



Revue Internationale du Law & Education

Vol. 01 No.01

Legal Guarantees of Education and Access Outcomes: A Cross-National Analysis of Free and Compulsory Education Frameworks

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Abstract

Legal guarantees of education are widely recognized as instruments for expanding access, but there is still a dearth of empirical evidence on whether or not various types of legal supply are similarly linked to diminished school exclusion. Current literature has given more focus to normative commitments as compared to outcome-based assessment on a comparative basis. This study examines the association between legal guarantees of free and compulsory education and out-of-school rates, with particular attention to whether different types and levels of legal provision are linked to educational access in distinct ways. A quantitative cross-national panel design was employed using country-year observations. The dependent variable was the out-of-school rate for children of primary school age, while independent variables captured the number of years of free and compulsory education at different levels. The analysis combined descriptive statistics, correlation analysis, fixed-effects regression, clustered standard errors, and robustness checks using a log-transformed dependent variable and a reduced model. The findings show that years of free primary and secondary education are consistently and robustly associated with lower out-of-school rates across model specifications. Other legal provisions, including compulsory education and free pre-primary education, do not demonstrate comparable stability, indicating that legal guarantees differ in their practical relevance for improving access. These results suggest that legal design plays a critical role in shaping educational outcomes. Provisions that directly reduce the cost of schooling appear more effective than those relying primarily on compulsion, highlighting the importance of aligning legal frameworks with the structural barriers faced by households.

Keywords: right to education, free education, compulsory education, out-of-school rates, legal frameworks

1. Introduction

Education plays a central role in the modern discourse of development, as one of the primary human rights as well as a vital factor in social and economic development. The acknowledgment of education as a right enshrined in law has increased over the past decades and the duties pertaining to access and participation have been incorporated into the law and constitutions of many states. This change indicates a bigger realization that education is not only a policy goal but a normative obligation, which is based on human rights principles (Simanjuntak & Waluyo, 2025). Simultaneously, the right to education has been defined within a broader framework of economic, social, and cultural rights to enhance its purpose in enhancing equality and personal liberty (Veriava & Paterson, 2020). Although this has happened, educational access disparities are still high among countries. Many children are still out of school because of financial, institutional and social impediments. Economic constraints, in particular, have been a major determinant of school participation which has seen a growing preference on policies to cut down the direct cost of schooling. Free education has thus become a popular policy that has been backed by political as well as social demand because it tackles affordability and is an indication of state commitment to inclusive access (Correa et al., 2020). Nevertheless, as the growth of free education has led to higher enrolment in most settings, there exist concerns on balance between access and quality with a quick growth potentially putting a strain on institutional capacity (Thelma et al., 2024). In tandem with the policies of free education, the law of compulsory education has also become popular and ensures the access of children to schooling as well as their obligatory attendance. These laws are meant to institutionalize involvement and minimize dropout rates by laying down clear responsibilities on the state and the households. Their development in the context of various nations proves the significance of these policies as educational ruling tools and social controls (Li and Xue, 2021). However, the continued existence of out-of-school populations is indicative that legal commitments per se may not be adequate in ensuring universal access.

The literature shows an increased overlap between the legal systems and educational achievement, and how law can influence access, equity and institutional responsibility. Laws on education are now seen as ways in which states can institutionalize pledges towards inclusion and diminish systemic inequality (Sule et al., 2024). Such frameworks usually work together with the larger development plans, such as education policy, which is in line with the legal and institutional changes to foster sustainable results (Alqodsi and Abdallah, 2024). The development of the policies of free education in the past also demonstrates its importance in increasing access. The initial ones were aimed at abolishing tuition fees at the primary level, and further reforms were then rolled out to higher education stages.

Although these policies have led to significant success in terms of enrollment, their performance is varied in regard to the ability to implement them and resource distribution (Kretzer, 2020). Simultaneously, mandatory education has been institutionalized as an important element of national education systems with the idea that legal requirements can affect behavior and enhance the participation rates. Nevertheless, the interplay of legal guarantees and real educational outcomes is rather complicated. Empirical research has found various aspects that can lead to school exclusion, such as poverty, geographic differences, and socio-cultural restrictions, which can restrain the efficacy of formal legal measures (Yousaf et al., 2020). In addition, new technological and policy trends have added new layers to the right to an education, and the challenges regarding how legal frameworks keep up with changing educational landscapes and digital changes (Berendt et al., 2020). The fact that education is a right in the Constitution also highlights its relevance in the national laws of each country, where it serves as a protective and empowering factor to individuals (Bysaha, 2023). However, the transfer of the legal rights into concrete results is based on the interaction of the institutional capacity, policy design, and socio-economic circumstances.

Despite the appearance of the critical role of legal frameworks in determining educational access in the literature, empirical evidence of a systematic investigation of the connection between particular legal guarantees and quantifiable output in countries is rare. To a large extent, the current literature either follows a normative approach, discussing the legal formulation of rights, or discusses the outcomes of education without expressly connecting them to the legal regulations. Specifically, comparative analysis on the difference between various forms of legal guarantees, e.g. free and compulsory education and their respective role in preventing school exclusion are not adequately analyzed. This is a very big gap since even the provisions of law differ in terms of design as well as in their practical implications on access. Consequently, the degree to which the law guarantees leads to better educational outcomes is a pending empirical inquiry.

This study aims to address this gap by examining the relationship between the legal guarantees of education and the out-of-school rates in a cross-national setting. It narrows down to the number of years of free and compulsory education as a measure of legal commitment and how this is related to the outcomes of educational access. The study will help determine the aspects of legal frameworks that are closely linked to the decreased educational exclusion by distinguishing between various types and levels of legal provisions. By doing so, it helps to create a more subtle sense of law and policy interaction in the context of access to education in different national contexts.

2. Methodology

2.1 Research Design

This is a cross-national quantitative study that uses a research design of quantitative research to test the association between legal guarantees of education and the outcomes of education access. The secondary data is analyzed in the form of a panel, i.e. several countries are monitored over a period of time. This type of design will enable the detection of systematic patterns both at the spatial and temporal levels. The studies are explanatory in character and aim at estimating the statistical relations between the indicators of legal frameworks, in particular, the years of free and compulsory schooling and the out-of-school rates. Since the data is of a macro level and the analysis is not based on experimental variation, causality is not being established, but rather consistency and strength of observed relationships are to be determined. The research uses more than one specification of the model and the robustness checks to improve analytical rigor.

2.2 Data Source

The data utilized in this research were sourced from SDG 4 Education Global and Thematic Indicators, which were compiled by the UNESCO Institute of Statistics. This dataset offers international comparative measures that help to track progress in achieving global education goals and focus on areas like access, participation, and legal provisions of education. It amalgamates data on what is reported by national authorities and harmonizes using standardized methodological frameworks to allow cross-country comparability. Both global and thematic indicators are part of the dataset, which is aligned with the education-wide agenda, and thus, it is possible to study structural and institutional variables that affect the outcome of education in countries and over time (UNESCO Institute for Statistics, 2023).

2.3 Variables and Measurement

The dependent variable will be the out-of-school rate of children aged primary school, which will be in per cent. This indicator is a ratio of children who are not in formal education, and it is a direct measure of educational exclusion. The independent variables are provisions in the law about education and operationalized in terms of the number of years of free and compulsory education at various levels. In particular, such aspects as the duration of free pre-primary education, free primary and secondary education, compulsory pre-primary education and compulsory primary and secondary education are analyzed. These variables indicate how much the national legal frameworks can ensure access to education and minimize possible barriers to participation. All the variables are measured on a country-year basis, and this enables comparative analysis between countries and between the years.

2.4 Data Preparation and Processing

The dataset has been arranged in a way that guarantees its consistency and the ability to analyze it with a panel. Missing values in the dependent variable were filtered out of the results to preserve the integrity of the outcome measure. Where available, independent variables were left to ensure the breadth of the sample is preserved and the variation across models. Standardization of indicator labels and organization of variables in a panel format were done. Due to the noted skewness of the distribution of the dependent variable, a different specification was built with the help of a log transformation of the form $\log(1 + \text{value})$ to test the robustness. This transformation minimizes the effect of extreme values, but maintains interpretability.

2.5 Analytical Strategy

The empirical study follows a systematic order. The distribution of variables and the bivariate relationship of variables are analyzed using initial descriptive statistics and correlation analysis. It is then proceeded by multivariate regression analysis with Ordinary Least Squares (OLS) to obtain the estimate of the relationship between legal guarantees and out-of-school rates. In order to deal with possible biases due to changes over time and country-specific effects on standard errors, the models include year fixed effects and clustered country-specific standard errors. Further checks of robustness involve the use of log-transformed dependent variable and a reduced model specification that concentrates on the most meaningful predictor. These measures will guarantee that the results are not influenced by certain model assumptions or distributional characteristics of data.

3. Results

3.1 Descriptive Overview of Key Variables

Table 1 displays descriptive data of the key variables, which were used in the analysis. The mean out-of-school attendance of the primary school-age children in the sample is 8.68%, and the dispersion (standard deviation = 12.29) is large, which means that there is a large variation between countries. The lowest number of 0 and the highest number of 75.89% also indicate the heterogeneity of the educational access by countries and years. Legal framework indicators also exhibit significant variation. Countries require, on average, 8.64 years of compulsory primary and secondary education and free education at that level has an average of 10.59 years. Conversely, pre-primary education (compulsory and free) has lower averages and smaller ranges, implying that there are more legal provisions at lower childhood

levels. These trends show that though legal guarantees are universal, the areas and levels of their strength vary significantly among countries, which makes them a reasonable point of comparison.

Table 1. Descriptive Statistics

Variable	Count	Mean	Std. Dev.	Min	Max
Out-of-school rate, primary school age (%)	3460.0	8.679	12.287	0.0	75.889
Years of compulsory pre-primary education	3460.0	0.340	0.735	0.0	3.000
Years of compulsory primary and secondary education	3457.0	8.639	3.059	0.0	13.000
Years of free pre-primary education	2967.0	1.126	1.353	0.0	4.000
Years of free primary and secondary education	3010.0	10.586	2.132	5.0	13.000

3.2 Bivariate Relationships Between Legal Guarantees and Educational Access

The pairwise correlations among the variables are reported in Table 2. There is a negative association between the out-of-school rate and all the legal framework indicators, the most significant one being the years of compulsory primary and secondary education (-0.297) and the years of free primary and secondary education (-0.280). These coefficients indicate that more comprehensive legal guarantees are associated with lower levels of educational exclusion.

Correlations between the legal variables themselves are moderate, which suggests that, although related, they represent different dimensions of legal provision. Indicatively, the measures of free and compulsory education are found to be positively related and not collinear with each other, hence should be included in multivariate modeling. The correlation patterns give some preliminary evidence of the anticipated relationship between the legal frameworks and better access to education, as well as suggest that the relationships should be further examined using multivariate analysis.

Table 2. Correlation Matrix

Variable	Out-of-school rate, primary	Years of compulsory pre-primary	Years of compulsory primary and	Years of free pre-primary education	Years of free primary and

	school age (%)	education	secondary education		secondary education
Out-of-school rate, primary school age (%)	1.000	-0.143	-0.297	-0.122	-0.280
Years of compulsory pre-primary education	-0.143	1.000	0.252	0.455	0.231
Years of compulsory primary and secondary education	-0.297	0.252	1.000	0.222	0.484
Years of free pre-primary education	-0.122	0.455	0.222	1.000	0.421
Years of free primary and secondary education	-0.280	0.231	0.484	0.421	1.000

3.3 Global Trends in Educational Access

Figure 1 shows the trend of out-of-school rates in the world over the years. There is a sharp fall between the late 1990s and the early 2000s, when another slower fall takes place in the 2010s. The minimum is reached in the period of 2019-2020, and since that time, there has been a slight upward trend in recent years. This time trend indicates that educational access gains are partly due to wider world trends, which makes the need to account for time effects in the regression equation important.

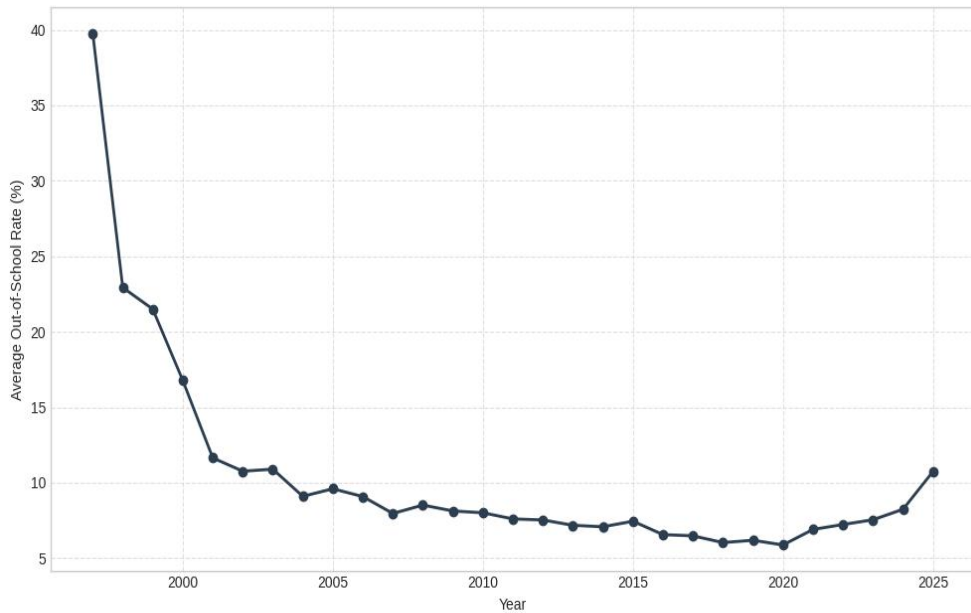


Figure 1. Global Trend in Out-of-School Rates (Primary Level)

3.4 Relationship Between Free Education and Out-of-School Rates

To further explore the relationship between legal regulations and educational achievements, Figure 2 graphs the mean out-of-school rate versus the years of free primary and secondary schooling. The tendency towards a downward movement is evident: the longer the period of free education, the lower the out-of-school rates are in the countries. Even though there is a degree of non-linearity at lower levels of provision, the general trend is in accordance with the hypothesis that financial barriers are a critical factor in restricting access to education. This graphical data is consistent with the regression findings below.

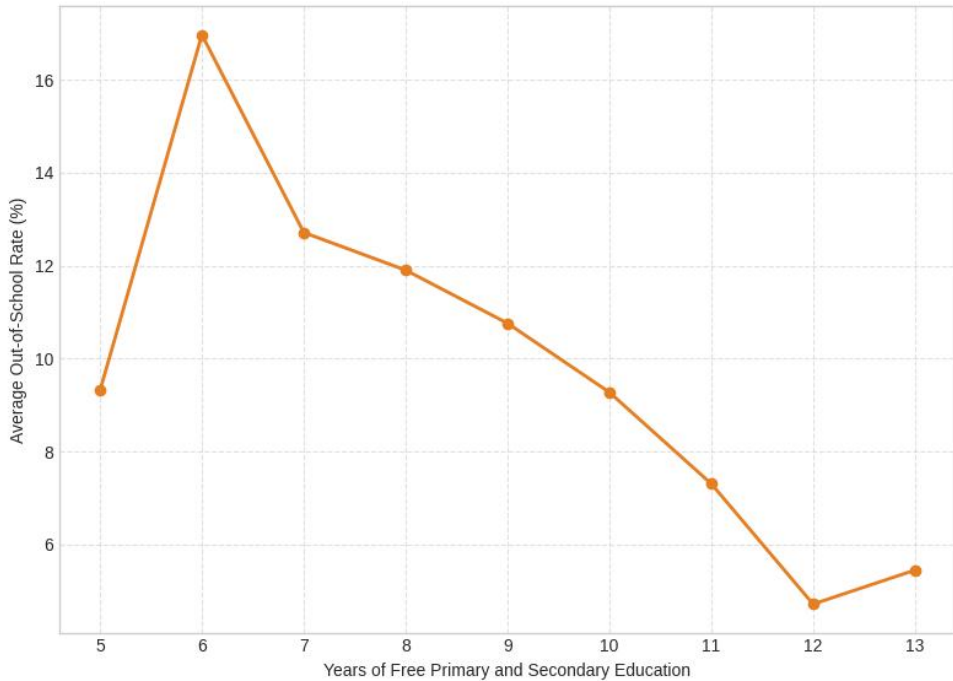


Figure 2. Average Out-of-School Rates by Years of Free Primary and Secondary Education

3.5 Distribution of Educational Exclusion

Figure 3 shows the distribution of out-of-school rates on a logarithmic frequency scale. It is very right-skewed, with a large proportion of the values clustering at relatively low exclusion levels and few nations with very high out-of-school rates. This skew is a reason why a log-transformed dependent variable should be used in robustness tests to make sure that the results are not influenced by skewed data.

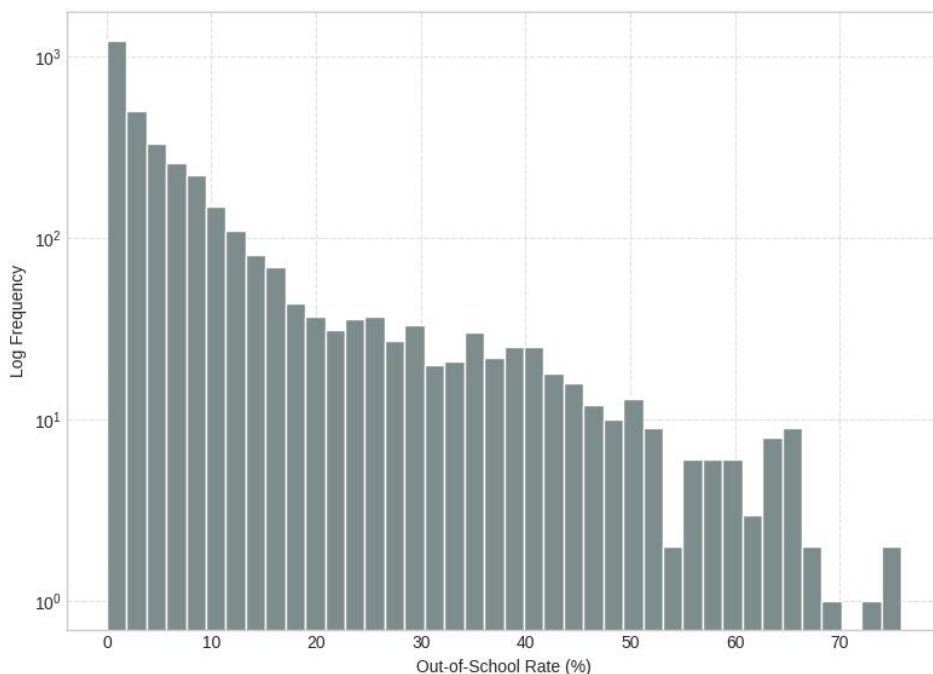


Figure 3. Distribution of Out-of-School Rates (Log Frequency Scale)

3.6 Multivariate Regression

Table 3 reports the regression estimates. In each model specification, the number of years of free primary and secondary education is the most consistent and statistically significant. The fixed effects model indicates that every year of free education corresponds to a decrease in the out-of-school rate by about 1.18 percentage points ($p < 0.01$). It is also robust in the reduced model and in the log-transformed specification. Other legal variables, such as compulsory education and free pre-primary education, by contrast, do not display similar statistical significance over models. Although certain coefficients are weakly significant in certain specifications, their effects are not consistent and thus do not show strong evidence of independent association. These results indicate that legal assurances of minimizing direct costs of education are more closely linked to better access compared to those that only mandate participation.

Table 3. Regression Results

Variable	FE Model	Log Model	FE	Reduced Model
Years of compulsory pre-primary education	-1.226* (0.715)	-0.054 (0.083)		
Years of compulsory primary and secondary education	-0.304 (0.225)	-0.052** (0.023)		
Years of free pre-primary education	0.276 (0.642)	-0.007 (0.056)		
Years of free primary and secondary education	-1.175*** (0.372)	-0.108*** (0.035)		-1.345*** (0.362)

Note: Standard errors in parentheses. Models include year fixed effects with country-clustered standard errors. The log specification uses $\log(1 + \text{out-of-school rate})$ as the dependent variable. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

4. Discussion

The empirical findings show that legal guarantees of education do not have homogeneous implications for access to education. The strongest results are the strong relationship between the length of free primary and secondary education and the reduction in out-of-school rates. This implies that legal measures that specifically alleviate financial hindrances are more efficient in promoting access than regulatory enforcement-based legal measures. By contrast, the measures of compulsory education do not show consistent effects in terms of model specifications, meaning that the existence of a legal requirement on its own might not be enough to enforce it.

This difference can be interpreted within the context of the structural circumstances in which the systems of education work. Economic factors continue to be one of the main factors that drive school exclusion, especially in situations where families are economically vulnerable. This constraint is directly tackled by legal guarantees of free education, which reduces the cost of participation. In contrast, laws of compulsory education rely on mechanisms of compliance and enforcement, which might be less effective where administrative strength is poor or socio-economic forces limit household choices. Consequently, the legal requirements might not be effective in the absence of enabling conditions.

The results also suggest the contingency of legal effectiveness. Legal frameworks give institutionalized rights and duties, yet their translation to outcomes is determined by their implementation and operating environments. Neither

institutional capacity nor the structure of governance nor the socio-economic conditions of the countries are the same, resulting in the fact that the same legal guarantees may have different outcomes across nations. This supports the need to differentiate how legal provisions are formally present and how they influence access to education, which is functional.

The significance of free education found in the results is in line with other studies that have found it relevant in eliminating economic barriers to education. Policy assessments indicate that the increase of free education can greatly boost accessibility, especially under the condition of the legal provisions being backed by sufficient implementation schemes (Acharya et al., 2024). Likewise, empirical studies of education reforms show that the key to enhancing participation and making access to schooling more equitable is to reduce direct expenses (Romlah et al., 2023). The low functionality of compulsory education interventions concurs with the scholarly focus on the fact that legal requirements do not ensure attendance. Although compulsory education is positioned as a significant tool to meet the rights of children, its success is subject to the macro institution, such as its ability to enforce it and social status (Iman et al., 2025). Comparative analysis also demonstrates that the policy tools, like legal requirements and accountability systems, have disproportionate results in different countries, with the effectiveness determined by the structure of governance and the process of implementation (Verger et al., 2019). The results also confirm the theoretical lenses that generate educational rights in terms of conditions of enabling and the capacity of the state. Legal guarantees are an embodiment of the state's duty, yet the efficiency of their realization hinges on the degree to which people can put those rights into practice (Zhang, 2022). Historical studies also reveal that rights-based frameworks need to be interpreted within the wider context of social and economic relations since the form of recognition does not necessarily mean access (Balagopalan, 2019).

The interpretations of the boundaries of legal enforcement are also strengthened by debates about the boundaries of law enforcement. Debates over educational rights reveal the conflict between legal entitlement and domestic restrictions and social facts, indicating that enforcement-based methods might not be adequate to guarantee all individuals participating (Bartholet, 2020). Simultaneously, more extensive definitions of the education policy suggest that it is necessary to shift the focus beyond the economic approaches and focus on legal assurances and their impact on encouraging equitable access (Edeji, 2024). The interaction between legal frameworks and wider policy contexts is also evidenced in the national reform contexts. Education reforms analysis reveals that the alterations in legal provisions should be supported with institutional and governance changes to yield significant

changes in access (Ávalos and Bellei, 2019). The long-term research also shows that the success of education policies is determined by the way in which legal guarantees are incorporated into regulatory and institutional regimes in the long run (Bellei & Muñoz, 2023).

The implications of the findings have significant policy and research implications. Politically, they propose that an increase in free elementary and secondary education should be the key aspect of policies to decrease school marginalization. Legal provisions that explicitly cover the issue of financial barriers seem to be more effective than those that depend on the enforcement of regulations only. This means that the policies that bring about compulsory education should be supplemented by policies that make them more affordable and find solutions to structural limitations. Theoretically, the findings add to a more discriminating perspective of the connection between law and educational achievements. They show that the protection of the law must be perceived as separate policy instruments whose mechanisms of action work differently, instead of equal manifestations of commitment. This view promotes a change of focus to consider legal systems in terms of their empirical consequences as opposed to their formal existence.

Several restrictions are to be noted. It is analyzed using observational data, thus restricting the possibility of making causal conclusions. Although the models take into consideration the temporal variation and clustering, the observed relationships could be affected by unobserved variables like the quality of policy implementation, the role of the government in investing, and the quality of institutional capacity. Moreover, the legal indicators are the period of guarantees, but they fail to indicate the disparities in the enforcement or effectiveness of the guarantees among the countries.

These limitations can be overcome in future studies with more elaborate governance and implementation measures. A cross-national quantitative analysis and case studies based on qualitative research would lead to a more comprehensive understanding of the functioning of the legal frameworks in reality. Additional research may also investigate the role of legal guarantees on other aspects of education, such as completion rates and learning outcomes, to capture more of the educational trajectories.

5. Conclusion

Legal guarantees of education are not equally associated with improved access outcomes. This finding reveals that the only legal feature that has consistently and strongly correlated with the reduced out-of-school rates in all model specifications is the number of years of free primary and secondary education. In contrast, measures

of compulsory education and free pre-primary do not show the same stability, showing that the formal existence of the legal requirements does not always lead to lower educational exclusion.

These results highlight the fact that it is essential to differentiate the types of legal guarantees instead of considering them as a single manifestation of the commitment. The schooling provisions that are explicitly aimed at lowering the cost of schooling seem to be more practically relevant to access than those that are based on compulsion. What comes out at the end is not that law is insignificant, but how it can be effective, which will depend on the form it acquires and the obstacles it combats.

By demonstrating that legal design is important to access outcomes, the study adds to the current debates at the intersection of law and education. Enhancing free education at the primary and secondary levels can thus constitute one of the most significant legal avenues to lessening school exclusion in terms of comparative advantage.

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