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The latest research trends in the field of economics of education: January-June 2022

EENEE Coordination team

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ABOUT EENEE

EENEE is an advisory network of experts working on economics of education and training. The establishment of the network was initiated by the European Commission's Directorate-General for Education and Culture and is funded by the Erasmus+ Programme. PPMI is responsible for the coordination of the EENEE network. More information on EENEE and its deliverables can be found on the network's website <https://eenee.eu/> For any inquiries, please contact us at: eenee@ppmi.lt.

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Important themes and issues for future European Commission’s work on the economics of education

This document provides a summary of important themes and issues to inspire future European Commission’s work in the field of economics of education and training. The summary highlights specific focus areas covered by recently published research and foresight studies (between January and June 2022) and are relevant to the European Commission’s programme 2022¹ and the Directorate General for Education, Youth, Sport, And Culture (DG EAC) Strategic Plan² 2020-2024. Reviewed Journals are presented in the table below.

TABLE 1: REVIEWED JOURNALS

JOURNAL	ISSUES IN THE PERIOD	PUBLICATION COUNT
Quarterly Journal of Economics	2	3
Journal of Political Economy	6	1
Journal of Finance	3	2
Econometrica	3	1
Review of Economic Studies	3	3
Journal of Labour Economics	3	7
Journal of the European Economic Association	3	0
Review of Educational Research	3	0
Journal of Economic Growth	2	0
Journal of Human Resources	4	7
Internet and Higher Education	3	0
Journal of Development Economics	4	3
Education Finance and Policy	2	9
Economics of Education Review	3	11
Journal of Human Capital	2	1
Education Next	3	0
International Journal of Educational Research	4	5
Education Economics	3	6
Citizenship, Social and Economics Education	1	1
Economies	6	2
International Journal of Education Economics and Development	2	5
OECD	n/a	3
JRC	n/a	2
World bank	n/a	2
Total	65	74

While tracking research trends in the most prominent academic journals and recent foresight studies, **we observed six broad themes** relevant to the highlighted priorities and broader context of the economics of education and training. The following table also covers specific topics, providing a quick oversight of key research themes developed in the academic journals that have an economic aspect of education (see Table 1).

The report is structured according to the themes indicated in the table. Several articles on each theme are then discussed to give a broader understanding of the issues covered in each theme.

¹ European Commission Work Programme 2022 Accessible at: https://ec.europa.eu/info/publications/2022-commission-work-programme-key-documents_en

² Strategic Plan 2020-2024 Directorate General for Education, Youth, Sport, And Culture Accessible at: https://ec.europa.eu/info/system/files/eac_sp_2020_2024_en.pdf

TABLE 2: OVERVIEW OF THE TOPICS RELATED TO THE ECONOMICS OF EDUCATION (JANUARY – JUNE 2022)

THEMES	TOPICS
Financing education and policy interventions	<ul style="list-style-type: none"> - Financial support to low-income students - Evaluation of US government program to address student loan and debt - Childhood nutrition policy relation to lifetime income / student achievement - Return on investment for state sponsoring high school remedial education - US post 1990 school finance reforms - Impacts of a state financial aid program aimed towards non-traditional students - Pension incentives effect late-career teacher turnover induced - Effect of childhood benefits for mothers and their children - Benefits of progressive vouchers for the economically disadvantaged - Cash transfers versus training program effectiveness for youth - No loan program effects low-income and first-generation students - Scholarship program effect on high-achieving students' performance and graduation - Effects of decrease in college tuition on a college application and enrolment behaviour - Loan effects on college completion rates - Reasons for increased expenditure per student in U.S. public schools between the 1990s to 2000s - Teacher incentive scheme effectiveness towards learning. - Financing of early childhood education (ECE) in resource-constrained countries - Reasons for German students not applying for heavily subsidised student aid (BAföG) - <i>Impact investment for skills creation in the area of innovation (JRC)</i> - <i>Higher education grant system for less privileged students (JRC)</i>
Education and inequalities	<ul style="list-style-type: none"> - Gender pay gap in teacher profession - Upward mobility of different social groups - Female representation in the academic finance profession - Socio-economic situation of migrants in education - Gender balance in STEM doctoral programs and likelihood to graduate. - Increasing university tuitions in relation to college affordability - Relation between the educational capital, the precarious work and the social vulnerability among youth - The effects of socioeconomic status and cultural capital have on student performance - Study of the role of gender differences in achievement and self-perceived ability in math during childhood, along with parental occupation - Examining upper high school students' arguments on socio-economic problems in a performance test - Extend to which gender, age, area of living, parent educational level and occupation determine the probability of youth being out of the labour market - Socio-economic status and mobility across the generations in four provinces of Pakistan - Attending elite college and its' effect on later-life outcomes - Returns of attending more selective and relatively better-funded national universities in Kazakhstan - <i>The social and economic rationale of inclusive education (OECD)</i> - <i>What makes students' access to digital learning more equitable (OECD)</i> - <i>Learning About Intergenerational Educational Mobility (World Bank)</i> - <i>Long-term relationship between conflict-related migration and individual socioeconomic inequality (World Bank)</i>
Education and labour market	<ul style="list-style-type: none"> - Businesses' proximity to universities impacts on employment - Effects on labour market programs (ALMPs) for youth - Effectiveness of programs that provide lower-skill employment for youth and relation to future education - Supply shock in the market for apprenticeship training - How the removal of national pay scales, a common feature of public sector labour markets, affects productivity - Re-enrolment programs and estimation of recent labour market benefits for stop-outs - Relationship of students' choice patterns of majors and pathways to future labour-market outcomes - Impact of a significant negative trade shock on labour market outcomes and educational choices of workers - Effect of training programs for low-wage workers and their future income - Effects on human capital investment: teacher professional development programs - Vocational training long-term employment and education impacts on trainees - 2007 European financial crisis' impact on the demand for new language skills - <i>Educational attainment influences labour market outcomes for native and foreign-born adults (OECD)</i>
Education quality	<ul style="list-style-type: none"> - Teacher wage relation to school quality - Understanding Innovation in Education: A Service Co-Production Perspective - Price and quality of private for-profit universities and its' market structure at long-run equilibrium - Relationship between university selectivity and graduates' wages
COVID-19 and education	<ul style="list-style-type: none"> - COVID-19 implications on school finance - COVID-19 educational and financial impact on low-income urban college student - <i>Seizing Green Growth Opportunities (World Bank)</i>
Organisation of education	<ul style="list-style-type: none"> - Impact of a full-day high school policy on students' achievement growth. - Impacts of the four-day school week

Source: compiled by the Coordination team.

1.1. Financing education and policy interventions

Recent research in selected journal shows that direct smart governmental support is beneficial in all levels of education, providing insights on how **financial aid benefits in various forms** and brings a **high return on investment rate** for the society.

A study by US scholars Ortagus and Kramer (2022) tries to fill the knowledge gap of no-loan programs' effect after students enrol and eventually graduate from college. It is known that low-income and first-generation college students are less likely to obtain the benefits associated with attending graduate school. However, a study shows that the provision of **no-loan programs** for such students has a **positive** and relatively consistent **impact on graduate school enrolment** for low-income and first-generation students. Joint Research Centre (2022) studies the effectiveness of a higher education grant (tuition fee plus living costs) awarded to Portuguese students with a per capita income below a predefined threshold. It was found that **grants reduce dropout rates** and **increase graduation rates**. In addition, receiving the funding for more than one year also has cumulative effects: The more years a student can benefit from the grant, the better the outcomes.

In addition, another study conducted in 2022 by Lavy et al. on **remedial education** in US high schools shows that students experience an 11% increase in completed years of postsecondary schooling, a 4% increase in annual earnings, and a significant increase in intergenerational income mobility. In addition, cost-benefit analysis shows that government will recover its cost within 7 to 8 years, indicating a **very high return on investment**.

However, financial gains can be expected from various types of direct support (not only financial transfers). Three scholars from Sweden evaluated the program that rolled out **nutritious school lunches free of charge** to all pupils in Swedish primary schools between 1959 and 1969. They found that children's economic, educational and health outcomes are positively affected. Children exposed to the program during their primary school years have 3% higher lifetime outcomes. The effect was more significant for pupils exposed at earlier ages and pupils from poor households, suggesting that the program reduced socioeconomic inequalities in adulthood (Lundborg et al., 2021).

1.2. Education and inequalities

In the first half of 2022, the theme of inequality was dominated by **gender** topics and analysis of **socio-economic issues and intergenerational mobility**. Several articles noted gender differences in STEM and finance fields and provided insights on the pay gap in the teaching profession.

Anaya et al. (2021) analysed gender gaps in math performance, perceived mathematical ability and college STEM education. Their findings suggest that gender differences in math performance and self-perceived levels of math ability during childhood could be essential factors explaining this underrepresentation. In addition, having at least a parent or guardian working in a STEM-related occupation is associated with a higher probability of performing better on the math test score distribution but not with a higher likelihood of reporting the highest level of self-perceived math ability. Math **achievement, self-perceived math ability, and parental occupation in STEM fields are significant predictors of the probability of majoring in a STEM field in college** and reaping the benefits of future employment in prospective sectors of STEM. Other scholars also analysed peer-effect and gender dynamics in doctoral STEM programs. Bostwick and Weinberg (2022) found that women entering PhD education with no female peers are 11.7 percentage points less likely to graduate within six years than their male counterparts.

Gender inequalities in specific educational fields manifest to a great extent. For example, a retrospective analysis of the **academic finance profession** revealed significant gender imbalances. Scholars analysed the academic finance profession at top-100 U.S. business schools from 2009 to 2016 (Sherman and Tookes, 2021) and found that only 16% of participants were female. In addition, findings reveal that **women hold positions** at lower-ranked institutions and are **less likely to be full professors**; they are **paid less**, on average, publish fewer. However, the gender gap exists only in research quantity, not quality.

However, women and men in any profession deserve fair pay. Flexible market conditions create an opportunity to exploit these conditions. Biasi and Sarsons (2022) looked into the correlation between flexible pay and the gender gap after new reform in 2011 was implemented in Wisconsin, liberalising pay and adding more flexibility. They found that **flexible payment lowered women's salaries compared with men of similar expertise, with a more significant gap** for young teachers. This change is explained partly by women negotiating less, especially if the counterpart is a man. Therefore, institutions such as unions are an essential supplement for liberalising reforms.

1.3. Education and labour market

Several labour market-related topics were present, including effects of the labour market and training programs for youth, migrants, dynamics of the labour market and impacts of Covid-19.

An extensive OECD (2022) report on the labour market and immigrants during Covid-19 shows how unemployment is related to education and the critical differences from the 2008 economic crisis. Findings suggest that, **in contrast with the 2008 financial crisis, greater educational attainment did not seem to have an apparent protective effect against labour market adversities** during the pandemic. This is most likely due to countries' quick action to mitigate the economic impact of the pandemic and the high involvement of workers with low qualifications to maintain essential services during prolonged confinement periods. However, income disparities were growing in several countries even before the pandemic. Scholars conclude that unless adequate action is taken, the economic fallout from the current crisis could have a long-lasting detrimental impact on immigrants' integration.

Even if a pandemic caused students to drop education at some point, evidence shows that incentives to return to education must be initiated by governments around the world. Amanda Gaulke (2022) shows that Bachelor re-enrollment programs being sold as a 'win-win' solution for students and schools benefit the labour market. She found that **re-enrolling and completing a bachelor's degree** leads to a significant **increase in employment of 9.8 percentage points** and a significant increase in real (2014) annual income of 5 392 dollars.

Research also suggests that an alternative path, vocational training provides benefits not only to the participant but has a spillover effect too. Kugler et al. (2020) go beyond common analysis of program effects on trainees' earnings in vocational training. They use Colombian administrative data to examine long-term employment and education impacts on trainees and their relatives. Eleven years after randomisation, **trainees increased higher education enrolments**, and their **relatives increased secondary school attainment**. Researchers also discovered that training increased men's field-specific knowledge while easing credit restrictions for women. The program's anticipated internal rate of return rises from 10.2 per cent to 25.5 per cent for men and from 22.2 per cent to 24.1 per cent for females.

Several articles discussed various training and employment programs and their effect on labour markets. The effectiveness of sectoral employment programs such as WorkAdvance was proven by Katz et al. (2021). This program mainly targets low-wage workers and combines up-front

screening, occupational and soft-skills training, and wraparound services. The programs generate substantial and persistent earnings gains (12%–34%) following training providing solid evidence of the effectiveness of such programs.

1.4. Education quality

Several articles on the education quality theme focused on the issue of university selectivity and the overall effects of high and poor-quality studies.

Duong and Ba (2022) analyse the for-profit higher education institutions market and find interesting tendencies in Thailand. First of all, universities stratify along with their selectivity levels. Still interestingly, in **each selectivity level**, there were so-called **dishonest universities** that prey on uninformed students by **offering very poor quality of education for the same tuition fees**. Although it describes the HE specificity of Thailand, some similarities could be found in European Union too.

Continuing on the topic, Espinoza et al. (2022) offered insights on university selectivity and graduates' wages. The results revealed a **positive relationship between university selectivity and graduate wages at high and low selectivity, but not in the middle range**. No concrete evidence was found that training in the higher selectivity university is of higher quality. The results advance our understanding of how higher education can contribute to income inequality but are generalisable only to the two disciplines studied.

1.5. COVID-19 and education

In the first half of this year, the Covid-19 topic was not as visible in the selected scientific journals compared to previous reports. However, the recent publications stand out with important post-pandemic lessons, mainly focusing on **Covid-19 negative impact on education** and recommendations for future resilience building. While most of the research in this area comes from non-EU context, it offers relevant reflections for the European countries as well, with anecdotal evidence and grey literature pointing out to similar challenges the EU faced in the pandemic years.

World Bank (2022) report focusing on Latin America and the Caribbean region finds that this region was already suffering from a learning crisis, which the Covid-19 outbreak has severely exacerbated. There are wide disparities among countries and a pervasive persistence of socioeconomic learning gaps. This region was affected by the **most extended school closures** in the world, along with the South Asia region, with **learning loss totalling 1.3 years of schooling** (learning-adjusted) and a **10 per cent loss in projected annual earnings** on average for students in school today.

In the US, state budgets temporarily crashed amid the COVID-19 pandemic and economic shutdown, placing education funding at risk. Knight et al. (2022) demonstrate the school finance situation in different states. They found that, first of all, school districts are racially segregated along class lines. Furthermore, **higher-poverty districts receive a more significant share of state funds than** local sources, **making them especially vulnerable** during economic downturns. This dynamic was in place during the Great Recession and the Covid-19 pandemic. Authors argue that instead of enacting across-the-board cuts, states can identify specific funding programs that already benefit lower-poverty districts or wealthier students.

Focusing on students, Neria Rodriguez-Planas (2022) discovers that Covid-19 impacts on their life were severe, particularly for the lower socioeconomic strata. Due to the pandemic, 30 per cent of students changed their plans to graduate, 14 and 34 per cent of students considered abandoning a class in the spring of 2020, and the freshman fall retention rate fell by 26 per cent.

Additionally, the pandemic cost 39 per cent of students their jobs, lowered their wages by 35 per cent, and decreased their predicted household income by 64 per cent. The pandemic impacted vulnerable students more heavily, such as first-generation and transfer students. To the extent that they seem to rely less on financial aid and more on income from wage and salary jobs, their educational and employment outcomes were more negatively impacted by the pandemic relative to students whose parents also attended college or those who began college as freshmen. The evidence presented in this paper suggests that the **pandemic is hurting the most economically vulnerable** and contributes to the mounting evidence that the pandemic may be widening inequality and increasing poverty in the US. To stop the future public health crisis from further widening inequality and escalating poverty, it is necessary to provide a range of services and assistance to the general student population, especially disadvantaged students.

1.6. Organisation of education provision

Regarding education provision, some articles analysed the **effects of shortened school days and weeks**. This idea gained traction over the years, and various forms of organisation of education are being implemented and tested.

Rosa et al. (2021) evaluated the impact of longer school days based on the policy reform in Pernambuco, Brazil, that began in 2004, which changed the rules of funding public high schools. The system changed from funding schools based on a 4-hour curriculum per day, multiple shifts, and multiple grade-level schools to a system that funded full-day schools working on an 8-hour curriculum. The number of instructional hours for math and language classes increased by 50% and 20%, respectively. The authors' estimates show that the full-day school program increased math and language student test scores over three years in high school by 0,22 and 0,19 standard deviations. This is in line with other findings by OECD (e.g., analysing PISA 2018 results) demonstrating that more hours of instruction of mathematics is associated with higher PISA scores³.

Another study by Thompson and Ward (2021) analyses four-day school week achievement impacts in 12 US states. The authors find nationally lower math and English/language arts achievement by examining four-day school weeks. However, when stratifying four-day week districts into districts with low, middle, and high levels of time in school, there are statistically significant adverse effects on math achievement for four-day school week districts with short time in school, but no statistically significant results for four-day school week districts with longer time in school. Therefore, the authors conclude **that four day week does not decrease pupils' overall performance if the overall time spent in schools stays the same (increasing study hours a day)**.

³ See e.g. OECD (2019), *PISA 2018 Results (Volume II): Where All Students Can Succeed*, PISA, OECD Publishing, Paris, <https://doi.org/10.1787/b5fd1b8f-en>.

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