the outcome but also on the input. Education policy has to lower differences stemming from social status but should not counteract differences stemming from individual ability or effort. Hence the equality of opportunity will be my guiding principle.

However, using this principle brings up additional issues for policy concern. Perfect equality of opportunity (i.e. no effect of social background on performance or attainment), or perfect social mobility (i.e. disassociation of the class of children from that of their parents) don't exist. This "would require a degree of intervention into the lives of the children and families that most societies might find untenable" (Corak, 2006, 14). Furthermore, Checci and Peragine argue that inequalities in opportunity can be separated into "ethically offensive" and "ethically acceptable" parts (2005). They argue that while social and economic inequalities are due to factors beyond the individual responsibility, and thus policy should aim at their reduction, inequalities due to personal responsibility, such as effort, are acceptable and not to be compensated. Consequently, a policy should focus on the reduction of the general inequality of opportunity and not on its complete elimination.

From the viewpoint of policy, the system of education is important even if it is not the main driving force of inequalities. This is because institutional arrangements are one of the most straightforward tools for policy to use in order to reduce inequality of opportunity (Erikson & Jonsson, 1996b; OECD, 2005b). Therefore, studying the link between educational institutions and inequality of opportunity is not only interesting from an academic point of view, but it is also a crucial issue for policy makers.

One might worry that focusing on inequality not only misses other important outcomes but it leads to biased conclusions as well. If inequality and effectiveness (the average level of educational performance/attainment) were interrelated, there would be tradeoff between the two. In that case, looking only at inequality would lead to biased conclusions by not considering effects on effectiveness. However, any assumption that effectiveness and equality in education are negatively correlated has frequently been demonstrated to be incorrect. Empirical research (Eric A. Hanushek & Wössmann, 2005; OECD, 2001a, 2004c, 2007) shows that the idea that an effective school system must be unequal, because it provides individualized education, and individualized education increases selectivity, is not correct (see the 2nd chapter). In fact the OECD shows that the association of the mean performance in reading literacy and the equality of opportunity – termed social equity by the OECD policy report (OECD, 2004a) – are positively correlated (Figure 1). It is likely that some institutions foster both effectiveness and equality while others raise trade-off questions. As Wössmann argues, "there are strong complementarities between efficiency and equality of opportunity in policies that act at early stages of the education process. However, these turn into trade-offs between efficiency and equity at later stages" (Wössmann, 2008, 223).

Figure 1 - Relationship between the average performance of students and inequality of opportunity



Source: (OECD, 2004a, p.5)

Note: social equity on the horizontal axis is the impact of family background on student performance.

Although cross-sectional data shows that the association between educational equality and effectiveness is positive, the true relationship between the two is unknown and still to be discovered (cf. Brunello & Giannini, 2000; Meija & St-Pierre, 2008; Wössmann, 2008). There is no generally accepted cause-effect relationship between the two phenomena and it might be that the positive correlation largely reflects the effect of some omitted variable such as educational institutions.

Considering these findings I do not go much deeper into the issue of effectiveness and inequality trade-off. Instead I focus on the question of inequality of opportunity throughout the thesis, and address the effectiveness issue only marginally in the second chapter.

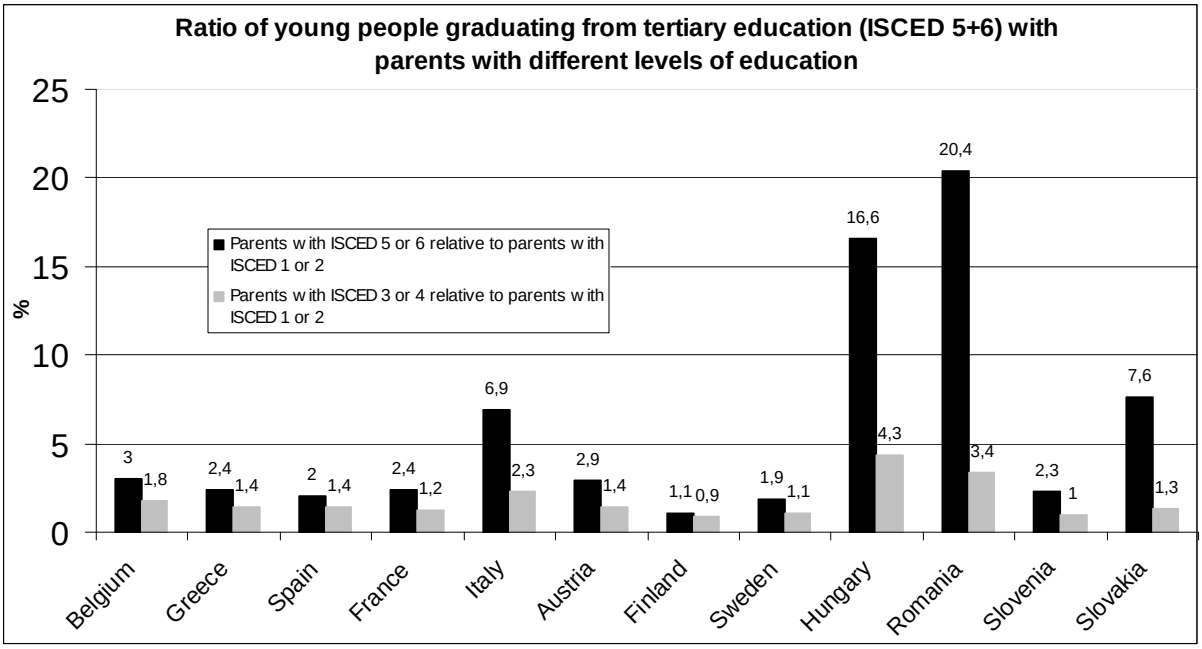
The chapter begins with a quick illustration of inequalities in Europe, and it continues with a short summary of the factors influencing educational equality besides institutional arrangements. The final and main section provides an overview of the most recent literature on the relationship between institutional arrangements and the issue of equality of opportunity – tracking (or streaming), school choice and other factors – and draws conclusions.

Equality of opportunity in Europe

I use two measures from two data sources to illustrate the extent of cross-country heterogeneity in inequality of opportunity. First I compare the fraction of young college graduates (with ISCED 5 or 6) with lowly educated parents (ISCED 1 or 2) with young college graduates, whose parents are highly educated (ISCED 5 or 6). The data is from a special module of the EU Labour Force Survey in 2000. The smaller the difference between the two proportions, the smaller the inequality of opportunity provided by the education system. Based on this measure countries with high inequality are Romania, Hungary, Slovakia

and Italy. On the other, hand, countries with low inequality are Finland, Sweden, France and Spain (see Figure 2).

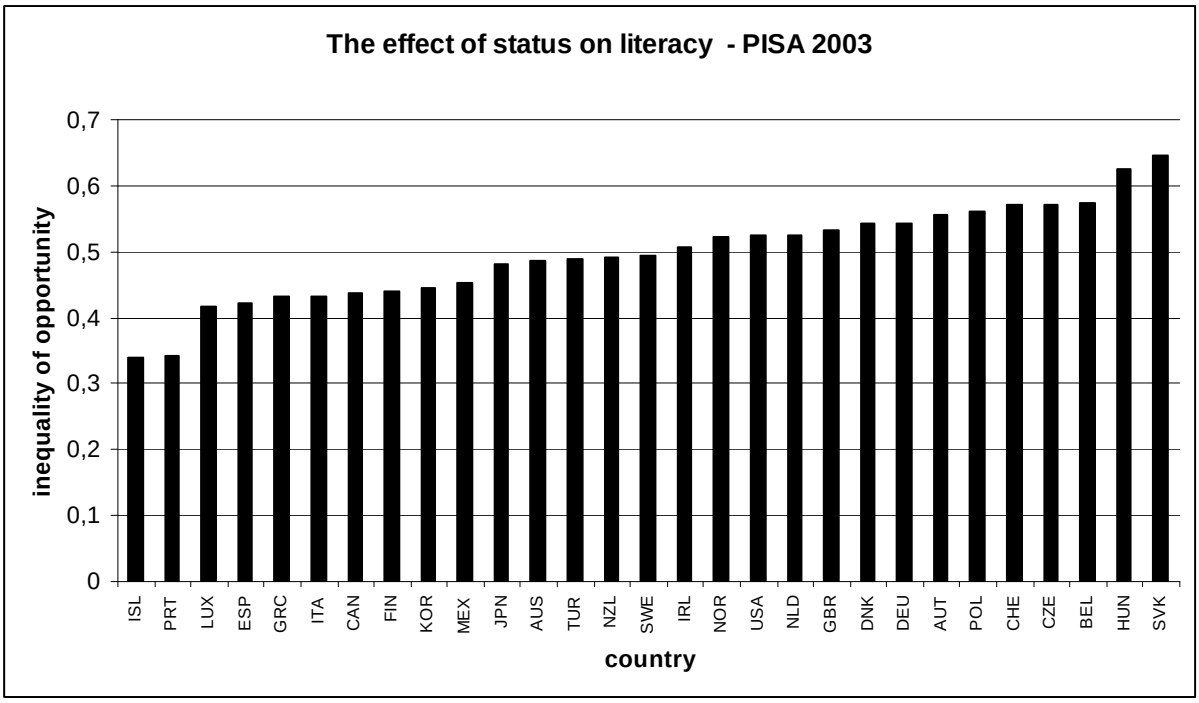
Figure 2 – Ratio of young people with tertiary degree with highly and with lowly educated parents



Source: own calculations from the Eurostat, Labour Force Survey, special module on transitions of young people from education to employment, 2000

Second, I show cross-country differences in the effect of parental background on test scores (Figure 3). I use the PISA 2003 database to compare the average inequality of opportunity. Inequality of opportunity here is the effect of the economic, social and cultural status (*escs*) on the combined mathematical and reading literacy scores (see 2nd chapter for a more detailed definition). It measures how much one standard deviation increase in the *escs* index associates with the literacy scores, measured also in standard deviation. Based on this the Eastern European countries (Slovakia, Hungary, the Czech Republic and Poland) are among the most unequal ones, just as the German speaking countries (Switzerland, Austria and Germany). The differences between the high and low inequality countries are almost double.

Figure 3 -The effect of status on literacy, PISA 2003



Note: Inequality of opportunity is the coefficient of the economic, social and cultural status index (*escs*) on the combined mathematical and reading literacy score. Both the *escs* and the literacy score are standardized to 0 mean 1 standard deviation within country (see D. Horn, 2007).

Source: Own calculations from the PISA 2003 database.

The effect of family background on individual outcomes is analyzed by a large and diverse literature. Individual and family characteristics considered in this literature include inherited genetic factors, differences in home environment, class and cultural bias of schools, health and nutritional differences or variations in household size (Bourdieu & Passeron, 1977; Bowles, Gintis, & Groves, 2005; Coleman, 1988; Erikson & Jonsson, 1996a). In all of these studies, education is an important – often the most important – link between a person's initial social class and their later class. Although these theories explain important sources of inequalities, they do not typically point to what policy-amenable channels can be altered to reduce inequalities.

An important study is Shavit and Blossfeld's (1993) *Persistent Inequality* volume which examined thirteen countries to assess the impact of expansion in education on inequality.

Among their findings they showed that expansion in education does not consistently reduce the link between social class and attainment, and that the effect of social class on attainment declines as the level of education increases. This latter finding is "partly due to the fact that school systems select students on the basis of characteristics which are correlated with their socio-economic origins" (Blossfeld & Shavit, 1992, 26). A similar conclusion was reached earlier by Mare (1981), who argues that the later students are observed in school, the smaller the background effect tends to be due to educational selectivity; this argument was later challenged by Cameron and Heckman (1998) on methodological basis.

Thus it is important to look at the institutions – like educational selectivity, or tracking – that mediate status effects.

The effect of educational institutions

There is considerable variation in education systems across the EU. It is therefore a great empirical challenge to decompose the effects of separate institutional arrangements on the inequality of opportunity. Students of age 15 study in comprehensive – single program – educational systems in one-third of EU Member States, while in many countries they can be at four or more school types (e.g. Austria, Germany, Czech Republic, Hungary, Ireland, Netherlands, Luxembourg, Slovakia). Additionally, selection into these differing school types might occur as early as the age of 10. In these countries lower status children tend to be placed in less distinguished schools with less demanding curricula and hence face lower expectations, while higher status children are placed into more demanding schools. This way, the school system helps to reproduce differences rather than reducing them (OECD, 2005a, 2005b).

The international surveys (PISA, TIMSS, PIRLS)[5] focus on cross-country comparisons. They draw conclusions from differences between country level outcomes and various characteristics of the educational system. The most promising line of research uses these large datasets to investigate the effects of specific institutions on equality of opportunity and other aggregate outcomes. In fact, the OECD PISA study explicitly advocates for studying the role of different education systems and institutional arrangements in advancing or reducing inequalities in education.

As Allmendinger (1989) put it: "when we find cross-national differences in the effects of educational attainment on mobility patterns, we should not merely conclude that 'nations are different'. Instead, we must replace vague references to nation specific circumstances with concepts that help us understand how and why these empirical relationships differ across countries" (247-8). The most robust finding of these studies is that more stratified systems provide less equality of opportunity (Allmendinger, 1989; Ammermüller, 2005; Arnett, 2007; Arum & Shavit, 1995; Checchi & Flabbi, 2007; Eric A. Hanushek & Wössmann, 2005; Jenkins, Micklewright, & Schnepf, 2006; Marks, 2005; Schütz, Ursprung, & Wössmann, 2005). The concept of stratification is very general, and I will address the specific institutions in the next section. Other aspects of institutions have received less attention in the European literature. These include school choice, the role of pre-school, kindergarten education, length of studies, age of entering school or accountability (Fertig & Kluve, 2005; Robertson & Symons, 2003; Shütz, Ursprung, & Wössmann, 2005; Wössmann, 2008).

Stratification: Tracking, Sorting, Streaming, Grouping

Tracking, streaming, sorting or grouping are the terms that are used to describe the phenomenon that children are separated into different groups, classes or schools on the basis

[5] TIMSS - Trends in International Mathematical and Science Study, PIRLS – Progress in International Reading Literacy Study, see www.timss.com

of ability or family background, so that as a result, students of similar ability or socio-economic characteristics study together. The relationship between inequality of opportunity and stratification is a firmly established empirical fact. At the same time, the causal mechanisms behind this relationship are not fully understood.

Stratification can be understood in two intertwined senses. A system is more stratified if it selects children earlier, but the degree of differentiation at a given stage is also important. In other words, it is important when to select, but also how much to select. It is likely that early selection leads to higher inequality, because the earlier children are separated by ability or merit, the more likely that their family background will have an impact on their performance. An important part of the mechanism is that, as a result, more homogeneous groups of children will go to the same schools (Dustmann, 2004). Lower status families will also consider this choice a "hurdle" rather than a real option and so family status will have a greater impact on this choice (Erikson & Jonsson, 1996a). Moreover, if similar status children are grouped together, peer-group effect will be less positive in lower status schools, and since ability is correlated positively with status, the selection will hamper lower status students. Given the observation that children's achievement depends not only on their own ability but also on the average ability of the class, this selection will adversely affect lower status children (Betts & Shkolnik, 2000). In addition, if early selection leads to clusters of children that are valued differently by the labor market, the effects of family background on the future earnings will be enhanced (Dustmann, 2004). Hence the more stratified a system, the more disadvantaged students from lower background families loose, and thus the greater the socioeconomic inequality in educational outcomes.

One of the most common forms of separation is tracking, where students are placed into schools with different curricula, one usually providing vocational training and the other

general or academic education. An important aim of general education tracks is preparing students to continue their studies in post-secondary education (as, for example, in Germany, Austria, Hungary, and the Czech Republic).

An early study in the "tracking as reproduction" research is Arum and Shavit (1995). They summarize the American literature that looks at "tracking" within high schools. They also carry out their own analysis on US data find that although curricular tracking does reproduce inequalities, some form of vocational education helps disadvantaged students to lower their future probability of being unemployed. In other words, although vocational tracks do increase inequality they also offer a benefit in the form of lower unemployment. It is important to emphasize the vocational tracks in the US context mean vocational specialization within the comprehensive high school.

In the European context tracking usually means selection into separate schools with different curricula. Such a definition is used by Hanushek and Wössmann (2005), who estimate the effect of tracking on inequality of achievement (the level of literacy scores adjusted for individual status) using six international student assessments (including PISA). They conclude that "the results consistently indicate that early tracking increases inequality in achievement," moreover, they find no evidence to support any trade-off between effectiveness and equality (p. 13). Looking at inequality of opportunity explicitly, Ammermüller (2005) shows that "streaming and private education benefit the performance of students from a better social background" (p. 27), and as a consequence it hinders those from a worse social background, at least relatively. An important step towards understanding the mechanism is a study by Jenkins et al. (2006). They calculate two different indices of segregation by socio-economic background (a dissimilarity index and the square root index) for 27 rich industrialized countries. They show that these indices are the highest for countries with separate school tracks for academic general education and vocational training, such as like

Austria, Germany, Hungary. Importantly they also show that variation in social background is greater between tracks than within tracks.

Marks (2005) analyzing the PISA 2000 data concludes that "the greater the number of school tracks and the younger the age students are allocated to school tracks, the stronger the effects of class background" (494). Arnett (2007) also using the PISA data, looks at different institutions of stratification, with hierarchical models she shows that while tracking is detrimental to inequality, a standardized curriculum and longer instructional time flattens the socioeconomic background slopes.

Tracking is also the focus of Dustmann's (2004) study on Germany. He shows that parental education and occupation are important in early track choice, and the initial differences in student background translate into substantial earnings differentials later in life, mediated by the tracked school system. A model formulated by Schütz et al. (2005) on tracking and other systemic features also comes to similar conclusions. Tracking which occurs at a later age, together with other features (see below), helps to reduce the effect of family background on students' performance.

Meghir and Palme (2005) analyze a major educational reform in Sweden. The reform that took place in the 1950s abolished the selection of children into different tracks, it imposed a national curriculum on schools, and it increased compulsory schooling from 7 or 8 years to 9 years. Meghir and Palme show that the reform increased both the attainment and later earnings of children with low-educated parents; however, it also lowered the earnings of those with high-educated parents. Using a similar strategy, Pekkarinen, Uusilato and Kerr (2009) test the effects of the Finnish comprehensive reform of the 1970's. They conclude the reform had only a small but an overall positive effect. It reduced intergenerational income elasticity, but the effect is only significant for boys, and it increased intergenerational income mobility.

Checchi and Flabbi (2007) differentiate the simple statement that tracking and early selection are bad. They compare two countries, Germany and Italy, that both use early tracking and conclude that "the greater flexibility of the Italian system (where parents are free to choose the type of track) translates into greater dependence from parental background" (p.1). They argue that the German tracking system is more equal due to the fact that the selection is based more on ability than on parental choice.

While most of the research looks at outcomes during compulsory education (usually at age 15 or earlier) Brunello and Checci (2006) investigate the interaction of tracking and family background effect on later outcomes, such as earnings, dropout rates, college enrollment, employability and also literacy. They conclude that tracking reduces equality in terms of most outcomes, but they find no such effect with respect to literacy. Brunello and Checchi argue that the latter might be the result of the greater importance of the signaling power of formal education than actual skills in the early stages of labor market experience.

School choice

In the literature the institution of school choice is understood as the ability of parents to choose from various schools without changing their residence. There is a well-developed theoretical literature on the impact of school choice on equality of opportunity, but as yet there is a shortage of empirical studies.

Some authors argue that school choice increases effectiveness in education (e.g. Friedman, 1997; Raganzas, 1997), on the grounds that more choice induces more competition between schools, which enhances their effectiveness. The effect on equality, however, is more controversial. A model-based simulation by Manski (1992) finds that the impact of school choice on low income young people is neither uniformly positive nor negative. On the more conclusive side, another model-based study by Robertson and Symons (2003) shows that if

"schools and children are free to seek each other out, this, with some caveats, should lead to perfect segregation by child quality". Similarly, MacLeod and Urquiola's (2009) reputation model argues that if ability selection is allowed "the most able students attend the schools with the best reputations and subsequently earn the highest incomes, while the least able remain in the worst schools," however "if schools are non-selective, competition leads to an efficient outcome" (39). Again similar conclusions are drawn by Kertesi and Kézdi (2005). In a study of the Hungarian school choice system, they argue that since every child is better off when he or she is in a classroom with academically higher-performing children, similarly performing children will tend to enter the same school so that schools will end up with children of the same performance level. Since children's backgrounds are correlated with performance, the resulting segregation of children by performance will be akin to segregation in terms of social status, and as discussed earlier, stronger segregation leads to increased inequality of opportunity.

Proponents of more choice, on the other hand, argue that such sorting can only occur only when school capacity is restricted, because it is in such cases that better schools cannot admit more children and thus become very selective. Accordingly, "to prevent more sorting, policy needs to make it possible for existing schools to expand or contract, for new schools to start and for poor schools to close" (Burgess, Propper, & Wilson, 2005, 3). In other words, the supply side of the market needs to be just as free from restriction as the demand side; otherwise the market would be monopolistic rather than competitive.

The empirical testing of this theory is limited due to identification problems. Even if choice is not free in the sense defined above, residential mobility can still give rise to a segregation effect. People, so long as they can afford it, can "vote with their feet" and move to different neighborhoods if the school in their area is of low quality (Epple & Romano, 2000).

Identifying systems where there is no choice of school is, therefore, challenging. Additionally, tracking and school choice can go hand in hand, because in a system characterized by tracking, families must have some option to choose between tracks. On the other hand, school choice – whether politically intended or not – without tracking is conceivable, see for instance the case of the "public schools" in the UK or catholic schools in the US. The higher the proportion of non-government schools in a system, the more alternatives they provide and so a wider choice is available even if school choice is not allowed within the state system.

Nevertheless a few empirical studies do show that theory is not very far from reality: while school choice might advance effectiveness, it also tends adversely to affect equality of opportunity. Examples include Ambler (1994) who analyses the UK, France and the Netherlands; Burgess et al. (2004), who carries out a case study of the UK; and Ammermüller (2005) who examines the ratio of private to public schools in OECD and IEA countries. Söderström and Uusilato (2005) analyze an interesting natural experiment of Stockholm, where the admission system was freed in 2000. They report segregation increased significantly both in terms of ability and student background. On the other hand, an empirical study on the PISA 2003 database by Schütz, West and Wössmann (2007) claim that the "results suggest that the additional choice resulting from government funding for privately operated schools enhances the equality of educational opportunity" (34).

Other institutional features: pre-school training, length of studies, exit exams

Other institutional features can also affect equality of opportunity, but they have been much less subject to theoretical and empirical study. Fertig and Kluve (2005) have examined the optimal age of entering school, starting from the idea of "delayed" entrance which was popular in Germany in the 1960s and 1970s, and it is still popular in Hungary today. The rationale behind the idea is that the later children enter school, the less likely they are to fail or

have to repeat classes. However, the evidence suggests that if differences in ability between those entering later and those entering earlier are allowed, the age of entrance seems to have no effect on performance. Nevertheless, Hámori (2007) observes significant age effect in Hungary. Using the TIMSS and the PIRLS data she shows that those that are older when entering school perform significantly better in grade 4.

A related idea is that going to pre-school or kindergarten can affect equality of opportunity. Early socialization of children into schooling may enhance their performance and decrease the likelihood of failure. Since this affect is likely to be stronger for disadvantaged students, pre-schools can increase the equality of opportunity. A study by Schütz et al. (2005) who model and test the effect of pre-school education, finds that a long pre-school is beneficial to equality, but the enrolment rate is also important, in the sense that low levels of enrolment are detrimental to equality, while higher rates (over 50%) are beneficial. This is in line with the argument that pre-schooling needs to be comprehensive in order to include disadvantaged students and facilitate equality of opportunity. In line with those findings, the literature review of Wössmann (2008) (reconstructing the reasoning of Heckman and coauthors (Carneiro & Heckman, 2003; Cunha, Heckman, Lochner, & Masterov, 2006) on Europe) argues that early stage intervention to education – e.g. resources allocated to kindergarten – facilitate both equity and effectiveness.

A study by Erikson and Jonnson takes into account all the possible institutional mechanisms that can affect inequality (Erikson & Jonsson, 1996a). in addition to the ones listed above they also consider the length of study. They argue that differing lengths of study advance the opportunity of those, who have lower cost of being in school, because they will choose the longer educational tracks. For lower status students schooling is relatively more expensive, and thus they are more likely to opt for shorter (usually vocational) tracks and accordingly condemn themselves to a lower social status.

Higher accountability of schools is likely to have a positive effect on effectiveness (Eric A. Hanushek & Raymond, 2002), but it has a less obvious effect on equality. Bishop and Mane (2004) examines the effect of increased academic standards on equality on the basis of US data. They find that curriculum-based external exit exams, which are clear means of raising academic standards, decrease the achievement gap between high and low social status students. On the other hand, less clear means of raising standards, such as voluntary exit exams or fixing a minimum number of courses seem not to have any effect. Similarly, the cited study of Schütz, West and Wössmann (2007) claims that "rather than harming disadvantaged students, accountability, autonomy and choice are tides that lift all boats" (p. 34). Wössmann (2008) also concludes that "the technical efficiency in educating both the disadvantaged and the student population at large is best promoted by leaving behind a simple input orientation in favor of an output orientation" (p. 223).

Conclusion

It is arguable that the objective of policy should be to reduce inequalities in education rather than seeking to eliminate them completely, since latter would require far more intervention than would almost certainly be tolerated in developed societies.

Although there are other factors that influence the extent of equality of opportunity in education which might have a larger effect than the institutional features of an education system, modifying the latter is still the most straightforward policy means of reducing inequality. From the literature it is clear that the form which the education system takes can affect the degree of inequality and the access of children from poorer backgrounds to a good education and one which opens the way to the later pursuit of a successful professional career.

The most robust empirical result from the studies carried out over recent years is that the separation of students into different tracks or streams does not enhance equality of opportunity. Indeed, the systems that are more stratified, and which assign students to tracks from an early age, have more tracks (e.g. vocational or academic) or simply try to separate students along ability lines, are more unequal than those that focus on a comprehensive education.

The effect on equality of other institutional features – such as free choice of school, pre-school education, the length of studies or greater accountability of schools – is less straightforward. Although their impact on effectiveness has been much studied, far less is known about how they affect equality.

The next chapter takes this institutional approach onto a practical ground. Using the PISA 2003 data I compare institutional features of educational systems and their association with inequality of opportunity. In line with the summarized literature, my results indicate that stratification increases inequality of educational opportunity, while in general, standardization enhances equality. Looking not only at equality but also at effectiveness the results tell that stratification does not improve overall student performance, and the association between standardization and effectiveness is not straightforward. The most policy-relevant finding of the next chapter is that the early age of selection is strongly related to high inequality of opportunity; a statement that will drive the subsequent parts of my thesis.

CHAPTER 2 - AGE OF SELECTION COUNTS: A CROSS COUNTRY ANALYSIS OF EDUCATIONAL INSTITUTIONS[6]

Introduction

Recent internationally comparable datasets on school performance, such as the Programme for International Student Assessment (PISA) data (OECD, 2001a, 2004c), or the TIMSS and PIRLS studies[7] have confirmed the well recognized fact that students' socioeconomic background is one of the most important determinants of educational attainment (Bourdieu & Passeron, 1977; Coleman et al., 1966). Although socioeconomic background does not account for differences in student-performance between and within schools as assumed – implying ability is a stronger predictor (Marks, 2006) – for policymakers socioeconomic background is a central focus. Unfortunately, the above datasets do not have an ability measure, hence they do not offer the possibility to directly compare socioeconomic background effects with ability effects,[8] but they allow the researchers to address the reasons for the different socioeconomic background effects across countries, and cross-national differences in performance levels.

The most plausible explanation for the cross-country differences is that the possible channels through which student background can affect the child's performance and these differences may be due mainly to different institutional arrangements (OECD, 2005b). There are numerous studies that have examined the impact of educational institutions on both student performance and socioeconomic inequalities in student performance (inequality of opportunity). Wössmann and his colleagues, for instance, have used both TIMSS study

[6] This chapter has been published in *Educational Research and Evaluation,* 2009, vol. 15. No 4.
[7] The International Association for the Evaluation of Educational Achievement (IEA) has conducted four TIMSS (Trends in International Mathematics and Science Study) studies (in 1995, 1999, 2003, 2007) and two PIRLS (Progress in International Reading Literacy Study) studies (in 2001, 2006). See www.timss.com.
[8] But see the next chapter.

(Wössmann, 2003) PISA study (Fuchs & Wössmann, 2007; Wössmann, 2007) to investigate the effects of several policy amenable institutional arrangements on student performance. In general, they argue that external exams, school autonomy, textbook choice, budget formulation and private schools have a strong positive effect on students' performance. Surprisingly, national spending on education shows no significant effect (Wössmann, 2007). In this paper Wössmann (2007) also looks at inequality and concludes that tracking increases it. Similarly, Ammermüller (2005) has looked at several institutions and their impact on the inequality of opportunity. He uses both the PIRLS and the PISA data to show that a differentiated schooling system, with several school types increases the inequality of opportunity, just as the high ratio of private schools, or higher school autonomy. Marks (2005) analyzing the PISA 2000 data concluded "the greater the number of school tracks and the younger the age students are allocated to school tracks, the stronger the effects of class background" (p.494). Arnett (2007), also using the PISA data, looks at three core institutions – tracking, curriculum standardization and instructional time. Using hierarchical models she shows that while tracking is detrimental to inequality, a standardized curriculum and longer instructional time flattens the socioeconomic background slopes. Tracking was also in the focus of Dustmann's (2004) study on Germany, where he showed that parental education and occupation are important in early track choice and that the initial differences in student background translate into substantial earnings differentials later in life mediated by the tracked school system.

Most of this research so far has concentrated either on performance or inequality; but not on both at the same time. Notable exceptions are Hanushek and Wössmann's (2005) study using six international student assessment cycles (PISA, PIRLS and TIMSS) and comparing as many as 26 countries which showed that tracking increases inequality, and early tracking is associated with reduced mean performance. Chiu and Khoo (2005) go a step forward and

examine the effects of distribution inequality and privileged student background[9] on achievement. That is, they investigate how inequality of opportunity affects the overall achievement of students on the country, school and student level. They concluded that decreased inequality correlates with higher student achievement.

The selection of institutions in most of these papers is rather ad hoc; the researchers examine the institutions they have data on. To my best knowledge there has been so far no attempt to systematically analyze institutional structures on both inequality of opportunity and effectiveness (overall performance). This chapter adopts the stratification-standardization framework proposed by Allmendinger (1989) to analyze the effects of educational institutions on the inequality of opportunity and effectiveness of the education system. The stratification-standardization framework has been utilized subsequently (e.g. Kerckhoff, 2000; Müller & Shavit, 1998). Following this literature, I take the stratification-standardization dimensions of institutions (see definitions below) and operationalize these to test the association between educational institutions and the inequality of opportunity and effectiveness. The explicit goal of this study is examine aspects of stratification and standardization, and reveal those that associate significantly with the inequality of opportunity and educational effectiveness. I use an internationally comparable dataset, the OECD's Programme for International Student Assessment (PISA) 2003 study (OECD, 2004c)[10] and country-level OECD indicators mainly from the Education at a Glance (EAG) series (OECD, 2004b, 2005a).

The outline of the chapter is the following: the second section clarifies the notions of performance, effectiveness, inequality of opportunity, stratification and standardization. The next section introduces the hypotheses that are tested in the second half of the chapter. The

[9] Privileged student bias is "[w]hen a school system's educational resources are distributed unequally, privileged parents can use their superior socioeconomic capital to divert more educational resources to their children" (Chiu & Khoo, 2005, 576), or in short privileged student bias is parental status effect on performance

[10] Although the new, 2006 wave of PISA has already been available at the publication of this chapter, this was not true at the time when the analysis was done; moreover, other country level variables – gained mainly from the Education at a Glance series – usually refer to 2003, and more recent data are not yet available; which also underpins the use of the earlier wave.

fourth section discusses the indicators for stratification and standardization, and the fifth elaborates on the methodology used. The following section discusses the results and the final section summarizes the findings and their implications for policymakers.

Analytic framework

The *performance* of the educational system is defined here as the average literacy scores of the students in each country. Higher scores or better performance can be understood as an indicator of the 'success' of an education system, not unlike completion rates of secondary school and transition rates from secondary to tertiary levels. In this chapter I use the combined mathematical and reading literacy skills of 15-year-olds to measure performance. It is a suitable measure of human capital since it has strong relationship with "real" educational outcomes such as school completion, university participation and years of schooling.

The *effectiveness* of the education system is the performance controlled for exogenous effects, such as the socio-economic background of the students, their gender and age or their immigrant status. In other words, effectiveness is the "net" or adjusted performance, where all of the variables that could have an effect on the performance but are not under the control of the educational system are controlled for. Naturally, in practice only a few of the exogenous variables can be taken into account, due to the availability of data, and therefore one always risks the problem of omitted variable bias. Nevertheless, the PISA data includes at least some indicators from all plausible (social, cultural, material) dimensions of socioeconomic status. Although indicators of these dimensions are all included separately in the dataset, and it is shown that among these cultural resources matter the most (Marks, Cresswell, & Ainley, 2006), I use the composite economic, social and cultural (ESCS) index of the OECD as an indicator for socioeconomic background, which includes all of these dimensions and allows for a straightforward interpretation of inequality of opportunity (see below).

The educational *inequality of opportunity* is understood as the effect of socioeconomic background on performance, controlled for the exogenous variables; that is, the extent that students' socioeconomic background determines the students' adjusted scores. The higher the association between the student background and the students' score the more unequal the system is. This understanding of the inequality of opportunity is in accordance to that of the OECD (2004c) and that of other authors (e.g. Ammermüller, 2005; Wössmann, 2004).

The two other important concepts in this chapter are the *stratification* and the *standardization* of the educational system. Stratification is the phenomena that students with similar ability, socio-economic characteristics or interests are selected into particular schools or school programs, and that there is no or little mobility between these. In the literature, stratification can be referred to as tracking, streaming, sorting or grouping.

Standardization can be understood as "the degree to which the quality of education meets the same standard nationwide" (Allmendinger, 1989, p.233), or to put it differently, in a standardized system it does not matter very much where children go to school, they receive much the same education. Although this stratification-standardization framework was initially created for different analytical purposes, namely to theorize the strength of association between the educational attainment and the labor market outcomes (Allmendinger, 1989; Kerckhoff, 2000; Shavit & Müller, 2000), I find it useful for analyzing educational inequalities as well.

Stratification

The stratification dimension has been extensively employed in exploring educational inequalities. The most often used indicator for stratification is the early tracking of students into separate and ability/status homogeneous groups. The logic behind the inequality advancing effect of early tracking/selection is that the earlier children are separated according to ability or merit, the more their family background will have an impact on student

performance, and more homogeneous groups of children will go to the same schools (Dustmann, 2004). Lower status families will also consider this choice a "hurdle" rather than a real option and thus family status will have a greater impact on this choice (Erikson & Jonsson, 1996a). Moreover, if similar ability children are grouped together, positive peer-group effect will be lower in lower ability schools; relying on the observation that children's achievement depends not only on students' own abilities, but also on the average ability of the class, this selection will help higher ability students more (Betts & Shkolnik, 2000), and since ability is correlated positively with status, the selection will hamper lower status students. In addition to all this, if early selection places children into different tracks that are valued differently by the labor market, the effects of family background on future wages will be enhanced (Dustmann, 2004). Hence the more stratified a system is, the more students from disadvantaged families will be disadvantaged and thus the greater the socioeconomic inequality in educational outcomes. Also a stratified system can be considered as the opposite of a comprehensive system, and comprehensive education is argued (Erikson, 1996) and shown (Meghir & Palme, 2005; Pekkarinen et al., 2009) to be advancing equality. The comprehensive educational system is a non-selective, unified one, where children are mixed and taught the same curriculum for the possible longest time. The more comprehensive a system is, the smaller the barriers to entry, the later the age of selection and the smaller the number of different tracks/programs.

The relationship between stratification and effectiveness is more complicated. The OECD (2004a, 5) points out that performance and social equity are related; those countries with more social equity tend to perform better. This observation, however, should not be interpreted as a causal relationship, one cannot be sure whether social equity induces higher school performance or vice-versa, or that the relationship is spurious since there are some prior

factors that correlate both with social equity and performance. An obvious candidate is age of selection.

However, there are conflicting arguments on the impact of early selection on effectiveness. Opponents of early selection argue that positive peer group effect plays an important role in raising student performance; better students help the slower ones more than they lose from this interaction; i.e. grouping children lowers the average performance of slower pupils, while better ones gain only a little from it (Betts & Shkolnik, 2000).[11] Chiu and Khoo (2005) argue that diminishing marginal returns are also at work in education, thus allocating resources (including peer group effects) to those in need increases the overall performance. In contrast the advocates of early selection argue that every student should receive personalized education according to their needs, thus a universal education system would hinder the learning of both high and low ability students. In addition, it is easier for teachers to teach to more homogenous groups of students. Another argument for early-selection is that vocational specialization at school is beneficial for the future employment of those who would surely not continue in academic education (Arum & Shavit, 1995).

Standardization

The concept of standardization is less straightforward because it is a broader concept than stratification. For example, Allmendinger's definition encompasses a variety of aspects of schooling: "Variables such as teachers' training, school budget, curricula, and the uniformity of school-leaving examinations are relevant in measuring the standing of an educational system on this dimension" (1989, p.233).

There are, nevertheless, studies that employ a more focused measure of standardization. Gamoran (1996), for example, has looked at the Scottish educational reform between 1984 and 1990. He concluded that "when national systems of curricula and examinations are

[11] Although others argue that de-tracking hurts those in above average tracks just as much as it helps those in below average tracks (Argys, Rees, & Brewer, 1996).

aligned, centrally directed reforms can be a mechanism both for raising standards, and for reducing inequality" (p.17). Gamoran also emphasized that this conclusion "may be overly simplistic," since Scotland is a small and rather homogeneous country, but "the merits of standardized curricula linked to nationally recognized examinations should be seriously considered" (p.18).

To overcome issues in defining standardization, I propose two distinct and widely used sub-concepts: *accountability* and *centralization.* I define accountability as a system of standardized incentives for schools. When schools face similar incentives, their actions will most likely also be very similar, hence the more homogeneous an accountability system is, the higher the standardization of the education system. The most common methods of accountability are the school leaving exams, or other nationally recognized examinations. Only a couple of scholars, for instance Bishop and Mane (2004), test the effect of increased academic standards on the inequality of opportunity. They find that in the US a strict mode of raising academic standards – namely the curriculum-based external exit exam – lowers the achievement gap between high and low status students; however other voluntary or non-standardized exit exams are not effective. Most research focuses on the association between accountability and the effectiveness of the system. A widely accepted idea is that the power to monitor schoolwork is also a requirement for enhanced student performance i.e. increased effectiveness. According to Hanushek and Raymond (2002), it is not the question whether accountability systems are necessary or not for increasing effectiveness (they are), but it is the type of system, and the incentives they create that needs to be studied more carefully. In line with this idea several authors have examined accountability systems (and the incentives they create) in the United States. The empirical evidence on whether accountability raises student performance or not, are rather mixed (Carnoy, Loeb, & Smith, 2001; Dolton, 2002; Ladd, 2001; Murnane & Levy, 2001).

In this paper centralization is defined by the strength of central regulation on school processes. The more the central or national government is involved in regulating the workings of schools, the more standardized the system is. Kerckhoff also argues that "central control does not necessarily lead to standardization of the educational system, but there is a strong tendency for it to do so" (2000, p.458). Centralization has been found to hamper productivity through decreased competition between schools, or to put it differently, higher decentralization, or increased school autonomy is associated with improved effectiveness (Wössmann, 2003).[12] On the other hand, decentralization might be undermining equity.

School autonomy means more decision making by schools, which can include: the ability to choose curricula, to hire and fire teachers, to allocate resources at the school's discretion and most importantly to select non-local students based on any criteria.[13] Selecting students based on ability to pay either school fees or a residence within the school district or on other characteristics correlated with wealth (e.g. entrance exam scores at an early age) is very likely to be detrimental to equality.

Fuchs and Wössmann (2007) find an interaction between accountability and centralization. They conclude that not only external exit exams (accountability) and school autonomy (not centralization) are associated with increased effectiveness, but that "school autonomy tends to be more positively associated with student performance in all subjects where external exit exams are in place to hold autonomous schools accountable for their decisions" (Fuchs & Wössmann, 2007, p. 455).

Hence it seems that although there are only a few studies that consider the association between accountability or (de)centralization and effectiveness or inequality, they suggest that both aspects of standardization (accountability and centralization) seem to increase equality of

[12] Fuchs and Wössmann (2007) differentiate between two areas of school autonomy: the one where the advantage of local knowledge can be utilized (such as personnel-management and other process decisions) and the other where opportunistic, rent-seeking behavior is more likely (such as formulating the school's overall budget). The earlier is associated with increased, while the later with decreased performance.
[13] In most countries schools must take the students from their designated catchment area.

opportunity, while accountability might increase and centralization might decrease effectiveness.

Hypotheses

Based on the literature the following hypotheses are derived.

(H1) *Stratification increases the inequality of opportunity.* The more students are selected into groups, or the more homogeneous these groups are, or the earlier the age of selection, the higher the impact of background on the test scores, thus the higher the inequality of opportunity.

(H2) *Stratification decreases effectiveness*. Arguments about peer-group effects being beneficial or detrimental to school effectiveness go both ways: it is still unclear whether more homogeneous groups, on average, would perform better or worse; whether better students would help slower students more than they lose by helping them. However, based on previous empirical evidence (OECD, 2004a) I put forward that more stratified systems tend to be less effective.

(H3) *Standardization decreases the inequality of opportunity*.

a) The more centralized a system is, the less student background matters. The logic is that the more centralized the education system, the less local interest groups can influence the curriculum, budget, admission, and personnel matters etc.; hence the more similar the schools will be. If every school is similar (within the specific track, if tracking is present) then it would not matter which school the student attended.[14]

b) The more transparent schooling is or the more visible its output (e.g. exit exam, more public information on student or school work) the smaller are the assumed informational advantages of higher status families, thus the more equal the system is.

[14] Note that this argument does not hold, if perfect spatial status segregation is present.

(H4) *The association between standardization and effectiveness go both ways: Centralization (i.e. not decentralization) should dampen effectiveness, while accountability should enhance it.*

a) Decentralization improves effectiveness, because it increases competition and competition increases productivity, and because it increases local decision making so that schools can adapt more easily to the local conditions.

b) Accountability raises effectiveness because it provides incentives for schools to improve schooling and it decreases transaction costs of parents (higher transparency).

(H5) *Stratification and standardization are independent dimensions.* Firstly I assume that some systems are stratified and standardized while others are not stratified and standardized, and vice-versa. And secondly I assume that these two aspects of institutions have independent impacts on effectiveness and inequality.

Variables

In creating quantitative indicators of a widely used concept – such as stratification or standardization – one always has to consider two important constraints: data availability and the plausibility of the connection between the proposed measure and the theoretical concept. In this paper I use widely available data that can be applied to measure stratification and standardization. This allows more transparency than the use of qualitatively created tracking indicators would.

Some indicators are missing for some countries, and considering the small number of cases (29) this might introduce a serious degrees of freedom problem to the statistical analysis. The reader must keep this in mind when interpreting the results. Nevertheless, despite the small number of cases, I find significant and robust results allowing generalizations.

Stratification

As far as the stratification dimension is concerned there are some commonly used and widely available indicators (Table 1).

The age of first selection and the number of school types are available for almost any country, and both of them have strong theoretical link to stratification; the earlier children are selected, the higher the impact of socioeconomic background on this selection and the more groups students are assigned to, the more homogeneous the groups. It should be noted that the age of selection is also an obvious indicator of non-comprehensiveness. Note, however, that a late age of selection does not necessarily imply a comprehensive system, only an early age of selection necessitates a non-comprehensive one. The ratio of vocationally trained students is a less direct, but plausible indicator for stratification. Most countries that provide state funded vocational credentials, are also selective, since vocational tracking also allocates students into separate groups, hence creates a selective system.

Table 1 - Indicators of stratification

sign	Variable name	Description	Source
-	age of selection	First age of selection in the education system, 2003	EAG 2005, D6.1
+	number of school types	Number of school types or distinct educational programs available for the 15-year-olds, 2003	EAG 2005, D6.1
+	Ratio of vocational training	Percentage of upper secondary enrollment in pre-vocational or vocational programs, 2003	EAG 2005 C2.1
+	academic selection	Ratio of school heads that reported that the school considers previous academic record or the results of an entrance exam as a prerequisite for attendance	PISA 2003 School questionnaire: Question 10

Note: The signs show the suspected association between the indicators and the unobserved stratification dimension. See Table 9. in the appendix for descriptive data.

A less popular but theoretically attractive indicator of stratification can be the percentage of schools that select children into their programs taking their former academic record or entrance exam results into account (academic selection). Since academic merit correlates positively with social status, one might argue that an academically selective system is status

selective as well (Robertson & Symons, 2003). Necessarily, the higher the number of academically selective schools, the higher the stratification of the system will be.

Standardization

I divide the indicators of standardization into the two separate dimensions of centralization (Table 2) and accountability (Table 3).

Centralization

I have found Indicators of centralization from both the PISA 2003 schools questionnaire (to principals) (OECD, 2003) and in the *Education at a Glance, OECD Indicators 2004* (EAG 2004) (OECD, 2004b). In the PISA questionnaire, school principals were asked about the state or national level influence in budgeting, curriculum, personnel matters or in other matters. The higher the proportion principals reported these influences across these areas, the more centralized the system and conversely, the more school principals reported that the national or state government have little or no say in their school, the lower the degree of centralization is (school autonomy). The EAG 2004 presented a different measure: local experts were asked, approximately what percentage of the decisions relating to the public lower secondary level education is taken at school, local, sub-regional, provincial/regional, state or central level. The higher percentage given for the central level, the more centralized the system is (central level decision making), while higher percentages at the school level mean low centralization (school level decision making).

Table 2 - Indicators of standardization - Centralization

sign	Variable name	Description	Source
-	school autonomy	Ratio of school heads that did not report direct national or regional influence in any of these categories: staffing, budgeting, instructional content or assessment practices	PISA 2003 School questionnaire: Q. 27
+	direct government influence:	Ratio of school heads that reported direct national or regional influence in all of these: staffing, budgeting, instructional content and assessment practices, % of schools	PISA 2003 School questionnaire: Q. 27[15]
-	school level decision making	Percentage of decisions relating to public sector, lower secondary education, taken at school level, 2003	EAG 2004 D6.1[16]
+	central decision making	Percentage of decisions relating to public sector, lower secondary education, taken at central level, 2003	EAG 2004 D6.1

Note: The signs show the suspected association between the indicators and the unobserved stratification dimension. See Table 10. in the appendix for descriptive data.

Accountability

As suggested by Allmendinger (1989), unified school leaving examinations indicate a standardized education system. If everyone sits system-wide exams or if students are evaluated periodically, the students themselves as well as outsiders can easily gauge what is expected from the students. This – supposedly – decreases transaction costs and thus the informational advantage of higher status families. If there is more information available on the student or on school performance, parents can choose more easily, or at least the comparative advantage of higher status families is smaller because it is much easier to gain information. An existing system of accountability can also be considered as a standardization if it provides cheap and widely available information for everyone (accountability index). The existence of national requirements that schools be regularly inspected (regular inspection) or an existing national inspectorate are also indicators of school systems with higher accountability.

[15] Note that in the PISA questionnaire, the national and state levels cannot be distinguished. That is, in federal states, e.g. Germany or the USA, the state influence is also counted as centralization. This is why school autonomy should be a better proxy for standardization.

[16] Note that this measure is only available for 24 countries. See Table 9. in the appendix. Data in the EAG 2004 are from the OECD-INES (Indicators of the Education System) survey 2003 on decision making in education.

Table 3 - Indicators of standardization - Accountability

sign	Variable name	Description	Source
+	national exam	Existence of a national examination for students in public schools at lower secondary education, 2005	EAG 2007 D5.1
+	periodical assessment	Existence of a periodical national assessment in compulsory education, lower secondary public school students, data for 2005	EAG 2007 D5.1
+	accountability index	An average of the following five dummy variables: (1) info. to local community, (2) info. to parents, (3) information made available to parents to inform school choice, plus (4) the use of school evaluation information by higher administrative levels to provide financial rewards or sanctions and (5) to motivate decisions on support for school improvement. Missing values are ignored, i.e. average of the available dummies	EAG 2007 D5.2
+	regular inspection	Existence of a legal or formal administrative framework that lower secondary public schools to be inspected regularly, 2005	EAG 2007 D5.1
+	national inspectorate	Existence of national/regional school inspectorate, 2005	EAG 2007 D5.1

Note: The signs show the suspected association between the indicators and the unobserved stratification dimension. See Table 10. in the appendix for descriptive data.

Methods

In order to test the association between the educational inequality of opportunity and educational stratification, I use the OECD PISA 2003 data (OECD, 2004c) and other OECD sources – such as the Education at a Glance (OECD, 2005a) – for the institutional measures. Since institutional variables are available only for the OECD member countries, I have used these in the analysis (note that there were no national level indicators for France, hence it was dropped from the analysis). I utilize a two-level hierarchical mixed model (see Bryk & Raudenbush, 1992; Snijders & Bosker, 1999) to estimate the coefficients of the individual level socio-economic background variable on the literacy of the students.

I have used the following model. The first (individual) level estimation is

$$(1) \qquad Literacy=\beta_0+\beta_1*ESCS+\Sigma\beta_i*X+r \qquad i=2...n$$

where β is the estimated individual level coefficient, n is the number of variables in the equation, r is the error term, ESCS stands for the economic, social and cultural background

(OECD, 2005c, p. 283), the independent variable of interest, and X is a vector of individual control variables, such as grade, age, gender and immigrant status. The outcome is the mathematical and reading literacy plausible values. The dataset provides 5 plausible values for each literacy domain (5 for mathematics and 5 for reading in this case), with suggestions that the researchers use all of these for a more precise estimation. In accordance with the recommendation the equations in this paper are estimated as many times as many plausible values are utilized, and the coefficients and standard errors are estimated using the results of the separate regressions (for details on the estimation procedure see: OECD, 2005c). I imputed the first level missing values firstly by using other available information from the dataset.[17] Additional control dummies for the imputed values are included in the estimation, but are not shown in the tables.

The second (country) level estimations are

$$(2) \qquad \beta_0=\delta_{00}+ \delta_{01}*INST+u_0$$

$$(3) \qquad \beta_1=\delta_{10}+ \delta_{11}*INST+u_1$$

where δ is the estimated coefficient, and u_0 and u_1 are the country level error terms. Its sub-indexes are defined as follows: the first index refers to the number of the variable on the individual level, and the second represents the number on the country level. INST is an institutional indicator, listed above.

Substituting (2) and (3) into (1) I get:

$$(4a) \quad Literacy= \delta_{00}+ \delta_{01}*INST+u_0+(\delta_{10}+ \delta_{11}*INST+u_1)*ESCS+\Sigma\beta_i*X+r$$

rearranging it, I get

$$(4b) \quad Literacy= \delta_{00}+\delta_{10}*ESCS+\delta_{01}*INST+\delta_{11}*INST*ESCS+\Sigma\beta_i*X+(r+u_0+u_1*ESCS)$$

[17] For instance to impute the missing values of the ESCS I used the predicted values from an Ordinary Least Squares(OLS) regression of ESCS on years of parental education, parental work status and home possessions. Where all of these were missing I used the country mean to impute missing ESCS values. Note, moreover, that specification checks for missing values (listwise dropping, mean imputation) resulted in very similar results.

where the coefficients of interest are the δ_{01} that is the effect of the institutions on the literacy scores (main effect), and the δ_{11} which shows how the different institutions affect the strength of the association between the socio-economic status and the literacy scores (interaction effect).

Table 4 - Hierarchical linear regressions – Basic model

Mathematical and Reading Literacy, PISA 2003		
Individual level variables	Intercept	676.89***
		(56.58)
	Grade	47.05***
		(3.64)
	Age	-11.29***
		(3.51)
	Female	7.73
		(26.13)
	Second generation immigrant	-9.95
		(6.24)
	First generation immigrant	-27.07***
		(7.21)
	ESCS	35.11***
		(1.39)
	U_intcpt	29.29
	U_escs	8.16
	R	81.65
	Level 1 units: 219043; Level 2 units: 29	

Note: missing values are imputed and controlled for; robust standard errors are in parentheses; ***p<0.01 **p<0.05 *p<0.1. All of the variables of this basic regression are included in the extended regressions below

The estimated basic regressions are in Table 4, while the estimated institutional parameters are in Table 5, Table 6 and Table 7. I have standardized the literacy scores and the ESCS variables within countries, so that the unit movements are comparable (more on this see: D. Horn, 2007). I standardized the ESCS index within countries to have a zero mean and a unit standard deviation. The standard deviations of the ten plausible values were transformed to be 100 within countries, while their initial means were preserved.

The method used for the estimation of country-level effects can be criticized on the grounds of limited degrees of freedom. There are only 29 country level observations and thus

including too many country level variables will decrease the degrees of freedom too much. To avoid this, I initially included only one institutional variable in each regression, and then generated a full model based on the results of the "uni-variable" regressions. Despite the small number of cases some of the results are statistically significant.

Results

The results support the first hypothesis (H1), namely that stratification increases inequality of opportunity. The age of selection and the number of school types show significant effects, in line with findings from other research (Dustmann, 2004; OECD, 2005b). Although neither the ratio of vocational training, nor the other indicators seem to associate significantly with the inequality of opportunity, all of the estimates point in the expected direction. Since the number of observations is rather small, the results support the first hypothesis (Table 5).

Table 5 - Hierarchical linear regressions. Stratifying institutions

Country level variables	age of selection (r)	number of school types	ratio of vocational training	academic selection
Main effect (δ01, effectiveness)	4.43	-3.57	0.35	0.24
	(3.46)	(4.01)	(0.39)	(0.39)
Interaction effect (δ11, inequality of opportunity)	-1.11**	1.20*	0.06	0.07
	(0.42)	(0.67)	(0.04)	(0.06)
U_intcpt	36.26	37.17	36.43	36.95
U_escs	4.88	5.18	5.26	5.31
R	88.17	88.18	88.17	88.18
Level 1 units:	219043	219043	219043	219043
Level 2 units:	29	29	29	29

Note: Coefficients for individual level variables are not shown. The titles of the regressions are the variables included as country level independent variables in the basic model. Individual level missing values are imputed and controlled for; robust standard errors are in parentheses; ***p<0.01; **p<0.05; *p<0.1. (r) - reverse (negative) hypothesized relationship

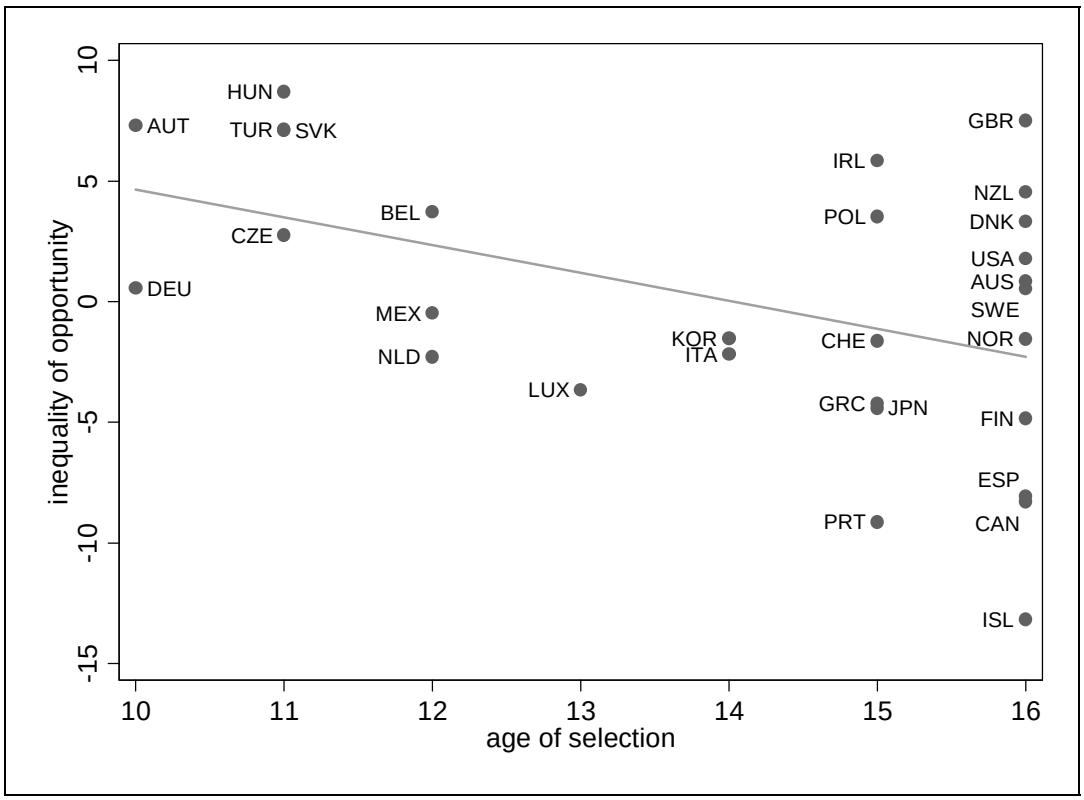
The most important conclusion of this analysis is that the age of selection is the key indicator of educational stratification. The age of selection associates very closely with the socioeconomic background effect, or in other words, the earlier countries select the higher their inequality of opportunity is. Sensitivity analyses have also underlined this statement. Table 34 (in the appendix), where all four indicators of stratification (age of selection, number of school types, ratio of vocational training and the academic selection) were included simultaneously, shows that despite the multicollinearity problems the age of selection remains significant even when other stratification indicators are controlled for. That is, controlling for school type, the ratio of vocational training and selective schools, the earlier a country selects the children, the more socioeconomic background affects literacy scores. The full model in Table 8. also shows that the age of selection is the key variable.

This significance of the age of selection in increasing inequality of opportunity is unsurprising but very important. Unsurprising, since the theory of stratification, elaborated above, points out the importance of family background at an early age (Erikson & Jonsson, 1996a). The earlier children are selected, or the earlier they have to make decisions about their future (which track to choose), the more the parents can influence this selection. On the other hand, it is very important because it points out that tracked systems are indeed more unequal. Age of selection – as I have mentioned above – is a fair indicator of non-comprehensiveness, the systems that select early are certainly not comprehensive. The results show that non-comprehensive systems are not equal, but they do not show that all of the systems that select late are equal (Figure 4). This could be due to the fact that the later age of selection does not necessitate a comprehensive system.

Readers are reminded that PISA was conducted at the age of 15. The most selective systems select students five years before this age, but almost half of the countries select only after the PISA measures student literacy. This means that in these countries the students were

in mixed class, but it does not mean that they will not be separated soon. The differences between the countries might not be as clear had I investigated older students.

Figure 4 - Age of selection and the inequality of opportunity



Hypothesis two (H2) is not supported by the results (Table 5). None of the indicators seems to affect the effectiveness of the system. Not only the effects are non-significant, but the signs of the estimated coefficients are often not in the expected direction. While the age of selection and the number of school types suggest that stratification undermines effectiveness, the ratio of vocational training and the academic selection indicators suggests the opposite interpretation.

Naturally, one might argue that the latter two indicators – vocational training and academic selection – also show other features of the system: a large ratio of vocational training necessitates vocational specificity that children are selected according to their interest and academic selection suggests meritocratic selection. These could have a positive effect on

the literacy scores. Moreover, the association between these two variables and the inequality of opportunity is very weak; hence, vocational training and academic selection might not be as good indicators of stratification as the age of selection or the number of school types, and the coefficients of these latter two show the hypothesized signs. Furthermore, Table 34 (in the appendix) shows that the age of selection seems to increase the adjusted literacy scores significantly if the other three indicators of stratification are controlled for, which suggests that if other effects of stratification are controlled for, the later children are selected the higher their literacy scores. This result is also in line with previous studies (Hanushek & Wössmann, 2005; OECD, 2005C) although my conclusion is more modest: since the estimated coefficients in Table 5 are non-significant, I would only conclude that stratification certainly does not increase effectiveness that is selecting children into homogeneous groups does not increase their adjusted literacy scores.

Tests for the 3rd hypothesis (H3) are offered in Table 6 and Table 7. In sum, the data does not reject that standardization reduces inequality of opportunity. Centralization is associated negatively with increased inequality of opportunity (Table 6). Two of the indicators used – school autonomy and school level decision making – are significantly and positively associated with the inequality of opportunity, and the other two centralization indicators also show signs in the expected direction. As for accountability, none of the indicators are significant (Table 7), and the existence of a national inspectorate was associated (against expectations) positively with the inequality of opportunity.

Table 6 - Hierarchical linear regressions. Standardization - Centralization

Country level variables	school autonomy (r)	direct govt. Influence	school level decision making (r)	central decision making
Main effect (δ01,. effectiveness)	37.88	30.93	0.55	-0.91**
	(53.37)	(39.22)	(0.36)	(0.31)
Interaction effect (δ11,. inequality of opportunity)	14.20*	-5.91	0.10*	-0.04
	(8.18)	(6.61)	(0.06)	(0.05)
U_intcpt	37.48	37.19	38.33	34.72
U_escs	5.34	5.37	5.11	5.53
R	88.17	88.17	88.03	88.03
Level 1 units:	219043	219043	169689	169689
Level 2 units:	29	29	24	24

Note: Coefficients for individual level variables are not shown. The titles of the regressions are the variables included as country level independent variables in the basic model. Individual level missing values are imputed and controlled for; robust standard errors are in parentheses; ***p<0.01; **p<0.05; *p<0.1. (r) - reverse hypothesized relationship

The association of standardization and effectiveness is ambiguous, but not in line with the reasons outlined in the fourth hypothesis (H4), which stated that centralization would decrease, while higher accountability would increase effectiveness (Table 6 and Table 7). The empirical results are rather mixed. Central decision making is the only centralization indicator, which is significant, and it suggests that centralization undermines effectiveness, which is in line with the 4th hypothesis; however the other three indicators are not significant. In addition, direct government influence correlates positively with the adjusted performance measure, suggesting the opposite; note, however, that this variable treats federal states as centralized (see footnote for direct government influence in Table 2.), which might account for the result. Similarly, there are two significant results in Table 7: the existence of national exams show a negative association with higher net performance, which is against expectations (see Fuchs & Wössmann, 2007), while the accountability index correlates positively with the effectiveness. This latter index captures very important aspects of accountability (information

flow, evaluation, financial incentives and decision motivating by data), and hence its effects both on the effectiveness and on the inequality dimension should be taken seriously; but the other indicators do not seem to support the 4th hypothesis: the signs of the coefficients and statistical significance of the other three indicators are mixed.

In short, I would conclude that I cannot reject the idea that decentralization – most likely through advanced competition – enhances effectiveness. In addition, I cannot show unambiguously that higher accountability would correlate positively with effectiveness.

Table 7 - Hierarchical linear regressions. Standardization - Accountability

Country level variables	national exam	periodical assessment	accountability index	regular inspection	national inspectorate
Main effect (δ01, effectiveness)	-28.26*	-11.46	38.52**	-8.94	17.99
	(14.31)	(14.21)	(16.69)	(13.16)	(15.90)
Interaction effect (δ11. inequality of opportunity)	-1.44	-0.05	-3.23	-1.25	2.45
	(2.07)	(1.99)	(3.18)	(2.21)	(2.17)
U_intcpt	35.84	38.33	34.72	38.57	37.73
U_escs	5.23	5.29	5.24	5.25	5.14
R	88.04	88.04	87.95	88.04	88.04
Level 1 units:	180098	180098	181434	180098	180098
Level 2 units:	26	26	26	26	26

Note: Coefficients for individual level variables are not shown. The titles of the regressions are the variables included as country level independent variables in the basic model. Individual level missing values are imputed and controlled for; robust standard errors are in parentheses; ***p<0.01; **p<0.05; *p<0.1. (r) - reverse hypothesized relationship

There are only a few degrees of freedom to test institutional effects due to the small number of countries; hence I have only included one institutional indicator in each model. The question is, therefore, how related the two dimensions of standardization and stratification are (H5). Figure 5 shows the age of selection plotted against the accountability index and Figure 6 the central decision making indicators of standardization. Also, Table 35 in the appendix shows the pair-wise correlations of the stratification and the standardization indicators. It is

clear from these results that these stratification and standardization indexes are only slightly correlated. There are many countries with education systems that are stratified and standardized, and conversely many standardized systems that are non-stratified. None of the measures show a consistent positive or negative relationship with the indicators of the other dimension. Similarly, if the most important indicators of stratification (age of selection) and some indicators of standardization (central decision making or accountability index) are simultaneously included in a model, the coefficients are little changed (Table 36 in the appendix). Thus the two dimensions are largely uncorrelated and have independent effects on effectiveness and equity.

Figure 5 - Scatter-plots of age of selection and accountability index

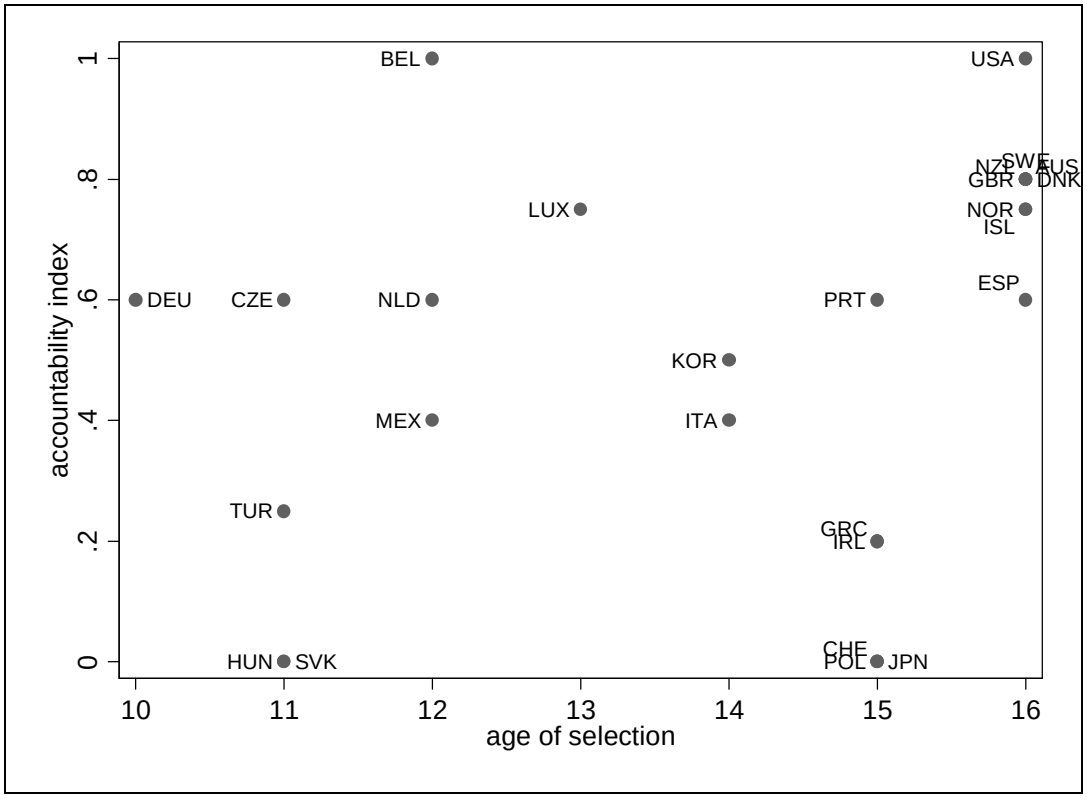
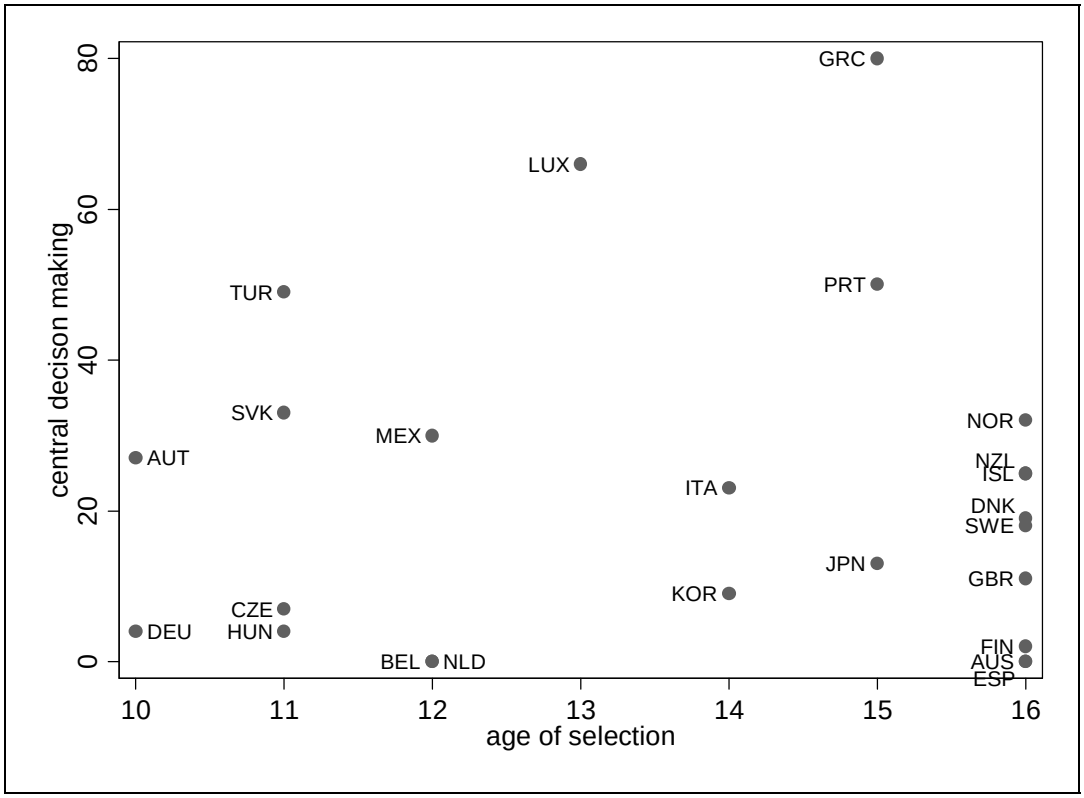


Figure 6 - Scatter-plots of age of selection and central decision making



The "full model" includes the four "best" indicators in one model, risking high multi-collinearity (Table 8). The age of selection and the number of school types are both significant stratification indicators, while school autonomy is the most appropriate indicator for (de)centralization and the accountability index is the best indicator for accountability.

It seems that the conclusions drawn from the separate-institution regressions are verified in the full model. Early age of selection increases the inequality of opportunity, just as does increased school autonomy. The effect of school autonomy is probably through the selection of students and allocation of resources (e.g. better teachers will be hired by higher status schools, which can gather more resources).

A lower age of selection is also associated with lower effectiveness (also see the results in Table 34.), while higher number of school types increases effectiveness. One might speculate that on the one hand the significant effect of the age of selection is due to the fact that if we assume constant selectivity (constant number of school types across countries) the longer

students study together the higher the overall achievements will be. On the other hand, the coefficient of the number of school types might be significant because if students are selected at the same age in every country (constant age of selection) the more option students have to study what they are interested in (higher number of school types) the higher the effectiveness of the system will be. All in all, however, both of these effects are only marginally significant, moreover due to the small number of cases the estimation is also very sensitive to outliers; hence definitive conclusions should not be drawn. In contrast, there is no doubt about the importance of the two standardization indicators, the accountability index and the level of school autonomy, they both increase effectiveness significantly. This is clearly consistent with theoretical expectations: higher accountability, just as increased competition (or the ability to adjust to local demand), increases the overall performance of the system.

Table 8 - Hierarchical linear regressions. The full model

Mathematical and Reading Literacy, PISA 2003		
Country level variables		
Main effect (δ01, effectiveness)	age of selection	10.20*
		(5.66)
	number of school types	16.67*
		(8.28)
	accountability index	55.02**
		(19.94)
	school autonomy (r)	96.59*
		(50.82)
Interaction effect (δ11, inequality of opportunity)	age of selection	-1.62*
		(0.81)
	number of school types	-1.11
		(1.25)
	accountability index	-1.48
		(2.67)
	school autonomy (r)	17.23*
		(8.73)
	U_intcpt	32.46
	U_escs	4.98
	R	87.95
Level 1 units: 219043; Level 2 units: 26		

Note: individual level missing values are imputed and controlled for; robust standard errors are in parentheses; ***p<0.01 **p<0.05 *p<0.1

Concluding comments and further steps

This chapter set two goals up front, to combine the stratification and standardization framework of Allmendinger (1989) with the data oriented institutionalist approach of the economics of education and to systematically examine the aspects of educational systems that have an impact on effectiveness and equity. While accomplishing the second goal, that are in line with the hypotheses established by former research (Ammermüller, 2005; Arnett, 2007; Eric A. Hanushek & Wössmann, 2005), and that set the ground for further chapters, the theoretically more innovative first goal turned out to be inadequate. Educational systems cannot be fit into two (or three) dimensions. And although most of the institutions within the stratifying and standardizing dimensions point in the expected directions, some are better suited, while others are worse suited for empirical research. Or to put it differently with an example, while in theory both the ratio of vocational training students and the age of selection should indicate stratifying educational structure, the first and the second behaves quite differently when used as an indicator for an overarching dimension.

The failure to grab complicated educational systems with a few dimensions, however, does not annul the importance of the individual institutions. Despite the small number of countries (29 OECD countries), the results are policy relevant. Age of selection and the number of school-types of education systems is associated with higher inequality of educational opportunity, school autonomy or school level decision making enhance equality. For standardization, the effects of all but one of the indicators on equity were in the expected direction, but none were statistically significant.

Multilevel analysis did not show clear associations between effectiveness and the stratification indicators, but in some specifications later age of selection associated with increased effectiveness, while more school types also showed positive signs. Central decision making seems to decrease effectiveness, while the indicators under the accountability

dimension have mixed effects – the accountability index has a strong positive while the existence of a national exam a weak negative sign.

The most robust result of the study, on which I build my subsequent chapters and which is consistent with previous findings (e.g. Marks, 2005; OECD, 2005b, 53) is that early age of selection is associated with lower equity.

In the next chapter I look at the case of Hungary, where early selection is carried out in a quite an uncommon manner. While most of the children are finishing general school at age 14, a unique academic track – which I will call early selective academic track – cream skims the best students at age 10 and at age 12. Using this feature of the Hungarian system I will address the questions: (1) Do students of the early selective tracks benefit from entering these tracks? (2) Do others loose from this early selection, or it is a Pareto optimal change? (3) Who benefits from this early selection?

CHAPTER 3 -THE STUDENT BACKGROUND COMPOSITION AND EFFECTIVENESS OF THE EARLY SELECTIVE ACADEMIC TRACKS OF HUNGARY

Introduction

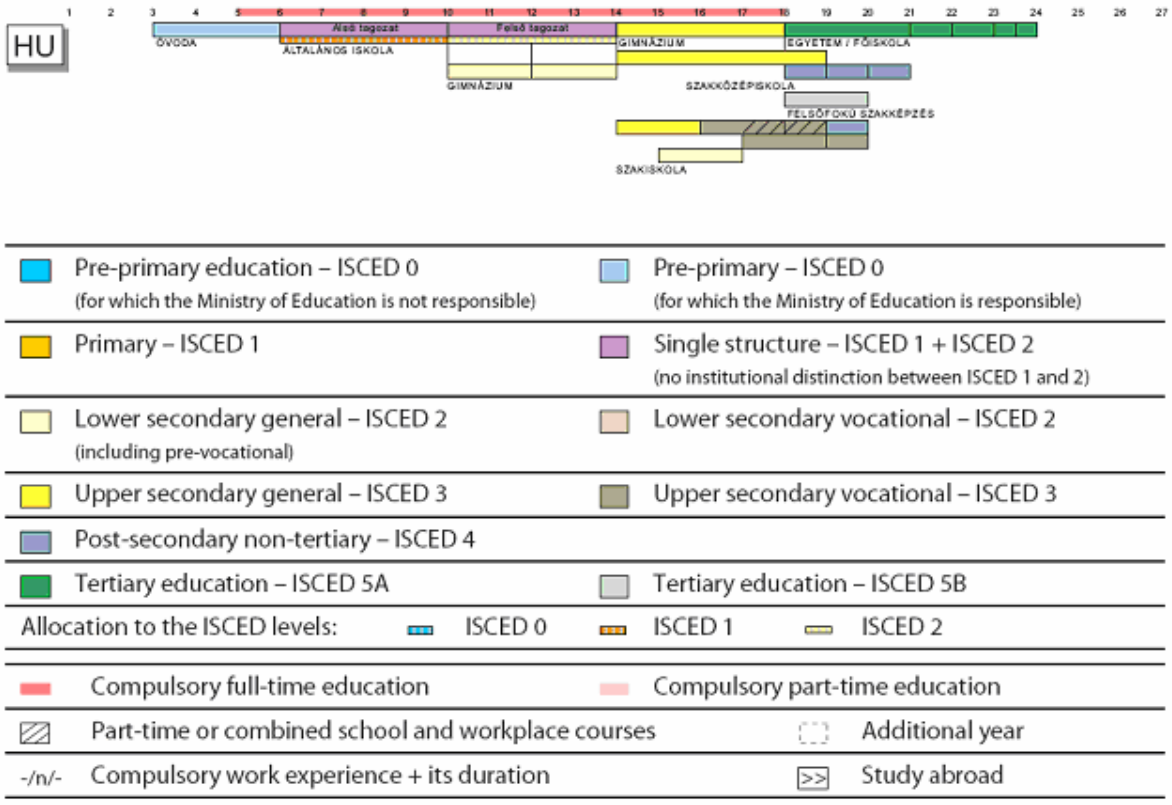
I have shown in the previous chapter that age of selection, likely the best proxy for comprehensive schooling, is the strongest associated with the inequality of opportunity in a cross country analysis. The earlier children are selected in an education system, the more likely that the family background will associate strongly with their literacy scores. This, of course, does not mean that all education systems that select late are equal, but early selection most likely undermines equality.

I have also mentioned that the inequality of opportunity in Hungary is high, and that the Hungarian system also selects children quite early. It has not always been like that. Before 1989 the system was a typical "soviet" system, with 8 years of general training and 3 types of secondary tracks to choose from at age 14. There were two vocational tracks, a relatively more theoretical vocational secondary (*szakközépiskola*) and a more practical apprentice training (*szakmunkásképzés*) track, and an academic track (*gimnázium*). While these continue to exist today,[18] there are two additional types of academic tracks, the 8-year-long and the 6-year-long tracks. These tracks I will call early selective academic tracks. The 8-year-long track selects students right after 4th grade, at age 10, from the general school (*általános iskola*). Two years later, after 6th grade, at age 12, the 6-year-long academic tracks step in to select another group of children who remained in the general school. And finally after 8th grade at age 14, everyone must choose some secondary school from the original three to continue her/his studies until they the age of 18. Of the whole cohort only around 3% leave

[18] The apprentice training has been renamed and reformed to vocational training (*szakiskola*), but that process is outside the scope of this study.

general schools at age 10 and at age 12 an additional 4-5% for the 6-year-long track. (The Hungarian system is somewhat complicated; see Figure 7 below for a rather complex, but comprehensive and Figure 15 in the appendix of the next chapter for a more focused depiction.) The introduction of the early selective tracks was gradual. Their establishment was possible only between 1989 and 2000, and most of them were established between 1991 and 1997. There are several regions in the country where no such tracks were established.

Figure 7 – Organization of the education system in Hungary



source: (Eurydice, 2008, p. 39)

This chapter utilizes this unique multi-level selective feature of the Hungarian system to test the inequality effects of early selection. Meghir and Palme (2005) and Pekkarinen, Uusilato and Kerr (2009) have shown in the case of Sweden and Finland, respectively, that comprehensive education reforms help to equalize the system by increasing intergenerational mobility. They have also shown that reforms might not be beneficial for the higher status

families, who tend to loose not only on relative but also on absolute terms. These reforms took place in the 1950s in Sweden and in the 1970s in Finland. Both countries abolished the selection of children into different tracks, and both imposed national curriculum on schools and lengthened compulsory schooling to 9 years from 7 or 8. Meghir and Palme (2005) show that the reform increased both the attainment and later earnings of children with lowly educated parents. At the same time, it also lowered the earnings of those with highly educated parents. Pekkarinen, Uusilato and Kerr (2009) test the effects of the Finish comprehensive reform and conclude that it had only a small but an overall positive effect. It reduced intergenerational income elasticity significantly for boys, and it increased intergenerational income mobility. The novelty of these studies is that they could use a quasi natural experiment to test the effects of an educational reform.

It would be interesting to see whether the effects go backwards as well, i.e. to examine whether increasing the selectivity of an education system would increase inequalities and help the higher status families while hurt others. There are few such examples in the history of educational reforms, Hungary being one of them. A good complementary study to the Nordic cases would look at the effects of the introduction of established early selective Hungarian academic tracks. Unfortunately there are quite a few problems with the execution of such a study. The most important is that while the Nordic reform was a supply driven reform – the central government dictated the terms – the introduction of the early selective tracks in Hungary were demand driven. As I will explain later, one of the most important reasons of establishing an early selective academic track in a given settlement was the demand from the local community. The central government only allowed these changes to happen, but did not initiate them. When and where an early selective track was introduced depended on the local community, which factor is likely to introduce endogenous selection into a test of this transformation of the system. The second problem is that while the Nordic reforms took place

in a relatively short period in time, hence identifying the before and after cohorts were relatively simple, the Hungarian transformation took several years, and there are still regions in the country that have no such tracks. And finally to answer this puzzle would require a large dataset with some outcome measure (like earnings or income) and several additional variables so that people could be observed before and after the early selection was introduced in a given region. Because currently I do not have such a dataset, the complementary study cannot be done.

Nevertheless, I can address some related questions that shed the light on the effects. In this chapter, using a unique panel dataset from 2008, I address three questions: (1) Do students of the early selective tracks benefit from entering these tracks? Or to put it differently, are the early selective tracks better in terms of value-added? (2) Do others loose out from this early selection, or is it a Pareto optimal change? (3) Who benefits from this early selection? Although, it is obvious that the answer for this latter question is higher status families, but it is still interesting to see whether the early selective academic tracks have higher status student composition because they select on status or the observed status differences are due to the fact that status correlates highly with skills and academic schools are skill selective.

If we observe that early selective tracks are "better", and that others are "worse" because of these tracks, and that higher status families tend to benefit from these then a valid argument would be that this educational structure goes against the comprehensivization process observed in many countries, and that the Hungarian institutional change in the early 1990's have probably done just the opposite of what Mehir and Palme (2005) and Pekkarinen (2009) have observed in the Nordic states.

Unfortunately, as the reader will see, based on the data available I cannot make such straightforward statements. At the same time the results solidly show that early selective academic tracks are better, in the sense that they provide a higher value-added. I run several

robustness checks. All of them show that early selective tracks have higher value added between 8th and 10th grade as compared to any other tracks. Other, somewhat weaker tests show that early selective tracks select based mainly on skills. It is likely that status also plays a role (but its magnitude I cannot identify. Similarly I cannot identify whether it is demand or supply initiated, i.e. whether schools admit the higher status children or they are more likely to apply to early selective schools). Nevertheless, higher status families certainly benefit more from these tracks since skills are strongly correlated with status. And finally, even weaker tests show that while students' of early selective tracks gain, those left in general tracks loose.

Naturally, this conclusion allows for a much outstretched generalization that the comprehensive reform logic is reversible. It is likely that early selective schools increase inequalities, by increasing the performance gap between those in early selective schools and the others. However, the data does not allow me to conclude that this relatively new institution is also inefficient on the national level – in that it would decrease average performance – nor that it is certainly harmful for those left in general schools. But it surely provides an argument for the next chapter, where I look at the political reasons behind establishing the early selective tracks, and show how medium-high status groups have fought for these schools.

The outline of the chapter is the following: the next chapter describes the National Assessment of Basic Competencies (NABC) the utilized core database, and some descriptive data. Then the three main questions above are analyzed separately in subsequent sections, while the last part concludes.

The NABC database and descriptive statistics

The National Assessment of Basic Competencies (NABC) is a standard based assessment designed similarly to the OECD PISA survey.[19] It measures reading and mathematical literacy of the 6th, 8th and 10th grade students and it is standardized to a mean of 500 with standard deviation of 100.[20] Table 9 below shows when and who was measured within the NABC survey. There are several explicit goals of this assessment: first is to provide more detailed and more frequent annual feedback for the educational policy than the international surveys. The second is to offer a tool for the local school providers and schools themselves to improve. And the third goal is to set the grounds for a future accountability system. In addition to all this, it offers invaluable data for the researchers to address education related social puzzles. Unfortunately, up until 2008 the database could only be analyzed on a cross sectional basis, since it contained no permanent student level identification numbers. From 2008 onwards the biannual datasets will be connected on the student level, thus from 2010 onwards more detailed analyses are possible.

Table 9 – The official NABC database

	4th grade	**6th grade**	**8th grade**	**10th grade**
2003	0	20 students from every school	0	20 students from each track from each school
2004	0	20 students from every school	20 students from every school	20 students from each track from each school
2006	full cohort	every student from a sample of 195 schools	full cohort	30 students from each track from each teaching site
2007	full cohort	every student from a sample of 200 schools	full cohort	30 students from each track from each teaching site
2008	every student from a sample of 200 schools	full cohort	full cohort	full cohort

[19] See Hermann and Molnár (2008) for a more detailed, Hungarian language, description of the NABC database.
[20] I use a 0 mean 1 standard deviation standardized version of the same test score, so that the coefficients of the status variable (see below) and the score are comparable.

Besides the test scores the database contains variables from an extensive student background questionnaire and a school site level questionnaire. These questionnaires resemble that of the PISA survey, but are much more detailed.[21]

Although the official datasets are not connected on the individual level, the Institute of Economics of the Hungarian Academy of Sciences (IEHAS) has connected more than 50% of the 2006 8th grade cohort with their 2008 10th grade data to generate a student level panel.[22] Altogether 55941 students are connected from 119363 students in 8th grade (or 112409 students in 10th grade). Since these students on average are higher skilled (no dropouts in the dataset, by definition), I have generated student level weights to represent the test score distribution of the 8th grade. This panel dataset offers a unique opportunity to look at the value-added of the early selective tracks between 8th and 10th grade.

In order to use similar variables to the previous chapter, I have generated a student status variable similar to the ESCS variable of the OECD. The socio-economic status (SES) variable is a 0 mean 1 standard deviation factor of three factors – just as in the PISA database – parental education, parental occupation and home possessions. The parental education is the highest parental education in years, the parental occupation is a standardized factor of the father's and the mother's employment status, while the index of home possessions is a factor of the following variables: number of rooms at home, number of mobile phones at home, number of computers at home, number of cars at home, number of bathrooms at home, number of books at home, have internet connection at home, have own books at home, have own table at home, have own room at home, have own computer at home. I have also standardized both the reading and mathematical literacy points to a 0 mean and 1 standard deviation in most of the analyses below, so that the coefficients of the score and the SES are comparable.

[21] The questionnaires, the school reports and all related documents can be downloaded in Hungarian from the www.kompetenciameres.hu website.
[22] See Horn (2009) for a more detailed, Hungarian language description.

Table 10 below shows some very basic descriptive statistics of the different track types in 10th grade. It is obvious that the early selective tracks (the 6-year-long academic tracks and the 8-year-long academic tracks) have higher status student composition and higher average test scores. That is, they are a selected group of students. The goal of this chapter is to rationalize this selection, at least on individual grounds.

Table 10 – Basic descriptive statistics, 2008 10th grade

track type	SES mean	SES sd	Math score mean	Math score sd	Read score mean	Read score sd	Percent (N=112409)
8-yr-ac	0.72	(0.82)	587.69	(81.20)	588.39	(66.06)	2.86
6-yr-ac	0.75	(0.83)	579.94	(87.94)	582.50	(71.88)	4.55
4-yr-ac	0.37	(0.91)	533.63	(85.33)	551.04	(76.88)	31.02
vocational sec.	-0.13	(0.87)	484.15	(78.70)	491.01	(76.83)	40.12
vocational training	-0.82	(0.92)	399.41	(75.48)	393.37	(76.30)	20.88

Changing tracks

During the two years between 8th and 10th grade several students change tracks. If changing track is not random, then the sample has to be restricted to only those who remain in the same track during this period.

Children who change tracks between 8th and 10th grade can be observed in the database. Table 11 below shows these numbers. There are approximately 3% and 5.5% of children attending 8- and 6-year-long academic schools in 10th grade, respectively, who I observe in the panel database. However, in 8th grade I see a somewhat larger proportion, the respective numbers are 3.5% and 6.2%. This means that almost 15% of the students accepted into these early selective schools leave, while much fewer (around 3%) enter these tracks between 8th and 10th grade.

Table 37 in the appendix shows the average SES and 8th grade reading score, and a SES adjusted reading score[23] of the students changing tracks. Apparently those who leave the 8- or 6-year long academic tracks between 8th and 10th grade have lower socioeconomic status and

[23] The residuals from a linear regression of SES on 8th grade reading scores.

lower test scores, and also the adjusted reading literacy scores of those who leave are somewhat lower, especially for those few who enter vocational training. This suggests that skill and/or status selection is taking place not only before the admission but also during the years after the student started the given track.

Table 11 – Number and ratio of children changing tracks – panel database

		10th grade						
		8-yr-ac	*6-yr-ac*	*4-yr-ac*	*vocational sec.*	*voc. Training*	*special voc*[24].	***Total***
8th grade	General school (freq.)	67	101	17,708	21,878	10,289	165	**50,208**
	(%)	0.12%	0.18%	31.85%	39.36%	18.51%	0.30%	**90.32%**
	6-yr-ac	9	2,887	413	124	10	0	**3,443**
	(%)	0.02%	5.19%	0.74%	0.22%	0.02%	0.00%	**6.19%**
	8-yr-ac	1,612	12	228	78	10	0	**1,940**
	(%)	2.90%	0.02%	0.41%	0.14%	0.02%	0.00%	**3.49%**
	Total	**1,688**	**3,000**	**18,349**	**22,080**	**10,309**	**165**	**55,591**
	(%)	**3.04%**	**5.40%**	**33.01%**	**39.72%**	**18.54%**	**0.30%**	**100.00%**

This observation leads me to restrict my sample in the first part of my analysis to only those children who remained in the early selective tracks, so that I do not overestimate the effects of the early selective tracks.

School effects

Why do children want to go to the 8- or 6-year-long academic tracks? One of the obvious explanations is that these tracks are more effective. They teach better and improve students' skills more so every student is better off attending these than the others. In the following section I will look at two observable outcomes. Firstly, I examine whether the value-added in reading and mathematical literacy in the early selective tracks is greater than in the other schools, and secondly I look at whether the chances to continue studies to tertiary level from the early selective tracks are higher or not. I will use the student level NABC panel dataset (2006 8th grade and 2008 10th grade) for these analyses.

[24] Special vocational school is a school for children with special needs.

Even if early selective tracks are better, I could not claim that every student would gain entering these tracks. I cannot differentiate between the reasons whether these tracks are better because they teach better, have improved curriculum… etc., or just the increased status and skill homogeneity, the peer group effect drives the results, or both. From the point of view of the parents, this question is irrelevant. The reasons behind a superior performance do not matter for them. What matters is only the result. But from the policy point of view it is important. If better practice drives the results, policy makers should consider changing the structure even more, adopting the practice of the early selective tracks. But if peer group effect is important, or the selection into these schools drives the results then early selective tracks are less preferred from a social point of view.

Value-added

There are two typical ways of measuring educational value-added. The first (1. eq.) is where the change in test scores is the dependent variable, and the second (2. eq.) is where a test score in *t-1* is regressed on a test score in *t*, where *t* is time.

1. eq.

$$test\ score_{t,i} - test\ score_{(t-1),i} = a + b * X_{,i} + u_{t,i}$$

2. eq.

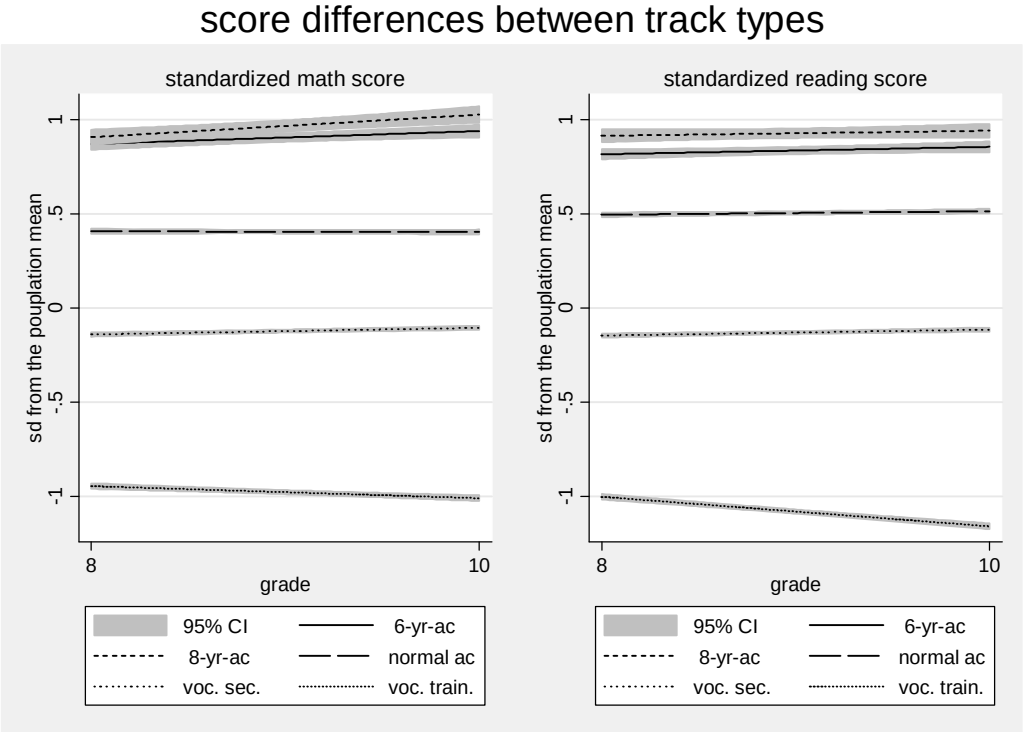
$$test\ score_{t,i} = c + d * test\ score_{(t-1),i} + g * X_i + e_{t,i}$$

where *i* is the student index, *a, b, d* and *c, g* are the estimated parameters, *e* and *u* are error terms and *X* is a set of controls such as, for instance, family background, or track types. The substantial difference between the two approaches is that while the first assumes that students with similar X characteristics (e.g. students in the same track) achieve similar change in test scores; the second assumes level differences only, and it allows for different growth patterns within the X dimensions. Or to put it differently, the first is a more restrictive version

of the second for it assumes that *d* is equal to 1. I will use both of these approaches to test the effectiveness of the early selective schools, but extend a bit more on the second because methodologically it is more acceptable.

Figure 8. below shows the uncontrolled differences between track types. It is obvious, that both 6- and 8-year-long academic school students perform much better in 8th just as in 10th grade, but while level differences are obvious, the change differences in these scores are less apparent.

Figure 8 – Standardized score differences between academic track types



Using the panel dataset, I regressed the difference of the two scores on the 6- and 8-year-long academic track dummies (Table 12 below), with the 4-year-long academic tracks as reference. I have also excluded those students from the sample in most of the estimations below who changed tracks from early selective to others or vice-versa, for the reasons I have described above.

Table 12 indicates that there are no differences between the 4, 6 or 8 year long academic tracks in reading literacy. This conclusion does not change even if gender and family status are controlled for. The mathematical literacy estimations, however, show significantly larger score improvement for the 8-year-long academic tracks. According to this result the difference in mathematical score improvement between a student in a normal 4-year-long academic track and a student in a 8-year-long academic track is around 0.15 standard deviation.

Table 12 – The effect of track types on the change in test scores

	M1	M2	M3	M4
	read, 2008-2006 diff. (std)	math, 2008-2006 diff. (std)	read, 2008-2006 diff. (std)	math, 2008-2006 diff. (std)
6-yr-ac	-0.020	0.014	-0.045	-0.017
	(0.035)	(0.043)	(0.039)	(0.052)
8-yr-ac	-0.029	0.124**	-0.032	0.139**
	(0.036)	(0.049)	(0.035)	(0.054)
Voc. Secondary	0.044**	0.089***	0.001	0.041
	(0.018)	(0.028)	(0.018)	(0.027)
Voc. Training	-0.232***	-0.015	-0.301***	-0.083***
	(0.025)	(0.032)	(0.026)	(0.029)
female (dummy)			-0.257***	-0.194***
			(0.013)	(0.013)
socio-economic status (std)			-0.013*	-0.022
			(0.007)	(0.014)
Constant	0.063***	0.009	0.236***	0.154***
	(0.012)	(0.025)	(0.016)	(0.027)
Observations	47964	47180	39325	38678
R-squared	0.01	0.00	0.03	0.01
Reference category: 4-year-long ("normal") academic tracks				
Robust t statistics in parentheses				
* significant at 10%; ** significant at 5%; *** significant at 1%				

There are larger significant differences between track types in the next table (Table 13), where I use the less restrictive understanding of the value-added. Using the 10th grade scores as dependent variable and controlling for the 8th grade scores it appears that both the 6- and the 8-year-long academic tracks are better. Students in both of these schools achieve 0.12-0.25 standard deviation higher 10th grade scores than the "normal" academic schools. This difference remains significant and similarly large even after controlling for family status and gender. From these simple value-added estimations it seems that the early selective academic

schools are indeed better. Children achieve higher test scores even if family status and previous academic achievements are controlled for.

Table 13 - The effect of track types on the level of test scores with previous test score controlled for

	M1	M2	M3	M4
	read (std) 2008. grade 10	math (std) 2008. grade 10	read (std) 2008. grade 10	math (std) 2008. grade 10
6-yr-ac	0.137***	0.183***	0.109***	0.159***
	(0.020)	(0.020)	(0.022)	(0.022)
8-yr-ac	0.175***	0.265***	0.149***	0.254***
	(0.021)	(0.028)	(0.022)	(0.028)
Voc. Secondary	-0.221***	-0.117***	-0.199***	-0.143***
	(0.015)	(0.022)	(0.015)	(0.022)
Voc. Training	-0.733***	-0.435***	-0.673***	-0.459***
	(0.020)	(0.034)	(0.021)	(0.033)
female (dummy)			-0.054***	-0.199***
			(0.009)	(0.009)
socio-economic status (std)			0.059***	0.051***
			(0.005)	(0.009)
read (std) 2006. grade 8	0.662***		0.664***	
	(0.006)		(0.006)	
math (std) 2006. grade 8		0.723***		0.690***
		(0.016)		(0.020)
Constant	0.151***	0.093***	0.171***	0.224***
	(0.012)	(0.019)	(0.013)	(0.023)
Observations	47964	47180	39325	38678
R-squared	0.68	0.69	0.69	0.70
Reference category: 4-year-long (“normal”) academic tracks				
Robust clustered standard errors in parentheses				
* significant at 10%; ** significant at 5%; *** significant at 1%				

One obvious explanation for this result is that early selective tracks have higher resources, nicer surroundings, or higher quality teachers. In Hungary it is possible for a school to have both 6- and/or 8-year-long academic tracks and normal 4-year-long academic tracks as well (see Table 14). In the panel sample there are altogether 1579 tracks in 1010 schools. As a result, using fixed effect models I can control for the school resource (monetary, teacher, location…etc.) differences and see the within school differences between tracks. Table 15 below shows the fixed effect estimates.

Table 14 – Number of schools and type of tracks per school

	Type of tracks				
Number of schools	8-yr-ac	6-yr-ac	4-yr-ac	voc. sec.	voc. train.
233	.	.	.	+	+
211	.	.	+	.	.
171	.	.	.	+	.
92	.	.	+	+	.
91	.	.	.	.	+
69	.	+	+	.	.
36	.	.	+	+	+
36	+	.	+	.	.
20	.	+	.	.	.
13	+	.	.	.	.
10	.	.	+	.	+
9	.	+	+	+	.
6	+	.	+	+	.
5	.	+	+	+	+
2	.	+	+	.	+
2	+	.	+	+	+
1	.	+	.	.	+
1	.	+	.	+	.
1	+	.	.	+	+
1	+	+	.	.	.

Surprisingly, even if we control for school fixed effects the conclusions do not change. 8-year-long academic tracks have higher change in mathematics scores, and both early selective tracks have higher 10^{th} grade scores even if we control for 8^{th} grade scores and family status. In other words, track differences are just as apparent within as across schools. Note however, that track resource differences within schools are just as possible. I am unable to test whether schools allocate more resources or better teachers to the early selective tracks within a mixed track school, but anecdotic evidence suggests this explanation. Moreover, the selection of the higher skilled or more motivated students into 6- or 8-year-long tracks within schools is also not unlikely, similarly, peer group effects can be larger in the 6- or 8-year long academic tracks even if I control for every school level effect. So due to these doubts, the fixed effect estimation did not solve any of the problems.

Table 15 - The effect of track types on the level of test scores adjusted for previous test scores, fixed effect models

	M1	M2	M3	M4
	read, 2008-2006 diff. (std)	math, 2008-2006 diff. (std)	read (std) 2008. grade 10	math (std) 2008. grade 10
6-yr-ac	-0.019	0.008	0.075***	0.121***
	(0.047)	(0.046)	(0.025)	(0.024)
8-yr-ac	-0.067	0.135**	0.108***	0.219***
	(0.063)	(0.066)	(0.036)	(0.038)
Voc. Secondary	0.026	0.083***	-0.137***	-0.082***
	(0.029)	(0.026)	(0.022)	(0.020)
Voc. Training	-0.261***	-0.086**	-0.590***	-0.409***
	(0.037)	(0.035)	(0.026)	(0.026)
female (dummy)	-0.258***	-0.171***	-0.056***	-0.210***
	(0.013)	(0.013)	(0.008)	(0.008)
socio-economic status (std)	-0.003	-0.004	0.023***	0.021***
	(0.007)	(0.008)	(0.004)	(0.004)
read (std) 2006. grade 8			0.593***	
			(0.006)	
math (std) 2006. grade 8				0.638***
				(0.010)
Constant	0.218***	0.126***	0.129***	0.193***
	(0.021)	(0.019)	(0.015)	(0.014)
Observations	39325	38678	39325	38678
R-squared	0.10	0.12	0.73	0.74
Robust clustered standard errors in parentheses				
* significant at 10%; ** significant at 5%; *** significant at 1%				

In addition to all these concerns, the results about the superiority of the early selective tracks might be driven by two problems. Firstly, the relatively time we observe the students in these tracks (how long they have been in the given track) are different. And secondly, there might be a sampling selection bias between the tracks. The data shows 4-year-long academic track students *before* they enter the tracks, but 6-year-long track students are monitored 1.5, while 8-year-long track students 3.5 years *after* they have been in the same track. If there are quality differences between tracks I should be able to observe students before the selection takes place in order to compare track effects properly. The reason is that if 8-year-long academic schools are of higher quality (improve students better) I underestimate their value-added, and vice-versa, if they are of lower quality and deteriorate student skills I overestimate their effect. As for the second problem is concerned, if I assume that early selective tracks select higher skilled or more motivated students and these students improve more then these

schools are not better *per se*, but have more nuanced selection system that allows for the selection of those who can improve better; i.e. we have a selection bias in the model.

Unfortunately, I cannot test the size of these effects. I cannot look at the school effects of the early selective tracks from their start and I cannot control for selection bias either. Nevertheless, three alternative robustness checks might shed some additional light on the results. (1) A simple depiction of the 8-year-long academic track scores as compared to all the other tracks, using the 2008 cross-sectional NABC dataset. (2) An extension of the base OLS model with additional variables, assuming that the composite SES disguised some important effects. (3) A 3 period value-added estimate for the 8-year-long academic schools on a restricted sample, generated by the IEHAS and the National Institute for Public Education (NIPE).

Robustness checks

(1) Cross-sectional depiction

Although there are no (or as I show below only a very restricted) panel dataset available that would allow for a between track comparison in time, I can use the 2008 NABC student level dataset to depict the 6^{th}, 8^{th} and 10^{th} grade averages of the 8-year-long academic tracks versus everyone else (Figure 9). The goal would be to see whether a child entering the 8-year-long academic tracks after 4^{th} grade would benefit more or less than s/he would staying in general education. This test is necessary if we consider that a parent would compare the benefits of the 8-year-long tracks with the general school and not with the 4-year-long academic tracks, as I have done earlier.

In order to control for status and residential availability differences the figure below shows only the students with tertiary educated parents (at least one of the parents has tertiary degree) and restrict the sample to only those ZIP code areas, where at least one student has entered an 8-year-long academic track.

Figure 9 below shows these averages and their 95% confidence interval. The test score difference between the 6th and 8th grade of the 8-year-long academic track students is not significant, while there is a substantial difference between 8th and 10th grade, especially in mathematics. On the other hand, the test scores of students not in 8-year-long academic tracks have decreased significantly between 6th grade and 8th grade and also between 8th and 10th grade. Keeping in mind that this is a cross section, thus the three grades are different cohorts I might conclude that 8-year-long academic tracks are indeed better, if I assume that there are no significant differences between cohorts.

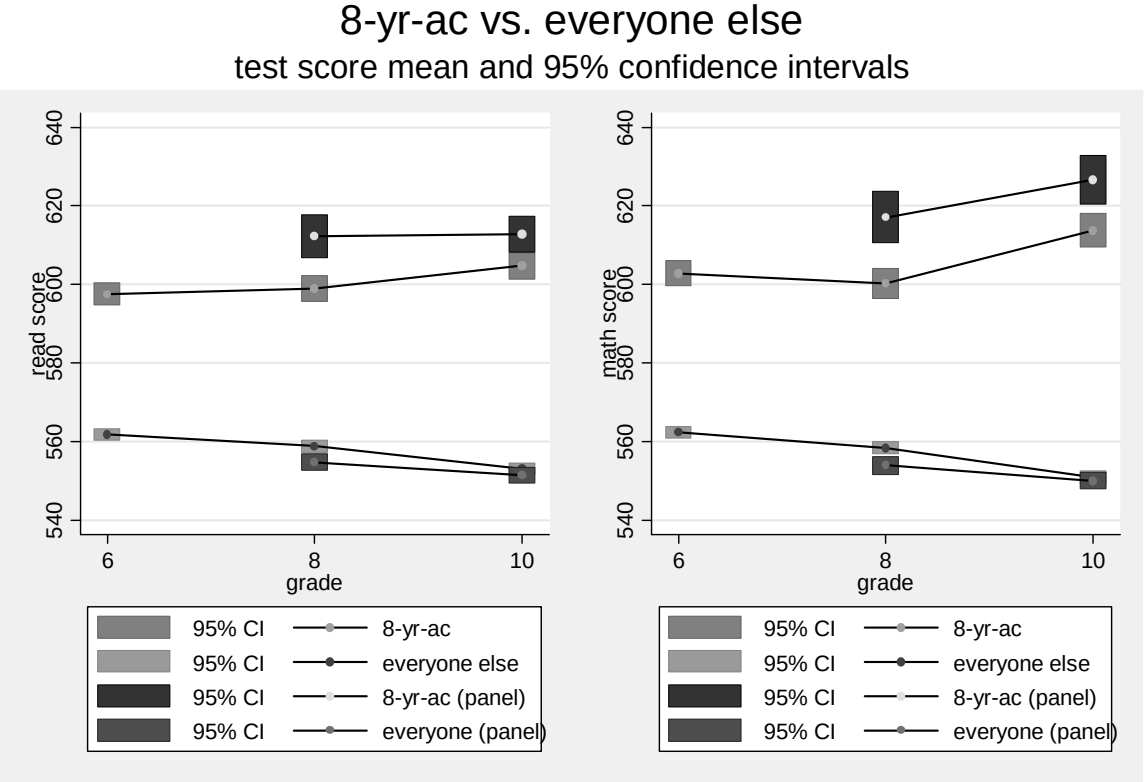
However, as I have indicated above, there might be substantial selection of students in between grades. 8-year-long tracks might transfer those students back to general tracks between 6th and 8th grade, or over to the 4-year-long academic tracks (even within the same school) after 8th grade who does not seem to fit the requirements of the 8-year-long track. This is what we see between 8th grade and 10th grade on the panel data. Figure 9 also depicts the 8th and 10th grade scores of those students who could be observe between 2006 8th grade and 2008 10th grade. The panel data indicates that neither the reading scores nor the math scores of the 8-year-long track students increase significantly between 8th and 10th grade. On the other hand the test score points of everyone else decreased between 6th and 8th grade which might be due to declining peer group effect (see next chapter), or due to other reasons. The figure also shows that the difference of these non 8-year-long track students between the 8th and 10th grade in the cross-section is larger than in the panel data. This difference in change between grades is probably due to the fact that early-selective track drop-outs are still better than the average student in the other tracks.

Although I cannot test directly the selection mechanism between 6th and 8th grade, the ratio of students in early-selective tracks in 6th, 8th and 10th grade decreases exponentially, this suggests that selectivity is more likely after 8th grade. The average ratio of students in 8-year-

long academic tracks is 14.6% in 6th grade, 13.2% in 8th grade and 10.2% in 10th grade (students with at least one parent with a diploma, and from ZIP codes where 8-year-long academic schools are available).

Thus, we might generalize from the cross-section: 8-year-long academic schools do not seem to increase student test scores between 6th and 8th grade, but they still score higher relatively to all the other students, whose test score mean decreases between these grades. This indicates that 8-year-long academic schools are better even between 6th and 8th grade.

Figure 9 – The test score means of students from 8-year academic tracks and students from other tracks



NABC 2008, cross-section and panel data, where 8-yr-ac is available, one parent with tertiary degree

(2) Extending the base model

The base model in Table 13 used a factor score (SES) for the indication of the family status. Although SES it is very convenient to interpret status effects and also to compare status and score effects, merging many variables into one the factor score might disguise some of the important variation. To test for this problem I use the original status variables in the extended regressions in the Table 16. Neither the 6- nor the 8-year-long academic track dummies have changed as a result of this disaggregation of the SES factor. I also included some additional status and track characteristics, which are originally not included in the SES, but which might have an effect on the track score differences. Variables included in these models are 1) whether the child receives free lunch or 2) free books at school or 3) the family receives family income support, 4) how many years the child attended kindergarten, 5) whether the student attends an advanced/specialized class or 6) studies in some foreign language. The inclusion of these variables did not have an effect on the track dummies, nor had the inclusion of aspiration or motivation variables such as the level of education that the student wants to achieve, whether s/he attends extra classes after school (free of charge within school) or whether s/he read books for her/his own amusement.

It seems that the track effects are very robust. None of the additional variables affected their size, which either indicates that early selective tracks are indeed better, so individual characteristics have no impact on their effect, or that none of the included variables have grasped the unmeasured skill or motivation that might have driven the results in the base model.

Table 16 – The effect of track types on the level of test scores adjusted for previous test scores, SES decomposed

	M1	M2	M3	M4	M5	M6
	read (std) 2008. grade 10	math (std) 2008. grade 10	read (std) 2008. grade 10	math (std) 2008. grade 10	read (std) 2008. grade 10	math (std) 2008. grade 10
read (std) 2006. grade 8	0.650***		0.645***		0.604***	
	(0.007)		(0.007)		(0.007)	
6-yr-ac	**0.095*** **	**0.149*** **	**0.115*** **	**0.161*** **	**0.099*** **	**0.144*** **
	(0.022)	**(0.022)**	**(0.022)**	**(0.023)**	**(0.021)**	**(0.023)**
8-yr-ac	**0.139*** **	**0.241*** **	**0.167*** **	**0.254*** **	**0.154*** **	**0.230*** **
	(0.023)	**(0.028)**	**(0.025)**	**(0.029)**	**(0.026)**	**(0.030)**
Voc. Sec.	-0.190***	-0.132***	-0.174***	-0.123***	-0.125***	-0.085***
	(0.015)	(0.023)	(0.015)	(0.022)	(0.015)	(0.020)
Voc. training	-0.639***	-0.430***	-0.606***	-0.414***	-0.475***	-0.313***
	(0.021)	(0.035)	(0.022)	(0.035)	(0.023)	(0.028)
female (dummy)	-0.057***	-0.210***	-0.059***	-0.210***	-0.080***	-0.238***
	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.012)
number of rooms at home	-0.008**	-0.002	-0.005	0.000	-0.008**	-0.001
	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)	(0.004)
number of mobile phones at home	0.017	0.014	0.013	0.014	0.014	0.021**
	(0.010)	(0.009)	(0.011)	(0.010)	(0.011)	(0.011)
number of computers at home	0.015**	0.037***	0.020***	0.039***	0.017***	0.035***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
number of cars at home	-0.020***	-0.005	-0.021***	-0.006	-0.022***	-0.005
	(0.005)	(0.009)	(0.005)	(0.010)	(0.006)	(0.010)
number of bathrooms at home	0.009	0.006	0.010	0.002	0.008	0.002
	(0.008)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
number of books at home	0.095***	0.090***	0.088***	0.083***	0.059***	0.066***
	(0.008)	(0.009)	(0.008)	(0.010)	(0.008)	(0.009)
have internet connection at home	0.035***	0.002	0.028***	-0.005	0.024**	-0.012
	(0.010)	(0.010)	(0.011)	(0.010)	(0.011)	(0.011)
have own books at home	0.119***	0.083***	0.126***	0.083***	0.082***	0.052***
	(0.017)	(0.017)	(0.020)	(0.019)	(0.021)	(0.020)
have own table at home	0.007	-0.029*	-0.007	-0.038**	-0.019	-0.043***
	(0.016)	(0.015)	(0.017)	(0.016)	(0.018)	(0.017)
have own room at home	-0.028***	-0.041***	-0.028***	-0.042***	-0.025**	-0.038***
	(0.010)	(0.009)	(0.010)	(0.009)	(0.011)	(0.010)
have own computer at home	-0.021***	-0.039***	-0.028***	-0.043***	-0.029***	-0.043***
	(0.008)	(0.008)	(0.008)	(0.009)	(0.008)	(0.009)
parental education (years)	0.015***	0.011***	0.014***	0.011***	0.008***	0.007**
	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)
mother employed	0.001	0.038***	-0.007	0.037**	-0.008	0.041**
	(0.016)	(0.014)	(0.017)	(0.016)	(0.017)	(0.016)
father employed	0.001	-0.027	-0.002	-0.034*	0.005	-0.019

	(0.018)	(0.017)	(0.018)	(0.018)	(0.019)	(0.019)
father unemployed	-0.022*	-0.029**	-0.020	-0.024*	-0.020	-0.019
	(0.012)	(0.014)	(0.013)	(0.014)	(0.013)	(0.015)
mother unemployed	-0.008	0.020*	-0.001	0.024*	0.002	0.028**
	(0.012)	(0.012)	(0.014)	(0.013)	(0.014)	(0.014)
math (std) 2006. grade 8		0.677***		0.672***		0.646***
		(0.023)		(0.026)		(0.029)
free lunch			0.001	0.070**	-0.006	0.062*
			(0.037)	(0.030)	(0.038)	(0.033)
free books			0.017*	-0.004	0.022**	0.000
			(0.010)	(0.010)	(0.010)	(0.010)
receives family support			-0.031***	-0.036***	-0.027**	-0.038***
			(0.011)	(0.010)	(0.011)	(0.010)
years in kindergarten			-0.014***	-0.009*	-0.016***	-0.009*
			(0.005)	(0.005)	(0.005)	(0.005)
goes to advanced class (specialization)			0.054***	0.041***	0.035***	0.024**
			(0.011)	(0.010)	(0.011)	(0.010)
studies in foreign language			0.035**	0.018	0.023	0.008
			(0.018)	(0.049)	(0.017)	(0.049)
highest educ. aspired (years)					0.046***	0.034***
					(0.002)	(0.004)
goes to after class advanced classes					0.025**	0.063***
					(0.012)	(0.012)
read books just for fun					0.091***	0.033***
					(0.009)	(0.009)
Constant	-0.225***	-0.068	-0.188*	-0.145*	-0.774***	-0.601***
	(0.050)	(0.050)	(0.100)	(0.085)	(0.107)	(0.113)
Observations	33613	33115	29423	29042	26842	26504
R-squared	0.69	0.70	0.69	0.70	0.70	0.71
Robust clustered standard errors in parentheses						
* significant at 10%; ** significant at 5%; *** significant at 1%						

(3) Three-period value added

The National Institute of Public Education in consortium with the Institute of Economics of the Hungarian Academy of Sciences have generated a database where the 2004 6th grade NABC scores were connected with the 2006 8th grade scores. This is only a restricted sample of students (see Hermann, 2009 for a detailed description) for several reasons. Beside the fact that only 20 students per school was included in the official NABC data in 2004, the generated panel sample of approximately 400 schools does not include schools in the capital city, Budapest, and the very small schools (under 15 students). The panel was generated by

asking general schools in 2007 to go back in their records and connect their 6th grade students in 2004 with their students in 8th grade in 2006. As a result 6-year-long academic tracks can only be in the sample if they are operating jointly with a general track, i.e. the sample of 6-year-long academic track students are inadequate for analysis. Altogether there are 6573 students in this sample, 3861 of whom we have data also for 2008 using the panel dataset described above.[25] Of this number 85 students were in 8-year-long academic tracks, 32 in 6-year-long academic tracks in their 10th grade in 2008.

Using this sample I have re-estimated the base models of Table 13 in Table 17. These results must be treated with care, since the number of students in early selective tracks, and especially those in the 6-year-long academic tracks are very small, but this is as far as I can get to estimate the school effects of the early selective tracks. As a result or the small sample size most of the early selective track dummies are insignificant (or, strangely, negatively significant for the 6-year-long academic tracks). The size of the effects are very similar to those in the base model, but only for the 8-year-long academic tracks, and the effects are still significant in mathematics, even with such small sample size. The significant effect remains even if 6th grade scores are controlled for. In other words, even if I assume that students had the same mathematics test scores in 6th grade and that the school value-added was the same for everyone between 6th and 8th grade 8-year-long academic school are still better (see Table 17).

From this two conclusions might be drawn: 1) even if students in early selective tracks were observed in an earlier phase, the value-added differences would likely remain, and 2) 8-year-long academic schools improve students' test scores even if we control for the previous test scores.

[25] Note that this is the same cohort: 2004 6th grade, 2006 8th grade and 2008 10th grade.

Nonetheless even if I believe that this result addresses the concern for differential school effect across years (i.e. that we observe students at different points in their school career) we cannot control for the selection bias into these early selective tracks, which might be a bigger problem.

Table 17 – The effect of track types on the level of test scores adjusted of two years of previous test scores

	(1)	(2)	(3)	(4)
	read (std) 2008. grade 10	math (std) 2008. grade 10	read (std) 2008. grade 10	math (std) 2008. grade 10
6-yr-ac	-0.006	-0.181*	0.047	-0.075
	(0.092)	(0.106)	(0.071)	(0.076)
8-yr-ac	**0.046**	**0.224****	**0.075**	**0.200****
	(0.062)	**(0.093)**	**(0.067)**	**(0.087)**
voc. sec.	-0.146***	-0.156***	-0.094***	-0.114***
	(0.033)	(0.031)	(0.032)	(0.029)
voc. train.	-0.603***	-0.487***	-0.478***	-0.389***
	(0.050)	(0.048)	(0.048)	(0.048)
female (dummy)	-0.101***	-0.205***	-0.095***	-0.191***
	(0.024)	(0.025)	(0.024)	(0.024)
socio-economic status (std)	0.044***	0.043***	0.034**	0.028*
	(0.016)	(0.014)	(0.016)	(0.014)
read (std) 2006. grade 8	0.691***		0.496***	
	(0.019)		(0.023)	
read (std) 2004. grade 6			0.285***	
			(0.019)	
math (std) 2006. grade 8		0.693***		0.508***
		(0.017)		(0.023)
math (std) 2004. grade 6				0.265***
				(0.021)
Constant	0.178***	0.251***	0.121***	0.190***
	(0.031)	(0.033)	(0.030)	(0.031)
Observations	2899	2898	2788	2788
R-squared	0.71	0.72	0.74	0.75
Robust clustered standard errors in parentheses				
* significant at 10%; ** significant at 5%; *** significant at 1%				

The above robustness checks do not contradict the OLS results. It still seems that early selective tracks are better in their added value. However, I could not properly control for unmeasured selection bias, which can be an important problem. If early selective tracks select students based on motivation or other unmeasured characteristics (uncorrelated with SES and

test scores) that could have an effect on their test score improvement, and thus I would observe that early selective schools are not better, but select better.

Continuing studies

As an additional robustness check of track effect differences I use a different outcome measure: the percentage of students continuing to tertiary level. These variables are from the NABC site level dataset, however this is not the same cohort as it is measured in 2008, since the school sites were required to give an average number referring to the last cohort finishing school. Nevertheless, this estimate still gives a modest picture about the average chances of a student continuing to tertiary level. Table 18 below shows the differences between the normal 4-year-long academic tracks and the early selective tracks in their chances to continue to universities. The same models are estimated with continuation percentages to all tertiary level institutions in Table 19. It is clear that the uncontrolled chances to continue to universities (Table 18) or to universities or colleges (Table 19) are much higher for the early selective tracks. The differences are around 10-12% and 5-6%, respectively. Even if SES is controlled for the difference remains at 7-10% and 3.5-4.5%. Not only SES but also skills and school efforts matter a lot in tertiary level admission. Controlling for 10^{th} grade test scores decreases, and 8^{th} grade scores further decreases the advantage of the early selective tracks.

Nevertheless, even after SES and scores are controlled for, children from early selective tracks are more likely to continue their studies on tertiary level. This advantage is probably due to the superior motivation of the students in these tracks, at least this is what the inclusion of the ratio of applied students indicates (ratio of those, who applied to tertiary level from the graduate cohort). It seems that students from the early selective schools are much more likely to apply, and hence they are more likely to get accepted. Whether this higher motivation is due to their families, due to their peers or due to their teachers is unknown.

Table 18 – The effect of track types on the chance to continue to university adjusted for previous test scores

	M1	M2	M3	M4	M5	M6
	% continue to university, school-site level	% continue to university, school-site level	% continue to university, school-site level	% continue to university, school-site level	% continue to university, school-site level	% continue to university, school-site level
6-yr-ac	9.897***	6.969***	3.404*	2.546	3.879*	-0.011
	(2.212)	(2.103)	(1.897)	(2.346)	(2.312)	(1.932)
8-yr-ac	12.646***	9.692***	5.021*	7.441**	8.430**	5.123
	(2.788)	(2.754)	(2.563)	(3.411)	(3.448)	(3.140)
socio-economic status (std)		6.782***	4.117***	4.232***		1.132***
		(0.531)	(0.381)	(0.405)		(0.300)
female (dummy)		0.215	2.528***	1.924***	0.925*	0.194
		(0.573)	(0.490)	(0.570)	(0.510)	(0.404)
read (std) 2008. grade 10			4.687***	3.432***	3.747***	0.440
			(0.414)	(0.571)	(0.528)	(0.444)
math (std) 2008. grade 10			7.438***	5.097***	5.304***	1.881***
			(0.583)	(0.635)	(0.617)	(0.509)
read (std) 2006. grade 8				1.759***	1.990***	0.503
				(0.399)	(0.397)	(0.350)
math (std) 2006. grade 8				3.303***	3.711***	1.475***
				(0.500)	(0.507)	(0.364)
A/N[+], 2004-08 mean						86.181***
						(4.887)
Constant	44.700***	42.413***	35.679***	35.549***	37.243***	-22.821***
	(1.355)	(1.441)	(1.216)	(1.315)	(1.247)	(3.469)
Observations	39733	29589	29530	15788	19558	15689
R-squared	0.03	0.09	0.22	0.25	0.23	0.56
[+]A/N= applied to tertiary education/number of graduates;						
Robust clustered standard errors in parentheses						
* significant at 10%; ** significant at 5%; *** significant at 1%						

Table 19 - The effect of track types on the chance to continue to tertiary level education adjusted for previous test scores

	M1	M2	M3	M4	M5	M6
	% continue to college or uni., school-site level	% continue to college or uni., school-site level	% continue to college or uni., school-site level	% continue to college or uni., school-site level	% continue to college or uni., school-site level	% continue to college or uni., school-site level
6-yr-ac	4.714***	3.569***	2.015***	1.460*	1.864**	0.198
	(0.805)	(0.745)	(0.667)	(0.768)	(0.747)	(0.569)
8-yr-ac	5.916***	4.724***	2.686***	2.935***	3.404***	1.788*
	(0.900)	(0.822)	(0.706)	(0.850)	(0.903)	(1.011)
socio-economic status (std)		2.911***	1.750***	1.834***		0.364***
		(0.243)	(0.172)	(0.176)		(0.115)
female (dummy)		0.415	1.372***	1.062***	0.616**	0.244
		(0.290)	(0.275)	(0.345)	(0.276)	(0.182)
read (std) 2008. grade 10			2.154***	1.546***	1.721***	0.099
			(0.190)	(0.221)	(0.211)	(0.147)
math (std) 2008. grade 10			3.139***	2.137***	2.252***	0.605***
			(0.202)	(0.236)	(0.223)	(0.152)
read (std) 2006. grade 8				0.767***	0.836***	0.198
				(0.177)	(0.171)	(0.134)
math (std) 2006. grade 8				1.187***	1.367***	0.318***
				(0.194)	(0.195)	(0.119)
A/N[+], 2004-08 mean						40.526***
						(2.753)
Constant	36.230***	35.087***	32.173***	32.354***	33.102***	5.025**
	(0.570)	(0.664)	(0.676)	(0.776)	(0.686)	(2.171)
Observations	39733	29589	29530	15788	19558	15689
R-squared	0.04	0.10	0.23	0.25	0.23	0.65
[+]A/N= applied to tertiary education/number of graduates;						
Robust clustered standard errors in parentheses						
* significant at 10%; ** significant at 5%; *** significant at 1%						

The results show that even if we control for family status, skills and school effort the advantage of the early selective schools in tertiary admission chances remains somewhat significant, but taking the effect of motivation out (the higher ratio of applicants) the significant effect disappears.

Early selective tracks are better. At least this is what a simple estimation of value added tells us: 8- and 6-year-long academic tracks improve reading and especially mathematics skills more that normal academic tracks. And this result is robust to several specificity checks. Cross sectional aggregate data suggests that early selective tracks are surely not worse between 6th and 8th grade. Moreover, the inclusion of additional status an aspiration variables did not affect the track effects. Thirdly, a three period vale-added estimation on a restricted sample implies that 8-year-long academic tracks are better even if we control for the 6th grade scores. And finally a higher ratio of students from early selective tracks tend to continue studies in tertiary level compared to the 4-year-long academic tracks, ceteris paribus children's scores and status. This result is probably due to the fact that the early selective tracks motivate children more to continue studies in tertiary education.

Why are these tracks better? Is it because of their selection of more motivated or more intelligent students (which characteristics are unmeasured in the data), or the higher peer effects or because of advanced teaching techniques or the uninterrupted development of their students (students do not have to change schools at age 14), or other reasons? The question is only relevant if others do not loose from the early selection. If others are not worse off, then the reasons for the superior performance is likely to be the result of better teaching techniques, or other track related practices, and then sorting the best students into these tracks might be considered a Pareto optimal change. However, if others loose, then the differences are probably due to the different peer effects or due simply to an unmeasured selection mechanism, and then policy must weight the cost of the selection with its benefits.

As a next step, I address this issue of costs. What are the social costs of these early selective tracks? If those that remain in general schools do not suffer from this selection, early

selective tracks might be a Pareto optimal improvement. But if others loose, 6- and 8-year-long academic education might only be an additional subsidy for the higher status.

The costs of early selection

In order to judge whether others loose from early selection, I have to look at the first point of selection (age 10 or 12) and not at the selection before secondary tracks (age 14) as I have done above. Cream skimming children after 4th and 6th grade can affect the student composition of the general tracks that might affect those students left in general tracks. This is an important question to address, however there are no really good data available that would be suitable to give a proper answer. The only possible data source is the restricted panel sample of the 6th and 8th grade students. This sample contains only 188 students out of a total 6531 (that is 2.8%) who are in early selective tracks. Nevertheless, since the question is vital for answering whether early selective tracks are socially harmful or not, and since there are no other data available, I use this sample to estimate the value added of the general track as opposed to the early selective tracks. In order not to loose any cases, I merge the 6- and 8-year-long academic tracks, and assume that they are the same.

Table 20 shows the difference in value-added between general tracks and early selective tracks between 6th and 8th grade. General tracks have smaller value-added, but the difference is only significant for the reading test scores. If we control for fixed effects, i.e. looking at within school between track differences, both the reading and the mathematical test scores show weakly significant differences between the general and the early selective tracks.

This result suggests that those students left in general tracks improve relatively less as compared to children in early selective tracks with similar social status, even within school. This estimate – similarly to the ones above – cannot control for selection biases.

Table 20 – The effect of track types on 8th grade test scores with 6th grade test scores controlled for

	M1	M2	M3	M4
	OLS		School fixed effect	
	read (std) 2006. grade 8	math (std) 2006. grade 8	read (std) 2006. grade 8	math (std) 2006. grade 8
General track	-0.206***	-0.060	-0.241**	-0.209*
	(0.043)	(0.063)	(0.094)	(0.111)
Female (dummy)	0.180***	-0.059***	0.171***	-0.057***
	(0.021)	(0.020)	(0.022)	(0.021)
SES (official)+	0.144***	0.126***	0.107***	0.098***
	(0.012)	(0.013)	(0.013)	(0.013)
read (std) 2004. grade 6	0.665***		0.655***	
	(0.013)		(0.014)	
math (std) 2004. grade 6		0.752***		0.740***
		(0.012)		(0.014)
Constant	0.154***	0.068	0.191**	0.210*
	(0.045)	(0.064)	(0.092)	(0.110)
Observations	4349	4347	4349	4347
R-squared	0.63	0.66	0.67	0.71
Robust clustered standard errors in parentheses				
+ the official SES index included in the data, as opposed to the generated SES used in the other regressions generated by the author.				
* significant at 10%; ** significant at 5%; *** significant at 1%				

A real test on the effect of the early selective tracks on students left in general schools would be to observe students once in early selective track, then in general track. Such experiments, of course, are unreasonable in social sciences. A good approximation would be to observe the score improvements of those students who enter and of those who exit early selective tracks, *ceteris paribus* individual characteristics, and compare them to those who enter and to those who remain in these tracks. In other words we could estimate a difference-in-difference model. This is not possible either with the NABC data yet, due to sample size problems.

I can only apply a very distant test of the main question. I estimate the ratio of students in early selective schools in a given residential areas (settlement) and use this ratio to proxy for early selection. If I assume that early selective schools cream-skim the best students, then the higher this ratio, the "worse" the remaining student population will be. Including this proxy in the base model I would expect its sign to be negative for general students: the higher the ratio of students in early selective tracks the lower the value-added of those who stayed in general

tracks will be. In Table 21 below I estimated the same value-added regressions as in Table 20 above, but only for the general track students (i.e. I have dropped the 188 students in early selective tracks), and included the ratio of students in early selective tracks within the given settlement as a proxy for the strength of selectivity. The average ratio of early selective students in the given sample is 2.3%, with 6.1% standard deviation.

The results indicate that general track students tend to improve less between 6th and 8th grade if there are more students in early selective tracks within in their settlements. Although the results are only statistically significant for the reading score, math score effects are also negative.

Table 21 –The effect of track types on 8th grade test scores with 6th grade test scores controlled for - probable peer effects

	M1	M2
	read (std) 2006. grade 8	math (std) 2006. grade 8
ratio of students in early elective schools (settlement level)	**-0.404****	**-0.117**
	(0.191)	**(0.160)**
female (dummy)	0.177***	-0.059***
	(0.021)	(0.021)
SES (official)	0.149***	0.125***
	(0.013)	(0.013)
Read (std) 2004. grade 6	0.664***	
	(0.013)	
math (std) 2004. grade 6		0.750***
		(0.012)
Constant	-0.039**	0.011
	(0.017)	(0.016)
Observations	4224	4222
R-squared	0.62	0.66
Note: only students in general tracks		
Robust clustered standard errors in parentheses		
* significant at 10%; ** significant at 5%; *** significant at 1%		

However these results are very weak. There are only 12 settlements out of 182 in the sample that had early selective tracks at all. And out of these 12 settlements 2 mid-sized towns drive the results. While the average ratio of students in selective tracks in these 12 settlements is around 9%, these two towns have about half of their student population in early selective tracks. Dropping these two towns from the sample, the results become insignificant.

Nevertheless it is unclear whether these two settlements are clear outliers, or that these are important data points that have to be taken into account in order to understand the process of early selection. As a conclusion, additional analyses are needed.

Based on the above estimations I should conclude that students in general schools loose (or certainly do not win) from being left in their tracks. Although the procedure through which they loose is unclear, and cannot be shown from the data, one possible way is through peer effects. If the best students are taken away students left without their most motivated peers will most likely perform worse than before. An additional but similar logic is though decreased teacher quality. Better teachers tend to teach higher status/more motivated children (Varga, 2009), thus where early selective tracks are available teachers will be also selected, and better ones will teach in early selective tracks. My estimations might have grasped this teacher quality differences: in settlements without early selective tracks teachers will also be mixed in general tracks, while in settlements with early selective tracks they will also be separated into different tracks. Irrespective of the processes it is likely that general track students will loose. But I have to emphasize once more: my estimations are not robust. Better data is needed for additional tests.

Now the only question remains to be answered: who benefits from these tracks?

Beneficiaries of early selective tracks

As we have seen these tracks tend to be better in their value-added. So who benefits from these tracks? The following parts will address this question, and look at the social composition of the early selective tracks. Intuition and cross-sectional data suggests (see Table 22) that higher status parents will guide their children towards these tracks.

Although for the purpose of the thesis it is not necessary to look behind the selection mechanism, because from the political point of view it is indifferent which of the following three possible processes operate, curiosity leads me to do so. The three possible mechanisms are: (1) Early-selective academic tracks are skill selective and because status correlates strongly with skills early selective tracks tend to accept high status children. (2) Higher status parents are more likely to apply to these tracks and thus their children have higher chances to get accepted, even if students are randomly drawn. (3) Schools admit only those "who has at least one good pair of shoes and appear appropriately dressed in school"; i.e. schools select on status. In any case if these schools are better, higher status families will benefit and others will loose.

The next section considers the selection mechanisms of the early selective tracks. It looks at whether tracks select children based on skills, and thus we observe the status differences, or they specifically select based on parents' social status, and thus we observe skill differences. My hypothesis is that reality is between these extremes and skills just as status plays important role in the selection into these tracks.

The results support my hypothesis. In all of the estimations below skills play an important role, and although in most of the tests status effect on track choice is also significant, it is likely that skill selectivity are more important.

8-year-long academic schools

There are several problems with the test of this question. The most important probably is that early selective tracks are demand driven. They are established where the local community could influence local decision makers about its importance. Probably higher status people live in such communities and thus comparing these with communities where there are no such tracks would bias our tests. In the spirit of the returns to education literature (Card, 1999) supply instruments would offer a way to concentrate on exogenous variation on early

selective track availability. Unfortunately, there are no good candidates for this in this case. Instead I use the 6th grade test scores as proxies for unobserved ability. These are also not perfect for two reasons. (1) They might not capture all percept of ability, and (2) they themselves may be endogenous as a result of early selective track effectiveness. For these latter problems I will introduce an instrument below. Moreover, in order to reduce the problem of early selective track availability I restrict the sample to only those children, who had at least one other child entering early selective tracks within their home ZIP code area.

I used the NABC 2008 6th grade database to test the family background effect on the admission into 8-year-long academic schools. There are 107,654 6th grade children in the database, 4,121 (3.83%) of whom are in the 8-year-long academic tracks. Table 22 below shows the mean SES and the two literacy scores of the two types of tracks. Children in these academic schools have much higher family status as well as higher literacy scores.

Table 22 – Descriptive statistics from NABC 2008 6th grade database

6th grade	SES			Reading			Math		
School type	Mean	Std. Dev.	Freq.	Mean	Std. Dev.	Freq.	Mean	Std. Dev.	Freq.
general	-0.13	1.02	83,368	511.86	98.60	96,315	491.28	98.24	96,314
8-yr-ac	0.75	0.80	3,393	597.16	72.62	3,985	579.01	81.40	3,985
Total	-0.10	1.03	86,761	515.25	99.11	100,300	494.76	99.12	100,299

I regress the SES, a standardized literacy score and a gender control dummy on the school type. It seems that both the family background and the literacy score have a similarly large and significant effect on the school choice (Table 23 below shows the marginal effects from a probit model).

It seems that one standard deviation increase in SES associates with a 4% increase in the marginal probability of an average male student. Similarly, a standard deviation increase in reading literacy score increases 4.5% the chances of an average child. Including both of these

measures into the model reading score have a slightly higher marginal effect, but both coefficients remain significant. Including the mathematical literacy as well does not change the picture: both the status (2%) and the reading and mathematical literacy (1.7-1.8%) has significant and large effect, but added score effects are slightly larger.[26] Considering that the total ratio of students entering the 8-year-long academic tracks is less than 4%, these are very substantial effects.

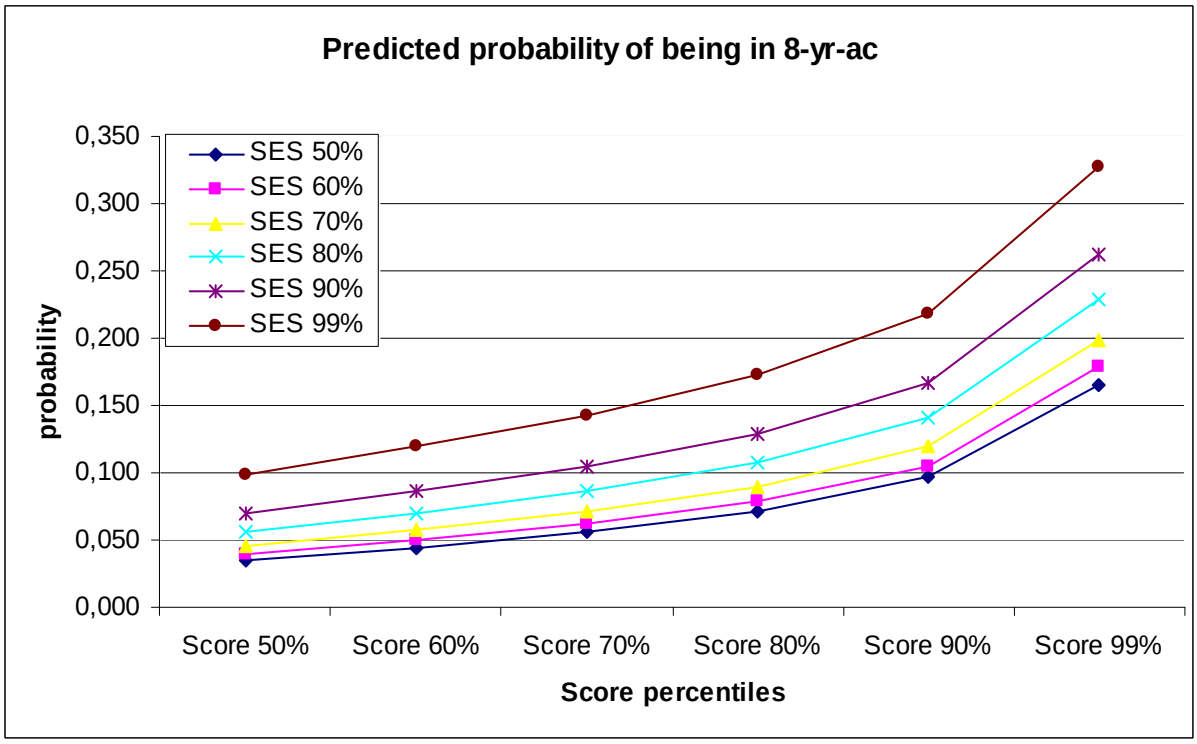
Table 23 – The effect of family status on the chance to be in 8-year-long academic track, probit models, NABC 2008 6th grade

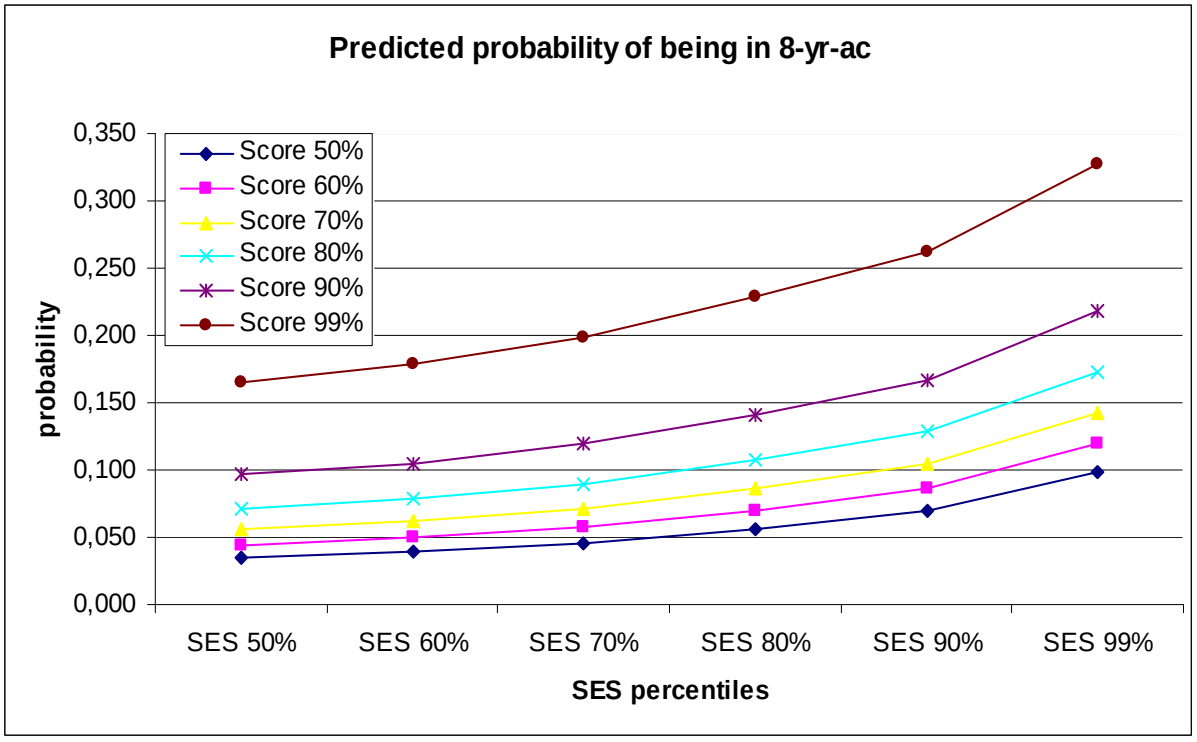
	M1	M2	M3	M4	M5
8-year-long academic=1	Probit	Probit	Probit	Probit	OLS
female (dummy)	0.017***	0.004**	0.005***	0.010***	0.015***
	(8.38)	(2.27)	(3.10)	(6.18)	(6.20)
socio-economic status (std)	0.040***		0.024***	0.019***	0.027***
	(38.97)		(24.46)	(21.42)	(20.87)
reading literacy (std)		0.045***	0.032***	0.017***	0.020***
		(47.60)	(30.79)	(14.05)	(11.56)
mathematical literacy (std)				0.018***	0.030***
				(15.80)	(16.65)
Constant					0.056***
					(36.12)
Observations	44843	57836	44763	44744	44744
R-squared					0.06
Robust z statistics in parentheses					
Marginal effects at 0s.					
* significant at 10%; ** significant at 5%; *** significant at 1%					

In order to see whether status or skill have larger effect on the probability of being in an 8-year-long academic track I have used the 50th, 60th, 70th, 80th, 90th and 99th percentiles for both the status and score variables, and estimated the predicted probabilities at these points.[27] Figure 10 below depicts these points. It seems that both SES and score has a robust effect if we keep the other variable constant, but score increases somewhat steeper. In other words, skills matter a bit more if we keep status constant. This, however, does not mean that status does not matter.

[26] M5 is an OLS estimate of the M4 probit model. It is apparent that the coefficients of the linear approximation are very similar to the marginal effects at 0s.
[27] I used a jointly standardized reading and mathematical literacy score mean in this model, along with a standardized SES and a gender control.

Figure 10 – The probability of attending an 8-year-long academic track by SES score





Instrumental estimation

Using 6th grade literacy score as proxy for skills introduces two important problems when comparing the score and SES effects. (1) It might introduce biases in the model, mentioned above. Namely that literacy was measured approximately two years after children were selected into the 8-year-long academic tracks. Hence, this measure of literacy combines their skills with a track value-added effect, and as I have shown that 8-year-long academic tracks have a larger value-added the estimates might be biased. If the 8-year-academic schools are better, the observed 6th grade score differences will be larger than they are in 4th grade, before the admission into the 8-year-long academic tracks, hence the coefficients of the score variable will be downwardly, and thus the SES coefficients upwardly biased in these models. (2) It is important to remember that the mathematical and reading literacy are not all of the skills that the school or the job-market values, and that the SES might take some of the effects of these other skills, and thus be upwardly biased.

To overcome this endogenity problem (1. problem) and the omitted variable bias (2.) without a proper IQ measure, or without other measures of different skills, I propose an instrumental variable: the *age of the students*, measured in months might be considered as an instrument of the 8th grade test scores. I assume that older students perform better in schools, *ceteris paribus* other factors (Hámori, 2007), thus age correlates well with test scores. On the other hand it is unlikely that age would matter at the entrance, unless through skill effects.

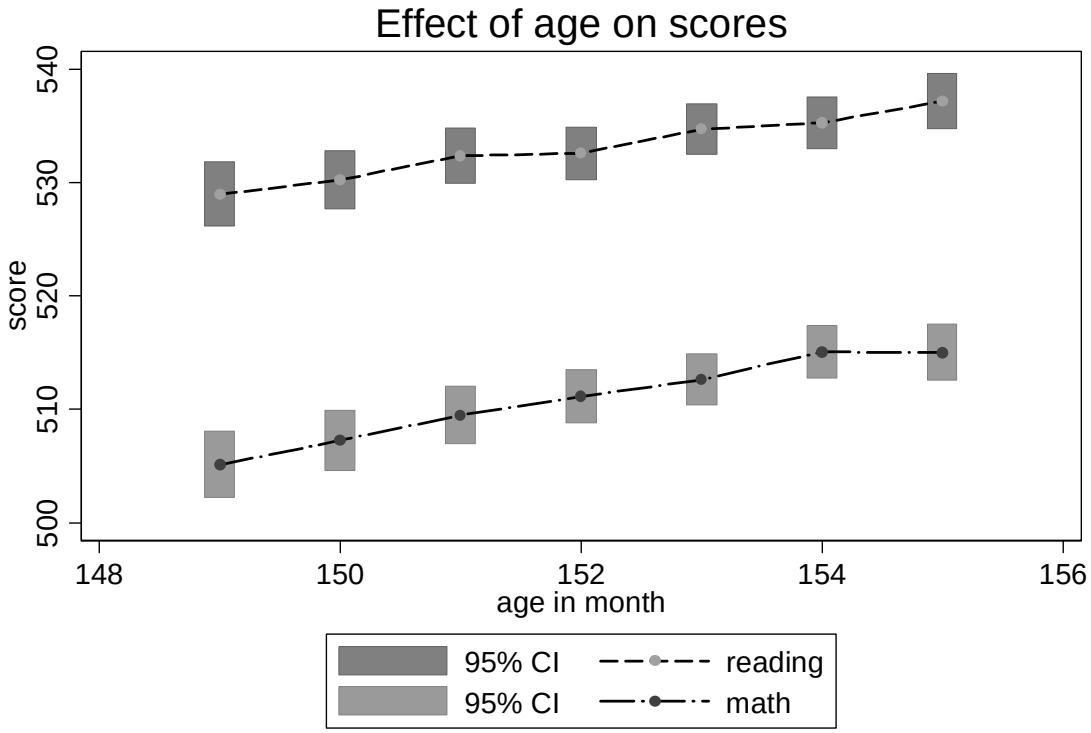
In Hungary the following rule applies for the school starting age. A child who turns 6 before May 31 should start the school in September in the given year, but if s/he was born on or after June 1 should only start school in the next year. However, there are two possible ways to deviate from this rule. The teachers at the kindergarten or the local educational counselor can advise a child to stay one more year in the kindergarten, if they find her/him not mature enough for the school. In other words, lower skilled children are likely to be older in the given

grade. On the other hand, anecdotic evidence tells us that higher status parents tend to send their child as late into school as possible, thinking that they will have less trouble fitting in if they are older. In other words, higher status children are more likely to be older in a given grade. Thus there are two counteracting processes defining the age of the child in a given grade – higher status and lower skills both predict higher age.

Taking a sub-sample from the whole population these effects might be lowered. In the following estimations I used only those children who were born between June and December in 1991 (i.e. those who, by law, started one year later than the others) and I limited their population to those who were 7 years old when they started school. In other words, I used the data on those students only who started school when they were supposed to start. In the estimations below I used their age in months as an instrument for their 6th grade test scores.

A valid instrument (i) must be correlated with the endogenous variable in the regression, and (ii) must not be correlated with the error term from the same regression. It is easy to see that the age in months correlates positively with the 6th grade test scores (see Figure 11). It is less straightforward to accept that age does not correlate with the residual from M4 in Table 23. However, I argue that being a bit older does not correlate with either being accepted to the 8-year-long academic tracks (unless through skills), or being more motivated to apply.

Figure 11 – Effect of age on scores



children born between 1991 June and December, and starting school in 1998 september

Table 24 below shows the simple probit and the first and second stage estimates of the instrumented probit estimations on this restricted sample. The results are in line with the expectations. The effect of status on school admission has lowered radically (in fact it become insignificant), while the score coefficients are still significantly positive. The base estimates told us that a standard deviation increase in status and scores are associated with approximately the same increase in marginal probabilities. After controlling for the endogenity problem it seems that scores have large and significant effect, while status effect disappears. This suggests that if we had 4th grade test scores and/or other skill measures that are valued by the school at the entrance decisions we would see strong skills selectivity and weak or no status selectivity.

Table 24 – Instrumented probit regressions

	M1	M2	M3	M4
	Probit (8-yr-ac)		**First Stage**	
	Read score (std) 2008, 6th grade	**Math score (std) 2008, 6th grade**	**Read score (std) 2008, 6th grade**	**Math score (std) 2008, 6th grade**
Female (dummy)			0.297***	-0.046***
			(0.009)	(0.027)
SES			0.400***	0.402***
			(0.006)	(0.130)
Age			0.016***	0.017***
			(0.002)	(0.002)
Constant			-0.187***	-2.447***
			(0.004)	(0.281)
			Second stage - Probit 8-yr-ac	
Female (dummy)	0.036	0.151***	-0.217***	0.149***
	(0.031)	(0.030)	(0.068)	(0.009)
SES	0.339***	0.338***	-0.081	-0.054
	(0.028)	(0.026)	(0.134)	(0.007)
Read score (std) 2008, 6th grade	0.353***		1.080***	
	(0.030)		(0.146)	
Math score (std) 2008, 6th grade		0.319***		1.004***
		(0.034)		(0.148)
Constant	-2.041***	-2.080***	-1.497***	-1.694***
	(0.055)	(0.057)	(0.317)	(0.004)
/lnsigma			-2.372***	-0.148***
			(0.342)	(0.299)
/athrho			-0.834***	-0.793***
			(0.309)	(0.354)
Observations	37813	37804	37813	37804
Robust clustered standard errors in parentheses, estimated *coefficients* are shown				
* significant at 10%; ** significant at 5%; *** significant at 1%				

In short, the unbiased estimates suggest that 8-year-long academic tracks select mainly based on skills (on test scores). This of course, as I have mentioned before, does not mean that higher status parents do not benefit from the early selective institutions, but that not the selection procedure itself but other factors help higher status parents to get their children into these tracks.

6-year-long academic schools

Another robustness check of the above analysis could be a test for selectivity into 6-year-long academic tracks. The above utilized NABC panel data of 8th and 10th grade students allows for an approximation of the literacy scores of students before the selection into the 6-

year-academic tracks at age 12. Specifically: I estimated a linear fixed effect regression (3. eq.), then used its estimated coefficients and program type fixed effects to project the individual scores of the students at age 12 (grade 6). Table 25 shows the average observed and predicted test score means and some other descriptive statistics.

3. eq.

score8=*a*+*b1**score10+*b2**SES+*b3**gender+*FE*+*e*

where *a, b1, b2* and *b3* are the estimated coefficients, *e* is the residual, *score8* is the 8th grade while *score10* is the 10th grade score, *SES* is the status factor and *gender* is the female dummy, *FE* is track fixed effects.

Table 25 – Descriptive statistics, NABC 2006 8th and 2008 10th grade

Variable		Obs.	Mean	Std. Dev.	Min	Max
Read score 2008, grade10	survey	40,467	506.6	95.9	131.7	781.7
Read score 2006, grade 8	Survey	40,467	511.1	97.1	122.3	809.4
Read score 2004, grade 6	Predicted	40,467	508.9	82.2	180.2	768.3
Math score 2008, grade 10	Survey	39,749	500.7	95.8	175.5	832.8
Math score 2006, grade 8	Survey	39,749	508.5	98.8	143.6	832.1
Math score 2004, grade 6	Predicted	39,749	510.4	86.8	192.1	826.6

Note: only those students, who have score values and SES data for both 2006 and 2008.

Using the 2006 score and the predicted score I have estimated similar models to Table 23 (see Table 26) The difference between the two set of models is that they use different cohorts and that the outcome of the first set of models (Table 23) is the 8-year-long academic schools while the second set of models (Table 26.) use the 6-year-long academic schools.

Apparently, there are no great differences between these two estimations. The uncontrolled SES effect is similar in both cases (3.5-4%), and also the literacy scores measured two years after track choice explain similar amount of variation from the SES. In other words, one standard deviation change in the SES associates with around 2% change in the probability of getting into an 8- or a 6-year-long academic track at age 10 or 12, respectively. In M4 in Table 26 below the 8th grade skills are replaced by the projected 6th grade skills. The SES coefficient has dropped a bit, but remained significant, while the score

coefficients increased. This is in line with our expectations: skills are more important but status also plays some role.

But this regression only controls for value-added differences between tracks, and does not control for unobserved skill (or other) differences, that might be important at the admission into the 6-year-long academic tracks. Hence the SES coefficients are still upwardly biased.

Table 26 – The effect of family status on the chance to be in 8-year-long academic track with estimated 6th grade scores, probit models, NABC 2006 8th and 2008 10th grade

	(M1)	(M2)	(M3)	(M4)
6-year-long academic	probit	probit	Probit	Probit
female (dummy)	0.012***	-0.006***	0.004**	-0.005***
	(6.50)	(2.92)	(2.28)	(2.67)
socio-economic status (std)	0.035***	0.026***	0.018***	0.012***
	(37.17)	(19.84)	(17.29)	(10.13)
read (std) 2006. grade 8		0.032***	0.012***	
		(24.13)	(8.53)	
math (std) 2006. grade 8			0.019***	
			(15.23)	
read (std) 2004. grade 6				0.024***
				(14.24)
math (std) 2004. grade 6				0.023***
				(15.79)
Observations	37701	18906	18539	18333
Robust z statistics in parentheses, marginal effects at 0s.				
* significant at 10%; ** significant at 5%; *** significant at 1%				

On the other hand the utilized prediction of the 6th grade scores assumed linearity. But as I have shown above, on the cross-section, track differences in scores increase between grades. That is, they are not linear, but early selective academic tracks improve students faster between 8th and 10th grade than between 6th and 8th. This of course are likely to be the result of selection of students between 8th and 10th grade, however by estimating the school effects from these two years we force a greater school track effect on the children, than they actually experience. Thus the estimated score coefficients are upwardly biased, and the SES is downwardly biased.

So there are both an up and a downward bias in the M4 probit SES estimates below, but I cannot tell which is greater. Nevertheless, assuming that these biases cancel each other out, the results suggest a similar conclusion as above: 6-year-long tracks select much more likely based on skills than on status.

Conclusion

It is shown in the earlier chapters that institutions affect equality of opportunity in general and that age of selection matters in particular: the earlier a school system separates children, the stronger the association between parental background and students' test scores. This chapter has taken a look at the Hungarian case, where a small fraction of students are selected at age 10 and another small fraction at age 12 by the early selective tracks. I have addressed three questions: (1) Do students of early selective tracks benefit from entering these tracks? (2) Do others loose from this early selection? (3) Are students selected based on skills or status?

Using a unique panel dataset I showed that the early selective tracks do have a higher added value in reading but especially in mathematical skills between 8th grade and 10th grade, and probably also between 6th grade and 8th grade. A weak test on a restricted sample has also indicated that in areas with more children enrolled in 8-year-long academic tracks those left in general schools perform worse. This indicates that cream skimming hurts the others. And finally several tests, including an instrumental variable estimation, have shown that early selective tracks select mainly on skills, and less on status. However, it is undoubtedly the higher status (and thus higher skilled) children who benefit from such a system.

CHAPTER 4 - THE POLITICAL BACKGROUND OF THE STRUCTURAL CHANGES IN THE EDUCATIONAL SYSTEM OF HUNGARY BETWEEN 1985 AND 1994[28]

Introduction

The first two chapters of this dissertation showed that the inequality of opportunity of the Hungarian public education sector is among the highest ones in the OECD countries. While a marginal change (1 year) in parental education predicts a 22,41 PISA mathematics score point change for an average student in the OECD countries, the respective number for a Hungarian 15-year-old is 32,51, which is one third of the standard deviation of the literacy score in 2003 (OECD, 2004c).The relationship of occupational status or cultural background on literacy scores is similarly strong in Hungary (Balázsi, Szabó, & Szalay, 2005). This means that parental background in Hungary matters more than in an average OECD country. In addition, in 2000, 2003 just as in 2006 the between school variance of the PISA literacy scores was among the highest in Hungary among the participating countries (OECD, 2001b, 2004c, 2007). This suggests a significant degree of segregation between schools. This is also underlined by the study of Kertesi and Kézdi (2009), who analyze general schools. Using individual level performance and background data from the National Assessment of Basic Competencies 2006 (see previous chapter) the authors using segregation indexes show that the segregation in Hungary by race (Roma or non-Roma), family status (family support) or parental education is massive. The between school segregation is higher in all of these aspects than the within school segregation. It is also increasing in time, especially since 1989. The authors suggest that the trend break is the result of the increasing role of school choice.

[28] Earlier version of this chapter was presented at the ECPR Joint Session in Lisbon 2009, in front of the members of the Network on Education and Training, their comments and comments from Viola Zentai, Júlia Szalai and Balázs Váradi are warmly acknowledged.

Inspired by these empirical findings, this chapter seeks to answer how such a selective system could evolve in Hungary. In terms of education Hungary today is not only one of the most unequal countries, but it is also a textbook case of selective systems: rather early age of selection (due to the early selective academic tracks), combined with school choice and the right to establish schools and high school autonomy. This chapter studies the evolution of the modern Hungarian education system. The post-communist transition brought about a transformation of a seemingly comprehensive education system into a typical selective one. The goal is to identify the factors that gave way to such a system and describe the role of those who had the largest impact on the process. Since the focus of the previous chapter was the early selective academic track that remains the focus of this chapter as well, acknowledging that this is not the only factor of rising educational inequalities.

In this chapter I argue that three intertwined factors led to the evolution of the selective Hungarian system, and especially to the evolution of the early selective tracks: (1) historical conditions (2) decentralization and (3) democracy.

From the historical conditions two are especially important. The first one is the tradition of the elite 8-year-long academic schools (the *gimnázium*s) of the Austro-Hungarian monarchy. The elite academic schools before World War II were generally 8 years long, selecting students after they finished the four years of elementary, and these were usually church run. The second condition is the fact that historically the Hungarian administration was based on a decentralized local government structure, centralized only during the soviet occupation. These two historical factors provided the base for the policy makers at the transition to establish the new, decentralized school structure.

By the time of the post-communist transition the idea of de-politicization gained unanimous support. As a result a consensus emerged that the administration of many social

policy issues of the new republic, including public education should be delegated to the local level. According to the consensus view the more decentralized the new system and the more independent the schools, the less likely the interference of the central government, the influence of politics and ideologies, with education.

As a result of the democratization process the citizens became an important factor in shaping policy. Tautologically, in a democracy voters have more power to influence policy than non voters. "Moreover, as political scientists have also known for a long time, the inequality of representation and influence are not randomly distributed but systematically biased in favor of more privileged citizens – those with higher incomes, greater wealth, and better education – and against less advantaged citizens" (Lijphart, 1997, p1). In other words, people of higher status, people who vote have much more power to influence policy than people of lower status, non-voters.

The influence of higher status people was increased by the decentralization process. Local elites gained power to shape local policies to a high decree. They could effectively lobby for the early selective tracks if this served their interest. And as I have shown in the previous chapter, early selective tracks are beneficial for higher status people. Consequently, higher status people have most likely effectively demanded early selective tracks as a result of decentralization and the democratization process.

In addition to all this, the two main political powers emerging at the transition, the conservatives and the liberals, have both supported the establishment of the early selective tracks on different ideological grounds. The liberals fostered the decentralization process most vehemently. They argued that the locally driven education institutions are the most adequate to democratize and de-politicize the education system. Although they have realized that a decentralized education system would develop selective institutions, and that this would lead to increasing inequalities, they considered raising inequalities as a price to pay for the de-

politicized, decentralized system that serves the will of the people most effectively. The conservatives on the other hand supported the early selective tracks because these resembled the old status-quo. Both their electorate and the churches demanded the return to the "good old system" with the elite 8-year-long *gimnázium*s that have educated the elite for so many years before. The formerly secularized church schools were returned to the churches, and these were allowed to re-form their structure. Naturally, other education providers (mainly local governments) must also have been supported in establishing the old type of elite *gimnázium*s.

The evolution of the selective system, including the establishment of the early selective tracks, has started before the first democratic elections in 1990, and it has also continued after its effects became obvious for everyone. Interestingly, neither the communists before 1990 nor their legal successor, the governing Hungarian Socialist Party after 1994 has halted this process. This was due to the fact that the issue of education was less important before the first elections and also after the second elections for the socialists. Issues such as privatization and economic hardship were much higher on their agenda. As a consequence the communists before 1990 just as the socialists after 1994 have let the mainly liberal professionals to influence educational policy. Moreover, after 1994 the socialists aiming to become a people's party could not act against the interest of the higher status people. Thus the selective system acted in their interest as well.

In short, due to the democratic transition and the decentralization higher status people could more effectively shape local policies. This process and an unfortunate ideologically based quasi compromise between the liberals and the conservatives also accepted by the socialists have led to the creation of a selective education system, including the establishment of several early selective academic tracks.

In this chapter I will elaborate on this argument. The first part introduces the historical conditions, the decentralization and the education system before the transition. I argue that although the dictatorship forced a seemingly comprehensive education system, it was not as equal as the comprehensive system or the official communication would suggested. The next part elaborates on the development of the education system during the post-communist transition. I describe the law of 1985, the law accepted by the communist parliaments that set stage for the selective system. Interestingly, even before the law of 1993, still in force today, the motives for and the consequences of setting up the early selective tracks were absolutely clear.

The third section shows that voters prefer more selective education relative to non-voters. A public opinion survey conducted at the transition highlights that higher status people are more likely to vote and voters are the more likely to prefer selective educational mechanisms than non-voters. Since it is voters who shape policies, I conclude that this is one of the reasons why selective education could evolve. The empirical analysis also highlights that there were some, but not very large differences between the opinions of the voters of the different parties in educational matters.

This leads me to my last argument about the de-facto compromise of the two leading parties of the first parliament and the acceptance of this compromise by the returning socialist, the legal successor of the communist party. In the fourth section I cite some representatives from the time to see how the different parties have thought about the emerging selective system. Based on these interviews I speculate that the conservatives did not mind the selective system as long as the church and the conservative voters were happy, and the liberals valued the idea of decentralization, school autonomy, and the locally driven education system higher than the issue of inequality. Consequently, both have supported the evolution of early selective tracks.

Historical conditions – decentralization and education

This section elaborates on the historically given conditions and the processes in education that have taken place during the transition. First I show the change of the administrative system, the decentralization, before and at the transition. This underlines how the Hungarian education system could became one of the most decentralized in the world. Then I introduce the system of education before the World War II and during the soviet era. These parts are intended to show that while the historical education system was very selective, the "comprehensive" system of the soviet era was in theory more equalizing, a feature which is questioned by many social scientists.

Decentralization before and during the transition

In order to understand the quick evolution of the selective education system, the seemingly sudden public administration decentralization in 1990 must be understood. Hungary had a very advanced local government structure already at the end of the 19th century. After the Compromise of 1867 between Hungary and Austria,[29] the adopted local government structure was "one of the most liberal systems of communes in Europe" (Toldy, 1891 cited in Péteri & Szabó, 1991, 68). These local governments were highly autonomous, and although the public administration was centralized a little between the two World Wars in order to increase efficiency, the drastic changes in the system came only with the communist regime. Péteri and Szabó (1991) divides the Soviet type of local public administration, the council system, into two phases. The first was "obviously repressive, […] the councils in three tiers [central, county level and local] – declared 'organs of the people's power' – had to play the role of oppressors and at the same time being very servile to the communist party elite" (p.69). The education sector was integrated into the system of public administration. The second phase came after the 1956 revolution. In the early 1960's the system gradually

[29] I consider this point in time as the starting point for my analysis. The compromise of 1867 could be considered as the birth of the "modern" Hungarian state.

started to loosen up. The local councils officially pursued three functions: they were the units for the representation of the people, units for self-government, and units for public administration at the local level (Péteri & Szabó, 1991). There were some other important changes from the very oppressive first stage. The three-tier council system was reshaped, so that the central level could no longer directly command the local councils, or in other words the "double subservience" of the system was abolished. The council law of 1971 issued more autonomy for the local councils, including more rights in running schools. In the mid seventies, the secondary level vocational training was directed from the central to the regional, and later to the local level, to the city councils. And finally in 1985 the law on education (see in detail below) detached the sector from the general public administration, and transformed it to be a part of the service sector, giving it a much larger autonomy (Balázs, Halász, Imre, Moldován, & Nagy, 2000).

The post-communist transition brought a large decentralization push. The number of local units (local councils turning to local governments) has almost doubled. In 1989 there were altogether 1542 councils (1358 village, 165 city and town councils and 19 county councils), while in 1990, the first democratic local government election, 3089 local governments were introduced (2902 village, 168 town and 19 county). During the soviet system, starting from the 1960's, the former local governments (renamed as councils) were coercively merged. In 1962 there were altogether 3021 rural councils, of which 167 were in joint councils (merged into another village or town council). By 1977, about the time when the forced merging of local councils ended, 1470 rural councils existed, of which 723 were in joint councils. This was a primary reason for the large scale decentralization during the post-communist transition. "During the legislative work on the Local Self-Government law our parliament

appreciated and respected this tendency and declared the right of every settlement to form a self-government authority of their own" (Péteri & Szabó, 1991, p.73).

The education system before the post-communist transition

From the Compromise of 1867 till the after war period

The traditional Hungarian education structure was based on a four-year-long elementary or people's school (*elemi* or *népiskola*) stemming from age 6 to 10. After this there were three tracks, with rather sharp distinctions in the later school career prospects. Two of them existed before 1867. At age 10 one could enter the upper people's school (*felső népiskola*) which offered no chance of further education. The upper track was the academic school (*gimnázium, reálgimnázium*, or *reáliskola*) which was generally 8 years long and offered the possibility to continue studies to any universities afterwards. These were the elite schools. The citizen's school (*polgári*) was created in 1868. It provided the ground for the schooling of the middle classes, the *petty bourgeoisie*. The graduates of the citizen's school could continue to secondary level vocational training schools, but these led only to a limited set of universities.

The Hungarian education can be considered a "double system" meaning that the original public education developed both from "below" and from "above". The elementary schools were developed from the small schools operating within the parishes, while the academic schools were transformed from the lower grades of the universities. So while all social classes started to study together in the elementary schools, the upper-classes left after grade 4 to enter the 8 year long academic education (legalized nationally by the law of 1883) (P. T. Nagy, 1996). This double nature of the system fit the class structure nicely, selecting the upper-classes from the public rather early. This is why the citizen's school was a rather novel idea in

1868. However it could only serve as an additional mechanism to select the middle-classes, the citizen, from the poorest strata.

The creation of the 8-year-long general school (*általános iskola*) after World War II was thus a shock to the system: it eliminated the systemic early selection, and comprehensivized the system, at least theoretically.

During the Soviet era

As in every Central-Eastern European country under the Soviet occupation, the education in Hungary was highly centralized: the Communist party regulated every little detail of the education sector; from curricular matters to teacher employment, from institutional structure to textbook contents. The educational structure was developed by the Soviet Union, and it was implemented in the Eastern European countries with little variation. Figure in the appendix shows the basic structure of the public education system before and after the transition. After the kindergarten every child had to attend an 8-year-long general school from age 6 to age 14. The secondary education was divided into three parts. The 4 year-long academic schools (*gimnázium*) had maturity exam at the end and offered the highest chance to continue education on the tertiary level. The vocational training school (*szakmunkásképző*) offered a vocational degree after 3 years on average, but provided no maturity exam, and thus no possibility to continue studies on tertiary level. In today's terms vocational training schools were on dead-end. The vocational secondary school (*szakközépiskola*) was a mixture of these two: somewhat smaller emphasis on the academic training and also a rather theoretical vocational or pre-vocational training. However, it provided the students an option to pass the maturity exam, and thus to continue to tertiary level, and also an option to finish the vocational training (one or two more years) and receive a vocational degree.

Students had to attend general schools of their residence: catchment areas were set, with assigned general schools for everyone.[30] School choice was possible only on the secondary level, after age 14.

This lack of choice was backed up by the centralized structure. Each subject on each level was designated a textbook, and an ideologically biased curriculum. School or pedagogical autonomy was rather small, and a centrally coordinated supervision guaranteed that teachers teach what they are supposed to teach. The supervisors visited the schools, and classes from time to time to observe class work. Financing was also centralized, through a national plan, and later bargaining between institutions and authorities.

The written part of the maturity exam was also centrally organized, aiming at the lexical knowledge from the textbooks. A typical example is the mathematics exam, where an assigned book was given to those who wanted to pass the exam, with a couple thousand examples/exercises. On the day of the maturity exam a list of numbers were drawn from a hat, referring to the examples in that book. Whoever could solve these examples could pass the exam.

Today, this system could be called comprehensive – with a relatively long period of non-selective institutional setup, centrally set curriculum, unified teaching method and central coordination – but under a dictatorship this was rather considered as a tool to control the nation than a system to generate equality. As Julia Szalai has argued in 1989 "[…] in the classic socialist planned-economy the educational, economic and social goals of the public education can only be separated analytically, [but in practice they were intertwined], the educational institutions are the most direct supply for the unlimited labor demand of the planned economy, [meaning that] the knowledge-transfer of education in practice means the

[30] This regulation, of course, could be circumvented for instance by reporting the student to live with a relative nearby a good school, but this was also only possible for those with more social, human or material resources.

smoothest possible allocation of people between work places" (Szalai, 1989, 34).[31] Education was only a "residual" sector, subordinated to the labor market and the economy with the main function of providing work force for the labor market. Moreover, the inequality of educational opportunity – although no comparable data is available from the time – was reported to be higher than the structure of the system or the advertised socialist goal of social equality would have predicted. The most telling example would be the "Hypothesis on the development of the public education" (Baráth et al., 1980) work ordered by the Scientific, Educational and Cultural unit of the Communist Party in 1980, which emphasized that the most important problem to solve is that "the school structure does not serve the mobility goal of the current social policy, the development of the fluidity of the society" (p. 2). Moreover there were important studies on the relation of education and social mobility during the socialist era as well, which – following a more sociologically oriented, "Bourdieuian" line of thinking – underlined that the education system serves as a tool for status reproduction even in the socialist era (Gazsó, 1976).

Studies at the end of the 1980's or early 90's emphasize this phenomenon too. "Social differences between and within schools have grown so much,[32] that the social policy of elimination of class boundaries has become fictional […]" (Szalai, 1989, 40). The capital-county or city-village differences were substantive even in the 1986 Monitor study: "the performance of pupils' in villages are worse than that of the city pupils in every studied aspect" (Hajdú, 1989, 1148 cited by Andor & Liskó, 1999, 6). In 1995 Vári claims that "in understanding written text and in other cognitive tests the performance of the 7th graders in Budapest exceeds substantially the performance of the village 8th graders. The difference is around two years (!)" (Vári, 1997, 69-70). Differences were not only in between but also within settlements (or settlement types). Andor and Liskó (1999) bring anecdotic evidence

[31] All translations from Hungarian to English in this paper were done by the author.
[32] More precisely: we cannot only talk about the growth of these differences, but also about the institutionalization of the segregation by social strata. […]" (footnote in the original text)

that the specialized tracks – even if these were sport or music specializations – were used in order to select out the academically badly performing pupils, i.e. to create homogeneous classes (p. 7-8).

Even if the pre-transition system was centralized in general, there remained a handful of church-run high schools, and elite high schools affiliated with universities with quite a bit of de facto autonomy mainly with regard to curricula. This does not contradict the general centralization of the education system that applied to almost everyone but it sheds additional light on the systemic changes after the transition: although the fraction of the population entering these privileged schools was tiny, these were the ones with more social, human or material resources, and they were also the ones who would later demand similar treatment from the new regime as well.

"In sum, we can say about the system before 1990, that it was seemingly transparent to everyone, but it had hidden selection mechanisms" (Andor & Liskó, 1999, p.6)

Nevertheless, as we have seen, the Hungarian institutional setup became much more selective, early selective academic tracks were founded, which have increased the inequality of opportunity, and facilitated the reproduction of status differentials.

The transformation of the education system

The goal of this sub-chapter is to explain why the education system changed as it did during the post-communist transition. The first part describes the role of different groups in shaping education policy during the communist regime. I argue that the experts of the time understood the inequality problems and were inclined to expand general education instead of making it more selective. However, the law of 1985 (which I describe in the next part) established institutions which acted in the opposite direction (most important are school

autonomy and school choice). The law of 1985 set the stage for the selective system. The subsequent chapter elaborates on the demand driven school structure during the post-communist transition. I cite experts and documents from the time that analyze how the early selective tracks have gained ground and how the selective system evolved. Interestingly, even before the law of 1993 the motives and the consequences of setting up the early selective tracks were absolutely clear.

Education politics of the 1960-80's

An important factor that gave way to the law of 1985 was the development of the education policy sector, and within this the development of those groups that formed the education policy though the communist regime. Halász (1984) distinguishes four policy groups in his work about the 1960-70's. The first is the "pedagogical" group, the members of which approached the educational system from a pedagogue's point of view, and argued for a comprehensive, ideologically driven training for everyone. The second is the "central planning" group, that considered the education sector to be service sector for the economy, with an explicit goal of providing well trained workforce, and which thought to achieve this by careful and long-term central planning. The third is the "vocational training" group with members closely connected to the vocational training institutions, who argued for ideological training and the importance of vocational training at the same time. As Halász (1984) argues, the first group emphasized the importance of ideology,[33] the second the importance of the economy, and the third both. The fourth, and most loosely defined group, is the "professional" group, the experts. This group included both Gábor Halász and Ferenc Gazsó, the father of the law of 1985. Halász (1984) claims that the education policy was a result of the compromise between these groups, and while the first three groups dominated the 1960' and 1970's, the

[33] Although it is not explicit in his work, Halász (1984) considers ideology to be the ideology of the communist state.

fourth group started to rise in importance at the beginning of the 1980's, especially with the foundation of the Institute for Educational Research in 1981 (Oktatáskutató Intézet), directed by Ferenc Gazsó, the first research institute devoted to conduct policy relevant research.

An interesting source on the policy debates of the communist era is the "Long term development of the public education" series (MSzMP-KB, 1980) ordered by the Scientific, Educational and Cultural unit of the Communist Party. Most of these papers were written by researchers of the "professional" group. The papers were largely dealing with structural issues and educational expansion. Two of them explicitly analyses the "10 class primary"[34] (J. Nagy, 1979; Szépe, 1979), and most of the other papers, just as a cooperative volume of many authors (Baráth et al., 1980), emphasizes the inequality aspect.

In short, not long before the Law of 1985, the education researchers of the time, who had the most impact at the transition according to Halász (1984), were thinking within the framework of comprehensive education, and were emphasizing inequality problems. Most of these people later had significant impact on the evolution of the education system. So, why did a more selective system evolve, despite the arguments made in these volumes, or the already known inequality increasing impacts of the selective education?

Keeping in mind that the councils were already responsible for running schools, and that the experts were thinking in inequality terms as well as in school reforms decreasing selectivity the next chapter introduces the law of 1985 on education, which was a turning point in the evolution of the education system.

[34] The 10 class primary is an 8+2+2 structure, 8 year-long general school, before the selection into secondary, but 2 years of the same general training for everyone in all of the school types after the selection.

The education system during the transition

Changes in the education system, the law of 1985

The I. law of 1985 (On Education) was a definite turning point in the history of the Hungarian education. Zoltán Báthory even claims that "thanks to this law the democratic turn was four years earlier in the educational system than in the main politics." Until then the III/1961 law on the education system of the People's Republic of Hungary was in effect. The 1961 law was an ideologically biased law, requiring the teachers to educate the youth with "Marxists-Leninist" ideals. The 1985 law softened the preamble and required only "socialist, humanist" education that was later rewritten to "democratic, humanist" in the law of 1993.

This of course was not the revolutionary feature of the new law. Rather, it was the extent to which it provided autonomy for the schools. The law of 1985 declared that "democratic principles should govern the organization, functioning and leadership of the educational institutes" (10.§ (2)). Moreover schools can "conduct experiences and research to facilitate the effectiveness of education" (14.§ (3)), and "can develop their local system of education, additionally, they can work out complementary syllabus and can choose optional subjects" (14.§ (4)). In addition to all this, it was the right of the teacher to "choose – within the limits of the educational plan, and the curricular principles – the course material and the teaching methods" (41.§ (1) a), and what is even more revolutionary, to have a vote in the election of the school principal (64. § (2) and (3)). Last but not least, a ministerial decree also abolished the system of educational supervisors (27. July 1986.), which in practice significantly weakened the grip of the central bureaucracy on the schools.

The law of 1985 also allowed for unique educational solutions, experiments, alternative teaching methods, as well as alternative schools. The minister can permit "the use of unique solutions, the implementation of experiments about the organization of educational institutions and their methodical content" (24.§. b).

In short, the law not only allowed for new alternative schools to open, for individual teaching methods, and the election of the principal for the teachers, but it also took away the "watching eye" of the government in monitoring their practices. This much autonomy had never been given to teachers since World War II.

Another reform attribute of the law is the legalization of school choice. It stated that the children should, in principle, attend the assigned school, however, if the parent wanted to have their children educated at another school, the principal of the given schools had the right to admit them (71.§ (1)-(2)).

However reformist this law was, Báthory, admitting all the positive features of the law of 1985, notes that "this law could not start the systemic reform of the educational system or the reparation of its anomalies" (Báthory, 2001, p. 61). It did not touch either the school structure, or the curricular framework. The highly centralized curriculum together with a somewhat decentralizing law created many anomalies. These anomalies had to be eliminated by another, greater reform. Everyone knew that the system of education must be changed very quickly by the first democratically elected government. The question was rather the content of reform, the specific institutional changes that had to be decided.

It seems that the law of 1985 forced one very important aspect: the autonomy of the schools. This, understandably, was a high priority even before the post-communist transition, for it created some space for the schools, teachers to move around. This started the de-politicization of the system, although did not finish the process. A flip-side of this relatively liberal law is that it set the stage for the selective system: at the transition the schools and the education sector in general could feel that the state oppression could easily be shaken off. This commonly supported goal succeeded so well, that it created a local demand driven

system, a mildly anarchic state. This level of decentralization helped the more informed, higher status people, who had influence on local decisions and could have only be constrained by strong institutions. As I show in the next sectionss this was not the case. There were only mild differences between the party standpoints in educational matters, and these standpoints generally met in supporting the selective system that was demanded by higher status citizens.

The changing school structure

Changing school structure was one of the most important issues of the early 1990's. The question was whether the system should be 4+8, 8+6, 8+4 or 10+2. Halász (2001, p. 115) claims that at the time, this question was more important than the issue of decentralization. Before the law of 1993 on education, but after the democratic transition, several papers analyzed observed changes of school structure. Few of these papers could rely on data; instead they focused on anecdotic evidence. Nevertheless they might have influenced policy. These working papers and weekly articles were published by a relatively small group of educational experts, many of whom were involved with one or the other political party as policy advisor (Drahos, Lukács, Nagy, & Setényi, 1992; Kozma & Lukács, 1992; Lukács, 1992). The influence of these thoughts on political decisions is unclear; however, it is obvious that the effects of early tracking were clearly understood. The debates about school structure including early selective academic tracks were just as lively as they are today. A quote from the summary chapter of a volume on the draft of the law of 1993 underlines this properly.

> "In the last two years, a substantial rise of political forces that want to set the end of comprehensive education at the lowest possible age and to educate their children separate from the 'lower classes' in order to secure the transition of their advantageous social positions could have been seen. They defend the foundation of academic schools starting after grades 4 or 6. This program is not only beneficial for the upper classes, but can also be attractive for those who are nostalgic about the old Hungary, the feudal state" (Kozma & Lukács, 1992, 9).
>
> "Politically it is obvious, those who stand for curtailing the length of comprehensive education can gain sympathy from the elites, while those who champion to maintain the general schools as they are, can get support from the socially receptive strata, but loose others" (Kozma & Lukács, 1992, 10).

In addition to the fact that the causes and effects of early selective academic tracks were clear, it is noteworthy to see that the teachers were not at all in favor of the selective structure. In 1991 the Institute for Educational Research has done a representative survey among school teachers. 31% of those, who answered thought the structure should remain the same, another 14% thought it should be 8+4 with little modifications, and another 18% supported a 10-year-long comprehensive education. In other words 63% of the teachers wanted a comprehensive system as opposed to 34% who opted for a 4+8 or a 6+6 division (3% thought none of these were adequate) (Junghaus, 1992, 40).[35] However, it is to be expected that teachers, on average, dislike change. Change in the education system means change in curriculum and more, which means more work.

Another empirically based research was done by Ilona Liskó (1992; and, 1994), who surveyed the early selective academic tracks, the motives of teachers, local government officials and parents. The research highlights how and why the early selective schools were created. Early selective tracks were introduced in 1988, when Ferenc Glatz (the minister of education in 1989) allowed the emergence of the traditional 4+8 tracks. The ministry has also provided some financial incentives for this. "The Nemeth administration [the last communist government] – as one of its last feats – has modified the law of education [of 1985] with the last non-democratically elected parliament in 1990, removing the 40 years old state monopoly from the education sector." In short, private, foundation and church schools could be established (Bajomi, 1994).

In the school-year 1989/90 two academic schools in Budapest were allowed to start an 8-year-long track, and in 1990/91 and additional 12 opened (1 of them with a 6-year-long

[35] Unfortunately I could not access this dataset. One might come up with several reasons, why a teacher might opt for one or the other structure. For instance it would be interesting to examine the distribution of these answers across school types, for the reason that general school teachers probably are more likely to opt for the comprehensive, while academic track teachers for the selective system.

track), by 1991/92 another 35 tracks started (24 8-year-long and 11 6-year-long track). This meant that 14% of the local government run schools had an early selective program as well. As a result the writers of the new law of 1993 were not really in a position to neglect the actual trends in the education sector.

The schools that opened the early selective tracks were not the most prestigious ones. In fact, these were usually the big suburban academic schools, or schools in large housing projects with ambitious principals that acted quickly to select or retain better students. Although in the survey conducted by the Institute for Educational Research (Liskó, 1992, 1994) most of these schools could come up with pedagogical motives (easier transition to secondary, more pupil-friendly curriculum… etc.), according to Liskó there were other more important motives. The most robust motivation was that they could select the best students at a relatively early age, and hence improve average performance, or similarly, avoid the negative effects of the demographical decline and thus maintain the long term functioning of the schools.

The local governments had different motives in supporting their schools. Firstly, in the early years (1989/90 and 1990/91) local governments were preoccupied by setting up their own structure, and allocated less resources to monitor schools. As a result the most "innovative" schools could easily get the permission for restructuring from their local governments. Secondly, after 1991, when the local government structure was up and running, the policy makers and the educational boards were composed of teachers or of higher status people, who, naturally, supported such reforms. And finally higher status parents supported early selective tracks, while the lower status parents had lower voice in the local governments, or simply paid no attention to these processes (Liskó, 1992).[36]

In the next section I take a closer look at public opinion about the selective system

[36] For a latter wave of this research with similar conclusions see Liskó (1995).

Public opinion about the selective system

So far I have shown the conditions, and the processes that have lead to a selective education system, however, I have not talked about the reasons. I argue that one very important reason is democracy, and another is decentralization. In a democracy voters can influence politics more than in dictatorship. In a decentralized democracy local voters have more ability to influence local politics, than in centralized democracy. In this section I show that in Hungary after the post-communist transition higher status people are more likely to vote, and that voters are more likely to prefer selective education than non-voters. There are very small differences between parties in their attitude towards the change in the education system, which I attribute to two factors. The first is that parties represent the will of their voters, and that voters tend to support selective education. Or, to put it differently, the representation of the educational interest of lower status people in was very weak during the transition. The second is that there was an unfortunate match of interest between the two major parties in their support for the early selective tracks. I elaborate on this latter idea in the subsequent section.

Opinion polls conducted in 1990 right after the second turn of the parliamentary elections and in 1995 after the second parliamentary election shed some light on the differences between the parties and on their electorate. The polls, conducted by the Institute for Educational Research (IER), asked around a thousand Hungarian citizens about various issues concerning education. The sample was stratified by age, gender and residence and was randomized within these cells to represent the Hungarian adult population.

An important feature of these surveys is that the people were asked about party preferences and their opinion on education related issues. Their serious setback is that I cannot be sure how strong these opinions are, i.e. how much the respondents know about the education sector and how established their preferences are.

Although in 1990 two questions were asked about party preferences, one general party preference and another about party preference in educational matters, there was only one general party preference question in 1995. Therefore, I will use this general party preference in order to be able to compare the two years.

The distributions of seats in the first and second parliament are shown in Table 27, as well as the names of the different parties and their abbreviation. Table 28 below shows the distribution of votes in the 1990 and in the 1994 elections and in the questionnaire.

The surveys largely over represent the Fidesz and under represent the MSZP relative to the number of votes they received in the elections, and they also vary considerably with other parties as well. However, I could not use probability weights to control for this problem because the 1995 survey was much later as compared to the elections than the 1990 survey, and also in 1990 the survey was asked months after the election, thus preferences could have changed, and since my aim is to compare the two waves I relied on the un-weighted estimates.[37]

Table 27 - Election results in Hungary, 1990 and 1994

	Abbrev.	**Name of the party**	Share of seats in parliament (seats)			
			1990		1994	
Conservative	**MDF**	**Hungarian Democratic Forum**	42.5% (164)	Government	9.8% (38)	Opposition
	FKGP	**Independent Peasant Party**	11.4% (44)		6.7% (26)	
	KDNP	**Christian Democratic People's Party**	5.4% (21)		5.7% (22)	
Liberal	**Fidesz**	**Young Democratic Alliance***	5.4% (21)	Opposition	17.6% (69)	
	SZDSZ	**Free Democratic Alliance**	24.1% (93)		5.2% (20)	Govern-ment
Socialist	**MSZP**	**Hungarian Socialist Party (legal successor of the communist party)**	8.6% (33)		54.2% (209)	

* Fidesz at that time – especially in the first election – was considered to be liberal, and cooperated closely with the SZDSZ in educational matters.

[37] I run robustness checks with probability weighted estimations on the 1990 sample, and the results did not change substantially.4

Table 28 - Party preferences in the 1990 and 1994 parliamentary elections*, and in the IER survey of 1990 and 1995

	Election	Election	Questionnaire	
	1990 elections. 1st round (as % of total adult population)	1994 elections. 1st round (as % of total adult population)	1990	1995
MDF	16.1	8.3	21.0	4.0
SZDSZ	13.9	12.8	14.5	14.0
FKgP	7.6	5.4	6.3	8.2
MSZP	7.1	21.6	3.4	13.3
Fidesz	5.8	5.3	11.9	9.5
KDNP	4.2	5.1	4.0	3.5
Other	10.3	11.2	2.8	10.7
No answer	-	-	11.5	9.4
Not-voted	34.9	31.1	24.7	27.4

* This differs from the final results considerably (see Table in the appendix). In the 1st round everyone can cast a vote on any party, while only those receiving over 5% of the votes are in the parliament.

Another unique feature of these datasets is their rich opinion section. People were asked several times and ways about their opinion about the selective education system. Based on these questions I have generated 9 dependent variables about opinions of selective educational mechanisms. These variables are the following:

- *age of selection* - "from which age on should the children be separated based on their knowledge, skills or interests?" (in years)
- *early tracking* – Please indicate which of the following statements you agree with*:*
  - Children should be placed into schools which best fits their skills or knowledge as early as possible. (1)
  - It is better that children study together as long as possible independent of their skills or knowledge. (0)

    (dummy variable)
- *school for the gifted* - Please indicate which of the following statements you agree with:
  - Schools must be opened for talented children, since this is the only way they can develop their skills effectively (1)

- Schools cannot be opened for the gifted, since this hurts social justice (0)

  (dummy variable)

- *education of the gifted* – rank number of the following statement: support the education of the gifted.[38]

  (1 – least important, 7 – most important)

- *education of the disadvantaged* – rank number of the following statement: support the education of the disadvantaged.[38] (1 – least important, 7 – most important)

- *school choice* – Please indicate which of the following statements you agree with:
  - Parents should have the right to enroll their children into schools they find the best (1)
  - Parents should enroll their children into the school of their residence, otherwise the children of the privileged will go to the best schools (0)

    (dummy variable)

- *book choice* - Please indicate which of the following statements you agree with:
  - Schools should be allowed to choose their way of teaching and the books they use (1)
  - Schools should be told which book to use and the material to teach (0)

    (dummy variable)

- *change is needed* - Please indicate which of the following statements you agree with:
  - Major changes are needed in schools in the future (1)
  - After so many experiments and reforms it is finally time to leave the schools alone (0)

    (dummy variable)

[38] People were asked "Which of the following should the state spend more money on? Please rank the following:
- creation of new curricula, books
- improve the living conditions of pedagogues
- building of new schools, classrooms
- giving financial benefits to pupils (scholarship, meal, home schooling)
- equip schools with modern technology
- support of the education of the gifted
- support the education of the disadvantaged"

- *Comprehensive education* – dummy variable generated from the question: Many people say that the current practice of 8-year-long primary education is not good. Which of the flowing opinions do you agree with?
  - The current practice of 8-year-long general education and 4-year long secondary should remain (1)
  - We should return to the old school structure of 4 years general and 8 years secondary (0)
  - We should have a 6 years long general with 6 years long secondary after (0)
  - We should have a system of 10 years long general with 2 years secondary (1)
  - We should have a mixed system, where local people decide when the general stops and secondary starts. (0)

Table 29 below shows the descriptive statistics of the 9 generated dependent variables.

Table 29 – Descriptive statistics of the dependent variables

	1990					1995				
Variable	Obs.	Mean	Std. Dev.	Min	Max	Obs.	Mean	Std. Dev.	Min	Max
age of selection	858	12.31	3.04	4	18	804	13.37	2.62	6	18
early tracking	926	0.70	0.46	0	1	933	0.81	0.39	0	1
school for the gifted	913	0.51	0.50	0	1	893	0.61	0.49	0	1
education of the gifted	876	3.94	1.89	1	7	980	4.63	1.77	1	7
education of the disadvantaged	875	3.47	1.91	1	7	982	4.44	1.86	1	7
school choice	954	0.67	0.47	0	1	981	0.91	0.29	0	1
book choice	902	0.48	0.50	0	1	899	0.53	0.50	0	1
change is needed	878	0.56	0.50	0	1	872	0.42	0.49	0	1
comprehensive education	911	0.51	0.50	0	1	898	0.63	0.48	0	1

The dataset also contains a section on individual background variables such as gender, age, level of education, employment status, residence, income, religion, whether the respondent have children, and whether s/he is a student. In order to control for the compositional bias of the party electorates (e.g. that the more educated electorate of a party is more likely in favor of selective system) I used the above background variables to show the net party effect. On the other hand, controlling for the compositional effects is unnecessary if

we are to show how parties most likely think about an issue, for they will represent its electorate irrespective of their background. Therefore I show two estimations for each dependent variable and each specification, one without and the other with controls.

From Table 38 to Table 45 in the appendix I show the results of several linear regressions. I have estimated two types of models for each dependent variable, for both years and one with and one without controls. The first set of models regress a dummy variable of parliamentary parties on each dependent variable; while the second set of models include party fixed effects as well. The first set (Table 38 - Table 41) shows only the difference between the opinions of those voted for parties in the parliament compared to those who did not vote or have not answered the question (I will call these two latter groups no-voters). The second set (Table 42 - Table 45) intends to show the net party effects; i.e. how do the opinions of people voting for specific parties differ after taking out the effect of voting for a parliamentary party. Table 30 below is a summary of the first set of estimations in the appendix.

Table 30 – The significance of the difference between those who voted and those who did not vote for parties in the parliament (difference in favor of voters)

Controls:	**Off**		**On**	
Dependent variable	**1990**	**1995**	**1990**	**1995**
age of selection		*		
early tracking	***	**		*
school for the gifted	***		*	
education of the gifted (rank)	***		**	
education of the disadvantaged (rank)		*		
school choice	***		***	
book choice	***		*	
change is needed	***		***	
comprehensive ed.	*	***		

* significant at 10%; ** significant at 5%; *** significant at 1%
Note: this table is a summary of Table - Table in the appendix

The estimations show that people voting are much more likely to support selective education. The differences diminish in both years and disappear in 1995 if status characteristics are controlled for. The fact that voters are more in favor of selective education is obviously due to the fact that higher status people are more likely to vote (Figure) and they also tend to support selective educational mechanisms more, since they profit more from these mechanisms. As I have argued in the previous chapter.

Voters are more likely to support the selective mechanisms (school for the gifted, education of the gifted, school and book choice) than non-voters, even if their status is controlled for. But this effect is much more pronounced in 1990 (Table 30 and Table 40). This difference between the two years could be due to several factors. In 1990 a general "transition euphoria" was present, and some of these questions (school choice, change is needed) were generally supported by the voters irrespective of their background, and irrespective of who benefits from these. On the other hands it is possible that non-voters replied randomly, maybe because they are more uninformed. Another factor could be a relatively larger ratio of high status people voted in 1990, which pulled upwards the status of the median-voter, and thus the "median opinion" towards a more selective one. Figure 12, Figure 13 and Figure 14 suggest that this latter factor. The relative percentage of tertiary educated voters is much smaller in 1995 than in 1990; hence if I assume time-fixed preferences (a harsh assumption) the median-opinion is more selective in 1990 than in 1995. Moreover, it seems that educational level differences in opinions favorable towards comprehensive education, is much smaller in 1990 than in 1995 (Figure 13), although the same cannot be said for the age of selection (Figure 14).

Nevertheless, differences between voters and non-voters are much more solid without the status controls in 1990 than in 1995 (Table 38 and Table 39), meaning that if parliamentary

parties wanted to represent their electorates' opinion, they must have supported selective education more at the dawn of the democratic republic than five years later.

Figure 12 – Percentage of voters of parliamentary parties by education

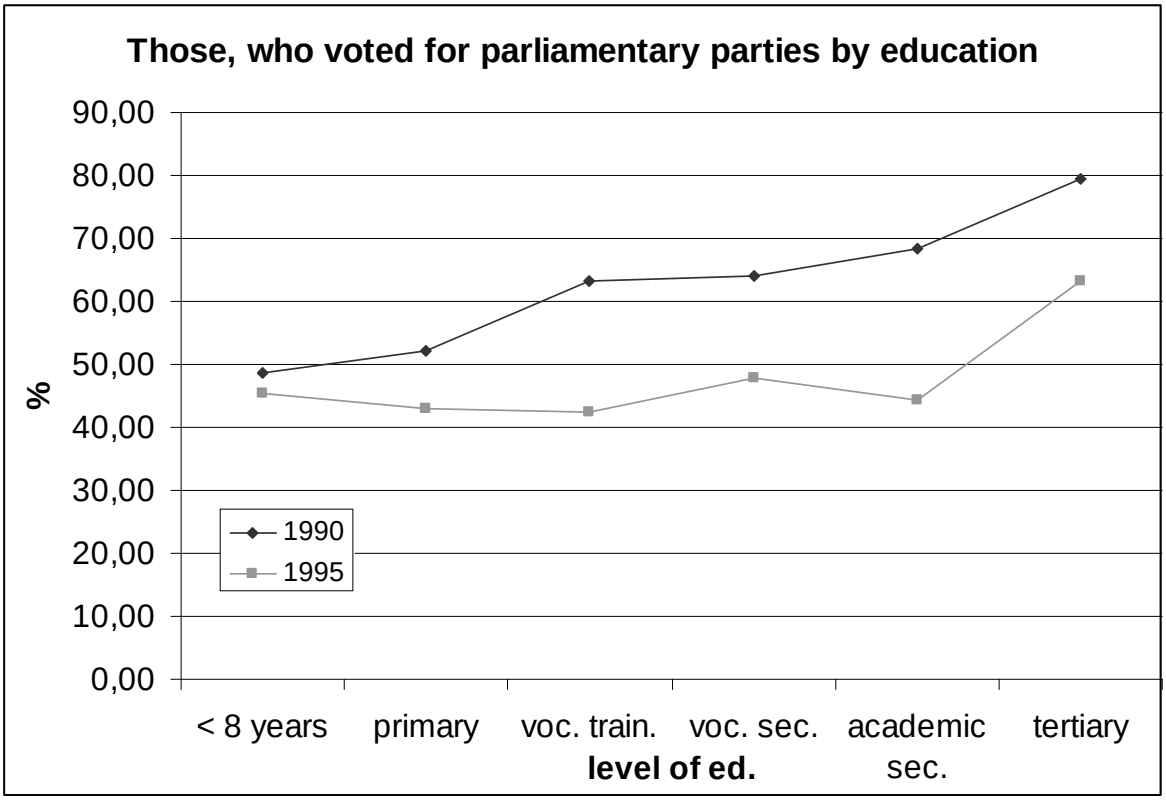


Figure 13 – Percentage of those supporting comprehensive (8+4 or 10+2) education by level of education

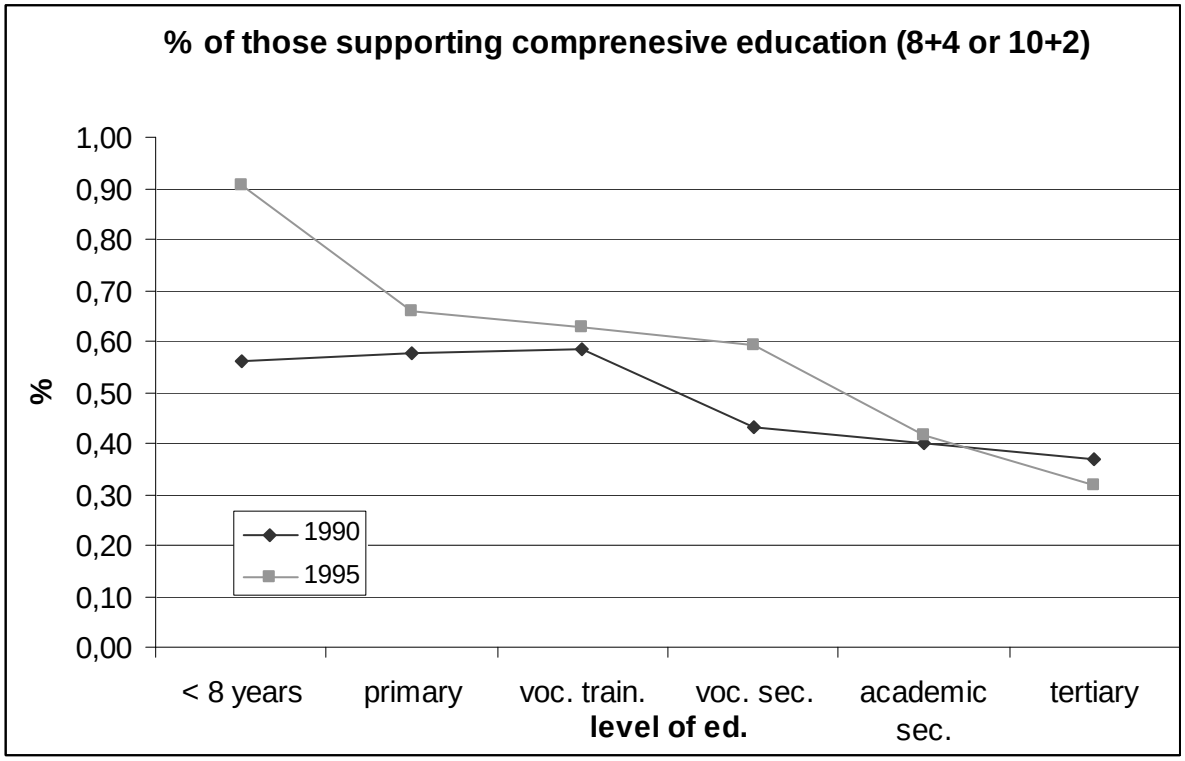
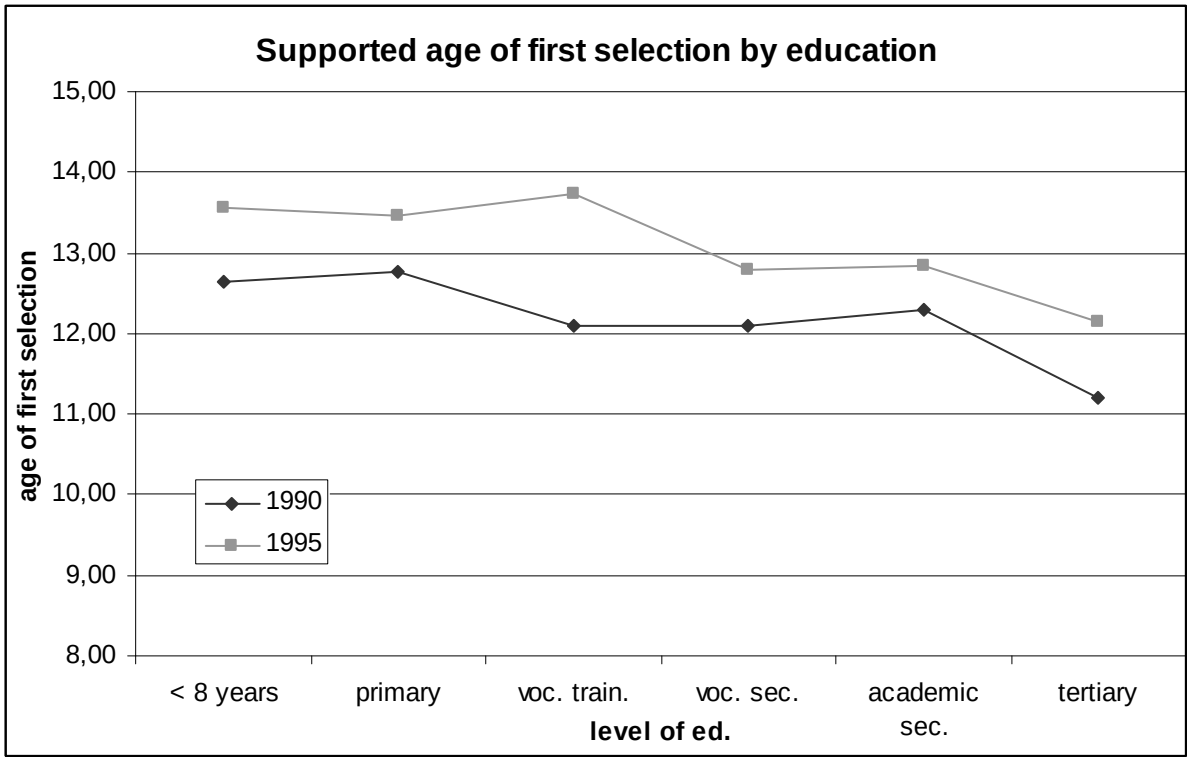


Figure 14 – The supported age of first selection by level of education



Looking at the party effects (Table 42 - Table 45), the most obvious result is that the liberal SZDSZ electorate was most in favor of the selective system. It is the only electorate which supported an earlier age of selection in both years, although only significant on the 10% level in 1990. From the estimations I conclude that the electorate of the SZDSZ undoubtedly wanted a more selective system than it was during the socialist era.

Quite similarly the electorate of the conservative governing MDF has also shown significant differences from the reference (the non-voters). In line with the SZDSZ electorate they wanted less comprehensive education, they supported early selective tracks (see below in detail). However, unlike the SZDSZ, the other dimensions are not significant for the MDF.

The electorate of the liberal opposition party Fidesz is also in favor of the selective system, but similarly to the MDF this is only substantial in their refusal of the comprehensive system (the support of the early selective schools).

The voters of the socialist party (MSZP) demanded a less comprehensive system in 1990, but not in 1995. However, they opted for an earlier age of selection in 1995, even if their status is controlled for. There are no significant differences between the opinion of the MSZP voters and non-voters in any other aspect.

Finally there are only a few significant "positive" effects in the whole analysis: the electorate of the Independent Peasant Party (FKgP) supports the education of the gifted but only if controls are off and only in 1990, while the Christian Democrats (KDNP) oppose the education of the gifted in 1990 and support the education of the disadvantaged in 1995 even with controls on.

In short, none of the parliamentary parties are more in favor of a comprehensive system (or the soviet system) than the non-voters. The data shows that the electorate of both the main opposition party in the first parliament (the SZDSZ and the Fidesz) and the main government

party (MDF) were significantly less in favor of a comprehensive (8+4 or 10+2) education, along with the voters of the socialist party.

Table 31 below shows the opinions about the early selective tracks in more detail. Almost all parliamentary parties support local demand driven education more than the general population (i.e. much more that those who did not vote). Especially in 1990, but also in 1995 the supporters of the main parties in the first parliament (MDF and SZDSZ) are more likely to support locally shaped schools. These party supporters are also more likely to defend early selective (4+8 and 6+6) structures in general, especially in 1995. In 1990 almost every group supports 4+8 configuration equally, but 6+6 is favored more by the SZDSZ and the MSZP. In 1995 only the FKgP and, surprisingly, the Christian KDNP supporters opt for 4+8 and 6+6 structures less than or around the population average. The liberals (SZDSZ and Fidesz) are much less likely to choose the status quo (8+4) in 1990, although they are more likely to opt for the 10+2. The socialists stand by the 8+4 system the most, especially compared to their coalition partner after 1994, the SZDSZ.

Table 31 – School structure – support for early selective schools

1990	MDF	SZDSZ	FKgP	MSZP	Fidesz	KDNP	No-voters
don't know	4.2%	2.1%	9.0%	0.0%	2.6%	5.0%	14.9%
local demand	16.7%	20.6%	13.4%	17.7%	21.7%	10.0%	6.9%
4+8	19.9%	19.9%	19.4%	20.6%	19.1%	25.0%	17.8%
6+6	13.9%	17.1%	10.5%	17.7%	10.5%	5.0%	13.8%
8+4	33.8%	23.3%	32.8%	38.2%	20.4%	45.0%	35.6%
10+2	11.6%	17.1%	14.9%	5.9%	25.7%	10.0%	10.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Number	216	146	67	34	152	40	348

1995	MDF	SZDSZ	FKgP	MSZP	Fidesz	KDNP	No-voters
don't know	5.1%	3.7%	9.9%	4.6%	1.1%	6.1%	14.3%
local demand	18.0%	16.1%	8.6%	14.5%	15.1%	6.1%	10.4%
4+8	20.5%	16.1%	8.6%	6.1%	12.9%	12.1%	6.9%
6+6	20.5%	15.3%	13.6%	9.9%	22.6%	9.1%	9.4%
8+4	33.3%	33.6%	49.4%	51.2%	39.8%	48.5%	51.4%
10+2	2.6%	15.3%	9.9%	13.7%	8.6%	18.2%	7.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Number	39	137	81	131	93	33	490

In sum, we see that voters are generally inclined to support the selective system, for the simple fact that voters are likely to be of higher status and this group benefits more from the selective system. This effect was much stronger in 1990 than in 1995. Thus if the parliamentary parties wanted to represent their voters they should have supported selective education. Moreover, it seems that the voters of the two main parties of the first parliament (the conservative governing MDF and the liberal SZDSZ) preferred selective education more than everyone else, although this is probably only due to their higher than average social status. Concerning the school structure, however, it seems that voters of these two parties preferred locally shaped school types more than the average voter or the non-voters did.

Opinions of the main party representatives in 1990

The above shown empirical data have highlighted that differences between the voters and non-voters in educational matters can mainly be explained by differences in their social status, and that differences between voters of different parties are very mild. This leads me to my last argument about the quasi compromise between the two leading parties the liberal SZDSZ and the conservative governing MDF. In this section I utilize a unique data source, a set of interviews with the main party representatives on education related issues. Based on these interviews I speculate that the conservatives did not mind the selective system as long as the church and the conservative voters were happy, and the liberals valued the idea of decentralization, the school autonomy, and the locally driven education system higher than the issue of inequality. Consequently, both have supported the evolution of early selective tracks. Moreover, this consensus was not challenged by the returning socialists in 1994, probably due to the fact that their electorate also benefited from this process, and also that they have not ranked the issue of education high on their agenda.

Right before the first parliamentary elections in 1990 a Hungarian educational journal the *Pedagógiai Szemle* (Review of Pedagogy) conducted ten interviews with the representatives of the major political party representatives and with three churches.[39] Although the structure of the interviews and the questions asked were not purely identical, plus the answers to these questions were not always truly system focused, depending on the interviewed person, moreover sometimes it is hard to differentiate between personal opinions and party standpoints at a time where parties and party ideologies were still forming, it is still a unique data source describing the political forces behind the changes of the Hungarian education. Although the interviews are mostly ideologically focused (e.g. what it means to be liberal or conservative in education, what is a religious education…etc.) I try to concentrate on factual questions. Specifically, I concentrate on how the party representatives imagined the system of the Hungarian education after the transition. The reasons for this are twofold. On the one hand, the institutional changes are in the focus of the thesis, and on the other hand factual questions are more likely to be party standpoints than personal communications. Based on these interviews I cannot make a difference between the important and the less important goals of the parties – i.e. the preference ordering of the parties – I can only see whether the interviewed person has brought it up or not, which of course can also depend on the questions asked. To recognize (the lack of) this aspect is very important for my purposes. The political negotiations about the structure of the system have only began around or after these interviews were conducted, and thus I cannot judge that the disappearance of a specific issue in the 1993 law was due to the inadequacy of the party to influence the law or that the specific issue was placed low on the given party's preference ordering,[40] or on the political weight of the person interviewed. The *Pedagógiai Szemle* has tried to interview the person responsible for the education at the given party at that time. This, however, does not mean that this person

[39] All of the interviews were conducted by Mr. Tamás Schüttler.
[40] A list of the major parties and their share of votes and seats in the parliament are shown in Table.

became an influential figure of the following era. I will comment on this issue, where possible, in footnotes.

There were several issues that most interviewed people have agreed on. In fact, as Kata Beke the interviewed representative of the MDF wrote in her memoir in 1993 "there was only a mild, about five percent difference between the party programs, this was a marked difference, but not irreconcilable" (Beke, 1993). Hence, in the subsections below I will emphasize those issues that they treated differently. But there were more issues that everyone thought to be important.

The most unanimously supported idea was the "de-politicization" of the system: the ideologically biased, centrally planned curriculum and books were collectively rejected, just as the prohibition and the negation of religious education. All of the party representatives proposed to have autonomous schools, decentralized education and to free the right for schools establishment. These ideas were facilitated by the negative experiences of the central-planning under the Soviet era. The proposed level of school autonomy and preferred level of decentralization was not the same, but this was less clear in the interviews. To complement decentralization and school autonomy most experts put forward a per-student lump-sum grant. This was to be allocated to schools or to local governments instead of the "politically" (i.e. not transparently) allocated funds. Some have proposed an output regulated system, where centrally established examination would be used to evaluate school work and let the schools themselves work on the methods (curriculum) they want to use. Meanwhile, others preferred process regulation, where the Ministry of Education would define the curriculum or at least the minimum requirements that the teachers should follow. Naturally, each expert emphasized that the process regulation should allow for large diversities between schools. Similarly most of the experts have seen the 8+4 structure (8 years of general schooling with 4 years of

secondary education) as outdated, and would have allowed all kinds of separation of school levels. The two most popular were the 4+8 and the 6+6 structure (the early selective academic tracks). Finally, and especially interestingly, almost all of the interviewed have recognized the main disadvantage of a decentralized and highly differentiated system, namely the high probability of further rising inequalities, but none of the main parties have emphasized that it is the major goal of the state to halt this process.

I think this latter point is the main issue to be emphasized. Increasing inequalities could not be the main concern for the parties due to the fact that their voters did not value this issue highly. Naturally, this might not have been such an explicit choice for the parties, – i.e. none of them explicitly wanted to increase inequalities – but the focus at that time was much more on increasing performance, and especially on the liberalization and de-politicization of the system, which interested the higher than medium status people (the voters) more.

MDF – Hungarian Democratic Forum

(Ms. Kata Beke[41])

This interview was carried out before the elections took place. Although it was obvious that the MDF will be one of the most important parties in the newly elected parliament, it was not clear that they would be the main government party in the first democratically elected government.

As Kata Beke said, the Forum's "most important goal to change, or if you'd like, point of break-through would be to establish the autonomous school" (Beke, 1990, 47). The local governments should receive real rights to provide education, thereby genuinely decentralizing the system. On the other hand central government would be responsible to create a consensual

[41] Beke was the author of the MDF's first educational party program. As a founder of the party she became a member of the parliament in the first cycle. She was also the secretary of state in the Ministry of Education and Cultural Affairs in 1990 for a short period but since she was unable to pursue her educational concepts she quit both the ministry and the party.

curriculum, including subjects such as culture of behavior, ethics or home economics. The MDF in general – as opposed to the liberal parties, especially to that of the SZDSZ – also promotes a more active central involvement in the educational sector. But the central government should closely cooperate with the teachers within the (autonomous) schools. The school programs should be prepared within the schools but they should be based on a curricular framework prepared by the central agencies. Specifically, this central involvement would materialize in a system of school supervisors, whose job would be to visit schools regularly and report any problems to the ministry. The MDF also proposes that the ministry should prepare the national standards for a possible output regulation, but curricular (process) measures are also to be taken.

As for the institutional structure, the school configuration and the age of first selection is concerned:

> "the recent eight plus four pattern is the worse both for the child's development and from the curricular viewpoints. We would prefer the revitalization of the classic four plus eight system – or even the human and real gymnasium division within this. We can imagine some schools where the […] six plus six system will evolve. There will be areas where a four or six year-long high quality vocational training will be placed upon a six year-long primary education. […] From these it should be obvious that we do not want to prescribe a school structure." (Beke, 1990, 48)

To put it differently, the MDF promoted the change of the soviet structure by reintroducing the "classic" types of academic school. These schools, the natural science oriented and the other focusing on humanities, were the bases of the elite training before and between the World Wars. Politically the reintroduction of the "Austro-Hungarian regime" was appealing for the MDF for several reasons. Most importantly it was appealing because of the conservative ideology of its electorate. Secondly, the historical churches wanted to get back their confiscated schools, which had typically been 8-year-long *gimnázium*s before the war.

And finally the proposition to return to the old system satisfied the desperate need for change of the citizens.[42]

The MDF wanted to finance the system by per-student lump-sum grants that would have been transferred to the schools directly, since the MDF promoted school choice, this would have generated competition among the schools. The party also promoted to extend the right for the free establishment of schools. Most of the schools would be run by local governments, but the churches would also be given back their confiscated schools (which would be renovated by the state first). Naturally, private organizations could also establish any type of institution, just as the central government would also maintain schools where the local government is inadequate for this job.

It must be noted here that although Beke was the author of the MDF's education party program, she states in her book (Beke, 1993) that the government had not pursued this program. In fact it did not even consider following the program. This is one of the reasons why Beke later quit the party.

SZDSZ – Free Democratic Alliance

(Mr. István Bessenyei[43])

Similarly to the MDF, the SZDSZ also had a decent chance to win the elections. At the time of the interview it was still unsure whether in the next four years the SZDSZ will govern or be the main opposition force, as it turned out later. The difference between the MDF's and the SZDSZ's education program – as Kata Beke the MDF representative put it – was stemming "not only from the difference between the approaches to liberalism, but that the

[42] However, I must also note that it is rather hard to judge the strength of the preference for the old-type system of the MDF based on this interview. The interviewer once asks that „based on what you have said the MDF promotes a rather liberal public–education policy…", and the answer for this is not negative.

[43] Bessenyei was a researcher at the Institute for Educational Research and later at the National Institute for Public Education from 1980 till 1998. In the interview he only represented the well prepared educational program of the SZDSZ (also the program was copied next to the interview).

program of the SZDSZ was prepared by educational experts while that of the MDF was prepared by practicing teachers" (Beke, 1990, 51).[44]

From the interviews, and from other background materials, it seems that the SZDSZ had the most developed program at the time. It included three principles: of the right for school establishment, school choice and autonomy of schools. And included three regulatory mechanisms: regulation via exams, regulation via financing, regulation via transparency.

The right for school establishment not only meant that anyone could have founded an educational institution, but that the structure of the established school would also be decided by the founder. It could have decided whether it was four, six or eight years long, or whether it included vocational or general training. The SZDSZ imagined that most of the schools would be founded by local governments, but also private companies, foundations, or churches will establish their own institutions. The students or the parents could freely choose among these institutions, independent of their residential status. The schools must also be very autonomous in choosing teaching method, books, programs, and also be economically independent.

This system was intended to be guided by exams, financing and transparency (public pressure). The state would have had to provide the framework for this. Every school would have had to prepare for the national exams/standards given at "critical exit points," while the state would have provided per student lump-sum resources for every institution (given directly to the institutions or to the parents as vouchers). Transparency would have been secured by the state through legal regulations (the local and national political deals must be made public) and through providing school report cards and local educational papers or pamphlets.

[44] In fact it was written mostly by those people, who were referred to as „professionals" by Halász (1984).

The major drawback of the concept was that it would have generated, or at least had not reduced inequalities. As István Bessenyei, the interviewed SZDSZ expert put it: "Inequality of opportunity cannot be eliminated or even alleviated by this [voucher] system." However "today's situation produces an unmanageable differentiation" while the proposed system would produce a manageable one (Bessenyei, 1989, 1222). Since the processes of a highly liberalized education are rather apparent, according to the SZDSZ, the disadvantaged pupils or the "losers" of the system should have been assisted via directed programs.

The MDF and the SZDSZ, the two main political forces before (and after) the election, had the two most developed educational programs. However, the representatives of the other parties also had some thought provoking ideas, but based on the interviews made with them their systemic reform ideas were less intact.

The governing side - conservatives

The interviews with the Independent Peasants Party (FKgP)[45] and the Christian Democratic People's Party (KDNP)[46] were made after the elections of 1990. It was already known that the parties made it to the parliament, and negotiations about the future coalition with the MDF – the winning party – were under way. This could be one of the reasons why these two representatives were less keen on giving details in their interviews.

It is clear that both of these parties supported the right for school establishment. The FKgP, mostly due to its agricultural electorate, argued that it is vital because the vocational training can only be provided properly by the agricultural chambers, while the KDNP

[45] Sándor Győriványi was the member of the first two parliaments, from 1990 till 1998, representing the FKgP. For a short period in 1990 he was also the Minister of Labor Affairs.
[46] Emese Ugrin was the member of the first parliament. She was elected on the national list of the Christian Democrats, but joined the FKgP parliamentary group in 1991, which she quit in 1992.

emphasized the importance of the religious academic schools. Both have also agreed that the financing should be made through per student lump-sum grants, but the FKgP argued that "only the state maintained institutions should be entitled to state grants," while the other schools could apply for state aid, and it also stated that grants should be allocated to the education provider, the local government in most of the cases, and not to the schools. (Győriványi, 1990, 454)

Both parties were in favor of a liberalized school structure. Győriványi – emphasizing that decisions about the structure of the system should be postponed – thought that "the school structure should not be the same in the whole country" (1990, 458). The representative of the KDNP was more straightforward: "In general, I see the 4 plus 8 structure as the most suitable method" for transmitting knowledge (Ugrin, 1990, 540). Moreover she argued that due to the different needs in the different parts of the country, the structure could vary. Ugrin also claimed that especially for social groups that do not demand academic education "the 8 year-long primary should be maintained", and although it leads to selection, "this selection is needed in every country, where there are masses of social strata, that are originally out-crowded from the high quality education" (1990, 541). The interview with the KDNP representative revolved around the issue of inequality and social mobility. Their solution to the unwanted selection, to increase social mobility, was a so called *líceum*, which is a comprehensive school (similar to the German *Gesamtschule*), that would be established with the explicit goal of increasing social mobility.

Besides the two parliamentary conservative parties, some church representatives were also interviewed. The catholic (Várszegi, 1990), the Jewish (Várhegyi, 1990), the reformed (Bóna, 1990) and the evangelic (Gyapay, 1990) churches, unsurprisingly, all agreed on two important systemic aspects. The formerly confiscated schools should be returned to the churches and

that their structure should be decided by the church. "So much have emerged from our conception that if it is possible to organize denominational schools – which is, by the way, under process – we would like to change the structure of the school" (Várszegi, 1990, 148). That is, let the churches re-establish their formerly high quality 8-year-long early selective tracks.

The opposition – liberals and socialists

The original concept of the first-best educational system of the Young Democratic Alliance (Fidesz) was very similar to that of the liberal SZDSZ. The main difference was, maybe, in their emphasis on radical changes. Although they could have also agreed on temporary compromises, such as a local government run school system, instead of fully autonomous schools, or per student grant allocated to the local governments instead of a pure voucher system. They would have also liberated the market for textbooks, and argued that the school structure should be decided from below, and the state should only provide the legal framework for it.

The Fidesz representative made an interesting remark to the issue of inequality, when the interviewer was pushing that the market would create even greater inequality: "Evidently, there is a belief that the appearance of the market will lead to the increase of inequality of opportunity. I call it only a belief, since facts have not proved this to be true" (Drahos, 1990, 251). Moreover, "we cannot flatter ourselves with some sort of an illusionist, egalitarian way of thinking. We have to live together with the differences." (Drahos, 1990, 254).

The second biggest opposition party, the Hungarian Socialist Party (MSZP)[47], was the successor of the Communist party. It was not "too socialist" at that time, in the sense of not

[47] Mária Ormos was the member of the Central Committee of the Communist party between 1988 and 1989. She was elected to the first parliament on the socialist national list, but has resigned four months later. She is a historian, member of the Academy of Sciences and the rector of the Jannus Pannonius University.

emphasizing equality above all. "We think that it is not the duty of the school to equalize social inequalities. This is simply not possible. Its duty, conversely, is to be able to lift the talented from anywhere. […] We have to break up with the previous perception […], that says that everyone is equal from the birth." (Ormos, 1990, 240-241). The MSZP also supported the liberalized school structure, but emphasized that the movement between schools must be eased. The representative stressed that the vocational training should be made more general, in that a vocational training, ending at age 18, cannot give a finished vocational degree. It should be either moved to tertiary level or handed over to companies to train their own workforce.

The only truly socialist perception on education was given by a social scientist, Andras T. Hegedűs, representing the Hungarian Social Democratic Party (MSZDP)[48]. This interview was rather a communication of Hegedűs, since the party did not make it to the parliament. In fact it performed very poorly.[49] Hegedűs also supported the free school establishment, but warned that it will most likely lead to high selectivity.

> "Who has, at least a little, acquainted himself with the Western-European and American literature on free school establishment, would have found that unless some rules limiting positive or negative discrimination are not attached to the right to establish a school, then the increase of inequalities will lead to serious schooling failures." (Hegedűs, 1990, 344)

After the first democratically elected government has started to work, legal changes in the educational sector have speeded up.

Changes in the education system after the transition, law of 1993

As I have shown there were very mild differences between the party standpoints. However, there are striking differences in what education researchers were communicating

 Andras T. Hegedűs was a renowned social scientist, and expert on inequality and especially on Roma issues. He was a professor of pedagogy at the University of Economics until his death.

[49] The MSZDP has received only 0.03% on the election, but it was mainly due to the fact that most of its candidates stepped down to support other parties (mainly the MSZP).

and how the system evolved. The researchers wanted more equality, and propagated comprehensive education, but the system generated more and more inequality by turning more and more selective. In this section I elaborate on the evolution of the 1993 law on education. This is an important milestone in the modern history of the Hungarian education, since it is the law which is still in act today.

After the election, in the autumn of 1990, a committee led by Ferenc Gazsó the father of the former law of 1985, was appointed to prepare a new law on education. The committee has started to work very quickly and ambitiously and in January 1991 they have presented a concept for a new law. This was the time, when the governing parties have realized the mistake of appointing the "wrong" people to the committee: most of the members were educational experts and coming from the liberal side of the political arena, which, naturally, led to a rather liberal concept. This concept was undesirable for the conservative side, and admittedly the committee had less than desirable societal support, at least not enough to fight with the educational government (Bajomi, 1994). As Gábor Horn, the leader of the educational workshop of the liberal SZDSZ has put it in 1994 "This was an absurd situation: the experts of the government were actually the experts of the liberal opposition parties, the SZDSZ and the Fidesz […] in other words the government gave the issue of education to its own opposition, and then realized that it was a mistake (for itself and not for the people, naturally)" (1994, 56).

After half a year of negotiations and a revised concept by June 1991 the Gazsó committee was dismissed and a new law was started to be prepared by the Ministry of Education. This law was later accepted in 1993, as the LXXIX/1993 law on public education.

For my purposes it is interesting to look at the differences between the committee's concept and the accepted law. The committee's concept was published in a book in 1992 after

it was obvious that it will not become a law, but before the actual law had came into power (Gazsó, Halász, & Mihály, 1992).

The committee's concept

This concept was practically a linear continuation of the law of 1985, and resembled highly the SZDSZ concept on education, adapting a highly decentralized structure, autonomous schools, massive rights of freedoms (school choice and school establishment) and minor central regulatory powers.

It proposed a pluralist educational system, where anyone could establish any type of institution, where the rights of the state was only to provide legal and financial regulatory framework, but no everyday controlling mechanism was allocated to the highest level: the curriculum was a "framework", where the minimum requirements were described, but the actual regulation would have been made by a detailed 3-tier examination system. A "diagnostic" measure early in the primary school to inform teachers and parents about the student's basic skills and abilities, a "basic" exam at the end of the primary level and the maturity exam at the end of the secondary. All schools must be capable of preparing the children to both of the exams and use the diagnostic measure if necessary.

The institutional structure would have been highly liberated. The only requirement was that the established school must allow for transitions between schools, and that it fits the exam structure.

The financing would have been a multi-channel financing, where the yearly budget would have contained the grants to be transferred to the education provider. The provider would have had three types of funds to be allocated to education: academic, per student lump-sum grants that must be transferred directly to the given school; infrastructural grants, where the provider could allocate the money from the state among its educational institutions according

to its will; and other special grants also directly given to the specific schools. Naturally the providers could and should have allocated their own resources to the educational institutions as well.

An interesting part of the concept where it stated that "the state […] facilitates the decrease of social and cultural inequalities with specific decrees. The avoidance of early selection should be facilitated by supplementary lump-sum and targeted financing…" (Gazsó et al., 1992, 258). It seems that its designers were also aware of the negative side of the liberated system.

Almost a decade after the committee was set up Ferenc Gazsó answered a question asking about the reasons why a liberal committee was asked by a conservative government: "There are two reasons. First is that they had no experts. The second reason is that they have probably thought that they can make a consensus with me and this group of experts about the educational policy questions. Then they realized that we are representing our own standpoints, and we can only work within this framework. Then they have realized that they had chosen wrong." (Báthory, 2001, 126)

The law of 1993

"This was the first law which included the whole institutional structure of the education sector, indirectly it facilitated the loosening up of the whole educational structure, but especially the primary school" (Báthory, 2001, 127).

It is unclear whether it was the influence of the Gazsó committee, the law of 1985, simply a need for more freedom after a heavy repression or a simple adjustment to the old law to fit the new social trends, but the new law is a fairly liberal one. Even in light of the fact that the inequality advancing effect of a selective system was clear at the time, and that the law of

1985 had already somewhat de-politicized the system, the new law was liberal. It adopted all of the "reformist" characteristics from the law of 1985, and also added several of the basic institutional advancements of the Gazsó committee.

Namely, the freedom of school establishment, school choice, a relatively great extent of institutional autonomy (although smaller than it was proposed by the committee) was put into blueprint. The newly established local governments became the main education providers – it was their responsibility to provide proper education for everyone between 6 and 16 years of age – but they could contract with private enterprises or the church to supply this service. School choice was extended entirely, everyone had the right to enter any institution, and it was the right of the teaching staff to decide over the acceptance. School autonomy meant that the teachers could pick the modes and ways of teaching, choose the specific books and other materials, and it was the principal, who decided over the employment of the teachers.

The law did not specify the mode of financing. It only specified that the yearly state budget must contain the amount to be spent on education, and that the state must finance the teachers and other major costs. However, in practice the per-student lump-sum grant financing was introduced. Teachers became civil servants, with centrally specified salaries and very secure jobs (hard to fire).

The school structure was "freed", in the sense that the 4+8 and the 6+6 types were allowed, and local governments could decide over the school structure. Specifically the law spelled out that the new basic curriculum – which has not been issued during the first government – would specify the basic knowledge till the end of the grades four, six, eight and ten. These points became the points for possible transfers between schools, and the law also declared that the "education in the academic tracks starts in the 5^{th}, 7^{th} or in the 9^{th} grade, and […] finishes in the 12^{th}" (28.§ (2)). This basically has defined the possible types of tracks.

There were three specific aspects, which for the liberals were too conservative: the relatively great emphasis on the religious education, the re-establishment of the abolished supervisory system, and the use of a centralized basic curriculum instead of a curricular framework. The emphasis on the religious education was not substantial, but it appeared specifically in the law that the participation of the children in religious education must be made possible everywhere (4.§ (4)). The establishment of the new supervisory system was taken more seriously by the opposition. It was seen as an attempt to centralize the system. The newly established *Tankerületi oktatásügyi központok* (TOK - approx.: Centers for regional educational matters) were seen as the "arms of the ministry" (Jánosi, 1994, 51). As a consequence, the first socialist-liberal government has abolished them in 1995 (LXXXV/1995). The debate about the curriculum lasted much longer, and it was not settled until after the turn of the century, and it is a entirely separate story, which is outside of the focus of this paper (see Báthory, 2001, ch. III/4.).

In short, the conservative government further decentralized, liberalized the system, and rather adopted a law which legitimized these processes. The new law helped the proliferation of the school and program types. A report on the education system of the transition countries by the World Bank states: "In Hungary, there are indications that decentralization have progressed too far, resulting in a highly unequal distribution of resources across municipalities. Such effects have serious implications for the quality of education across regions, especially between poorer rural and wealthier urban communities" (Laporte & Ringold, 1997, p27). It is unclear whether the whether it was the influence of the liberal education experts (the SZDSZ program, the Gazsó committee, the law of 1985), or a demand from the conservative electorate (a need for more freedom after a heavy repression, a need to return to the historical status quo), or a demand from the churches. Nevertheless, the new law legitimized a system that had become much more selective than it had been before.

Major party opinions about the structure of the system in 1994

I could not emphasize enough the discrepancy between the communications of the policy makers and the experts and the way the system evolved. While the experts doomed the inequality advancing effect of a selective system, the new system became very selective. By 1994 these discrepancies had become clearer. Some policy makers have explicitly said that this was the price to pay for a decentralized system.

Below I list some opinions by party representatives on the educational issues of first four years of democracy. The interviews conducted by the *Pedagógiai Szemle* in 1989 and 1990 were such a success – according to its publisher – that they were repeated right before the election of 1994. These interviews conducted by the *Új Pedagógiai Szemle* (New Review of Pedagogy), the successor of the *Pedagógiai Szemle*, were much more organized (and thus allowing for less space to elaborate on own ideas), and similar to each other than the previous ones to facilitate comparison. Also the elections and the whole atmosphere at that time necessitated a more politicized, more party and less individual focused approach. However, while before all of the interviewed were in opposition – meaning that none of them had to identify themselves with the communist past, all of them could criticize freely and could present their ideas as they were – in 1994 the governing parties (the MDF, FKgP and KDNP) had to argue in favor of the changes of the past four years, while the opposition had to come up with new ideas for reform and criticism. Accordingly, the interviews of the government are much less informative. Mostly they either praise the law and the changes or blame the opposition and the environment for failures. Similarly, the opposition says not much positive about the past changes – or if they do they attribute it to the pre-government agreements or to the law of 1985 – but at least they come up with new systemic solutions and ideas. For these reasons I will not deal much with the governing party opinions, nor with the criticism of the government, but focus more on the propositions in the interviews with the Fidesz, SZDSZ and MSZP representatives, and to the ideas of Ferenc Gazsó, the "father" of the law of 1985 and

the head of the committee of 1991, who represented the MSZDP (Hungarian Social Democratic Party). Although the MSZDP was not a serious political power it is still interesting to see the reactions of a very influential social-scientist on these issues.

The interviews had some important elements that were raised by almost all of the parties. The first, and for my purposes the most vital, is the disagreement about the 6 or 8 year-long academic schools. The problem of this school type was best captured by Ferenc Gazsó, who claimed that:

> "These effects will be more observable if the spreading down of the gymnasium will continue. The 6 and 8 year-long academic tracks will select some percentage of the 10 or 12 year-old children into this new type of school and the parents of these children will almost all be the better off, more educated parents with higher ambitions. The consequence of this could be that the so called 10-class-primary[50] will be the school for the poor" (Gazsó, 1994, 44).

Although all of the interviewed understood this selectivity problem very clearly, ideological problems arose. As György Jánosi (the MSZP representative) put it "if, for instance, some party considers the freedom to modify school configuration as part of the idea of freedom of education, this would inevitably put a limit on the decreasing of the inequalities" (Jánosi, 1994, 50). Jánosi were unmistakably directing this comment towards the liberals, who criticized the governing conservatives on the basis of centrally supporting the early selective academic tracks, but accepting the fact that these could exist if people demanded them.

> "Ethics and theology as parts of the curriculum were principal elements in the program of the MDF, just as the preference for the 8 year-long academic tracks. The SZDSZ could never accept this latter, firstly because we consider school structure decisions local responsibility, secondly if we must decide centrally about the preferences, then we rather opt for the comprehensive school than the early selective feudal school types. [However] we do not even think to block the operation of the already existing 8-year-long academic schools if there are pupils and parents that choose this" (G. Horn, 1994, 59).

[50] Note: the so called 10-years-primary = 8 years primary and 2 +2 years of vocational training

The representative of the other liberal party of the time, Fidesz, made similar statements: "Although the Fidesz is in favor of the 8-year-long primary school, we do not want to prohibit the 6 or 8-year-long academic schools" (Pokorni, 1994, 9).[51] Pokorni also stated that they would rather create incentives for the schools not to transform into a 6 or 8-year-long academic tracks, and for the parents not to take their children out from the 8-year-long primary. "The 8 year-long primary is […] a possible foundation for a comprehensive school type."

Another important element raised by the opposition parties was the centrally provided examination. The idea revolves around the output regulation: the liberal parties argued, and no-one really disagreed, that a standardized maturity exam has to be provided in order for the system to be fair, and to provide the same incentives for every child. Moreover, the exam would also act as an output regulatory mechanism, so that the schools know what they should teach for. "According to Fidesz, the recent situation must be legalized, that is we must legally recognize the difference between the standard, national, unified [tertiary entrance exam as a maturity exam] and the locally conducted maturity exam" (Pokorni, 1994, 10).

But the devil rests in the details: it was harder than it seemed to agree on a unified knowledge that every child should know. A complaint, concerning this issue, from the governing side was that it was the liberal side that wanted to allocate too much autonomy for the teacher and for the school, because the liberals treated "the value-neutrality of the education of each school as the most important factor. This is simply impossible" (Lukáts, 1994, 21). But the liberals disagreed, and claimed that the conservatives' "Christian-national schools wanted a specific ideology to succeed" (G. Horn, 1994, 59), which they, naturally, could not let happen.

[51] Note: it was the Fidesz, and Pokorni as the minister of education that put a cap on the establishment of early selective academic tracks in 2000.

In short, while the conservative side urged a Christian or nationally oriented value structure to be the base of the unified knowledge, the liberals insisted on a value-free system. And this is the key: none of the sides really had the incentives to halt the process of the spreading down of the academic schools. What is more, none of the serious stakeholders of the education system did. The Liberal parties wanted to serve local demand, and local demand was driven by higher status people. Conservatives backed the Churches in their attempt to reopen the traditional elite academic tracks, and they also assumed that their voters sympathized more with the traditional education system, than with the communist one. The only group of people, who really lost, and are still loosing, from this arrangement are the ones without proper representation. In theory this representation should have come from the socialists. But as we have seen their voters' opinion on the selective system have not been any different from the voters of the other parties. Moreover, it is likely that the issue of education has been placed low on the socialist agenda. In 1994 they have gave the ministry of education to a liberal minister,[52] and although they have been in power for 12 years out of the 20 years of the post-communist transition, only in the last four years had they run the education ministry. Thus I argue that the quasi compromise made by the liberals and the conservatives was implicitly approved by the socialists.

Concluding notes

As we have seen in the previous chapters equality of opportunity in the current Hungarian education system is low by international standards. Highly selective educational institutions, especially the age of selection, play an important role in this. This chapter presented the evolution of the current system and tried to answer: why and how such a system could evolve.

[52] The liberals and the socialists have coalesced in 1994, although the socialists have themselves had more than 50% of the seats in the parliament. The reasons for this are still debated today and are outside the scope of this thesis.

I listed three necessary factors: (1) historical conditions (2) decentralization and (3) democracy.

The two historical conditions are the decentralized administrative structure, and the elite 8-year-long academic schools, the *gimnázium*s. While the first set the stage for a quick and substantive decentralization when the communist system fell apart, the second represented the tradition of high quality education of the good old days.

As a result of democratization and decentralization, higher status people gained much more power in shaping local policies than before. In this chapter I have shown that higher status people are more likely to vote, and voters prefer selective educational policies. Since selective education, including early selective tracks, is beneficial for the higher status people, voters effectively demanded these institutions.

In addition, the two main political powers emerging at the post-communist transition, the conservatives and the liberals, have both supported the establishment of early selective tracks on different ideological grounds, and this quasi compromise was implicitly approved by the socialists. The liberals fostered the decentralization process most vehemently. They argued that the locally driven education institutions are the most adequate for democratizing and de-politicizing the education system. While they realized that a decentralized education system would develop selective institutions with the result of increasing inequalities, they considered raising inequalities as a price to pay for the de-politicized, decentralized system that serves the will of the people most effectively. On the other hand the conservatives supported the early selective tracks because these resembled the good old days. Both their electorate and the churches demanded the return to the "good old system" with the elite 8-year-long *gimnázium*s that have educated the elite for so many years before. The formerly secularized church schools were returned to the churches, and these were allowed to re-form their structure. Finally, although the socialists should have been the representatives of the lower status, they

have done nothing to stop this implicit deal. In fact they gave the ministry of education to the liberals even after they returned to power in 1994.

The puzzle is that education experts and also policy makers alike have foreseen the consequences of the selective system. It was emphasized throughout the transition that early selective tracks would benefit the higher status people, and thus increase inequality. Yet the logic of the mechanism (higher status voters demand selective education, and in a decentralized system this demand is hard to block) together with the fact that the two main powers did not want to stop this process have led to this selective system.

Appendix for chapter 2

Table 32 - Indicators of stratification – country values

Country	age of selection	number of school types	ratio of vocational training	academic selection
AUS	16	1	64.20	1.88
AUT	10	4	79.20	42.63
BEL	12	4	70.30	14.71
CAN	16	1	0.00	4.00
CHE	15	4	65.00	29.14
CZE	11	5	79.50	44.44
DEU	10	4	62.20	12.63
DNK	16	1	53.60	1.04
ESP	16	1	37.20	1.37
FIN	16	1	58.80	0.51
GBR	16	1	69.20	12.83
GRC	15	2	36.00	0.60
HUN	11	3	49.80	35.47
IRL	15	4	28.30	0.76
ISL	16	1	35.10	0.00
ITA	14	3	63.80	1.50
JPN	15	2	25.50	65.73
KOR	14	3	30.70	39.01
LUX	13	4	64.70	37.93
MEX	12	3	10.90	16.15
NLD	12	4	69.10	37.41
NOR	16	1	59.20	0.00
NZL	16	1	0.00	1.84
POL	15	3	54.30	7.83
PRT	15	3	28.50	1.32
SVK	11	5	75.40	36.94
SWE	16	1	52.90	6.63
TUR	11	3	38.00	10.32
USA	16	1	0.00	6.61

Table 33 - Indicators of standardization – centralization – country values

Country	school autonomy	direct government influence	school level decision making	central decision making	national exams	periodical assessment	accountab. index	regular inspection	national inspectorate
AUS	0.03	0.43	24	0	0	1	0.80	1	1
AUT	0.02	0.28	29	27	0	0		0	1
BEL	0.03	0.21	43	0	0	1	1.00	1	1
CAN	0.01	0.43							
CHE	0.04	0.24			0	0	0.00	1	1
CZE	0.06	0.15	60	7	0	0	0.60	1	1
DEU	0.00	0.19	32	4	1	1	0.60	1	1
DNK	0.10	0.18	44	19	1	1	0.80	0	0
ESP	0.02	0.28	28	0	0	0	0.60	1	1
FIN	0.02	0.48	27	2	0	1		0	0
GBR	0.06	0.39	85	11	0	1	0.80	1	1
GRC	0.01	0.51	13	80	1	0	0.20	1	1
HUN	0.08	0.10	68	4	0	1	0.00	0	0
IRL	0.02	0.48			1	0	0.20	1	1
ISL	0.00	0.07	25	25	1	1	0.75	1	0
ITA	0.03	0.10	46	23	0	1	0.40	0	0
JPN	0.13	0.29	23	13	0	0	0.00	0	0
KOR	0.20	0.05	48	9	1	1	0.50	1	1
LUX	0.00	0.38	34	66	1	1	0.75	1	0
MEX	0.05	0.19	22	30	1	1	0.40	1	0
NLD	0.03	0.21	100	0	1	0	0.60	1	1
NOR	0.05	0.06	37	32	1	1	0.75	0	0
NZL	0.01	0.51	75	25	1	0	0.80	1	1
POL	0.33	0.02					0.00		
PRT	0.01	0.44	41	50	1	1	0.60	1	1
SVK	0.02	0.08	50	33			0.00		
SWE	0.26	0.04	47	18	1	1	0.80	1	1
TUR	0.01	0.20	24	49	1	1	0.25	1	1
USA	0.06	0.42			0	1	1.00	0	0

Table 34 - Hierarchical linear regressions. All stratifying indicators

Mathematical and Reading Literacy, PISA 2003 Country level variables		
Effects on the intercept	age of selection	9.85*
		(5.07)
	number of school types	-1.37
		(4.14)
	ratio of vocational training	0.601
		(0.39)
	academic selection	0.717
		(0.48)
Effects on the ESCS	age of selection	-1.34*
		(0.71)
	number of school types	-0.68
		(1.40)
	ratio of vocational training	0.026
		(0.05)
	academic selection	0.0004
		(0.05)
	U_intcpt	33.00
	U_escs	5.12
	R	88.17
Level 1 units: 219043; Level 2 units: 29		

Note: Coefficients for individual level variables are not shown. The titles of the regressions are the variables included as country level independent variables in the basic model. Missing values are imputed and controlled for; robust standard errors are in parentheses; ***p<0.01; **p<0.05; *p<0.1. (r) - reverse hypothesized relationship

Table 35 - Pairwise correlations of the stratification and standardization indicators

	age of selection	number of school types	ratio of vocational training	academic selection
school autonomy (r)	0.19	-0.10	0.01	0.14
	(0.33)	(0.59)	(0.96)	(0.47)
direct govt. Influence	0.34	-0.26	-0.37	-0.25
	(0.08)	(0.18)	(0.05)	(0.19)
school level decision making (r)	-0.09	0.15	0.21	0.20
	(0.69)	(0.47)	(0.32)	(0.34)
central decision making	0.01	0.09	-0.24	-0.13
	(0.97)	(0.68)	(0.26)	(0.55)
national exam	0.02	0.00	-0.32	-0.26
	(0.94)	(1.00)	(0.11)	(0.20)
periodical assessment	0.05	-0.27	0.02	-0.34
	(0.80)	(0.18)	(0.91)	(0.09)
accountability index	0.29	-0.44	-0.03	-0.39
	(0.15)	(0.03)	(0.87)	(0.05)
regular inspection	-0.07	0.25	-0.04	-0.11
	(0.75)	(0.22)	(0.84)	(0.60)
national inspectorate	-0.17	0.30	0.18	-0.01
	(0.40)	(0.14)	(0.37)	(0.96)

note: p-values are in parentheses

Table 36 - Hierarchical linear regressions. Stratification and standardization

Mathematical and Reading Literacy, PISA 2003 Country level variables			
Effects on the intercept	age of selection	3.27	4.03
		(3.71)	(3.27)
	accountability index	32.76*	
		(17.55)	
	central decision making		-0.81**
			(0.37)
Effects on the ESCS	age of selection	-0.87*	-1.16**
		(0.43)	(0.44)
	accountability index	-1.61	
		(2.70)	
	central decision making		-0.05
			(0.04)
	U_intcpt	34.77	33.85
	U_escs	5.05	4.84
	R	87.95	88.03
	Level 1 units:	181434	169689
	Level 2 units:	26	24

Note: Coefficients for individual level variables are not shown. The titles of the regressions are the variables included as country level independent variables in the basic model. Missing values are imputed and controlled for; robust standard errors are in parentheses; ***p<0.01; **p<0.05; *p<0.1. (r) - reverse hypothesized relationship

Appendix for chapter 3

Table 37 – descriptive statistics (SES, reading score and adjusted reading score) of children changing tracks

	10th grade						
8th grade	*General school*	*8-yr-ac*	*6-yr-ac*	*4-yr-ac*	*vocational sec.*	*voc. Training*	*special voc.*
	SES mean	0.38	0.33	0.38	-0.12	-0.84	-1.16
	(sd)	(0.75)	(0.91)	(0.89)	(0.85)	(0.90)	(1.28)
	Read score. 8th grade. mean	527.84	567.01	558.14	495.36	412.26	357.46
	(sd)	(81.00)	(91.32)	(83.59)	(78.95)	(72.14)	(73.20)
	Adjusted score (std). mean	0.28	0.25	0.44	0.01	-0.78	-1.02
	(sd)	0.72	0.99	0.86	0.89	0.90	0.92
	freq.	67	101	17,708	21,878	10,289	165
	6-yr-ac						
	SES mean	1.13	0.80	0.58	0.33	-0.20	
	(sd)	(0.65)	(0.79)	(0.98)	(0.90)	(0.87)	
	Read score. 8th grade. mean	582.03	593.65	574.63	551.83	515.40	
	(sd)	(72.59)	(77.92)	(82.45)	(84.03)	(73.27)	
	Adjusted score (std). mean	0.32	0.65	0.51	0.19	-0.02	
	(sd)	(0.57)	(0.80)	(0.78)	(0.87)	(0.65)	
	freq.	9	2,887	413	124	10	
	8-yr-ac						
	SES mean	0.78	0.30	0.69	0.49	-0.06	
	(sd)	(0.80)	(0.76)	(0.87)	(0.78)	(0.77)	
	Read score. 8th grade. mean	604.10	556.59	592.77	537.74	482.47	
	(sd)	(76.08)	(116.84)	(76.62)	(77.14)	(128.63)	
	Adjusted score (std). mean	0.74	0.55	0.64	0.16	-0.71	
	(sd)	(0.73)	(1.19)	(0.77)	(0.77)	(1.14)	
	freq.	1,612	12	228	78	10	

Appendix for chapter 4

Figure 15 - The Educational system in Hungary before and after the transition

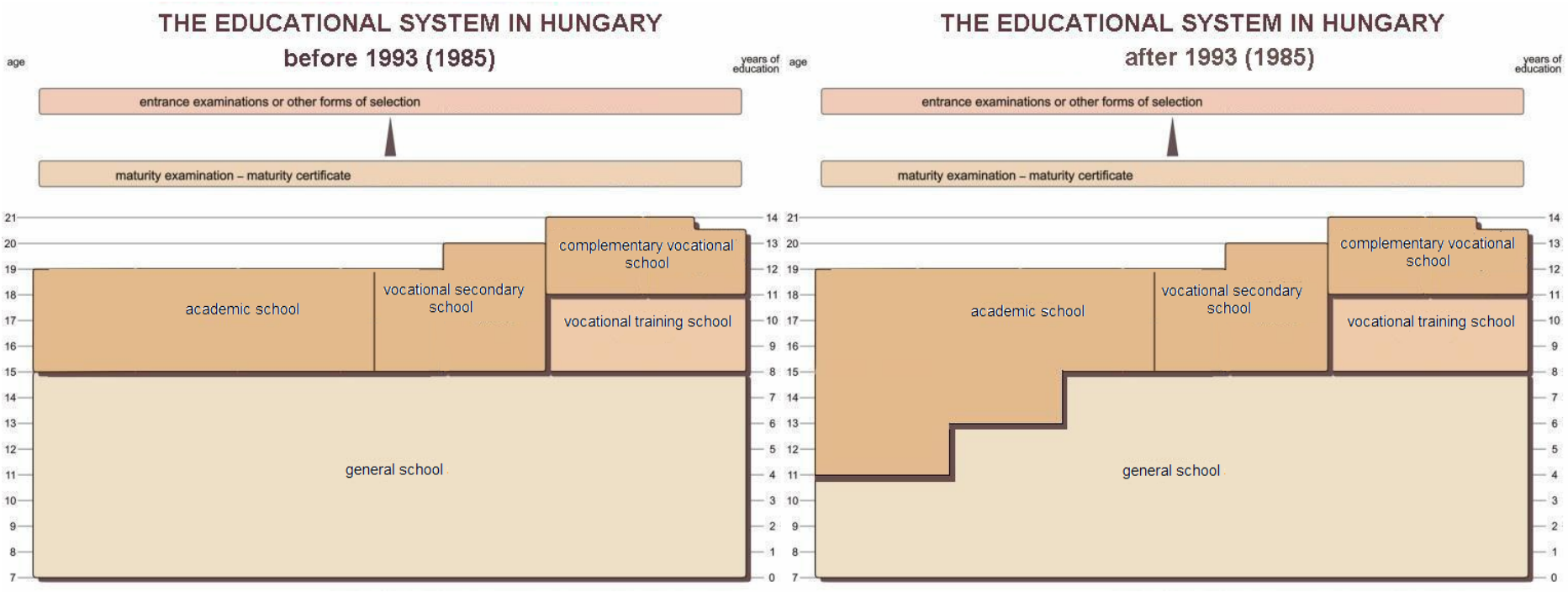


Table 38 – Opinions about selective educational institutions of those, who voted for parties in the first parliament (1990), controls off

1990	age of selection	early tracking	school for the gifted	education of the gifted, rank	education of the disadvantaged, rank	free school choice	free book choice (curriculum)	change is needed	comprehensive ed.
voted for parties in the first parliament	-0.277	0.083***	0.118***	0.431***	0.006	0.147***	0.115***	0.156***	-0.064*
	(0.217)	(0.031)	(0.034)	(0.133)	(0.134)	(0.031)	(0.034)	(0.035)	(0.034)
Constant	12.455***	0.672***	0.461***	3.735***	3.424***	0.608***	0.443***	0.502***	0.550***
	(0.178)	(0.025)	(0.027)	(0.108)	(0.109)	(0.026)	(0.027)	(0.028)	(0.027)
Controls	off	off	off	off	off	off	off	off	off
Observations	858	926	913	876	875	954	902	878	911
R-squared	0.00	0.01	0.01	0.01	0.00	0.02	0.01	0.02	0.00
Robust standard errors in parentheses									
* significant at 10%; ** significant at 5%; *** significant at 1%									

Table 39 – Opinions about selective educational institutions of those, who voted for parties in the first parliament (1995), controls off

1995	age of selection	early tracking	school for the gifted	education of the gifted, rank	education of the disadvantaged, rank	free school choice	free book choice (curriculum)	change is needed	comprehensive ed.
voted for parties in the second parliament	-0.352*	0.053**	0.023	0.151	0.203*	0.003	0.052	0.050	-0.084***
	(0.185)	(0.025)	(0.033)	(0.113)	(0.118)	(0.019)	(0.033)	(0.033)	(0.032)
Constant	13.537***	0.789***	0.597***	4.558***	4.348***	0.906***	0.501***	0.397***	0.672***
	(0.126)	(0.018)	(0.023)	(0.078)	(0.083)	(0.013)	(0.023)	(0.023)	(0.022)
Controls	off	off	off	off	off	off	off	off	off
Observations	804	933	893	980	982	981	899	872	898
R-squared	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Robust standard errors in parentheses									
* significant at 10%; ** significant at 5%; *** significant at 1%									

Table 40 - Opinions about selective educational institutions of those, who voted for parties in the first parliament (1990), controls on

1990	age of selection	early tracking	school for the gifted	education of the gifted, rank	education of the disadvantaged, rank	free school choice	free book choice (curriculum)	Change is needed	Comprehensive ed.
voted for parties in the first parliament	-0.125	0.043	0.062*	0.297**	0.215	0.116***	0.063*	0.161***	-0.037
	(0.219)	(0.033)	(0.036)	(0.142)	(0.137)	(0.033)	(0.036)	(0.036)	(0.036)
Constant	13.548***	0.756***	0.374***	3.584***	3.792***	0.659***	0.458***	0.789***	0.602***
	(0.677)	(0.094)	(0.113)	(0.401)	(0.422)	(0.098)	(0.112)	(0.109)	(0.111)
Controls	on	on	on	on	on	on	on	on	on
Observations	803	867	857	814	813	890	851	819	854
R-squared	0.10	0.06	0.07	0.04	0.10	0.09	0.08	0.10	0.05
Robust standard errors in parentheses									
* significant at 10%; ** significant at 5%; *** significant at 1%									
controls are: gender, age, level of educ., employment status, residence, income, religion, is a student, have children									

Table 41- Opinions about selective educational institutions of those, who voted for parties in the first parliament (1995), controls on

1995	age of selection	early tracking	school for the gifted	education of the gifted, rank	education of the disadvantaged, rank	free school choice	free book choice (curriculum)	change is needed	Comprehensive ed.
voted for parties in the second parliament	-0.206	0.058*	0.024	0.109	0.208	0.018	0.041	0.062	-0.043
	(0.210)	(0.030)	(0.038)	(0.132)	(0.141)	(0.023)	(0.038)	(0.039)	(0.037)
Constant	13.722***	0.779***	0.616***	4.185***	3.957***	0.900***	0.781***	0.550***	0.551***
	(0.585)	(0.087)	(0.110)	(0.413)	(0.399)	(0.064)	(0.109)	(0.114)	(0.105)
Controls	on	on	on	on	on	on	on	on	on
Observations	635	727	701	762	764	764	700	685	707
R-squared	0.07	0.06	0.10	0.02	0.05	0.05	0.10	0.04	0.09
Robust standard errors in parentheses									
* significant at 10%; ** significant at 5%; *** significant at 1%									
controls are: gender, age, level of educ., employment status, residence, income, religion, is a student, have children									

Table 42 - Opinions about selective educational institutions of those, who voted for parties in the first parliament (1990), controls off, party fixed effects

1990	age of selection	early tracking	school for the gifted	education of the gifted, rank	education of the disadvantaged, rank	free school choice	free book choice (curriculum)	change is needed	comprehensive ed.
mdf	-0.296	0.089	0.004	-0.191	0.251	0.027	-0.070	0.122*	-0.196***
	(0.427)	(0.066)	(0.082)	(0.291)	(0.309)	(0.069)	(0.075)	(0.066)	(0.074)
szdsz	-0.657*	0.131**	0.123	0.103	-0.194	0.084	0.041	0.177***	-0.234***
	(0.392)	(0.062)	(0.078)	(0.268)	(0.276)	(0.064)	(0.070)	(0.062)	(0.069)
fkgp	-0.312	-0.055	-0.005	-0.358	0.787**	-0.037	-0.218**	0.011	-0.129
	(0.519)	(0.078)	(0.098)	(0.362)	(0.368)	(0.078)	(0.087)	(0.085)	(0.089)
mszp	-0.382	-0.044	-0.159	-0.007	0.267	0.006	-0.081	0.052	-0.208**
	(0.623)	(0.099)	(0.113)	(0.416)	(0.400)	(0.099)	(0.108)	(0.098)	(0.099)
fidesz	-0.397	0.094	-0.005	-0.214	-0.213	0.039	0.098	0.100	-0.157**
	(0.399)	(0.060)	(0.076)	(0.271)	(0.277)	(0.064)	(0.069)	(0.063)	(0.067)
kdnp	-0.157	-0.121	-0.049	-0.688*	0.132	0.005	-0.118	0.091	-0.097
	(0.663)	(0.103)	(0.112)	(0.375)	(0.430)	(0.097)	(0.106)	(0.098)	(0.106)
voted for parties in the first parliament	0.160	0.012	0.101	0.611**	-0.083	0.111	0.140*	0.032	0.136*
	(0.461)	(0.070)	(0.085)	(0.307)	(0.315)	(0.073)	(0.078)	(0.071)	(0.077)
controls	off	off	off	off	off	off	off	off	off
Constant	12.455***	0.672***	0.461***	3.735***	3.424***	0.608***	0.443***	0.502***	0.550***
	(0.179)	(0.025)	(0.027)	(0.109)	(0.109)	(0.026)	(0.027)	(0.028)	(0.027)
Observations	858	926	913	876	875	954	902	878	911
R-squared	0.01	0.03	0.03	0.02	0.02	0.03	0.04	0.03	0.02
Robust standard errors in parentheses									
* significant at 10%; ** significant at 5%; *** significant at 1%									

Table 43 - Opinions about selective educational institutions of those, who voted for parties in the first parliament (1995), controls off, party fixed effects

1995	age of selection	early tracking	school for the gifted	education of the gifted, rank	education of the disadvantaged, rank	free school choice	free book choice (curriculum)	change is needed	comprehensive ed.
mdf	-0.892*	0.053	0.043	0.235	0.111	-0.016	0.084	0.104	-0.262***
	(0.495)	(0.060)	(0.087)	(0.298)	(0.354)	(0.058)	(0.091)	(0.099)	(0.089)
szdsz	-0.979**	0.123***	0.112*	-0.045	-0.192	0.050	0.205***	0.151**	-0.140**
	(0.386)	(0.046)	(0.067)	(0.244)	(0.263)	(0.039)	(0.068)	(0.073)	(0.069)
fkgp	-0.661	-0.014	-0.133	0.098	-0.047	-0.130**	0.127	0.068	0.019
	(0.456)	(0.058)	(0.083)	(0.284)	(0.322)	(0.058)	(0.082)	(0.090)	(0.085)
mszp	-0.814*	0.048	-0.061	0.423	0.026	0.008	0.053	-0.028	0.040
	(0.430)	(0.053)	(0.073)	(0.265)	(0.272)	(0.037)	(0.076)	(0.081)	(0.076)
fidesz	-0.722*	0.073	0.032	-0.075	0.197	-0.004	0.147*	0.056	-0.142*
	(0.413)	(0.053)	(0.072)	(0.273)	(0.297)	(0.048)	(0.076)	(0.081)	(0.077)
kdnp	-0.594	0.154***	-0.098	-0.035	0.718**	0.005	0.050	0.107	0.084
	(0.478)	(0.055)	(0.104)	(0.356)	(0.327)	(0.056)	(0.108)	(0.118)	(0.094)
voted for parties in the second parliament	0.565	-0.026	0.026	0.025	0.158	0.010	-0.089	-0.028	-0.009
	(0.408)	(0.052)	(0.072)	(0.262)	(0.284)	(0.043)	(0.075)	(0.081)	(0.075)
controls	off	off	off	off	off	off	off	off	off
Constant	13.537***	0.789***	0.597***	4.558***	4.348***	0.906***	0.501***	0.397***	0.672***
	(0.126)	(0.018)	(0.023)	(0.078)	(0.083)	(0.013)	(0.023)	(0.023)	(0.022)
Observations	804	933	893	980	982	981	899	872	898
R-squared	0.01	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.03
Robust standard errors in parentheses									
* significant at 10%; ** significant at 5%; *** significant at 1%									

Table 44 - Opinions about selective educational institutions of those, who voted for parties in the first parliament (1990), controls on, party fixed effects

1990	age of selection	early tracking	school for the gifted	education of the gifted, rank	education of the disadvantaged, rank	free school choice	free book choice (curriculum)	change is needed	comprehensive ed.
mdf	-0.355	0.046	0.030	-0.281	0.295	-0.021	-0.106	0.101	-0.175**
	(0.483)	(0.068)	(0.084)	(0.298)	(0.323)	(0.067)	(0.074)	(0.068)	(0.077)
szdsz	-0.587	0.073	0.107	0.056	-0.005	0.026	-0.012	0.157**	-0.198***
	(0.451)	(0.063)	(0.079)	(0.271)	(0.287)	(0.063)	(0.069)	(0.062)	(0.075)
fkgp	-0.574	0.010	0.070	-0.334	0.583	-0.013	-0.181**	0.040	-0.136
	(0.544)	(0.081)	(0.101)	(0.368)	(0.384)	(0.076)	(0.089)	(0.086)	(0.095)
mszp	-0.403	-0.076	-0.145	-0.050	0.288	-0.008	-0.085	0.037	-0.161
	(0.710)	(0.101)	(0.113)	(0.416)	(0.434)	(0.099)	(0.103)	(0.106)	(0.100)
fidesz	-0.385	0.030	-0.034	-0.260	-0.150	-0.019	0.025	0.078	-0.140*
	(0.463)	(0.063)	(0.078)	(0.280)	(0.300)	(0.064)	(0.068)	(0.067)	(0.073)
kdnp	-0.655	-0.122	0.022	-0.767*	0.107	-0.036	-0.122	0.110	-0.043
	(0.708)	(0.108)	(0.115)	(0.392)	(0.430)	(0.095)	(0.105)	(0.104)	(0.109)
voted for parties in the first parliament	0.370	0.017	0.033	0.548*	0.045	0.128*	0.138*	0.054	0.133*
	(0.512)	(0.072)	(0.087)	(0.313)	(0.329)	(0.070)	(0.077)	(0.073)	(0.080)
Controls	on	on	on	on	on	on	on	on	on
Constant	13.602***	0.745***	0.395***	3.587***	3.895***	0.660***	0.423***	0.785***	0.625***
	(0.700)	(0.096)	(0.115)	(0.407)	(0.422)	(0.099)	(0.113)	(0.112)	(0.113)
Observations	803	867	857	814	813	890	851	819	854
R-squared	0.10	0.06	0.08	0.05	0.10	0.09	0.09	0.10	0.06
Robust standard errors in parentheses									
* significant at 10%; ** significant at 5%; *** significant at 1%									
controls are: gender, age, level of educ., employment status, residence, income, religion, is a student, have children									

Table 45 - Opinions about selective educational institutions of those, who voted for parties in the first parliament (1995), controls on, party fixed effects

1995	age of selection	early tracking	school for the gifted	education of the gifted, rank	education of the disadvantaged, rank	free school choice	free book choice (curriculum)	change is needed	comprehensive ed.
mdf	-0.735	0.048	0.047	0.454	0.241	-0.008	0.103	0.179	-0.209**
	(0.514)	(0.070)	(0.083)	(0.309)	(0.391)	(0.062)	(0.092)	(0.112)	(0.100)
szdsz	-0.585	0.062	0.055	-0.146	0.046	0.013	0.201***	0.139*	-0.078
	(0.410)	(0.054)	(0.068)	(0.277)	(0.288)	(0.046)	(0.076)	(0.077)	(0.075)
fkgp	-0.763*	-0.006	-0.060	0.037	0.035	-0.091	0.288***	0.090	-0.026
	(0.457)	(0.069)	(0.085)	(0.322)	(0.347)	(0.065)	(0.090)	(0.102)	(0.100)
mszp	-0.975**	0.017	0.011	0.377	0.226	0.005	0.117	-0.026	0.038
	(0.474)	(0.065)	(0.079)	(0.309)	(0.300)	(0.045)	(0.089)	(0.087)	(0.086)
fidesz	-0.100	-0.016	-0.002	-0.112	0.295	-0.040	0.093	0.061	-0.031
	(0.449)	(0.067)	(0.076)	(0.322)	(0.355)	(0.061)	(0.090)	(0.091)	(0.093)
kdnp	-0.452	0.107	-0.064	0.154	1.494***	-0.037	0.056	0.167	0.115
	(0.623)	(0.074)	(0.119)	(0.440)	(0.383)	(0.064)	(0.124)	(0.139)	(0.114)
voted for parties in the second parliament	0.523	0.028	0.016	0.004	-0.049	0.040	-0.140	-0.023	-0.012
	(0.447)	(0.065)	(0.077)	(0.304)	(0.315)	(0.052)	(0.087)	(0.089)	(0.088)
controls	on	on	on	on	on	on	on	on	on
Constant	13.606***	0.791***	0.617***	4.290***	4.017***	0.911***	0.773***	0.536***	0.569***
	(0.589)	(0.086)	(0.110)	(0.418)	(0.403)	(0.064)	(0.109)	(0.116)	(0.106)
Observations	635	727	701	762	764	764	700	685	707
R-squared	0.08	0.07	0.11	0.03	0.07	0.06	0.12	0.05	0.11
Robust standard errors in parentheses									
* significant at 10%; ** significant at 5%; *** significant at 1%									
controls are: gender, age, level of educ., employment status, residence, family status, income, wealth, religion, is a student, have children									

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