



An Investigation of the Relationship between Modern Education and Inequality: Panel Data Analysis (2010-2019)*

Modern Eğitim ve Eşitsizlik İlişkisi Üzerine Bir Araştırma: Panel Veri Analizi (2010-2019)

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Muhlis Selman SAĞLAM**

Abstract

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In postmodern reality, a critical approach is offered to education through the school institution. Our research has examined this approach by conceptualizing “deschooling of society” in the context of the relationship between educational and human inequality. In our study, the claims were tested by panel data. The relationship between education and inequality was tested with the data of 45 countries from 2010-2019. While the ratio of inequality in education to determine human inequality is high for developing countries, this effect decreases as the country's development increases. For developing and lower group developed countries, spending on education is meaningless in explaining human inequality. On the other hand, expenditures on the education sector in upper-group developed countries make sense to explain human inequality. While every 1-year increase in the average school year is more effective in reducing human inequality in developing countries, this effect gradually decreases in developed countries, especially in upper-group developed countries. In developing and lower group developed countries, the ratio of variables related to education to explain human inequality is very close. On the other hand, in the upper group of developed countries, this ratio is almost halved.

Keywords: education, inequality, humanitarian inequality, school, schooling.

Öz

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Eğitim kadim bir geçmişe dayansa da okul kurumu modernitenin ürünü olan kurumlardandır. İçinde yaşadığımız post-modern gerçeklikte modernitenin getirmiş olduğu kurumlara eleştirel bakış okul kurumu üzerinden eğitim kurumuna sunulmaktadır. Araştırmamız, “okulsuz toplum” kavramsallaştırmasıyla getirilen eleştirel yaklaşımları eğitim ve eşitsizlik, özelde ise eğitim eşitsizliği ve insani eşitsizlik ilişkisi bağlamında incelemiştir. Çalışmamızda literatürden hareketle getirilen iddialar panel veri modeliyle test edilmiştir. Eğitim ve eşitsizlik ilişkisi, gelişmişlik kapsamında gruplandırılmış 3 ülke grubunda toplam 45 ülkenin 2010-2019 yıllarına ait verileriyle test edilmiştir. Eğitimde eşitsizliğin insani eşitsizliği belirlemedeki oranı gelişmekte olan ülkeler için yüksek iken, ülkenin gelişmişliği arttıkça bu etki azalmaktadır. Gelişmekte olan ülkeler ve alt grup gelişmiş ülkeler için eğitime yapılan harcamalar insani eşitsizliği açıklamada anlamsızdır. Öte yandan üst grup gelişmiş ülkelerde eğitim sektörüne yapılan harcamalar insani eşitsizliği açıklamakta anlamlıdır. Ortalama eğitim yılındaki her 1 yıllık artış gelişmekte olan ülkelerde insani eşitsizliği azaltmakta daha fazla etkili olurken, gelişmiş ülkelerde, özellikle üst grup gelişmiş ülkelerde, bu etki giderek azalmaktadır. Gelişmekte olan ve alt grup gelişmiş ülkelerde eğitime bağlı değişkenlerin insani eşitsizliği açıklama oranı birbirine çok yakındır. Öte yandan üst grup gelişmiş ülkelerde bu oran neredeyse yarıya düşmektedir. Bu durum üst grup gelişmiş ülkelerin insani eşitsizlik kapsamında eğitime dair sorunları diğer gruplara nazaran büyük oranda çözdüğünü göstermektedir.

Anahtar Kelimeler: Eğitim, eşitsizlik, insani eşitsizlik, okul, okullaşma.

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**ORCID Ress. Ast., Çanakkale Onsekiz Mart University, Faculty of Political Science, Department of Economics, selman.saglam@comu.edu.tr

1. Introduction

It would not be wrong to say that many institutions that build the social reality in which we live are products of Enlightenment and modernity. What is meant by the institution here is not organizations but institutions that shape society in a very abstract but concretized form and determine the behavior patterns of people, such as family, economy, religion, politics, and education, in a broader framework. The reality in which the foundations of these institutions were laid and the assumptions on which modernity was built in the positivist scientific tradition did not remain where it started. It has progressed in a dialectic and has turned into another reality called post-modernity today. In this new reality, expressed as post-modernity, the scientific tradition has deviated from the basic assumptions of positivism. The post-positivist paradigm has determined how science is done in reality constructed after modernity. All this has prepared the environment for a critical view of modernity itself and its products.

The connection of this introduction with our topic is that in our study, we will talk about a critical view of the educational institution, which is one of the products of modernity. However, to better understand the issue, it is necessary to unpack it a little more. What is meant by bringing a critical approach to the educational institution here is to subject it to critical reading in the modern sense rather than getting an existential critique on the necessity of education itself. However, since education will remain a general concept for such reading, this critical reading will be carried out through the school sub-institution. Currently, literature has been created in which critical approaches to the school institution in the modern sense are directed. At this point, our study will ensure its originality by approaching the issue from the economics perspective by strengthening its criticism with an econometric model.

This topic was chosen as a research topic because even today, not enough attention is drawn to the direction and extent of the effects of the school institution on shaping society. Today, the school institution is identified with the educational institution itself. For this reason, a criticism brought to the school institution can be perceived as a direct criticism of the education itself, and a reaction to the existence of the school institution may create the impression of a natural response to teaching. This situation points to the distortion in this issue. It should not be forgotten that the modern state shaped the school institution. Considering this, it will be more apparent that education does not exist only with modern schooling. Although studies address the claims that the school institution masses the society and reduces diversity and originality, these studies are less numerous in the mainstream literature. Critical approaches to institutions that build a culture in the postmodern reality lose their rigidity regarding educational institutions. However, the education council should also protect the harsh criticism of the institutions mentioned above.

Nowadays, when it comes to improving education, it is understood that it should be carried out through the school institution. The topics related to education are eventually associated with the school institution and addressed. For example, if equality is a matter of education, this equality is discussed through the equality provided in school institutions. However, we think critical approaches should be shown against the school institution. In this study, we will try to show that the assumptions based on several causes and effects within the framework of the school institution are not actually as predicted. Although this situation, which we aim to draw attention to, has been discussed through qualitative studies, in this study, we aim to make an original contribution to the literature by including econometric modeling in work.

In our study, the success of countries in solving inequality in the education sector will be examined through the data. This review will be based on several assumptions. First, it is assumed that the states' expenditures on the education sector are realized through school institutions. In addition, all other factors affecting inequality are excluded from the evaluation. So, the relationship between expenditures on education and inequality will be established.

Our study will approach the relationship between education and inequality based on Ivan Illich's

perspective of the deschooling of society. Illich's claims on inequality are essential in the critical literature on the modern education system. However, the fact that these claims are not tested empirically indicates one of the gaps in the literature. Our study has operationalized the modern education system through the school institution and examined the relationship between education and inequality according to the development levels of the countries. In this way, it will be seen how Illich's claims differ according to the development level of the nations.

In this direction, the literature will be discussed in the following sections, the material and data set will be introduced, and models and interpretations will be shared. Grouping countries created each model according to their level of development. Finally, policy recommendations and recommendations for future research will be shared.

2. Literature Review

One of the names who made critical studies on the school institution is Ivan Illich, a 20th-century philosopher, and social critic. Illich has conducted crucial studies on the culture of modernity and its institutions, especially on education, working life, health, and economic development. His work "Deschooling of Society," which he wrote in 1971, brought criticism about the role and practice of education in the modern world. Illich grounds these criticisms in the context of Latin America and Africa. According to him, there is a need for deschooling not only in the organizational sense but also in the cultural and moral sense (Illich, 1970: 2). Illich states that the concepts of teaching and learning, passing a grade, and education. Having a diploma and being competent are confused in the minds of the younger generations who start to go to school. In this work, Illich deals with how modern institutions and human nature shape our worldview in the context of the school institution (Illich, 1970: 3). The author's primary purpose here is to show that giving up public education and schooling will do more good than harm to society.

One of the essential points that Illich draws attention to in his book is the power of institutions to set societal standards. Illich, who operationalizes this through the school institution, emphasizes the power of schools to determine the needs and opportunities for the field of education. When the needs are determined through the institutions, those who cannot meet these needs up to a certain point are expressed as poor. In contrast, those who can meet these constitute the wealthy segment of society (Illich, 1970: 3). The main point to be emphasized here is that the definitions of these needs and, therefore, concepts such as poverty, wealth, and equality are highly dependent on institutions and, in Michel Foucault's words, the power, which indirectly governs these institutions (Foucault, 2005). The poverty related to this was expressed as modern poverty by Illich. The author explained that the budget allocated to education did not reduce inequality in education with the example of America between 1965-1968 (Illich, 1970: 4).

Another name that should be mentioned in the literature is Everett Reimer. He refers to Illich Reimer as the person who made him take an interest in public education. Reimer is an educational theorist who has written various studies on education policy. In his work "School is Dead," he mentions that today's school institutions have become the church of technology societies. Accordingly, in a world dominated by technology, the school institution is important (Reimer, 1971: 1). However, only half of the children can complete the first six grades in only some countries, even in the last quarter of the 20th century (Reimer, 1971: 8). Reimer discusses alternatives for school institution in his studies. According to him, the alternative of this institution should have two essential features. First, these institutions should be more economical. In our research, we will be pointed out one aspect of why being economical is necessary. Secondly, these institutions should increase individuals' critical thinking ability and creativity rather than manipulate individuals. These features should lay the groundwork for individuals to rebuild institutions (Reimer, 1971: 63).

Michael Singh and Bobby Harreveld have addressed the school institution in a way that appeals to the new spirit of capitalism in postmodern society. We can say that this study also has a critical

aspect. However, the study also has a pragmatist side, as it accepts the final stage of capitalism as given and draws attention to schooling that will support it. The educational institution that will feed the new spirit of capitalism has been expressed with the concept of *l'earning*. This concept can be associated with opening a space for movement for the unique spirit of capitalism in the field of education in a postmodern era (Singh et al., 2014: 8). In this institution, he actively participates and contributes to the real world and develops his knowledge and skills through cooperation and production (Fischer, 2009: 370). This transformation is necessary for the young population's commitment to 21st-century global capitalism. Here, the emphasis is placed on increasing the self-awareness of the individual (Florida, 2005), contributing to individual freedom and shared goals through education (Schlimbach, 2010: 4). It is seen that this and similar studies differ from Illich's approach in that they deal with the school institution in a debate. Accordingly, just as capitalism has transformed over time, the school institution must also experience this transformation and continue to nurture the new spirit of capitalism. Although this judgment is not directly expressed in the texts, it makes its presence felt as a pre-acceptance.

An example is the studies that put the evolution of classroom-based training into training over the internet with the increasing digitalization (Moore, 1986: 166). However, the point to be considered here is whether the structural transformations in educational institutions do not eliminate the problems that Illich has touched. Illich also brought classroom-centered education to the agenda. According to him, classroom-centered education is unsuitable due to its nature. In addition, this situation, which causes educational bureaucratization, will restrict learning (Illich, 1973). Other studies show that classroom-centered education policies will not provide effective results in the twenty-first century. While Gibb et al. (2011) did a study on this in Canada, Steedman (2011) did a similar analysis for the UK. Walther (2012) has twin studies for Germany and Lerman (2013) for America. Our study aims to bring this critical approach to the fore and question whether the expenditures made on the school institution have a meaningful relationship with eliminating inequality, although this institution is transforming today.

Takahashi (2008) brought one of the critical approaches to the school institution through the concept of homeschooling. The idea of homeschooling has received increasing attention in recent years. The thought that the harmful effects of the school institution are more than the positive sides can be seen as one of the primary motivations for this alternative. The relationship between expenditures on school institutions and the course of inequality, which is also the main research question of our study, has the possibility of presenting a supporting argument for homeschooling literature. Another alternative to the modern institution is the open school (Andrade, 2008: 227). The Government of India established them to provide education to all segments of society to increase literacy and flexible learning. Therefore, it can be said that these institutions partly focused on the points that Illich criticized.

The study of Benito et al. (2014) can be given as an example of the studies that deal with the critical approach to the school institution in the context of equality. In this study, Benito et al. used the PISA data of 16 Western OECD countries. They investigated to what extent the socio-economic status of the countries shaped the equality and efficiency in education. Their study concluded that reducing the differentiation made in schools according to socio-economic conditions will positively affect equality in education. However, this study does not subject the school institution itself to critical reading in the context of the problem of inequality; on the contrary, it seeks the solution of inequality in education without questioning the existence of the existing school institution. In addition, Illich emphasizes that the school institution has different effects in Western and non-Western countries. Therefore, it would be beneficial to strengthen the analysis made in the study by including it with non-Western countries. Another research carried out in the context of equality was carried out by Murray et al. (2019) discussed equality of opportunity in education within the framework of the parent-teacher relationship. However, equality of opportunity in education is sought within the school institution. Talancé (2020), which deals with the issue of inequality from the perspective of private

and public schools, focuses on the reasons behind the choices for these schools. Hartwig (2013) and Pal (2010), who dealt with this issue in more detail, pointed out that private schools could increase inequalities with their wage policies. Their study touches on the point that we also drew attention to in our study, partly more than other studies. The emphasis on private schools in increasing inequality has been expanded in our study by introducing an institutional critique. Therefore, criticism was brought not only to private schools but to the school institution itself. Another study that criticizes the school institution in the context of discrimination is a criticism of the institution itself, which we aim to highlight in our study. Accordingly, the school has assumed a policy role in continuing social discrimination throughout history.

Today, states are investing in education through the school institution without being aware of the effect of the school institution (Poverty and Race Research Action Council, 2021). Karen Benjamin (2012) made this point throughout 1920s North Carolina. An extensive school building program was put into effect during this period. However, while running this program, the authorities refused to build even a single school for predominantly black middle-class suburbs in the southeastern part of the city while operating the premier schools in the area on the northwest side of the town. Therefore, the school institution affects the continuation of inequality, as it contains a modern-political side rather than a pioneer in social co-development.

Moreover, the equal distribution of the budget spent on the school institution by the state to the regions does not eliminate inequality. Low-income school districts are underfunded (Mudrazija et al., 2019). Our research aims to reveal this fact with data.

Addressing the issue of education and equality in the American context, Myers (1942) emphasizes that the issue of equality of opportunity in education has not been resolved for a long time. At this point, it is seen that the school institution cannot solve the problem of equal opportunity in education. Considering that education and inequality are in a mutual relationship, it is possible that this institution, which cannot solve the inequality problem in itself, will cause the inequality problem to become permanent in the future. Boulding also evaluated a similar issue in the context of America in his study. Accordingly, it was once believed that publicly supported universal education would ensure socio-economic equality. However, over time, it has been seen in practice that this is not a correct assumption (Boulding, 1976: 36). In this case, it should be expected that education spending will not significantly affect inequality in the long run. Our research examines exactly this relationship through data. Although Boulding drew attention to the relationship between income inequality and education in his study, he discussed this relationship in America. Our research has examined this relationship both with actual data and not just limited to the USA.

Waldron (1997) examined the issue of education and equality through the reform of funding for school institutions. His work also took place in America. We think it is not a coincidence that critical studies on the school institution are mainly carried out in the example of America and spread from there to other regions. The expectations for the modern school institution, which is desired to lead the development, were undoubtedly great in America, the center of the free market. However, contrary to the assumptions, studies on the fact that schooling causes these in a way, aside from solving the problem of inequality, have increased over time. The first examples of this have also been seen in America and its surroundings. It can be said that the United States and England lead the way in research on this subject. It is possible to see the traces of a postmodern pragmatist paradigm, especially in America-based studies (Dennis, 1980: 112). Therefore, in such studies, it can be said that the problem of inequality in education is handled through steps that can reduce the inequality problem in the existing structure, if not eliminate it, rather than an institutional critique.

Shakar (2016) dealt with equality with an emphasis on the idea of justice. According to this point of view, equality in all aspects yields better results than alternative understandings of justice in achieving the goals of justice in education. However, studies show that an approach in which equality is at the forefront in all aspects does not reveal the justice that Shakar expressed theoretically in practice.

Stiglitz (1973), who deals with the relationship between education and inequality in terms of income, as in our study, draws attention to the fact that the school institution is an American myth that is seen as a catalyst that will eliminate inequality and provide a common development for different classes of society. It does not mean that there is no relationship between education and income. However, it is doubtful that development reduces inequality and covers all segments of society. The myth expressed by Stiglitz is closely related to the modern period approach to the educational institution. An example of this approach is the work of Morgan et al. (1963). It is stated here that the increased investment in educational institutions will provide economic benefits and an increase in financial assets. This approach is an example of the industrial society's approach to education within the framework of the profit-loss relationship. It is shown by the data that the increase in education level will bring an increase in income (Brunner et al., 1958). Although this relationship is genuine, the differentiation of educational opportunities for different segments of societies also affects the differences in income levels. As a matter of fact, by the 1970s, it was more evident that there was no simple linear relationship between education and income, as seen in Brunner's study. Griliches et al. (1972) have included the concept of talent/ability as the third variable in their studies. It was seen that neglecting the ability differences in the analysis of the income-education relationship affected the estimation results Griliches et al. (1970). Today, the effects of these differences are emphasized more. In another study, Tolley et al. (1971) noted that education and income are simultaneous, emphasizing a reciprocal relationship rather than a one-way cause-effect relationship.

The fact that an increase in education will bring an increase in income is examined in different dimensions by incorporating other concepts into the relationship today. Increasing economic and social inequality makes effective reforms in education more difficult. Duncan et al. (2014) carried out their studies in America. When the course of the literature is followed, the school institution, which was planned to support social and economic development with an increase in income, could not solve the problem of economic and social inequality in the long run, which made reform in education more difficult. Taking the concept of inequality in a broad perspective, Jeneks (1972) also draws attention to the fact that education does not have an income equalizing function.

On the contrary, widespread public education will increase income inequality more (Sylwester, 2002). Stack et al. (1978) confirmed this in their analysis of 38 countries. According to them, the issue of inequality cannot be resolved by providing equal opportunities in education. This requires direct political interventions. On the other hand, Lin (2003) observed in his research for Taiwan that increasing equality in education reduces income inequality. However, it can be understood from the literature that this judgment cannot be generalized.

In a recent study, Rehme (2007) addressed the issue of education, development, and income inequality from a perspective similar to ours. Accordingly, more education may not necessarily lead to a reduction in inequality. The increase in education will increase income inequality at the beginning, gradually decreasing (Rehme, 2007: 493). This study tested the claim in America, Canada, and 4 European countries. Our study tests a similar claim by increasing the unit and time dimension and using a different model.

3. Material and Data Set

Our study tested whether education through the school institution is a significant factor in explaining the inequality problem. This relationship between education and inequality is expected to contribute to the criticisms directed at modern education through school institutions. The fact that the said relationship is meaningless will support the claims of the relevant literature with an empirical finding. In contrast, a meaningful relationship will have the potential to create new question marks. The model was developed for three sub-country groups, with three models in total. While creating the models, the data of 45 countries between 2010-2019 were used. Country subgroups were made by considering the United Nations Human Development Index. Accordingly, three models are separately established

for 15 developing countries (human development index below 0.80), 15 lower group developed countries (human development index between 0.80-0.90), and 15 upper group developed countries (human development index above 0.90).

In the model, the significance of the selected variables related to the educational institution on the human inequality coefficient was measured. For this, inequality in education, the ratio of public expenditures to the education sector in GDP, and the average year of schooling were chosen as independent variables. The human inequality coefficient introduced as an experimental measure in HDR in 2014; is a simple average of inequalities in health, education, and income. Education inequality data refers to the inequality in the distribution of years of education based on data obtained from household surveys estimated using the Atkinson inequality index. It is expressed as a percentage. The ratio of public expenditures to the education sector in GDP represents the percentage of current spending for education, capital, and transfer expenses. Average years of education refer to the average years received by people aged 25 and over (Human Development Reports, 2021).

4. Empirical Analysis

As stated above, a classical two-dimensional panel data model consisting of one unit and time dimension, countries and time, was used in our study.

The model in its most classical form is expressed in equation (1) below.

$$CoHI_{it} = \beta_0 + \beta_1(inequalityeduc)_{it} + \beta_2(educexp)_{it} + \beta_3(schooling)_{it} + u_{it} \quad (1)$$

Model results according to country groups are shared below.

Table 1. AR (1) Errors Linear Regression Model (Developing Countries)

CoHI	Coefficient	z	p > z
lnequalityeduc	4.079508	5.98	0.000
educexp	.0947307	0.32	0.750
schooling	-1.95318	-5.08	0.000
Const.	26.83736	5.61	0.000
Wald chi2 (4)	119.52	R²	0.6534

According to the D'Agostino, Belanger, and D'Agostino test, it is seen that the developing country data provide the assumption of normal distribution. According to the test results of Levene, Brown, and Forsythe, there is no heteroscedasticity in the model. There is autocorrelation according to the Baltagi-Wu test. According to the Pesaran test, there is no correlation between units. Also, there is no multicollinearity in the model. AR(1) Errors Linear Regression Model can be used. In the presence of a one-way unit effect, the model tested with the Wald test is significant in the model estimated by random effects regression. Education inequality and average years of schooling explain 65% of the changes in the human inequality coefficient. Except for the ratio of expenditures to the education sector in GDP, other variables are significant at a 95% confidence in explaining the human inequality coefficient. Accordingly, every 1% increase in education inequality increases the human inequality coefficient by 0.04 units. Every 1-year increase in the average school year reduces the human inequality coefficient by approximately 1.95 units. In addition, the constant parameter is significant at the 95% confidence level.

Table 2. Driscoll-Kraay Estimator Regression Model (Developed Countries-Lower group)

CoHI	Coefficient	t	p > t
lnequalityeduc	3.57302	12.80	0.000
educexp	-.3603723	-1.51	0.166
schooling	-0.6762563	-2.26	0.050
Const.	14.37451	3.54	0.006
Wald chi2 (4)	224.09	R²	0.6552

According to the D'Agostino, Belanger, and D'Agostino test, it is seen that the developed country-lower group data provide the assumption of normal distribution. According to the test results of Levere, Brown, and Forsythe, there is heteroscedasticity in the model. There is autocorrelation according to the Baltagi-Wu test. According to the Pesaran test, there is also a correlation between units. But, there is no multicollinearity in the model. Driscoll- Kraay Estimator Regression Model can be used. In the presence of a one-way unit effect, the model tested with the Wald test is significant in the model estimated by random effects regression. Education inequality and average years of schooling explain 65% of the changes in the human inequality coefficient. Except for the ratio of expenditures to the education sector in GDP, other variables are significant at a 95% confidence in explaining the human inequality coefficient. Accordingly, every 1% increase in education inequality increases the human inequality coefficient by 0.03 units. Every 1-year increase in the average school year reduces the human inequality coefficient by about 0.67 units. In addition, the constant parameter is significant at the 95% confidence level.

Table 3. Driscoll-Kraay Estimator Regression Model (Developed Countries - Upper Group)

CoHI	Coefficient	t	p > t
lnequalityeduc	.3545357	11.19	0.000
educexp	-.225705	-2.24	0.052
schooling	-0.0426721	-0.22	0.828
Const.	8.251184	3.38	0.008
Wald chi2 (3)	579.89	R²	0.3316

According to the D'Agostino, Belanger, and D'Agostino test, it is seen that the developed country-upper group data provide the assumption of normal distribution. According to the test results of Levere, Brown, and Forsythe, there is heteroscedasticity in the model. There is autocorrelation according to the Baltagi-Wu test. According to the Pesaran test, there is also a correlation between units. But, there is no multicollinearity in the model. Driscoll- Kraay Estimator Regression Model can be used. In the presence of a one-way unit effect, the model tested with the Wald test is significant in the model estimated by random effects regression. Education inequality and the ratio of expenditures to the education sector in GDP explain 33% of the changes in the human inequality coefficient. Except for the average year of education, other variables are significant at the 95% confidence level in explaining the human inequality coefficient. Accordingly, every 1% increase in inequality in education increases the human inequality coefficient by 0.003 units. Every 1% increase in the share of expenditures on the education sector in GDP reduces the human inequality coefficient by about 0.22 units. In addition, the constant parameter is significant at the 95% confidence level.

5. Model Interpretation

The relationship between the human inequality coefficient and the educational variables differs in the country groups grouped according to the human development index scores. While the education inequality rate in determining human inequality is high for developing countries, this effect decreases as the development of the country increases. While the coefficient of the impact of inequality in education on human inequality in developing countries is 4.07, this rate drops to 0.35 in upper group developed countries. This shows us that as countries' development level increases, education inequality ceases to be a fundamental problem of human inequality.

Whether the variable of the ratio of expenditures to the education sector in GDP is significant in determining human inequality may vary according to the development level of the countries. Accordingly, spending on education for developing and lower group developed countries is meaningless to explain human inequality. On the other hand, expenditures on the education sector in upper-group developed countries are meaningful in explaining human inequality.

While every 1-year increase in the average education year is more effective in reducing human

inequality in developing countries, this effect gradually decreases in developed countries, especially in upper group developed countries. This shows us that the average school year is not a problem in developing countries fighting against human inequality. On the other hand, as the level of development decreases, the marginal benefit of each additional year in education gradually increases.

Another critical point is the ratio of education-related variables to explain the change in human inequality. In developing and lower group developed countries, the ratio of education-related variables to explain human inequality is very close to each other. On the other hand, this rate drops to almost half in upper group developed countries. This situation shows that the upper group of developed countries has solved the problems related to education within the scope of human inequality to a large extent compared to other groups. Therefore, inequalities in upper-group developed countries arise from other institutions compared to other groups.

6. Conclusion

Although education is an institution as ancient as the history of humanity, it can be said that the school institution is an institution of the modern social structure. There are critical views on the school institution in the postmodern society, where modern institutions are handled from different perspectives. In our study, this critical literature is discussed in the context of inequality. In particular, the discourse that modern education gradually increases inequality has been analyzed by panel data method over ten years (2010-2019) data of 45 countries. As a result of the analysis, it was seen that the education-related variables were significant in explaining the human inequality coefficient. The effect of inequality in education on human inequality decreases as the development level of countries increases. Increasing the expenditure on education has a significant impact against human inequality only in upper group developed countries. On the other hand, the increase in the average education year may be an effective policy in the fight against inequality in developing and lower group developed countries.

In other words, the most effective education policy that developing countries can implement in the fight against inequality is seen as increasing the average education year. On the other hand, it is seen that increasing the budget allocated to education by the countries in this group is not as effective a policy as it is in developed countries. This situation confirms Illich's thesis. It is also seen that the role of education in the problem of inequality gradually loses its importance as the development level of countries increases.

In our study, it is assumed that all expenditures are made through the school institution since it is impossible to see the spending made by the states on the education sector in detail. In addition, sociological, cultural, and political factors that may be meaningful in explaining the inequality problem of countries have been ignored. In addition, the effect of the average school year on inequality in education is undoubtedly related to the quality of education. However, our study assumed that this quality was identical for each academic year and country group. In future studies, the issue of education and inequality can be examined by taking into account each country's cultural and demographic variables. In addition, the inequality in education can be discussed in more depth with models in which inequality in education is an independent variable for similar country groups.

In analyzing institutions (such as education, democracy, and state) that are the inventions of modernity, economics is gradually expanding its focus. While Acemoglu (2008) showed this in the context of the relationship between democracy and economy, we aimed to show this in the context of modern education and economics in our study. The fact that education and economics are in a close positive relationship indicates that the differences between developed and undeveloped countries will emerge not only in the economic dimension but also in different dimensions such as education. Considering that the school institution is a modern institution, it can be said that countries with high-income rates, by using other economic institutions of modernity, effectively struggle with the problem of inequality in education. However, in this case, inequality in education remains a problem for

underdeveloped countries. In this case, the differences in the educational opportunities of developed and underdeveloped countries will gradually turn inequality into a chronic problem. At this point, we suggest going beyond the modern education system and looking for the possibility of a deschooling society. It should not be forgotten that a society without school does not mean a society without education.

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Appendix

Appendix 1. List of Countries Included in the Study

Developing Countries:

Azerbaijan, Brazil, Ecuador, Indonesia, Armenia, South Africa, India, Colombia, Mexico, Moldova, Paraguay, Peru, Sri Lanka, Ukraine, Zambia.

Lower Group Developed Countries:

Argentina, Czechia, Estonia, Italy, Costa Rica, Hungary, Poland, Portugal, Romania, Russia, Serbia, Chile, Turkey, Uruguay, Greece.

Upper Group Developed Countries:

Germany, USA, Australia, Austria, Belgium, UK, Denmark, Finland, Netherlands, Ireland, Sweden, Switzerland, Iceland, Canada, Norway.