European Commission

SCIENCE FOR POLICY BRIEFS

Socio-economic background and educational inequalities*

Headlines

- **Policies that decrease educational inequalities are likely to also reduce societal inequalities.**
- Comparing nine OECD countries **over 12 years, sizable improvements for** disadvantaged 15-year-olds were only found in **Germany**.
- **Tracking of children increases educational inequalities**; high quality, publicly funded **pre-school decrease educational inequalities**.
- Raising national achievement levels concurrently as socio-economic performance gaps are reduced remains a pressing challenge for policymakers.
- **Systematic educational evaluation and data** can improve our understanding of the interplay among educational policies, practices and inequalities.

The importance of educational equality

The provision of equal opportunities for children to achieve high standards in school is important for European societies to ensure social justice and economic efficiency. The commonly found and **substantial association of family background with educational outcomes indicates that more needs to be done to tackle educational inequalities.** This is especially of importance, since at the country level lower educational inequalities are generally associated with lower levels of poverty and more resilience to manage economic crises.

Educational policies tackling inequality in education outcomes are likely to serve as a remedy to combat historically high levels of societal inequality and promote intergenerational mobility.

What are current trends in educational inequalities? And which policies are most efficient in helping to combat them?

Critical questions such as these are addressed in a **recently edited monograph by the authors** of this brief. The monograph compares country specific educational policies over time and links them with trends in educational inequalities in nine countries: Australia, Canada, England, Finland, Germany, Italy, the Netherlands, Spain and Sweden. Educational inequalities are thereby examined focusing on achievement differences between pupils from different socio-economic backgrounds. **This policy brief highlights some of the key findings.**

Family background and educational outcomes

There are three family background factors that in combination are likely to drive variation in educational outcomes. First, differences in individuals' academic aptness might differ across students from varying socio-economic backgrounds by birth. Second, parental behaviours such as interactions with children and parenting styles might vary between groups. Third, parents with lower socio-economic background have less resources to invest into their children's education.

While it is controversial as to how much of the difference in educational outcomes is due to the academic aptness determined by birth,

*This policy brief has been prepared by Louis Volante, Sylke V. Schnepf, John Jerrim and Don A. Klinger. It builds on research findings published in 'Socioeconomic inequality and student outcomes. Cross-national trends, policies and practices', edited by the same authors, Springer, 2019.
This brief can be downloaded from https://ec.europa.eu/jrc/en/research/crosscutting-activities/fairness.

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cross-national analyses can identify countries with relatively lower education gaps, which can then serve to inform national policymakers on best practices for large-scale reform.

Parental education as measure for family background

Different measures of family background such as parental education, occupation and income produce similar but not identical results with respect to educational inequalities. **In the monograph, the measure of parental education is applied and provides generally a robust measure across contexts**, with availability in administrative data. Results from country comparisons of survey data reported below are similar to those reported by the OECD in the Programme for International Student Assessment (PISA) 2015 report which uses a continuous socio-economic background measure. One challenge of comparing children with low (ISCED 0 to 2) to those with higher parental education (ISCED 5A and above) is that the size and composition of these groups varies substantially across countries. For example, using the 2015 Programme of International Student Assessment (PISA) data, 2%, 3% and 5% of pupils have low educated parents (defined as disadvantaged children) in Finland, England and Sweden, respectively. In contrast, the figure is considerably higher in Germany (18%), Italy (19%) and Spain (24%). Disadvantaged children in a society where most others are advantaged are likely to be relatively worse off than the disadvantaged in a society with less privileged people, the so-called 'selection' problem.

Changes in the socio-economic achievement gap over time

There are a number of possibilities to investigate educational inequalities over time. First, the monograph provides in-depth analysis on socio-economic achievement gaps using national administrative and large scale survey data and linking education inequalities to recent education policies across the nine countries. Second, cross-national results of achievement surveys comparing these countries are employed. One approach for doing so is to investigate educational inequalities for different cohorts of 15-year-olds with PISA data as shown in Tables 1 and 2 (which as a comparator country also includes the US).

Table 1. Mean PISA maths achievement of 15-year-olds with lower parental education over time

	2003	2006	2009	2012	2015	Average
Netherlands	515	490	476	478	459	**484**
Finland	512	517	480	466	437	**482**
Canada	492	485	472	458	459	**473**
Australia	497	487	460	461	455	**472**
Germany	440	446	443	481	479	**458**
Spain	462	456	455	450	455	**456**
England	-	448	447	450	440	**446**
Italy	429	433	454	450	454	**444**
Sweden	461	462	426	429	420	**440**
USA	424	412	437	441	420	**427**

Notes: Average refers to country average between 2003 and 2015 PISA surveys. Low parental background refers to parental education being not higher than ISCED level 0 to 2. Shading is within-country, with darker shading indicating 'worse' outcomes relative to the country's other PISA rounds. Source: Table 3, panel 1 in Chapter 1 of the authors' edited volume.

Table 2. PISA score gap of mean maths achievement between 15-year-olds with higher and lower parental education over time

	2003	2006	2009	2012	2015	Average
Italy	71	60	53	55	55	**59**
Spain	58	58	60	69	57	**60**
Finland	53	50	73	68	89	**67**
Netherlands	52	59	90	66	79	**69**
Canada	64	61	74	80	72	**70**
Australia	59	63	89	79	68	**72**
Sweden	63	51	88	65	92	**72**
England	-	79	71	79	76	**76**
USA	93	97	83	69	74	**83**
Germany	120	90	115	75	58	**92**

Notes: See notes to Table 1. High parental background refers to parental education of ISCED level 5 A and above. Source: Table 3, panel 2 in Chapter 1 of the authors' edited volume. Summing up achievement scores from Table 1 and Table 2 provides the mean achievement score of 15-year-olds with higher educated parents by country and survey round.

For both tables, the grey shading highlights changes in achievement over time within countries. Reading horizontally, the darker shading indicates 'worse' outcomes relative to the country's other PISA rounds.

Table 1 shows that **over the 12-year period covered, average scores of children with lower educated parents have declined considerably.** This is most visible for the Netherlands, Finland, Canada, Sweden and Australia, where the PISA maths score decreased by more than 30 points. This decline is sizable given that around **35 PISA points are generally considered to be roughly equivalent to a year of schooling.** For England and Spain (and the US) no progress has been achieved. In Sweden (and the US), the average disadvantaged child just met the lower score limit of the PISA proficiency Level 2 (420 points) in 2015, indicating that half of these children (assuming a normal distribution)

have low educational achievement as defined with the European Union Cooperation in Education and Training (ET2020) benchmark. **Of the nine countries examined, only disadvantaged students in Germany improved their maths' performance during the last decade**, and this was sizable with approximately 40 PISA points. Indeed, once the focus is on Table 2 showing the maths achievement gap between children with higher and lower educated parents, **Germany has moved from having the largest gap in 2003 to one of the smallest in 2015. Smaller improvements happened also in Italy (and the US).** However, in Sweden, the Netherlands and Finland the gap increased while there are no visible changes in the rest of the nine countries considered in the monography.

While it is unfortunate that several Western countries show rising educational inequalities, the recent experience of Germany and Italy suggests that it is possible to raise disadvantaged children's academic achievement. **Overall, raising national achievement levels concurrently as gaps are reduced remains a pressing challenge for policymakers.**

Education policies and their effectiveness

What can governments and education systems do to tackle educational inequalities that shape individuals' future career trajectories?

Given that education policies act in different country specific institutional contexts, **learning from 'what has worked' in European countries is not straightforward.** In addition, looking at recent developments of European countries' education policies, it becomes apparent that there are a number of **policy choices** to consider when attempting to reduce educational inequalities. These can be summarised along the following **three dimensions: 'tracking versus comprehensive schooling', 'school autonomy versus centralisation' and 'curriculum and instruction'.**

The most compelling evidence for a policy to increase socio-economic achievement inequality is found with school tracking. Tracking refers to explicit efforts to teach children in different school types or programs that provide varying learning targets and post-secondary career pathways. **Tracking** is generally associated with lower national average performance. It also **increases social segregation of schools, considered to be one of the biggest woes contributing to educational inequalities.** Germany, a country that in some Länder tracks children earlier than in any other European country, still managed to decreased educational inequalities due to the introduction of a number of education policies that balanced out the impact of tracking on educational inequalities.

School autonomy refers to providing considerable liberties to schools for managing themselves. Existing literature tends to show that greater school autonomy is associated with students from lower socio-economic backgrounds fairing worse than more advantaged children. Countries which introduced school autonomy during the last decades (like Sweden and Finland) experienced a relative increase in educational inequalities associated with socio-economic background. However, Germany, and to some degree Italy, introduced school autonomy paired with centralisation components (like greater accountability of schools, national exams and school inspections and accreditation) and improved their socio-economic achievement gap. **The balance between school autonomy and centralisation seems therefore a key for understanding existing educational inequalities.**

Policies in the area of content and teaching tackle inclusiveness of instruction in the learning environment. **Expanding the coverage of high quality publicly funded pre-school child care can intervene to lessen social inequalities**, which already exists before school starts. **Rising compulsory school age is associated with decreased dropout rates** and hence lower inequality of educational attainment. In addition, most recently some European countries like England, Sweden and Italy changed their curriculum by generally reducing it to more basic and factual content. National administrative data indicate that these changes seemed to help decreasing educational inequalities. However, there is a considerable need to further examine the effect of different kinds of curriculum content changes on educational inequalities.

The dimensions of policy choices discussed before are generally combined into different education policy 'packages' in European countries. The rising complexity of the unique national combination of education policies within a specific national context makes it more difficult to evaluate education policies cross-nationally. **Policy evaluation is however the key to understand how**

inequality in education can be reduced in the future. Existing cross-national achievement surveys have helped to explore this, but lack a longitudinal component important for evaluation. Many country and regional education policies are introduced without planning their evaluation in advance. And in some countries researchers cannot access **administrative education data, which provides dormant possibilities of understanding mechanisms of educational inequalities.** More reflection on how to evaluate newly implemented national policies and with that possibilities of data creation and access could greatly increase our knowledge on the impact of education policies on inequalities.

Related and future JRC work

Future JRC work will use administrative and cross-national survey data to investigate further the effectiveness of educational policies for tackling inequalities in Europe.

This brief is one of a **series of 'science for policy' briefs** reporting on recent JRC research on various aspects of fairness. **A comprehensive report on fairness** will be published in 2019.

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