

Prethodno priopćenje
UDK: 37.014.6:37.091.26
DOI <https://doi.org/10.22598/zefzg.2024.1.71>
Datum primitka članka u uredništvo: 27. 5. 2024.
Datum slanja članka na recenziju: 3. 6. 2024.
Datum prihvatanja članka za objavu: 1. 7. 2024.

Elio Babačić, mag. oec.

SOCIOECONOMIC FACTORS AND PERFORMANCE ON THE PISA TEST

SOCIOEKONOMSKI ČIMBENICI I USPJEŠNOST NA PISA TESTU

ABSTRACT: This research aims to test if and to what extent socioeconomic factors of individual countries relate to different student results on the PISA test, i.e., learning outcomes in the EU member states. Previous studies tested the relationship between socioeconomic factors and years of schooling or enrollment rate, but they did not use specific test results that would reflect the quality of the education system. Therefore, the empirical analysis was performed for the PISA test conducted in 2022 using OLS regression analysis. The econometric analysis endorsed the notion that an increase in economic deprivation (measured by the share of the population that cannot adequately keep home warm) increases the share of students with poor results on the PISA test, as well as an increase in the share of students who leave the education system early. On the other hand, greater participation of children in early education reduces the share of students with poor results on the PISA test.

KEY WORDS: socioeconomic factors, education, income inequality, learning outcomes, European Union

JEL: A20, I21, I28

SAŽETAK: Cilj ovog istraživanja je testirati jesu li i u kojoj mjeri socioekonomski čimbenici pojedinih zemalja povezani s različitim rezultatima učenika na PISA testu, odnosno ishodima učenja u zemljama članicama EU. Dosadašnja istraživanja testirala su odnos između socioekonomskih čimbenika i godina školovanja ili stope upisa u obrazovne institucije, ali nisu koristila specifične rezultate testova koji bi odražavali kvalitetu obrazovnog sustava. Stoga je provedena empirijska analiza za PISA test proveden 2022. godine korištenjem metode najmanjih kvadrata. Ekonometrijska analiza potvrdila je pretpostavku kako povećanje ekonomske deprivacije (mjerene udjelom stanovništva koje ne može adekvatno

* Elio Babačić, mag. oec., Teaching and research assistant, Faculty of Economics & Business University of Zagreb, Trg J.F. Kennedyja 6, 10 000 Zagreb, Croatia, e-mail: ebabacic@efzg.hr

ugrijati dom) povećava udio učenika s lošim rezultatima na PISA testu, kao i porast udjela učenika koji preuranjeno napuštaju obrazovni sustav. S druge strane, veća uključenost djece u rano obrazovanje smanjit će udio učenika s lošijim rezultatima na PISA testu.

KLJUČNE RIJEČI: socioekonomski čimbenici, obrazovanje, dohodovne nejednakosti, ishodi učenja, Europska unija

1. INTRODUCTION

The PISA tests are designed to assess how well students, at the end of compulsory education, can apply their knowledge to real-life situations. They were conducted in 2000 for the first time and thus made it possible for the first time to compare the knowledge and skills of students among countries. Before then, comparisons of learning outcomes were predominantly based on years of schooling (OECD, 2023). Years of schooling are certainly a weaker indicator considering that they do not show concrete results of schooling, and thus the quality of the education system in a particular country. The PISA tests evaluate 15-year-old students by conducting three separate tests: a test of mathematics, reading literacy and science (NCVVO, 2023). The science test implies knowledge of physics, chemistry, and biology.

The PISA tests performed in 2022 were conducted in 81 countries around the world. On average, students of good socioeconomic status in OECD countries scored 93 points more on the mathematics test than those of disadvantaged socioeconomic status. More specifically, the difference in performance attributed to students' socioeconomic status exceeds 93 points in 22 countries, or 50 or fewer points in 13 countries (OECD, 2023). This shows that it is worth testing the socioeconomic situation in a particular country to test whether certain socioeconomic factors at the country level have an impact on the results of the PISA tests that are used as an indicator for the learning outcomes in the country.

When conducting the PISA tests, socioeconomic data is collected for every student, and the OECD analyzes the relationship between an individual's socioeconomic background and PISA test performance. However, according to the author's knowledge, the role of socioeconomic factors at the country level in learning outcomes, which can be used to measure the quality of the educational system, has not yet been tested.

In this research, a total of 26 countries will be analyzed, 25 of which are member countries of the European Union that participated in the PISA testing in 2022, and Norway. No data were available for Greece regarding the independent variables used, therefore it is not included in the model. The mentioned countries have harmonized indicators calculated by Eurostat methodology. The variables used in the econometric model will be defined in the following sections.

2. LITERATURE REVIEW

Education is considered a fundamental human right because it affects different personal, social, and life outcomes, either through greater economic opportunities, better health, or the ability to participate in society (Obadić et al., 2024). Education plays an im-

portant role in the economy, it is a driver of growth and reduces inequality (if we assume that a larger share of the educated population would create greater added value and achieve higher incomes), but the opposite direction should also apply, i.e., a society with lower income inequality and a more developed economy should be more successful in educating its population compared to developing countries. Consequently, the development of the education system is often considered a valuable tool to combat growing income inequality in the medium term, and education expenditure is justified as an effective instrument for reducing income inequality (Muszynska & Wedrowska, 2023). However, some authors did not find a statistically significant relationship between education expenditure and income inequality (Sylwester, 2002; Sanchez & Perez-Corral, 2018).

Access to quality education is often determined by socioeconomic factors such as income, parental education level, and local resources (Chetty et al., 2020). Reardon (2011) found that the educational achievement gap between high and low-income families has become roughly 30 to 40 percent larger among children born in the early 2000s compared to those born twenty-five years earlier in the US. Income inequality can therefore have an impact on educational access, with lower-income families disproportionately affected by financial barriers to education. Several authors have found a positive relationship between inequality of learning outcomes and income inequality, but not always significant (Mayer, S. E., 2010; Castello-Climent & Domenech, 2014; Nabassaga et al., 2020).

The relationship between socioeconomic determinants and education is mostly researched at the personal or family level. Targeted interventions for students who are at risk, fair school funding, and investing in early childhood education are crucial (Duncan & Murnane, 2014). Also, increased social mobility and educational fairness depend on policies targeted at mitigating structural disparities in housing, healthcare, and employment (Rothstein, 2017). Heckman (2011) discusses the long-term economic benefits of investing in early childhood education. He argues that early educational interventions can significantly reduce inequalities in educational attainment and, by extension, economic disparities. When provided with high-quality education early in life, children from lower-income families are given a chance to bridge the achievement gap with their higher-income peers. This intervention can alter life trajectories and reduce the perpetuation of poverty across generations (Heckman & Masterov, 2007). Barnett (2011) suggests that there is a need for public policy that expands access to quality early childhood education as a means of combating income inequality. Effective policy could focus on increasing funding, broadening accessibility, and ensuring high standards for early childhood education programs. Families with more financial and educational means had much greater access to high-quality early childhood education services in comparison to groups or families from less fortunate backgrounds (Tang et al., 2024).

Scholarships and other types of financial aid should also be considered when analyzing the overall impact of socioeconomic factors on the performance in the PISA test or the education system overall. They aim to reduce financial barriers, enabling students to access better educational resources and opportunities. Students who receive financial aid tend to have higher educational aspirations and are more likely to continue their education beyond secondary school, which also positively impacts their performance in standardized tests (Garcia & Weiss, 2017). There is a performance gap in PISA tests between advantaged and disadvantaged students, and scholarships could potentially bridge these gaps (Downey & Condron, 2016). Additional resources and learning time, which scholarships can provide,

positively affect student performance on the PISA test, especially among low-income students (Liu et al., 2023). Scholarships alleviate financial stress, enabling students to focus more on their studies and perform better academically (Graziosi et al., 2020).

Individuals with higher levels of education typically achieve better economic outcomes, including higher wages, better job stability, and greater career advancement opportunities. Higher education levels equip individuals with advanced skills and competencies valued in the labor market, which also provide higher earnings. Often, cultural factors are blamed for educational disparities since they are perceived as the main impediment to excellent educational attainment. This leads to stigmatization and stereotyping prejudices against certain groups of people (Van Den Berghe et al., 2024). It is assumed that a lower number of early education leavers should be related to more successful learning outcomes.

Some authors have investigated how income inequality harms student achievement in education in such a way that higher income inequality leads to fewer enrollments in secondary schools and fewer enrollments at all levels of education (Flug et al., 1998; Checchi, 2003; Coady & Dizioli, 2017), as well as studies that confirm that a higher enrollment rate at different levels of education is associated with lower income inequality (Karaman Aksentijević, & Ježić, 2019; Hovhannisyan, et al., 2020). However, these studies tested the years of schooling or enrollment rate, they did not use specific test results that would reflect the quality of the education system.

The year 2022, when the latest PISA test was conducted, was also affected by the COVID-19 pandemic, especially if we assume that the pandemic negatively affected education quality between 2020 and 2022 because of online teaching. Prolonged distancing is likely to have negative economic, social, and educational consequences (Kissler et al., 2020, Bejaković et al., 2021).

Compared to existing literature, this paper will consider socioeconomic factors on the level of the country and empirical data that measures the learning outcomes. Starting from the assumption that the existence of a larger share of the population that cannot meet their basic life needs, as well as a larger number of those who leave the education system early and growing income inequality in society, will adversely affect learning outcomes in the education system, an econometric model will be formed that will examine its importance. This will provide insight into the problem faced by countries with higher inequality or a greater share of socially deprived people in the context of the relationship with the quality of the education system. The quality of the education system is determined by learning outcomes based on the achieved success of students on the PISA test.

3. DATA AND METHODOLOGY

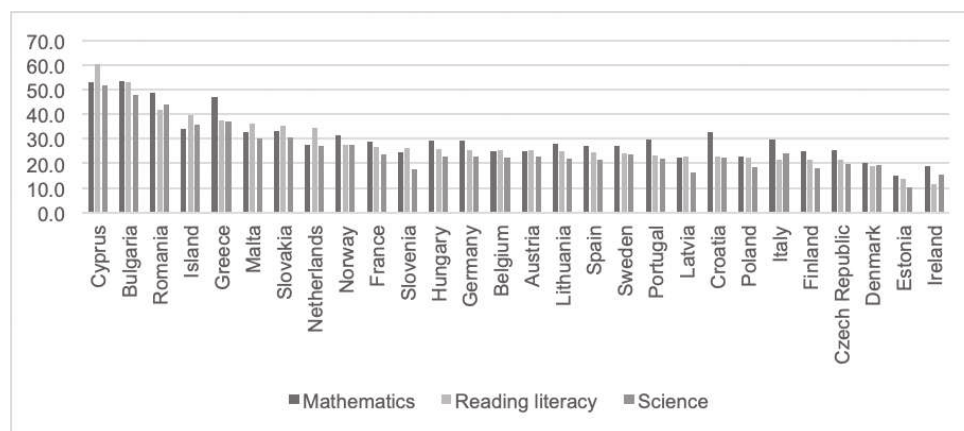
The source of data for the variables used in the research was Eurostat, including data related to the performance of students on the PISA tests (the original data belong to the OECD, but for EU and EEA member countries, they are also available on Eurostat). The dependent variable refers to the share of students with poor results on the PISA test (average values for the mathematics, reading literacy, and science tests). Poor success implies a test result below level 2 (basic level of knowledge). The independent variables refer to socioeconomic determinants that could have an impact on the success of students in their

education: the share of the population that cannot adequately keep home warm, the share of students who leave the education system early, participation in early education (includes children older than 3 years) and the Gini coefficient that will be used as an indicator for income inequality. The control variables used to check the robustness of the model are the real GDP per capita and the share of public expenditure for education in total public revenues. All data refer to the year 2022, except the data for two variables: participation in early education and the share of public expenditure on education in total public expenses which refer to 2021 (the last available data).

The countries analyzed in this research are Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden, and Norway (25 EU member states which conducted the PISA test in 2022, and Norway).

The performance of students on the PISA tests is the weakest in Cyprus, on average in all three categories and individually in reading literacy and science tests. Students in Bulgaria performed weakest in the math test. Romania, Iceland, and Greece follow, but Greek students performed weaker in the mathematics test compared to the remaining two categories. Croatia has a lower share of poorly written tests compared to the average of all analyzed countries. In Croatia, the highest share of weak tests is in mathematics (32.9%), followed by reading literacy (22.7%) and science (22.4%). Ireland, Estonia, Denmark, the Czech Republic, and Finland have the best-written tests, with Ireland having the best-written tests in reading literacy (the proportion of weak tests is 11.4%), and Estonia in mathematics (15%) and science (10.1 %).

Figure 1. Share of students with poor results on the PISA test conducted in 2022 (test result below level 2 - basic level of knowledge)



Source: author based on Eurostat (2023)

In this research, multiple linear regression will be used, in which the relationship between the dependent variable and independent variables, as well as the possible influence of control variables, will be assessed using the ordinary least squares (OLS) method.

Dependent variable:

- share of students with poor results on the PISA test (test result below level 2 - basic knowledge level, average values for mathematics, reading literacy, and science tests).

Independent variables:

- share of the population that cannot adequately keep home warm,
- the share of students who leave the education system early,
- participation in early education (includes children older than 3 years),
- the Gini coefficient as an indicator of income inequality.

Control variables:

- real GDP per capita,
- share of public expenditure for education in total public revenues.

The econometric model is defined in the following equation:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \varepsilon \quad (1)$$

In the following section, the results of the regression analysis will be analyzed, in which it will be determined if and how the socioeconomic factors of the EU member states that participated in the PISA test, and Norway, are related to the results of the PISA test, which is an indicator for learning outcomes.

4. RESULTS AND DISCUSSION

Before interpreting the results of the multiple linear regression, it is necessary to carry out diagnostics of the econometric model and determine whether the model is valid. First, multicollinearity between variables was tested, where it was determined by the variance inflation factor that there is no problem of multicollinearity in the model (VIF<5 for all variables in the model). Furthermore, the serial correlation was tested, which occurs more often in time series than in spatial regression models (Wooldridge, 2010), therefore it is not expected that there will be a serial correlation problem in the model. The presence of serial correlation was tested with the Durbin-Watson test, where it was found that there is no serial correlation (DW=2.10). Also, White's test for heteroscedasticity was performed, which examined the possible presence of variability in the variance of random variables in the model, and the null hypothesis was accepted, i.e., it was determined that there is no heteroscedasticity (the p-value of White's test exceeds the critical value at the 5% significance level). Finally, the Jarque-Bera test determined the distribution normality (JB=1.42).

Table 1. OLS regression analysis

Dependent variable: PISATEST	
Independent variables	Coefficients
HOMEWARM	1.354*** (0.287)
EARLYEDUC	-0.960*** (0.240)
GINI	-0.625 (0.424)
EARLYLEAVERS	0.693** (0.317)
REALGDP	0.0002* (0.0001)
EXPEDUC	3.786** (1.654)
Constant	90.564*** (18.765)
R ²	0.751

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors in parentheses.

Source: author

Table 1 shows the results of the regression analysis, which examines the relationship between the socioeconomic factors of countries and the results of the PISA tests in the EU member states that participated in the PISA test (except Greece) and Norway in 2022. The coefficient of determination is 0.751 or 75%, which means that 75% of the variation is explained by the regression model. Looking at the independent variables in the model, they are all statistically significant except for the Gini coefficient. More specifically, the share of the population that is unable to keep home adequately warm and participation in early education shows significance at the level of 1%, while the share of students who leave the education system early is significant at the level of 5%. On the other hand, among the control variables, GDP per capita is not statistically significant, and the share of public expenditure for education in total public revenues turned out to be statistically significant at the level of 5%.

The parameters of the regression equation are interpreted in such a way that an increase in the share of the population that cannot adequately keep home warm by 1%, with other variables constant, will on average increase the share of students with poor results on the PISA test (test result below level 2 - basic level of knowledge) by 1.4%, while an increase in the share of students who leave the education system early by 1%, with other variables constant, will on average increase the share of students with poor results on the PISA test by 0.7%. If the share of children in early education and training increases by 1%, with other variables unchanged, the share of students with poor results on the PISA test will decrease by 1% on average. It is interesting to note that the coefficient related to the control variable share of public expenditure for education in total public revenues has a positive value and the variable is statistically significant. In other words, an increase in the share of public ex-

penditure on education in total public revenues by 1%, with other variables unchanged, will on average increase the share of students with poor results on the PISA test by 3.8%. The conducted regression analysis showed that the role of socioeconomic factors of the state is significant in learning outcomes. In other words, there is a statistical relationship between the socioeconomic factors and the results of the PISA test in 2022. A larger share of those who cannot meet the basic needs of life (observed by the share of the population that cannot adequately keep home warm), as well as a larger share of those who leave the education system early, increases the share of poor results on the PISA test. Also, greater participation in early education (with the initial assumption that in such countries it is easier for parents to enroll their children in kindergarten, regardless of whether it is a public or private kindergarten), reduces the share of poor results on the PISA test.

5. CONCLUSION

This research analyzed the socioeconomic factors of the EU member states and their relationship with learning outcomes in the education system, measured by the success of students on the PISA tests. The 2022 PISA test performance and socioeconomic factors in the same year were analyzed, apart from participation in early education (children older than 3 years) and the share of public expenditure for education in total public revenues which are related to 2021 (the last available data). The diagnostic check of the regression model was first conducted, where all parameters indicated the validity of the model (absence of multicollinearity, serial correlation, and heteroskedasticity, as well as confirmation of distribution normality). The regression analysis showed that an increase in the share of the population that cannot adequately keep home warm increases the share of students with poor results on the PISA test, as well as an increase in the share of students who leave the education system early. On the other hand, greater participation of children in early education will reduce the share of students with poor results on the PISA test. A surprising result was the positive relationship between the share of public expenditure for education in total public revenues and the share of students with poor results on the PISA test. The Gini coefficient as a measure of income inequality and real GDP per capita were not statistically significant in the model. The main limitation of the empirical analysis is that the scope consists of the PISA test conducted at one point in time. Further research could conduct a panel analysis to check any differences in the relationship between socioeconomic factors and performance on the PISA test over the years. Also, some other control variables that could reflect the specifics of the EU countries could be included in the model, as well as the distinction among different groups of EU countries. This research not only endorses previous findings on the relationship between socioeconomic status and education but also extends the discussion by focusing on direct measures of educational quality through PISA test scores. These insights are crucial for developing targeted educational policies that address both economic deprivation and early education, ultimately aiming to reduce educational disparities and improve overall learning outcomes in various socioeconomic contexts. The findings empirically demonstrated that socioeconomic factors significantly influence the quality of the education system and that in this regard, it is possible to suggest the implementation of public policies providing every student with dignified education and living conditions in which students can better utilize the benefits that the education system offers.

REFERENCES

1. Barnett, W. S. (2011). Effectiveness of Early Educational Intervention, *Science*, 333(6045), 975-978.
2. Bejakovic, P., Druzeta, R.P., & Skare, M. (2021). Intricate, Unreliable and Ungrateful Estimations on the Impact of the Coronavirus on Economic Development, *Transformations in Business & Economics*, 20(2), 21-40.
3. Castelló-Climent, A., & Doménech, R. (2014). Human Capital and Income Inequality: Some Facts and Some Puzzles, Working Paper 12/28, BBVA Research.
4. Checchi, D. (2003). Inequality in incomes and access to education: A cross-country analysis. *Labour*, 17(2), 153-201.
5. Chetty, R., Hendren, N., Jones, M.R., & Porter, S.R. (2020). Race and Economic Opportunity in the United States: an Intergenerational Perspective, *The Quarterly Journal of Economics*, 135(2), 711-783.
6. Coady, D., & Dizioli, A. (2017). Income Inequality and Education Revisited: Persistence, Endogeneity, and Heterogeneity. IMF Working Paper, WP/17/126, IMF.
7. Downey, D., & D. Condrón (2016). "Fifty Years since the Coleman Report", *Sociology of Education*, 89(3), 207-220.
8. Duncan, G. J., & Murnane, R. J. (2014). *Restoring Opportunity: The Crisis of Inequality and the Challenge for American Education*. Harvard University Press.
9. Eurostat (2023). Low-achieving 15-year-olds in reading, mathematics or science. Dostupno na: https://ec.europa.eu/eurostat/databrowser/view/sdg_04_40/default/table?lang=en
10. Eurostat (2023a). Population unable to keep their home adequately warm because of poverty status. Dostupno na: https://ec.europa.eu/eurostat/databrowser/view/sdg_07_60/default/table?lang=en
11. Eurostat (2023b). Early leavers from education and training. Dostupno na: https://ec.europa.eu/eurostat/databrowser/view/sdg_04_10/default/table
12. Eurostat (2023c). Participation in early childhood education. Dostupno na: https://ec.europa.eu/eurostat/databrowser/view/sdg_04_31/default/table?lang=en
13. Eurostat (2023d). Gini coefficient of equivalised disposable income - EU-SILC survey. Dostupno na: <https://ec.europa.eu/eurostat/databrowser/view/tessi190/default/table?lang=en>
14. Eurostat (2023e). Real GDP per capita. Dostupno na: https://ec.europa.eu/eurostat/databrowser/view/sdg_08_10/default/table?lang=en
15. Eurostat (2023f). General government expenditure by function (COFOG). Dostupno na: [https://ec.europa.eu/eurostat/databrowser/view/gov_10a_exp\\$defaultview/default/table](https://ec.europa.eu/eurostat/databrowser/view/gov_10a_exp$defaultview/default/table)
16. Flug, K., Spilimbergo, A., & Wachtenheim, E. (1998). Investment in education: Do economic volatility and credit constraints matter?, *Journal of Development Economics*, 55(2), 465-481.
17. Garcia, E., & Weiss, E. (2017). Education inequalities at the school starting gate:

- Gaps, trends, and strategies to address them. *Economic Policy Institute*.
18. Graziosi, G., Sneyers, E., Agasisti, T., & De Witte, K. (2020). Can grants affect student performance? Evidence from five Italian universities, *Journal of Higher Education Policy and Management*, 43(1), 24–48.
 19. Heckman, J. (2011). The economics of inequality: The value of early childhood education. *American Educator*, 35(1), 31-35.
 20. Heckman, J. J., & Masterov, D. V. (2007). The Productivity Argument for Investing in Young Children, *Review of Agricultural Economics*, 29(3), 446-493.
 21. Hovhannisyan, A., Castillo-Ponce, R., & Rolando, V. (2020). The Determinants of Income Inequality: The Role of Education, *Scientific Annals of Economics and Business*, 66, 451-464.
 22. Karaman Aksentijević, N., & Ježić, Z. (2019). Education and Reducing Income Inequalities – The Importance of Education in Maritime Studies, *Multidisciplinary Scientific Journal of Maritime Research*, 33(2), 191-204. DOI: <https://doi.org/10.31217/p.33.2.9>
 23. Kissler, S.M., Tedijanto, C., Goldstein, E., Grad, Y.H., & Lipsitch, M. (2020). Projecting the transmission dynamics of SARS-CoV-2 through the postpandemic period, *Science*, 368(6493), 860-868. Available at: <https://science.sciencemag.org/content/368/6493/860/tab-pdf>, referred on 18/08/2020.
 24. Liu, A., Wei, Y., Xiu, Q., Yao, H., & Liu, J. (2023). How Learning Time Allocation Make Sense on Secondary School Students' Academic Performance: A Chinese Evidence Based on PISA 2018, *Behavioral Sciences*, 13(3).
 25. Mayer, S. E. (2010). The relationship between income inequality and inequality in schooling. *Theory and Research in Education*, 8(1), 5-20. <https://doi.org/10.1177/1477878509356346>
 26. Muszyńska, J., & Wędrowska, E. (2023). Does Education Affect Income Inequality? A Comparative Review of Fourteen European Countries. *Ekonomika regiona / Economy of regions*, 19(2), 397-409. <https://doi.org/10.17059/ekon.reg.2023-2-8>
 27. Nabassaga, T., Chuku, C., Mukasa, A., & Amusa, H. (2020), How Does Educational Inequality Affect Income Inequality in Africa?, Working Paper Series N° 343, African Development Bank, Abidjan, Côte d'Ivoire.
 28. NCVVO (2023). PISA 2022: Rezultati, odrednice i implikacije. Sveučilišna tiskara, Zagreb. Available at: https://pisa.ncvvo.hr/wp-content/uploads/2023/12/PISA-2022_Nacionalni-izvjestaj.pdf
 29. Obadić, A., Smolić, Š., & Fabijančić, M. (2024). Obrazovanje i znanost u Hrvatskoj. *Gospodarstvo Hrvatske*. Zagreb: Sveučilište u Zagrebu, Ekonomski fakultet, 431-455.
 30. OECD (2023). PISA 2022 Results (Volume I): The State of Learning and Equity in Education, PISA, OECD Publishing, Paris, <https://doi.org/10.1787/53f23881-en>.
 31. Reardon, S. F. (2011). The Widening Socioeconomic Achievement Gap: New Evidence and Possible Explanations. Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances, 91-116.
 32. Rothstein, R. (2017). *The Color of Law: A Forgotten History of How Our Government Segregated America*. Liveright Publishing Corporation.

33. Sánchez, A., & Pérez-Corral, A. L. (2018). Government Social Expenditure and Income Inequalities in the European Union, *Hacienda Pública Española/Review of Public Economics*, 227(4), 133-156.
34. Sylwester, K. (2002). Can Education Expenditures Reduce Income Inequality?, *Economics of Education Review*, 21(1), 43–52.
35. Tang, A., Rankin, P., Station, S., & Thorpe, K. (2024). Access to high-quality early care and education: Analysis of Australia’s national integrated data, *Early Childhood Research Quarterly*, 67, 352-362.
36. Van Den Berghe, L., Pouille, A., Vandeveld, S., & De Pauw, S. S. W. (2024). Looking beyond primary barriers: Support workers’ perspectives on school dropout among students with a migration background, *Journal of Ethnic & Cultural Diversity in Social Work*, 33(1), 34–46. <https://doi.org/10.1080/15313204.2022.2094519>
37. Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data* (2nd ed.). MIT Press.