

Inequality of Educational Opportunity in Switzerland: Exploring Regional Differences and Institutional Factors

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1 Introduction

Equity in educational achievement has long been a significant policy concern and one of the core topics in social stratification research. In Switzerland, education is critical to improving social mobility. Chuard & Grassi (2020) shows that children from the lowest quintile who went to the academic track are more likely to reach the top quintile compared to their peers in the vocational education track. In Switzerland, social background is more closely linked to school achievement than in many other OECD countries (OECD, 2018).

In this study, I aim to estimate the inequality of educational opportunity (IEOp) in Switzerland using representative data for all cantons. I assess the differences in the level of educational achievement according to social background and provide an IEOp measure that is decomposed to analyze the specific role of each circumstance in the inequalities of Swiss educational opportunities. I also examine the relationship between the IEOp and cantonal education policy to investigate the drivers of inequality of opportunity in compulsory school.

2 Theoretical Framework

Understanding how educational achievement depends on social origin is central to the discussion of equality of opportunity. In the landmark study of Coleman et al. (1966), equality of educational opportunity was defined as equality of results given the same individual input. Similarly, Boudon (1974) specified inequality of educational opportunity as differences in the level of educational attainment according to social background. Social background can be measured in different ways, and previous research has shown that origin factors have different effects on educational attainment that are independent of each other (Erikson, 2019). Therefore, it is necessary to take a multivariate approach to estimate the extent to which social background affects educational achievement.

3 Data

I use the 2016 Swiss large-scale assessments of basic competencies (ÜGK – COFO – VeCoF) dataset, a nationwide evaluation of the competencies of compulsory school students developed in Switzerland (Nidegger, 2016). The ÜGK uses the Item

Response Theory (IRT) approach (Rasch, 1993), commonly referred to as plausible values (PVs), the same methodology used in PISA. The 2016 edition was focused on assessing the achievement of basic skills in mathematics in grade 11 (15 years old students).

4 Methods

I use the parametric approach proposed by Ferreira & Gignoux (2014) to estimate how much inequality of educational opportunity is explained by pre-determined characteristics beyond the student's control, which relates to the student's social background. These are identified as 'circumstances'. The actual distribution of the math achievement (y_i) is transformed into a vector of predicted achievement ($(y_i)^\wedge$ – the smoothed distribution), in which all individuals with the same circumstances are assigned their conditional mean achievement. The second step involves applying a measure of inequality $I(.)$ to these predicted values of $(y_i)^\wedge$, $I((y_i)^\wedge)$, which is comparable with the inequality in the original distribution, $I(y_i)$.

The IOEp estimated as the variance ratio is simply R^2 of the regression of educational achievement on circumstances.

5 Results:

The estimates of inequality of educational opportunity show considerable across-canton variation, from a minimum of 14.29 in the French-speaking part of Valais to a maximum of 30 in Basel-Stadt (of an index that varies from 0 to 100). Circumstances outside students' control explain 21.12% of the variation of achievement of basic skills in mathematics in grade 11 (11e année HarmoS) at the national level.

Figure 1 shows the measure of inequality of educational opportunity per canton, with darker colors representing higher inequality of opportunity. German-speaking regions have higher levels of IEOp compared to French and Italian-speaking cantons. The exceptions are the canton of Glarus (16.34), Uri (17.13), Nidwalden (18.7), and the German-speaking part of Valais (18.74), which figured below the national IEOp level (21.12). Bilingual cantons (Bern, Fribourg, and Valais) always have lower levels of IEOp in the French-speaking part compared to the German one.

Interesting to note that my measure of inequality of educational opportunity satisfactorily predicts the gap between low and high SES students that achieved basic skills, as shown in Figure 2.

Figure 3 plots the IEOp per canton and the proportion of students achieving basic skills in mathematics. In the figure, it is possible to observe if a canton has a higher (lower) proportion of students attaining basic skills in mathematics compared to the

national average and if its inequality of educational opportunity is below (above) the countrywide average. Interesting to note that only a few cantons have below-average educational efficiency coupled with above-average equity (Uri, Nidwalden and Neuchatel, Nidwalden, and Uri). On the other hand, there are quite a few cantons with above-average inequality of educational opportunity that also have above-average efficiency (Zug, Schaffhausen, Genève, Schwyz, Appenzell Innerrhoden, Thurgau, Graubünden, St. Gallen, and Fribourg (German)). Most cantons concentrate on the diagonal showing the trade-off between high (low) equity and low (high) efficiency. It is observable that cantons with high educational efficiency also present low levels of inequality of educational opportunity. Although educational efficiency and equity seem not to be exclusive dimensions, there is a clear trade-off between reducing IEOp and increasing students' achievement. There is a strong significant negative correlation between IEOp per canton and the proportion of students achieving basic skills in mathematics (-0.6916, significant at 0.01 level).

6 Drivers

I analyze the relationship of IEOp and cantonal education system characteristics to investigate the drivers of inequality of opportunity in compulsory school. Although more stratified systems have higher levels of inequality of opportunity, there are exceptions. On the other hand, the number of lessons in primary education is strongly related to levels of IEOp.