

Research Note

Are some educational systems more equitable than others?

by Daniel Horn

Abstract:

This research note examines the relationship between systems of education across the EU and the issue of equality of opportunity, based largely on a review of the existing literature. The broad definition of equity used by some studies (e.g. OECD equity reports) is too general for the purpose of this brief. The three common dimensions of equality – socio-economic, gender and immigrant – will be simplified to only one throughout the paper. Most recent educational research on this topic focuses only on the socio-economic dimension. Literature on the impact of institutions on the educational performance of men and women or immigrants is sparse. This research note, like most recent literature, will focus on socio-economic equity and will implicitly assume that the observations made would also fit – at least partially – the other two dimensions as well.

Key points:

- Inequality of opportunity in education is probably impossible to eliminate completely and policy should instead focus on reducing inequalities.
- changing the institutional arrangements in systems of education is only one way to reduce inequalities but it is probably the most straightforward and amenable way
- Systems under which children are 'tracked' or streamed at an early age, vocational tracking and other means of grouping children into different schools tend to promote the reproduction of inequalities
- There is as yet little empirical evidence to indicate the effect on inequality of free choice of schools, pre-school education, the length of studies and increasing the accountability of schools, though there is a large body of theoretical literature.

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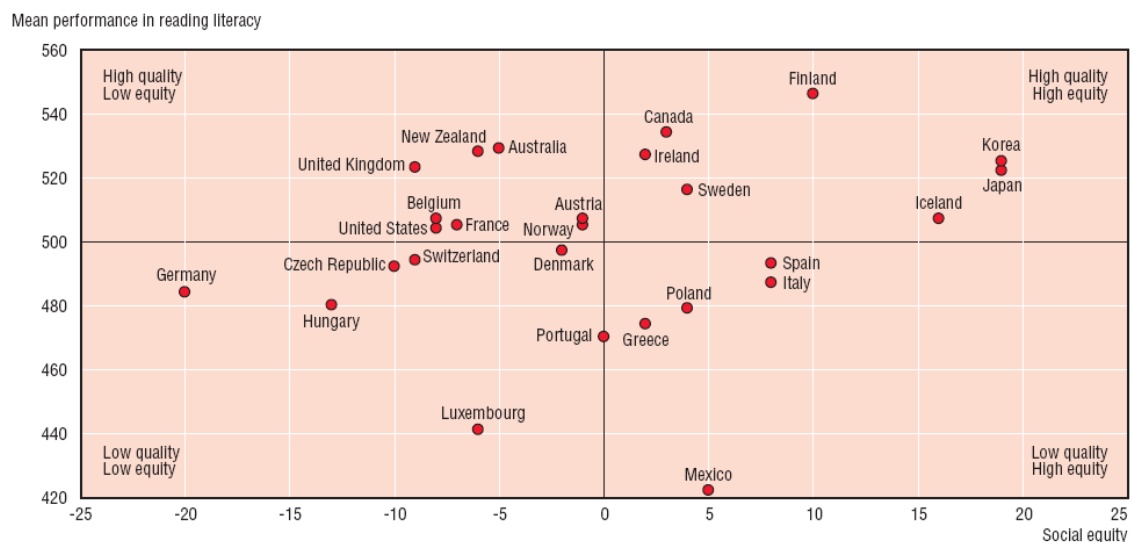
Are some educational systems more equitable than others?¹

1. The issues

Although the institutional framework of the education system is not necessarily the main driving-force between the social background of children and their future social status, institutional arrangements are one of the most straightforward aspects for policy to use in order to influence social mobility. (cf. Erikson and Johnsson 1996, School Factors 2005)

Any assumption that effectiveness and equality in education are negatively correlated has been frequently demonstrated to be incorrect. Empirical research (Knowledge and Skills 2001, Learning for Tomorrow's 2004; Hanushek and Woessmann 2005) as well as theoretical modelling (Mejia and St Pierre 2004) have shown that though it might be appealing to consider that a school system either provides the most suitable education for each child and accordingly is primarily aimed at being most effective, or endeavours to make the system as equal as possible, by offering each the same education, (the first being highly diversified and the second highly homogeneous, it is not the case in practice. (See figure 1.)

1. Figure Relationship between the average performance of students and social equity



Source: Education and Equity (2004, 5)

Although cross-sectional data shows that the association between educational equality² and effectiveness is positive, the true relationship between the two is unknown and still to be discovered. (cf. Brunello and Gianni 2000) 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. (Hanushek and Woessmann 2005) It is, therefore, acceptable to focus solely on the question of equity without considering efficiency issues.

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² 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 and Wolter 2004, 5) See the OECD [homepage](#) for the reports.

The brief begins with a clarification of the notion of equity as understood in relation to education, a quick illustration of inequalities in Europe follows, 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 conclusions³.

2. The facts

The context of equity

Most empirical educational research uses the effect of some measure of parents' socio-economic or social status on the educational achievement of their children to proxy equality of opportunity (e.g. School factors... 2005; Iannelli 2002; Bishop and Mane 2004; Hanushek and Woessmann 2005; Ammermueller 2005). The higher the effect of these measures on the outcome, the greater the degree of the inequality of the system. These approaches assume directly or indirectly that educational performance (test scores) or attainment (level of finished schooling) is closely connected to future status or living standards.

Other – mainly sociological – studies group people into social classes and assess the relationship between the parents' class and their children's class. (Goldthorpe 1996; Breen and Goldthorpe 2001) Here the less the association between the two the lower the inequality of the system, or the higher social mobility.

Other measures of equity in education include equality of treatment, equality of achievement or academic success. The first is more an input measure while the second two are more output oriented. (cf. Demeuse et al. 2003) Nevertheless due to data limitations and/or theoretical considerations, most studies equate equality of opportunity with equity.

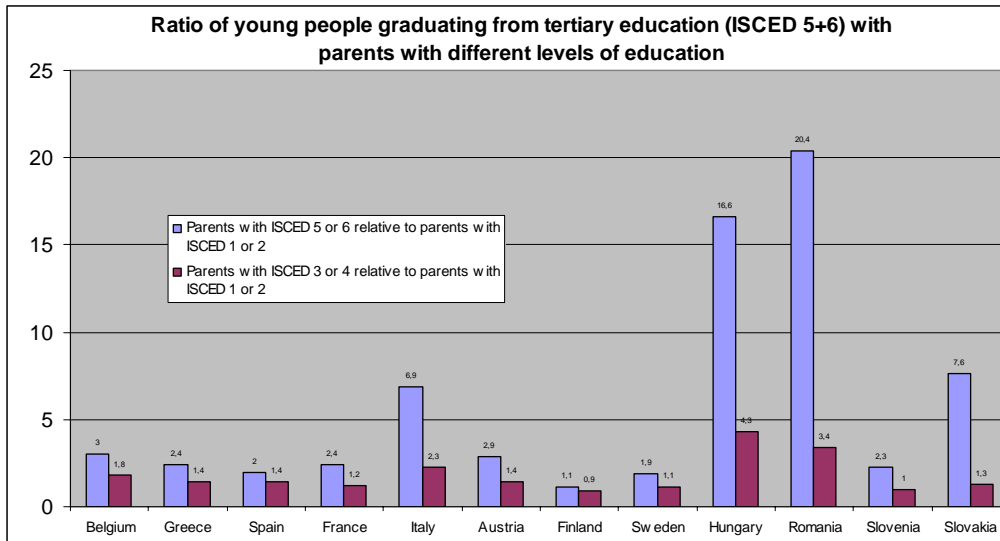
An additional issue of policy concern is that perfect equality of opportunity (i.e. no effect of social background on attainment), or perfect intergenerational mobility (i.e. disassociation of the class of children from that of their parents) does not exist; this "would require a degree of intervention into the lives of the children and families that most societies might find untenable." (Corak 2006, 14) Furthermore, some argue that inequalities in opportunity can be separated into "ethically offensive" and "ethically acceptable" parts (Checchi and Peragine 2005), meaning that differences in educational achievement can be attributed to factors within and beyond one's personal responsibility; thus there is an amount of inequality that can be accepted as just. Consequently a policy should focus on the reduction of inequalities and not on their complete elimination.

Equality of opportunity in Europe

Both Eurostat and OECD data provides an apparent picture on how much systems of education differ in terms of equality. Data from a special module included as part of the EU Labour Force Survey in 2000 enable the proportion of young graduate students (with ISCED 5 or 6) with also parents who are also graduates to be compared with the proportion with parents with only basic education (ISCED 1 or 2). The smaller the difference between the two proportions, the greater the equality of opportunity provided by the education system. Based on this measure countries with low equality, in figure 2, are Romania, Hungary, Slovakia and Italy. On the other, hand, countries with high equality are Finland, Sweden, France and Spain.

³ Most of the cited empirical papers use international or European data, while the papers using modeling techniques are mainly American. When empirical papers use US data it is explicitly mentioned, since their conclusions are of less relevance, due to the dissimilarity between the American and the European education systems.

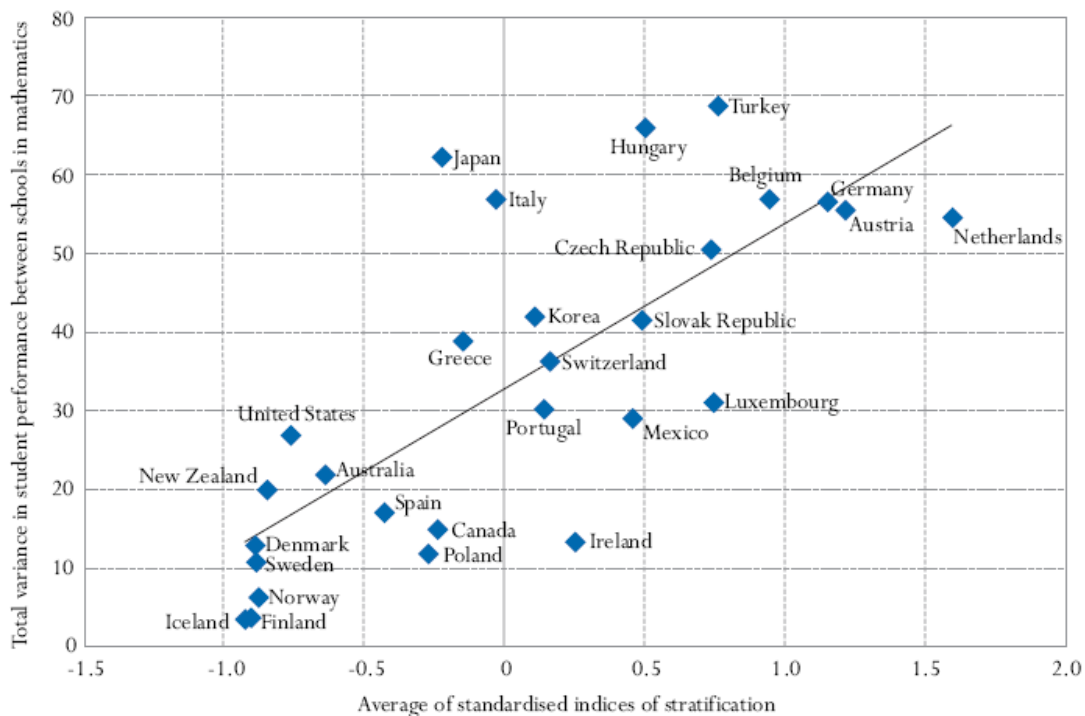
2. Figure



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

The OECD PISA studies have demonstrated that different school systems perform differently and also that their effect on parental influence on performance varies. It is shown that although more differentiated systems perform less well on average, the gap between these and the more comprehensive systems is not statistically significant. However the differentiated systems show much higher variation in student performance (figure 3), especially when comparing low and high status students, but also when comparing different schools or school types. (Education at a Glance 2005)

Figure 3. Figure Stratification and student performance in Mathematics (2003)



Source: Education at a Glance (2005, 403)

There is considerable variation in the differentiation of education systems across the EU; about one-third of EU Member States use comprehensive – single programme – education, while there are many that have four or more school types at the age of 15. (e.g. Austria, Germany, Czech Republic, Hungary, Ireland, Netherlands, Luxembourg, Slovakia) Additionally, selection to these programmes might occur as early as the age of 10. In the countries concerned 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. In this way, the school system helps to reproduce differences rather than helping to reduce them. (School Factors... 2005, Education at a Glance 2005)

The OECD PISA study highlights and advocates a separate field of study within education research, namely one that examines how different education systems and institutional arrangements advance or reduce inequalities in education. (e.g. Hanushek and Woessmann 2005, Ammermueller 2005)

What factors explain variations in educational inequality?

The OECD has estimated that “in the OECD countries around 50 per cent of the between-school variance in reading literacy is explained by student background” (School factors... 2005, 88), and an additional 20% can be attributed to school context variables. Only around 5% is, therefore, attributed to factors open to policy influence. The question arises from this of why the impact of social status is so large. There are many possible explanations, the nature of the education system being only one of them.

Most studies explain inequalities in terms of the characteristics of individuals, including inherited genetic factors, differences in home environment, class and cultural bias of schools, health and nutritional differences or variations in household size. (Erikson and Jonsson 1996; Bourdieu and Passeron 1977; Coleman 1988; Bowles Gintis and Groves 2005). In all of these studies, education is an important link – often the most important – between a person’s initial social class and their later class. Although these theories explain the possible sources of inequalities at the micro level, policy makers – and students of education – are still considering the question of how the “macro” channels can be altered in order to reduce inequalities.

An important “macro” study is Shavit and Blossfeld’s (1993) *Persistent Inequality* volume which examined thirteen countries to assess the impact of expansion in education on educational 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 and Shavit 1992, 26) A similar conclusion was reached by Mare (1981), who argues that the later students are observed in school, the smaller the background effect tends to be.

Another body of research, which is related to these latter observations, examines how different institutional arrangements across countries modify the effect of social background on educational attainment.

Institutional differences: the road for macro policy

While the international surveys (PISA, TIMSS, PIRLS) focus on countries, and try to draw conclusions from differences between them, a new wave of research has started to use these large datasets to investigate the effects of institutions on educational effectiveness and equality. 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; Arum and Shavit 1994; Hanushek and Woessmann 2005; Ammermueller 2005; Shütz, Ursprung and Woessmann 2005; Jenkins, Micklewright and Schnepf 2006). However other aspects of institutions, which remain to be fully investigated – such as free school choice; pre-school, kindergarten; the length of studies; the age of entering school; and increased academic standards – are also likely to affect educational equality of opportunity. (e.g. Robertson and Symons 2003, Fertig and Kluge 2005, Shütz et al. 2005)

Stratification: Tracking, Sorting, Streaming, Grouping

Tracking, streaming, sorting or grouping are the terms that authors use to refer to the phenomena that children with similar ability or socio-economic characteristics study in separate groups, classes or schools. Although the causal mechanisms at work under a stratified system that serve to reproduce inherent differences in a society are not well established, the empirical evidence is convincing.

The logic behind the effect of early tracking or selection promoting or reinforcing inequality is that the earlier children are separated by ability or merit, the more their family background will have an impact

on this ability, and so the more homogeneous will be the children who go to the same school. (Dustmann 2004) Lower status families will also tend to consider this choice a “hurdle” rather than a real option and so family status will have a greater impact on this choice. (Erikson and Jonsson 1996) Moreover if similar status children are grouped together, peer-group effect will be less in lower status schools; 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 more. (Betts and Skholnik 1998) In addition to this, if early selection groups children into different tracks that are valued differently by the labour market, family background will also have a major impact on the future earnings of children. (Dustmann 2004) Hence the more stratified the a system, the more disadvantaged families are likely to lose out.

One of the most common forms of this separation is vocational tracking, where students are placed into schools with different curricula, usually one providing vocational training and the other general or academic education aimed at preparing students to continue their studies in post-secondary education. (as, for example, in Germany, Austria, Hungary, and the Czech Republic)

As a fore-runner of this wave of study the “tracking as reproduction” research has already started a similar line of thought. Arum and Shavit (1994) summarising this literature and carrying out their own analysis on a large pool of US data find that although the hypothesis that curricular tracking does reproduce inequalities is supported, some form of vocational education helps disadvantaged students to lower their future probability of being unemployed. In other words, although vocational tracking does have the socially harmful consequence of entrenching inequality, it offers a positive benefit in the form lower unemployment.

Country level tacking was also the focus of a study by Hanushek and Woessmann’s (2005) using six international student assessments (including PISA) to estimate its effect on inequality. They conclude that “the results consistently indicate that early tracking increases inequality in achievement,” Moreover, they find no evidence to support any tirade-off between effectiveness and equality. (13)

Correspondingly Ammermueller (2005) shows that “streaming and private education benefit the performance of students from a better social background” (27), and as a consequence it hinders those from a worse social background. A similar conclusions are reached in a study by Jenkins et al. (2006), who calculate two different indices of segregation (a dissimilarity index and the square root index) for 27 rich industrialised countries. They show that these indices are the highest for those countries – like Austria, Germany, Hungary – where there are separate school tracks for academic general education and vocational training. Most of the variation in social background, and thus the high indices, is accounted for by differences between, rather than within, the tracks.

A model formulated by Shütz et al. (2005) on tracking problems and other systemic features also comes to similar conclusions. Tracking which occurs at a later age, together with other features (see below), helps to lower the effect of family background on children’s performance.

The results of a case study by Meghir and Palme (2004) of Sweden, where the major educational reform of the 1950s abolished the selection of children into different tracks and also imposed a national curriculum on schools as well as lengthening compulsory schooling to 9 years from 7 or 8, show that the reform increased both the attainment and later earnings of children with low educated parents. It also, however, lowered the earnings of those with highly educated parents, though the overall effect was more positive than negative.

School choice

The impact of free school choice in education on equality of opportunity is theoretically well developed, but as yet there is a shortage of empirical studies.

Some authors have argued that free school choice will increase effectiveness in education (e.g. Friedman 1997, Rangazas 1997), on the grounds that more choice will induce more competition between schools which will enhance their effectiveness. The effect on equity, however, is more controversial. (e.g. Manski 1992)

A recently model-based study by Robertson and Symons (2003) showed 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, Kertesi and Kézdi (2005), in a study of the Hungarian school choice system, argued 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 with the same performance level. Since children’s backgrounds are well

correlated with performance (see Robertson and Symons (2003) and Kertesi and Kézdi (2005)), the resulting -segregation of children by performance will be akin to segregation in terms of social status.

Proponents of more choice, on the other hand, argue that such sorting according to performance can only occur when choice is restricted as a result of better schools having a limited capacity and not being able to admit more children. 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 and 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, large-scale geographical 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 neighbourhoods if the school in their area is of low quality. (cf. Epple and Romano 2000) Identifying systems where there is no choice of school is, therefore, challenging. Additionally, to conceive of tracking at an early age without school choice is also problematic, since where tracking is present, families must have some option to choose between tracks. On the other hand, school choice – whether politically intended or not – without tracking is conceivable (as in the UK or the US.) Furthermore the ratio of private to public provision in education can also make identification difficult. The higher the proportion of private schools in a system, the more alternatives they provide and so a wider choice even if school choice is not allowed legally.

Nevertheless a few empirical studies do show that theory is not very far from reality. While: school choice might advance effectiveness, but it also tends adversely to affect equality of opportunity. (e.g. Ambler 1994, who analyses the UK, France and the Netherlands, Bugress et al 2004, who carried out a case study of the UK and Ammermueller 2005, who examined the ratio of private to public schools in OECD and IEA countries).

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

Other institutional features can also affect equality of opportunity, but have been much less subject to theoretical and empirical study.

Fertig and Kluge (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 is still popular in Hungary. 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 for, the age of entrance seems to have no effect on performance.

A similar idea is that going to pre-school or kindergarten can affect equality of opportunity, on the grounds that the more children are socialised into schooling, the less likely they will fail. 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.

Economic theory suggests that differing lengths of study advances those whose opportunity cost of being in school is lower, since they will choose the longer educational tracks. Lower status students are more likely to opt for shorter (usually vocational) tracks and accordingly condemn themselves to a lower social status. (Erikson and Jonsson 1996).

The higher accountability of schools can plausibly affect educational performance (Hanushek and Raymond 2002) but has a less obvious effect on equality. Bishop and Mane (2004) have examined the effect of increased academic standards on equality of opportunity on the basis of US data and find that a clear means of raising academic standards – namely curriculum-based external exit exams – do lower the achievement gap between high and low social status students, but voluntary exit exams or fixing a minimum number of courses that have to be taken seem not to have any effect.

3. Conclusions

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 (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.

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