

EDUCATION ATTAINMENT AND ECONOMIC GROWTH: GENDER DISPARITIES PERSPECTIVE

Luljeta Aliu Mulaj^{*}, But Dedaj^{**}

^{*} Faculty of Economics, University of Prishtina "Hasan Prishtina", Prishtina, Republic of Kosovo

^{**} *Corresponding author*, Faculty of Economics, University of Prishtina "Hasan Prishtina", Prishtina, Republic of Kosovo
Contact details: Faculty of Economics, University of Prishtina "Hasan Prishtina", 10000 Prishtina, Republic of Kosovo



Abstract

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The latest trend in educational attainment has gripped almost the entire world, even the most developed countries. Their concentration is now not only on the highest possible achievements but also contribution to the economic development of society. The study aims to analyze the gender-based trends in education attainment, specifically below upper secondary education, post-secondary non-tertiary education, and tertiary education, for the period of 2007–2021 in ten economically developed countries with the highest gross domestic product (GDP), as well as examine the relationship between education attainment and GDP growth. The result shows that men have a higher percentage of attainment than women in below upper secondary education and upper secondary non-tertiary education. Conversely, women have a higher percentage of education attainment at the highest level: tertiary education. Moreover, the analysis indicates a direct relationship between below-secondary and upper-secondary non-tertiary education and GDP growth, while a direct relationship exists between GDP growth and tertiary education. Consequently, policies for reducing gender disparities should be in place to stimulate the enrolment of young adults in those professions that contribute more to the economic output. The research has its limitations in that other countries are not included in the study and the quality of studies is not taken into consideration.

Keywords: Education Attainment, Gender Gaps, GDP Growth, Economic Development

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1. INTRODUCTION

In the knowledge-based economy, the creation and transmission of knowledge is becoming more and more priority for nations, as it is seen as a driving force for economic development (Lane, 2012). Among the goals of the nations is economic development, thus, the relationship between education and economic development has historically been positive. Discussion on the changes from the past century has been related to the changes

from the economy based on industry to high-performance work. Thus, the new economy requires a skilled workforce with highlighted academic and applied skills, where education, science, and technology play a crucial role in these developments. In the context of economic and technological development, Popescu and Crenicean (2012) state: "Entry in the age of Internet and knowledge-based economy has produced fundamental changes in the socio-economic structures, creating new models of organization and economic activity" (p. 3983).

Thus, it is known that knowledge-based economy is an economy in which global competition is created by communication technologies, and as a result, rapid changes are evident and constant.

Therefore, the role of human capital is indisputable, and the need for the development of a sustainable mechanism to respond to new challenges that actually knowledge-based economy is generating is inevitable. In this regard, key policy instruments are considered investments in human capital aiming to improve “productivity growth both directly, as skilled workers are more productive, and indirectly as human capital increases countries’ ability to absorb new knowledge and to generate externalities” (Lenkei et al., 2018, p. 240), as the main tool for the high quality of human capital is education (Šipilova, 2015).

Recent studies refer to economic progress as dependent on the utilization of knowledge and expansion of innovation and new ideas, where the phrase “knowledge is power” refers to the importance of knowledge for economic growth, as to the other natural resources and capital (financial and physical). Lately, the utilization of knowledge on economic progress is called “knowledge economy”, which has significance in education by highlighting the importance of interdisciplinary research (Comunian et al., 2015) and the correlation between education and creative industries. Additionally, knowledge is considered a national economic asset and it creates the basis for competitive advantages at a national level, where research and education policies are oriented to knowledge generation, acquisition, dissemination, and exploitation of knowledge (Peters & Humes, 2003). Emphasis is put on the reform of institutions to an appropriate knowledge institution while focusing on human capital, as knowledge is considered a fundamental means in terms of improving quality, production efficiency, and distribution. In terms of performance, employers are seeking to encourage workers to continuously upgrade their knowledge and broaden their skills through different forms of formal education (Peters & Humes, 2003).

In this regard, education plays a crucial role in bringing human capital closer to the labour market and changes. Furthermore, it plays a twofold role in establishing and improving conditions for work, where formal education prepares people for entering to labour force, while training and other forms of knowledge upgrading, and lifelong learning serve mostly with purpose of career improvements.

The rapid change caused by the phenomena of globalization in labour market requires a skilled workforce in order to respond to these global market changes and to compete internationally. Consequently, the relationship between education and employment is enforced in order for the workforce to sustainably meet the market needs. The standard human capital theory states that the productivity of workers is raised by education and training, through equipping them with new knowledge and skills, and thus, positively affects worker earnings (Furia et al., 2010). Specifically, higher education is more contributing to stable employment for youth (Vienna Institute for International Economic Studies, 2017). Comunian et al. (2015) have explored quite complex issues: the economic impact of creative higher education providers and the creative economy, but more

studies are needed to be oriented on empirical research that measures the role of higher education institutions on creative human capital.

Therefore, the study aims to examine the relationship between education attainment and gross domestic product (GDP) growth, considering gender disparities, and provide insights into the role of education in promoting economic prosperity.

The research question for this study is:

RQ: How do education attainment, gender disparities, and their relationship with GDP growth in ten economically developed countries contribute to our understanding of the link between education and economic prosperity?

The paper aims to comprehensively analyze the relationship between education attainment, economic growth, and gender disparities, ultimately contributing to policy recommendations and guiding further research in this field.

The remaining structure of the paper is as follows. Section 2 reviews the relevant literature to provide a comprehensive understanding of the existing knowledge on the relationship between education attainment and GDP growth. Section 3 analyzes the methodology that has been used to conduct empirical research on this topic. Section 4 examines the global trends in education attainment and its implications for economic growth, with a particular focus on gender disparities. Section 5 presents the findings of the study, including the analysis of education attainment and its relationship with GDP growth, as well as discusses the results. Finally, Section 6 summarizes the main findings, draws conclusions, and provides policy recommendations based on the research outcomes.

2. LITERATURE REVIEW

Education is considered fundamental and must be given a chance to everyone in order to eliminate inequalities and thus improve socio-economic outcomes by offering high-skilled jobs and broadening inclusive growth. Higher levels of formal education are strongly related to social and economic positive outcomes. Individuals who are highly educated have higher employment rates, higher earnings as well, and are more socially engaged. On the one hand, these benefits serve as incentives for individuals to pursue higher levels of education and, on the other hand, governments have more incentives to provide infrastructure for education to expand educational attainment from the population.

The Organization for Economic Co-operation and Development (OECD) offers rich studies on the educational indicators. According to OECD (2018), developed indicators of education system aim to measure the performance of education systems at the national level, and not at the institutional level. Even though there are other levels and participants that have roles in education, in general, actors that have an impact on the education system are identified to be at three levels:

1. System of education as a whole.
2. Educational providers (schools, institutions) and instructional settings at these institutions (classrooms, teachers).
3. Participants in education: pupils, students, adults (in all programmes including lifelong learning).

The functioning of the education system and its impact can be assessed through learning outcomes and input relationships with processes at institutional and individual levels. Over the past decades, educational attainment has marked a significant increase in the majority of OECD countries (OECD, 2018).

The OECD indicators (OECD, 2018) provide information on financial and human resources invested in education, giving details on the relation and evolution of education and learning systems, returns of investments, etc. They clearly distinguish among actors, as well as examine factors in contextual aspects that influence policies. Furthermore, the organizing framework in the education system and in relation to actors examines contextual factors based on the types of issues that influence policy (OECD, 2018).

Beyond this, importance of the human capital is given in all aspects by many authors and scientists. It is considered as one of the main determinants of economic growth. It is directly affected by the human capital, more educated individuals, are innovative and more productive, resulting in more productive processes, innovative products, and increased productivity of factors (Romer, 1990). Further, it plays a dominant role in the country's technological progress. Teixeira and Queirós (2016) state that the human capital concept is considered an intangible resource, associated with skills and knowledge gained through education and experience. Further, Goldin (2016) and Schultz (1961) entrenched into labour force and increases productivity. In their study, Teixeira and Queirós (2016), by using dynamic panel data analysis, found that human capital and productive specialization dynamics plays an important role for economic growth. In this context, industries with high knowledge significantly impacts economic growth (positively) by the strong interaction among human capital and structural change. On the other hand, the failure of industrial structures on integration and utilization of highly educated individuals to productive system, may lead to unfavourable results of the economic returns (Teixeira & Queirós, 2016). Another study conducted by Goddard et al. (2015) states that the increase of the human capital level is accelerated by the development of technology, as well as other factors, such as programs and public education. Human capital enables to more effectively

finalize processes related to resource allocation and new technology evaluation. The expansion of important role of education, especially higher education is reflected in national and European economic policy (Brown et al., 2008). Furthermore, dynamic and competitive world knowledge-based economy, influences social cohesion, contribute to better jobs and thus more sustainable economic growth. Economy based on a global knowledge is contributing to high-skilled and high-wages shift in the economies of the European countries. In this context, the study by Teixeira and Queirós (2016) shows that the human capital role in the growth process is neglected, especially in the interaction industrial specialization of the countries. The emphasis is put on the supply-side, while demand-side determinants are neglected, mainly for the relevance of structural change processes. Whereas, growth model respond to the needs by integrating both: demand and supply side variables, and thus assess direct and indirect human capital effects in economic growth by including human capital interaction with country industrial specialization. On the other hand, globalization plays an important role in the system efficiency (Hartley, 2010). Therefore, nations must adopt state-driven or market driven approach.

As regards education's relation with the economy, Anand and Sen (1994, as cited in Bagolin & Comim, 2008) have contributed to expanding the initially published Human Development Report by United Nations Development Programme (UNDP, 1990) to an distinguished index: Human Development Index — HDI. The general motivation for index development was to provide different income-based measurements and gross national product (GNP). The alternative index — HDI as a multidimensional measure, tries to portray capability achievements.

The Human Development Index (Anand & Sen, 1994) includes three components:

1. Life expectancy.
2. Proportion of literacy.
3. Logarithm of GNP.

All represent uniform (1/3) weight.

In order to measure similar levels of basic capabilities, it can be divided into more refined capabilities. The table below shows levels of human development for different countries:

Table 1. Human development levels

<i>Human development level</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>
Human development indicators	1.1. Life expectancy	1.1. Life expectancy 1.2. Under-5 mortality	1.1. Life expectancy 1.2. Under-5 mortality 1.3. Maternal mortality
	2.1. Adult literacy	2.1. Adult literacy 2.2. Secondary school enrollment	2.1. Adult literacy 2.3. Tertiary enrollment 2.2. Secondary school enrollment
	3.1. Log per capita GDP (up to the international poverty line)	3.1. Log per capita GDP (up to the international poverty line) 3.2. Incidence of Poverty	3.1. Log per capita GDP (up to the international poverty line) 3.2. Incidence of Poverty 3.3. Gini-corrected mean national income

Source: Anand and Sen (1994).

Thus, countries depending on the development level, can be divided into three groups (UNDP, 1990): “low” level of human development, “medium” and “high”, where for each category, supplementary

indicators are added (for medium to high level of HD). The table below shows what is included in each category at the country level.

Mincer (1958), a pioneer of human capital theory, considers human capital solely in the accumulation of years spent in formal education.

Arman et al. (2020), in their study, show a direct relationship between human development and economic growth. The impact of public spending on education is studied by Coman et al. (2023). They found out that the relationship between public spending in education and economic growth is mixed and differs among countries in the long and short term. Additionally, in the study by Gyamfi et al. (2023), the authors conclude that the focus of investment in quality education and greener information and communications technology infrastructures by governments and stakeholders contributes to a sustainable environment. On the other hand, some studies prove a negative impact of investments. Ngwakwe (2017) shows that foreign direct investment has a negative effect on employment. Another study by Shimizu (2020) elaborates on the performance of investment associated with monopolies and environment. The study concludes that investment are not fundamental solution. Yu et al. (2023) among others, suggest that research should focus on indicators that are related to economic growth such as government public spending and setting targets for investments.

The study by Voumik et al. (2023) shows that education and female employment have positive results. Additionally, the findings of the study conducted by Klasen (2002) indicate that gender inequality in education has a direct impact on economic growth by reducing the overall level of human capital. Moreover, this inequality indirectly influences growth by affecting investment and population growth. Another empirical analysis by Seguino (2000) shows that GDP growth is positively related to gender wage inequality. Furthermore, it indicates that gender wage inequality has a positive effect on investment as a share of GDP, contributing to economic growth.

According to the World Economic Forum (2022), the educational attainment gender gap in 2022 stands for 4.7 percentage points away from full gender parity and is the area closest to achieving parity, in just 22 years. The subindex has improved steadily towards parity, with step-changes in 2008 and 2015. Additionally, according to the same report, gender gap closed by regions that have closed the largest proportion of its gender gap in North America 76.9% followed by Europe 76.6%, Latin America and the Caribbean 72.6%, Central Asia 69.1%, East Asia and the Pacific 69%, Sub-Saharan Africa 67.8%, Middle East and North Africa 63.4% and South Asia have the largest gender gap to close, with only 62.4% gender gap closed to date.

3. RESEARCH METHODOLOGY

This study aims to investigate the relationship between education attainment and GDP growth in ten countries with significant GDP levels. Recognizing the influential role of education in a country's progress, the study focuses on analyzing the trends of education attainment by gender. The selected countries for this study are the United States, Japan,

Germany, the United Kingdom, France, Italy, Canada, Australia, the Republic of Korea, and Spain.

The study includes ten countries with the largest GDP as these countries play significant roles in shaping global economic and educational policies, therefore, the study can give insights into the factors contributing to economic success.

Different countries represent different educational and economic models, thus their implications for human capital development and economic growth provide an opportunity to explore cultural, educational, and economic policies implemented. Furthermore, as the economic leading countries play a crucial role in cultivating a productive workforce and economic growth and innovation, the interplay between education, human capital development, and economic growth can serve as knowledge worldwide.

The analysis covers the years 2007 and 2021, focusing on the population attainment aged 25–64 years old. This study utilizes data obtained from reputable sources to examine the relationship between education attainment and GDP growth. The GDP data are retrieved from the World Bank database, which provides comprehensive and reliable economic indicators for countries worldwide. The education data, specifically education attainment by gender, are sourced from the OECD, a trusted organization known for its extensive education-related statistics and analysis.

To explore the relationship between education attainment and GDP growth, the study examines three levels of education: 1) below-secondary education; 2) secondary education, and 3) tertiary education. By analyzing the trends in education attainment and considering gender disparities, the study aims to gain insights into how education influences the economic growth of these countries. By utilizing data from the World Bank and OECD, this study ensures the reliability and credibility of the findings, contributing to a robust analysis of the relationship between education attainment and GDP growth.

4. WORLD TRENDS IN EDUCATION SECTOR

4.1. Human capital quality data analysis: Education systems levels of knowledge, skills, and competencies

At the European level, the European Qualification Framework (EQF) is used, which is a reference to link countries' qualification systems, aiming to make qualifications understandable and readable across different European countries. EQF principals aim to: promote lifelong learning and mobility between countries (European Communities, 2008). The idea is, for countries to adopt and adjust the qualification system to the EQF at the national level, in order to respond to the changes and belong to new trends of accelerated mobility as well as this way to contribute to increasing participation in lifelong learning.

Furthermore, an instrument of classification based on the set of criteria's for achieved specified levels of learning is understood by the term "national qualifications framework" (European Communities, 2008). It is aimed at improving transparency, quality, access, and progression of

qualifications that contribute to labour and civil society. The qualification framework is an instrument for the classification, development, and recognition of knowledge, skills, and competencies at agreed levels (Tuck, 2007).

The table below shows the classification of levels according to the EQF that are defined through descriptors indicating learning outcomes for each qualification level:

Table 2. European Qualification Framework descriptors

Knowledge: In the context of EQF, knowledge is described as theoretical and/or factual	
Level	Learning outcomes relevant to the level
Level 1	• Basic general knowledge
Level 2	• Basic factual knowledge of a field of work or study
Level 3	• Knowledge of facts, principles, processes and general concepts, in a field of work or study
Level 4	• Factual and theoretical knowledge in broad contexts within a field of work or study
Level 5	• Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of boundaries of that knowledge
Level 6	• Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles
Level 7	• Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research • Critical awareness of knowledge issues in a field and at the interface between different fields/
Level 8	• Knowledge at the most advanced frontier of a field of work or study and at the interface between fields

Source: European Communities (2008).

Using the framework with similar learning outcomes facilitates transfer and comparison among institutions and countries. In the European context, countries have decided to develop national qualification frameworks reflecting the European Framework that increases transparency and ensures broad dissemination of EQF principles. Recognition of individuals' knowledge, competencies, and skills is crucial for employment, competitiveness, social cohesion, and the community as a whole. In the economic aspect, it contributes to supply and demand requirements for workers and learners by facilitating cross-country mobility of labour.

Besides the EQF classification, levels of education were previously classified by the International Standard Classification of Education (ISCED). Classified levels of ISCED 2011, are widely used: Eurostat, OECD, UNESCO Institute for Statistics, etc. The table below shows the classification and terms used by the ISCED and other publications that use ISCED classification. Similar to EQF, the International Standard Classification of Education defines programs of education based on the knowledge level, skills, and competencies.

Table 3. International Standard Classification of Education (ISCED)

Terms used in this publication	ISCED classification
<i>Early childhood education:</i> Refers to early childhood programmes that have an intentional education component and aim to develop cognitive, physical and socio-emotional skills necessary for participation in school and society. Programmes at this level are often differentiated by age.	ISCED 0 (sub-categories: 01 for early childhood educational development and 02 for pre-primary education)
<i>Primary education:</i> Designed to provide a sound basic education in reading, writing, and mathematics and a basic understanding of some other subjects. Entry age: between 5 and 7. Typical duration: 6 years.	ISCED 1
<i>Lower secondary education:</i> Completes the provision of basic education, usually in a more subject-oriented way with more specialist teachers. Programmes may differ by orientation, general or vocational, though this is less common than at the upper secondary level. Entry follows completion of primary education and typical duration is 3 years. In some countries, the end of this level marks the end of compulsory education.	ISCED 2
<i>Upper secondary education:</i> Stronger specialisation than at lower secondary level. Programmes offered are differentiated by orientation: general or vocational. Typical duration is 3 years.	ISCED 3
<i>Post-secondary non-tertiary education:</i> Serves to broaden rather than deepen the knowledge, skills, and competencies gained in the upper secondary level. Programmes may be designed to increase options for participants in the labour market, for further studies at the tertiary level, or both. Usually, programmes at this level are vocationally oriented.	ISCED 4
<i>Short-cycle tertiary education:</i> Serves to deepen the knowledge developed at previous levels by imparting new techniques, concepts, and ideas not generally covered in upper secondary education.	ISCED 5
<i>Bachelor's or equivalent level:</i> Designed to provide participants with intermediate academic and/or professional knowledge, skills and competencies, leading to a first degree or equivalent qualification. Typical duration: 3-4 years of full-time study.	ISCED 6
<i>Master's or equivalent level:</i> Stronger specialisation and more complex content than bachelor's level. Designed to provide participants with advanced academic and/or professional knowledge. May have a substantial research component.	ISCED 7
<i>Doctoral or equivalent level:</i> Designed to lead to an advanced research qualification. Programmes at this level are devoted to advanced study and original research and exist in both academic and professional fields.	ISCED 8

Source: OECD (2018).

According to the ISCED classification, secondary school is divided into two levels: lower secondary education — ISCED 2 and upper secondary education — ISCED 3, followed by post-secondary non-tertiary education — ISCED 4.

The report of OECD (2018) shows that in 2017, the majority of people aged 25–34 years, had qualifications from the upper secondary school. A few decades earlier, for almost all countries secondary school qualification was considered a high-level qualification. Nowadays, modern society considers as a minimum requirement completion of at least upper secondary school. Therefore, young people who do not complete this education level, face difficulties initially entering the labour market, as well as they are more likely to have low cognitive and numeracy skills (OECD, 2018; Roosmaa et al., 2019).

Governments and education authorities refer to the EQF and ISCED frameworks when formulating education policies and reforms. These frameworks provide a common language and framework for discussing qualifications, curricula, and educational standards. They help in setting clear learning objectives, designing qualifications frameworks, and ensuring consistency in educational practices.

Some of the shortcomings of the EQF and ISCED frameworks are: The frameworks may struggle to capture the full range of emerging educational practices and qualifications, as the education systems are dynamic and constantly evolving. Regular updates are necessary to ensure their relevance and adaptability to new developments. Additionally, the ISCED framework has a broader global coverage, while the EQF is specific to the European context, which limits applicability globally.

5. RESULTS AND DISCUSSION

5.1. Education attainment and GDP growth relation

Many indicators play a role in the GDP of the country. Nevertheless, education plays an important role in the advancement of the country, thus, the study will analyse the trends of education attainment by gender in the ten countries that have large GDPs, as well as the relation between education and GDP growth for years 2007–2021 for 25–64-year-olds.

Table 4. GDP growth and educational attainment of 25–64-year-olds in developed countries

Country	GDP growth (ann. %) 2007	GDP growth (ann. %) 2021	Below upper secondary				Upper secondary or post-secondary non-tertiary				Tertiary education			
			Men		Women		Men		Women		Men		Women	
			2007	2021	2007	2021	2007	2021	2007	2021	2007	2021	2007	2021
USA	1.87	5.9	15	7	11	5	49	47	44	38	36	38	45	48
Japan	1.65	1.7	-	-	-	-	-	-	-	-	50	62	58	68
Germany	2.98	2.6	14	15	16	13	64	50	61	49	22	34	23	38
UK	2.43	7.5	19	15	21	9	38	36	36	37	43	54	43	61
France	2.42	6.8	18	13	16	11	45	41	38	35	37	39	46	47
Italy	1.48	6.7	36	26	28	20	50	52	49	45	15	22	23	34
Canada	6.86	4.5	10	6	7	4	42	336	30	21	48	58	63	75
Australia	3.84	2.2	20	10	17	8	45	43	36	30	35	46	47	62
S. Korea	5.79	4.1	3	2	2	2	43	35	40	22	54	63	58	76
Spain	3.60	5.5	40	33	29	22	25	24	25	23	35	46	46	49

Source: The World Bank (<https://data.worldbank.org/indicator>), OECD (2022).

5.2. Below upper secondary education

The percentage of the people where the highest attainment below secondary education is very low in almost all countries. It continued to decrease from 2007 to 2021 and remained quite low for the rest of the countries. The lowest is marked by the Republic of Korea: only 3% in 2007 and decreased to 2% in 2021 for male representation, and 2% in 2007 and 2021 for women. The highest percentage is in Spain, with 40% in 2007 and 33% in 2021 for males, whereas, the percentage of women with the highest education attainment below upper secondary education is lower than the male percentage, respectively, 29% in 2007 and 22% in 2021. In general, in all countries, women's percentage is lower in this category than men's.

As regards the relation between GDP growth and attainment of below upper secondary education, it is different in different countries. As far as the percentage of education attainment decreased from year 2007 to 2021, the percentage of GDP growth in majority of the countries is increased. Thus, even the below secondary education percentage is decreased, the GDP growth in average is increased that shows indirect relation among these two variables.

5.3. Upper secondary non-tertiary education

Table 4 shows that, in the recent years, the level of younger adults without upper secondary qualifications decreased considerably. Meanwhile, the percentage of upper secondary non-tertiary education is quite high. It has slightly fallen from 2007 to 2021 in almost all countries in the study. Regarding the gender disparities, this education level is dominated by males, even the gap is not that high. Germany is the country with the highest percentage of graduates from this level, sharing more than 60% of both women and men in 2007 and it is decreased in 2021, but still remains around 50% for both genders, and Italy shares 52% of men and 45% of women in 2021. Large percentage of this level shares also other countries, followed by the USA, Australia and France that shares above 40%.

GDP growth as reported for the below upper secondary education, same relation exists also with upper secondary education. There is an indirect impact on this education level, since the annual GDP growth is increased in majority of countries, also the percentage of people who attained upper secondary level is decreased for both genders.

5.4. Tertiary education

Tertiary education represents the highest level of education that includes cycles: short cycle — tertiary education, bachelor's, master's, and doctoral studies. In contrast to the first two levels analysed, the participation percentage in the tertiary education level is quite high and also it increased from 2007 to 2021. It is also characteristic that women's percentage of attainment is higher, compared to men. The increase for a period of 14 years is quite significant, in most of the countries it is around 10% from 2007 to 2021 at most of the countries in the study. Countries with the highest share of educational attainment of 25-64-year-olds are the Republic of Korea with 76% of women participation in 2021, followed by Canada, with 75% of women participation in 2021, Japan at 68%, Australia at 62% and the United Kingdom with 61% of women's attainment in 2021. So, an increasing trend of women and men's participation in tertiary education is noticed in all countries in the study. The gender gap is present also in this category, but contrary to other levels, this is in favour of women.

As discussed in other parts, the GDP growth from 2007 to 2021 increased in the majority of countries, with the exception of four countries: Germany, Australia, Canada, and the Republic of Korea. On the other hand, participation in tertiary education from 2007 to 2021 increased significantly in all countries. Therefore, the relation between tertiary education and GDP growth is direct.

6. CONCLUSION

In conclusion, the study reveals persistent gender disparities in education attainment across different levels of studies. From 2007 to 2021, there has been an increase in GDP growth in the majority of countries. Education attainment has decreased in below-upper-secondary and upper-secondary non-tertiary education, while it has increased in tertiary education.

Gender representation also varies across education levels, with men being more represented in below upper secondary education and upper secondary non-tertiary education, while women have higher representation in tertiary education. Therefore, the increased participation in higher education and GDP growth have a direct relation.

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Based on these findings, several policy recommendations can be proposed. First, there is a need to promote diversification of professions to stimulate the enrollment of young adults in fields that contribute more to the economic output. This can be achieved through targeted initiatives and programs that raise awareness and provide incentives for students to pursue careers in high-demand sectors.

Second, curriculum development should be updated to align with the evolving needs of the countries. This includes incorporating relevant skills and knowledge that are essential for the labor market, and ensuring graduates are equipped to meet the demands of a rapidly changing economy.

Third, policies that promote gender balance and equal opportunities in education should be implemented. Incentives and support mechanisms can be put in place to encourage greater gender equality in enrolment and completion rates across all education levels. Learning environments and combating gender stereotypes and biases.

By implementing these policy recommendations, countries can work towards reducing gender disparities in education attainment and fostering an inclusive and equitable educational landscape that contributes to sustainable economic growth and development.

Lastly, it is crucial to enforce and strengthen gender policies to close the gap in education attainment.

Analysis of this study should be taken cautionary. The study is limited to only developed countries with the largest GDP. The percentage of increase/decrease of GDP in these countries that have large GDP is usually very small in comparison to other developing and underdeveloped countries. They have quite large GDP and thus, the study does not take into consideration other countries that education might have more impact on economic development.

Second, the quality of studies is not taken into consideration, as well as professions that can have an impact on the overall studies and economic impact as well. Therefore, future studies can be focused on analysis that includes these factors as well.

Third, the incomes based on gender and profession are to be included in future research.

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