



## 1. Introduction

Gender inequality can be viewed as a difficult practical problem and a multifaceted concept (Sen, 1990). World Bank (WB) experts believe that "no society can develop sustainably without supporting opportunities, resources, and choices for men and women so that they have equal power to shape their lives and contribute to their families, communities, and countries" (World Bank, 2023a). The gender gap (GG) is the difference between women and men as reflected in social, political, intellectual, cultural, or economic attainments or attitudes (Harris, 2017).

Gender equality is the state of equal ease of access to resources and opportunities regardless of gender, including economic participation and decision-making; and the state of valuing different behaviours, aspirations and needs equally, regardless of gender (ESSEC, n.d.). It should be noted that the connection between various factors that determine gender equality and the gender gap is not always direct.

The issue of gender inequality has taken on new significance in the context of globalization. The World Inequality Report (Chancel et al., 2022) states that globalization generates inequality in income and wealth, causes an increase in economic and political inequality, and as a result, gender inequality remains significant at the global level, while its reduction at the national level is quite slow. In addition to social and economic inequality, certain groups of men face racial and gender discrimination, and "women bear the brunt of poverty, violence, and inequality" in the labour force. Moreover, gender inequality affects most of the world's cultures, religions, nations, and income groups (Hausmann, Tyson, Zahidi, 2007) and all spheres of society (Hudoshnyk, Krupskyi, 2022).

The Sustainable Development Goals (SDGs) adoption at the United Nations (UN) General Assembly (2015) brought the issue of gender equality to the forefront as the fifth goal (SDG 5) (UN, 2015). In the same time, academic research began to address the link between gender gap and equal opportunities in the context of achieving the SDGs. Researchers note some progress in several areas of discrimination (more girls in education, fewer girls forced into marriage, more women in leadership positions) and, at the same time, point out that policy decisions in education, healthcare, and other sectors keep being made in gendered contexts (Pavlova et al., 2019; Morgan et al., 2020; Sardak et al., 2021b). Dugarova notes that approximately half of the population is deprived of equal opportunities, equal participation in decision-making, and equal access to resources, education, and employment is not conducive to sustainable development and global prosperity (Dugarova, 2018). The works (Bhandari, 2022; Leal Filho et al., 2022) present the manifestations and gender inequality connection with the Sustainable Development Goals.

The importance of reducing the gender gap for the global economy and countries is confirmed by the scientists' research results and reports by leading international financial and economic organizations. World Bank notes the positive impact of reducing the global gender gap on GDP. According to their estimates, eliminating the gender gap in employment will allow countries to increase their GDP by an average of 20%. Studies estimate the economic benefits at around \$5-6 trillion if women started and expanded new businesses as much as men (World Bank, 2023a). Eliminating the global gender gap in education significantly improves maternal health in low- and lower-middle-income countries (Choe, Cho, Kim, 2016; Dinter,

Grässle, Mosenhauer, 2022). Women's empowerment has a positive impact or catalyzes improvements in human development (Odera, Mulusa, 2020), health and well-being (Morgan et al., 2020), and the Human Development Index (Stoet, Geary, 2019).

Gender equality can be seen as a two-stage process: "first get in the club, then attain equality within the club" (Charles, Grusky, 2007). Most indicators focus on achieving membership in the "club": enrollment in school, participation in the labour force, and membership in the national legislature. In these indicators, gender parity is only part of the story, as, for instance, men and women enter labour markets with strong gender segregation, at least in industrialized countries; organizational cultures wherein leadership is gendered possess such segregation (Hudoshnyk, Krupskyi, 2023). Campbell (2014) expresses that closing the gender gap is illusory and that there is "no evolutionary path to equality, peace, and prosperity." The author considers the current era as an era of "neo-patriarchy" where "there is a new articulation of male social power and privilege" as she believes that "the new world order is not neutral and innocent of sexism: it modernizes it. Masculinities and femininities are created and remade as polarized species (Campbell, 2014, p. 4).

Nevertheless, women worldwide remain an underutilized labour force resource. Labour force participation averages around 80% for men but only 50% for women – almost half of the women's productive potential still needs to be explored, compared to one-fifth for men (Novta, Wong, 2017; Dabla-Norris, Kochhar, 2019). Thus, it is essential to pursue policies that could help create an enabling environment for women to enter and remain in the labour market (Novta, Wong, 2017).

Researchers point to a growing gender gap in occupation opportunities and employment regarding labour force participation rates, labour force participation ratios, unemployment rates, and wages (Tewari, Chouhan, Sanjeev, 2020). The International Monetary Fund (IMF) confirms significant gender gaps in the world while recognizing countries' progress in reducing them and points out the need to make efforts to prevent women from leaving the labour market and ending their careers.

The World Bank Group recognizes the progress and experience in eliminating gender-based violence and promoting the empowerment of girls and women over the past decades and updates. It launches its strategy "Accelerating Gender Equality for a Sustainable, Resilient and Inclusive Future" in 2024 (World Bank, 2023a). The WB's efforts aim to develop human capital and combat violence, expand and create economic opportunities for employment and entrepreneurship among women, and engage women as leaders in public life.

Determining the prospects for an equal society requires identifying the factors that can reduce the global gender gap. At the same time, to the political, legislative, and economic mechanisms for bridging this gap, known and defined by the scientific circle, we add information, cultural factors, and concepts of mass culture and corporate relations that currently influence gender imbalance, on the one hand, by forming a mass stereotype, and by actively destigmatizing it, on the other hand, (Hudoshnyk, Krupskyi, 2022). We should note that the factors of reducing national gender gaps are long-term and can generate positive social, economic and environmental effects.

## 2. Analysis of Recent Research and Publications

In discussions on reducing the gender gap, authors provide various assessments of its reduction: from positive (Dorius, Firebaugh, 2010; Koca, 2022) and cautious and moderate (Charles, Grusky, 2007; Boffey, 2017) to negative (Campbell, 2014).

The readiness for competition and the importance of understanding how productivity affects wages in the labour market led to increased interest in gender differences (Gneezy, Haruvy, Roth, 2003; Sutter, Glätzle-Rützle, 2010; Niederle, Segal, Vesterlund, 2013). The literature focuses on the study of gender differences in the labour market and argues that men dominate the competitive environment and that this advantage is manifested in the amount of wages (Balafoutas, Kerschbamer, Sutter, 2012). Nevertheless, it can be said that appropriate policy interventions aimed at narrowing or eliminating this gap, depending on the presence, type, and type of gap between the sexes in each field, are essential for women to make them more successful in the labour market (Sutter, Glätzle-Rützle, 2010). The representation of women in top positions and business and politics, in the public and private sectors, type of employment, position, salary and career are areas where women are discriminated against. Increasingly, the issue of the gender of applicants for vacant positions is also considered from the perspective of talent management of organizations (Edeh et al., 2022).

Researches were devoted to closing the gender gap at the regional level (Boffey, 2017; Cascella, Williams, Pampaka, 2021; Koengkan et al., 2022). Progress in overcoming the gender gap was demonstrated in the Middle East, North Africa, South Asia, and Sub-Saharan Africa. However, the gap among countries has yet to be proven to be narrowed (Dilli, Carmichael, Rijpma, 2018). The Middle East and North Africa show tremendous achievements and improvements in women's lives in health and education but less progress in employment and persistent legal inequalities, such as restrictions on women's participation in politics and civil society (Dalacoura, 2019). For instance, Boffey (2017) concludes that there is a "wide and persistent" employment gap in the EU, with a full-time employment rate of 40% for women and 56% for men. The income gap narrowed, but women still earn 20% less than men on average, and the average masks huge differences across the EU.

An international team of authors (Mateos et al., 2020) assessed the gender inequality impact on the gender gap in life expectancy among 152 countries. The results showed a direct link between gender equality and the gender gap in life expectancy in Europe and in North and South America. It was proven that gender equality leads to a reduction in the gender gap in those regions. On the contrary, the opposite relationship was proven in the countries of the African continent. The regression model considered gross national income (GNI), democratic status, and rural population.

Dilli and colleagues (2018) proposed an original approach – a historical approach to the gender equality index, where the main obstacles to gender "convergence" are economic development and long-term institutional and historical features. Bose (2015) identified gender-oriented social institutions (e.g., laws on violence/physical integrity, family codes, civil liberties, and property rights) and implicit gendered political and economic structures (e.g., IMF debt, armed conflict, former colonies, and electoral democracy) as factors in the formation of gender regimes (forms of patriarchal structures) at the regional level.

According to Robinson (2018), the leading factors in reducing gender inequality are education and overcoming violence in various manifestations (honour-based violence, domestic violence, sexual violence in conflict-affected countries, migration, asylum seeking and refugee crisis, etc.). The author points to the popularity in academic circles of the concept of intersectionality (i.e., how the variables of class, sexuality, race, and ethnicity, for instance, intersect about people's gender experience), research on manifestations of masculinity and feminism, inequality based on ethnicity and sexuality.

Changes in gender roles, deepening division of labour, and growing military and political conflicts led to increased international migration. In Central Asia, one of the world's most active migration regions, women migrants account for up to 30% of the migrant population and face security, economic, and social protection issues (Bui, Vo, Bui, 2018; Sardak et al., 2021a), the number of female-headed households is growing, and women's burden in managing economic practices is increasing (Thieme, 2008).

Academics have concluded that the COVID-19 pandemic also spreads gender inequality (Shulla et al., 2021), lockdowns increase the burden on women at home and put them at increased risk of domestic violence (Huiskes, Dinis, Caridade, 2022), high risks to women's health persist, as 70% of health workers are women (UN Department of Economic & Social Affairs, 2020), and lead to a widening gender gap.

Since gender inequality manifests itself in social, economic, political, information, and other spheres, attempts to combine different manifestations of gender inequality are reflected in comprehensive indicators. Table 1 presents up-to-date indicators of gender inequality and their areas of application.

For our study, we chose the Global Gender Gap Index (GGGI) due to the advantages of this indicator. Thus, Hausmann and colleagues (2007) noted that the GGGI captures the framework of gender differences and indicates what national gender differences and disparities exist and their evolution over time. The index content enables tracking and comparative analysis of gender inequality by economic, political, educational, and health criteria. National rankings and country profiles indicate the strengths and weaknesses of gender equality in countries and can be used to develop, improve, and implement national policies.

Despite the difficulties in considering certain features of gender inequality and the subjective nature of choosing the weight of individual indicators in sub-indices (Benatar, 2006; Hakim, 2006; Pinker, 2010; Lubinski, Benbow, Kell, 2014), we assume that the GGGI is constructed correctly and use it as a baseline indicator. We believe that all the factors of reducing the global gender gap are long-term, so a regression analysis of the relationship between the GGGI and a trend factor will indicate the presence/absence of a relationship among them.

**Table 1. Modern composite indices of gender inequality and their scope of application**

Indicator (index)	Introduced by the institute, the researcher	Indicator content
Gender-Related Development Index (GDI)	UNDP	is used as a component of the UNDP Human Development Index to measure the achievements of countries in terms of gender equality in reproductive health; civil rights and opportunities; and the degree of economic activity
Gender inequality index (GII)	UNDP	demonstrates the loss of human development potential due to gender inequality between women and men regarding reproductive health, empowerment, and labour market participation.
Global Gender Gap Index (GGGI) <a href="https://www.weforum.org/reports/global-gender-gap-report-2022/">https://www.weforum.org/reports/global-gender-gap-report-2022/</a>	WEF	is used to identify gaps in access to resources and opportunities for different genders without indicating the availability of these resources in countries
Africa Gender Equality Index (GEI) <a href="https://www.afdb.org/en/topics-and-sectors/topics/quality-assurance-results/gender-equality-index">https://www.afdb.org/en/topics-and-sectors/topics/quality-assurance-results/gender-equality-index</a>	African Development Bank (AfDB)	reflects the status of women in Africa based on the dimensions of economic empowerment, social, institutional, and legal development.
The OECD Development Center's Social Institutions and Gender Index (SIGI) <a href="https://www.genderindex.org/">https://www.genderindex.org/</a> or <a href="https://www.oecd.org/stories/gender/social-norms-and-gender-discrimination/sigi">https://www.oecd.org/stories/gender/social-norms-and-gender-discrimination/sigi</a>	OECD Development Center	measures discrimination against women in social institutions in 179 countries, considers legislation, social norms, and practices of gender inequality in discrimination in the family, restrictions on physical integrity, access to productive and financial resources, and civil liberties, and is used to monitor SDGs 5
Gender Equality Index <a href="https://eige.europa.eu/gender-equality-index/2022">https://eige.europa.eu/gender-equality-index/2022</a>	European Institute for Gender Equality	is used to compare gender equality in the following dimensions: work, education, finance, time, power, health, and violence (additional indicator)
Social Watch Gender Equality Index (GEI) <a href="https://www.socialwatch.org/taxonomy/term/527">https://www.socialwatch.org/taxonomy/term/527</a>	Social Watch	allows countries to be classified and ranked according to a selection of indicators of gender inequality in three dimensions: education, economic participation, and empowerment.
Women Economic Empowerment Index, WEE Index <a href="https://asiapacific.unwomen.org/en/countries/pakistan/wee/wee-participant/wee-index">https://asiapacific.unwomen.org/en/countries/pakistan/wee/wee-participant/wee-index</a>	UN Women	is used to characterize women's gender equality at the regional level in Asia and the Pacific in the following dimensions: labour force participation, education, decision-making, health, and political participation.
Regional Gender Gaps Index (eRGGI) <a href="https://link.springer.com/article/10.1007/s11205-021-02764-x">https://link.springer.com/article/10.1007/s11205-021-02764-x</a>	C. Cascella, J. Williams & M. Pampaka	Measures the gender gap based on the distribution of gender attitudes and gender equality among regions in industrialized countries.
Basic Index of Gender Inequality (BIGI) <a href="https://doi.org/10.1371/journal.pone.0205349">https://doi.org/10.1371/journal.pone.0205349</a>	Gijsbert Stoet, David C. Geary	Measures opportunities to lead a long, healthy, and satisfying life based on educational opportunities, considering gender differences (a sexual division of labour).
Historical Gender Equality Index <a href="https://doi.org/10.1080/13545701.2018.1442582">https://doi.org/10.1080/13545701.2018.1442582</a> or <a href="https://clioinfra.eu/Indicators/HistoricalGenderEqualityIndex.html">https://clioinfra.eu/Indicators/HistoricalGenderEqualityIndex.html</a>	Selin Dilli, Sarah G. Carmichael & Auke Rijpma	assesses countries' performance in closing the gender gap in health, socioeconomic resources, politics, and the household since 1950.

The methodology for calculating the Global Gender Gap Index a priori includes four determinants – sub-indices – that explain the reasons for unequal opportunities for women in the modern world. In Mehdi (2020), the authors investigated the stochastic efficiency of dominance to analyze the sensitivity of the Global Gender Gap Index. They determined that two components contributed most to reducing the gender gap: Educational Attainment and Health and Survival. Shifting the index's weight towards these two components decreased the average index level for four groups of countries by income level as it declined. Shifting the index toward the importance of its other two components: Economic Participation and Political Empowerment – revealed a much higher level of the gender gap, with the low-income group performing better than the two middle-income groups.

The authors also studied gender inequality in four dimensions according to the Global Gender Gap Index. They found that low-income countries have the largest gender gap in economic participation and opportunities, and high-income countries have the largest gender gap in political opportunities (Koca, 2022).

A group of Ukrainian scientists studied the dependence of gender equality on the region of location, the level of economic development of the country, unemployment, shadow economy, education, and support for research by the parallel regression method (Stavytskyi et al., 2020). The authors conclude that the gender gap is gradually decreasing, with the main factors being internal determinants represented in the subindices. Dorius and Firebaugh (2010) point to a reduction in gender inequality in the four traditional dimensions of the Gender Gap Index and attribute the decline to various religious and cultural traditions.

Among the main reasons for the available global gender gap, WEF experts in 2022 point to the low level of women in leadership and management positions (the value of the political empowerment sub-index was 22%), the wage gap, occupational segregation, and the "pushing" of women out of jobs for highly skilled workers (the value of the economic participation and opportunity sub-index was 60.3%) (WEF, 2022). Testing of 144 countries on 14 indicators in four areas of gender inequality showed that countries have virtually eliminated gender gaps in health and life expectancy, halved the gap in economic participation and educational achievement, and did not close the gaps in political empowerment (Koca, 2022).

Our work aims to determine the impact nature of fertility decline, the level of sustainable development, the level of democracy, and a number of other factors on the condition of the gender gap.

### **3. Data and Methodology**

The Global Gender Gap Index ranks countries according to their proximity to gender equality (Hausmann, 2007). Our study is based on the hypothesis that proximity to gender equality in the country leads to decreased fertility and, consequently, a slowdown in population growth.

The top ten countries with a high level of GGGI include seven countries with low fertility rates of 1.4-1.7. Nevertheless, it is complemented by Rwanda, with a fertility rate below 4 (the birth rate has halved since 1960). As a result of the 1994 genocide, approximately one

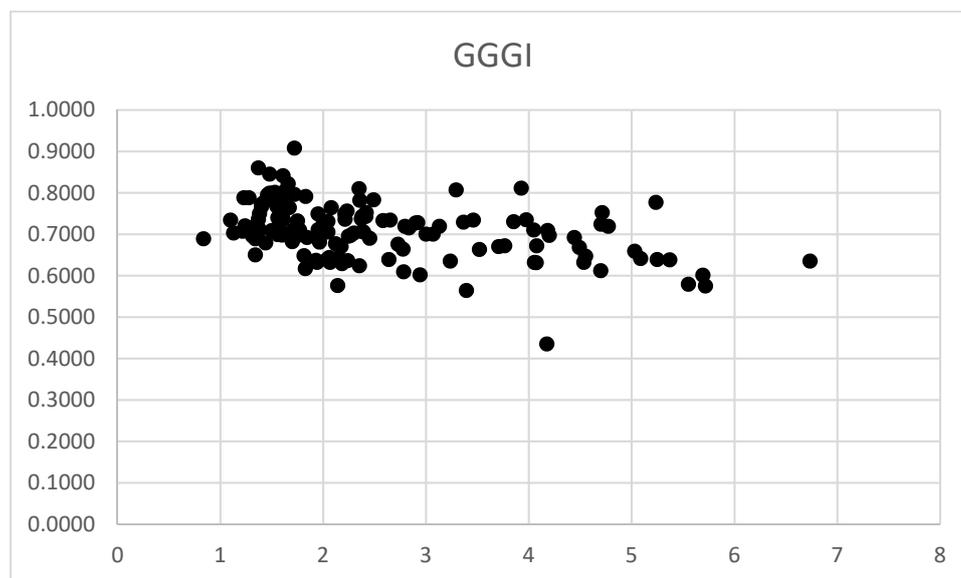
million people, mostly men, died in the country, and more than two million emigrated. As a result, Rwanda ranks 1st in the world regarding labour-force participation rate, enrollment in primary and secondary education, the sex ratio at birth, women in parliament, and women in ministerial positions. With other low indicators, this allows Rwanda to rank 6th among the top countries with a high level of GGGI. Nicaragua, which also experienced a large-scale civil war in the 80s of the last century, is in seventh place in the gender equality ranking. Although it did not lead to critical extermination of the population, it greatly reduced economic performance. Nicaragua's fertility rate decreased thrice from 1960 to 2020 (from 7.3 to 2.4). Nicaragua is ranked 1st in the Educational Attainment sub-criterion of the Global Gender Gap Index and first in the indicators: Women in parliament, Women in ministerial positions, Sex ratio at birth, and Professional and technical workers. Namibia is the third country with a high birth rate in the top GGGI ranking. It ranks 1st in the Health and Survival sub-criterion of the Global Gender Gap Index and in the following indicators: Enrollment in primary and tertiary education, Professional and technical workers. In Namibia, the fertility rate decreased almost twice from 1960 to 2020 (from 6.1 to 3.3).

The group of 10 countries with the lowest level of GGGI includes nine countries with fairly high fertility rates ranging from 2.1 to 5.7 and Qatar, with a fertility rate of 1.8. It is worth noting that in 1960, Qatar's fertility rate was 7, and in 2020 it was 2.1.

Thus, the analysis of the two borderline countries regarding the Global Gender Gap Index, 20 out of 146 countries ranked, confirms our hypothesis. However, the data of all countries on the Global Gender Gap Index and the fertility rate (births per woman) showed a rather low level of negative correlation – up to -0.5 (Figure 1). At the same time, it is worth noting that the average fertility rate in the world has decreased by over two times since 1963 (5.3) by 2020 (2.3). Throughout the Global Gender Gap Index's existence (since 2006), the average fertility rate in the world has decreased (from 2.6 to 2.3) by 11.5% (World Bank, 2023b). Since the number of countries in the Global Gender Gap Index has increased since 2006 from 115 to 147 in 2022, we cannot apply the dynamics of the average index value. The maximum value of the GGGI increased from 2006 (0.8133) to 2022 (0.908) by about the same amount (11.64%).

We also hypothesized that countries' progress in achieving the Sustainable Development Goals affects the GGGI. Since countries striving to achieve Sustainable Development Goals are concerned with social issues and develop the concept of sustainable development, including the broad involvement of women in all social processes (Aragonés-Beltrán et al., 2022; Leal Filho et al., 2022). To analyze the impact of this factor, we used the SDG-Score (Table 2).

**Figure 1. Correlation of the Global Gender Gap Index (vertical axis) and the fertility rate (births per woman) (horizontal axis)**



Source: WEF, 2022; World Bank, 2023b.

Based on the earlier scientists' research analysis, we also enhanced our analysis with a group of influence factors:

The democracy level in the country, as democratic values developed in society, encourages women's participation in all spheres of life. To analyze this factor, we used the Democracy Index (Table 2).

The percentage of women in the country's total population, as a larger number of women in society, potentially creates an opportunity to increase their representation in various spheres of life in the country. Globally, the share of women in the total population is 49.7%. In several countries, the share of women in the population is declining or steadily low, mostly in the Middle East and North Africa: Bahrain – 35%, Kuwait – 39%, Maldives – 37%, Oman – 34%, Qatar – 25%, Saudi Arabia – 42%, Emirates – 31% (World Bank, 2023c). In some countries, the share of women is either increasing or stable: Zimbabwe – 52%, Ukraine – 54%, Portugal, Estonia, El Salvador, Belarus, Armenia – 53%, Nepal – 54%, Moldova, Hungary, Georgia – 52%, Lithuania, Latvia – 54%. In order to analyze this factor, we used the average Population indicator, female (% of the total population) for countries for the period 1960-2020 (Table 2) (World Bank, 2023c).

**Table 2. List of variables used to test the hypotheses**

Designation	Variable	Year	Source
GCCI (2022)	Global Gender Gap Index	2006-2022	Global Gender Gap Report
PGRR (1970-2020)	Population growth, % (1970/2020)	1970-2020	World population review <a href="https://worldpopulationreview.com/countries">https://worldpopulationreview.com/countries</a>
AV_FR	Fertility rate, total (births per woman)	1970-2020	World Bank, <a href="https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?view=chart">https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?view=chart</a>
AV_POPF	Share of women in the country's population (% of the population)	1970-2020	World Bank <a href="https://data.worldbank.org/indicator/SP.POP.TOTL.FE.ZS?view=chart">https://data.worldbank.org/indicator/SP.POP.TOTL.FE.ZS?view=chart</a>
IMS_T	Number of international migrants, total	1960-2015	World Bank International migrant stock, total   Data (worldbank.org)
N MIG	Net migration	1960-2017	<a href="https://data.worldbank.org/indicator/SM.POP.NETM">https://data.worldbank.org/indicator/SM.POP.NETM</a>
DEM_I	Level of democracy Democracy Index	2021	<a href="https://www.jagranjosh.com/general-knowledge/democracy-index-2021-1644567197-1">https://www.jagranjosh.com/general-knowledge/democracy-index-2021-1644567197-1</a>
SDGS	SDG-Score	2022	Sustainable Development Report 2022 (sdgindex.org)
GNI(2021)	GNI per capita, Atlas method (current USD)	2021	World Bank <a href="https://data.worldbank.org/indicator/NY.GNP.PCAP.CD">https://data.worldbank.org/indicator/NY.GNP.PCAP.CD</a>
L1, L2, L3, L4	Dummy variables for the income groups of country's: L1 = 1 if the country has a high-income level (High), L2 = 1 if the country has an upper-middle income level (Upper-Middle), L3 = 1 if the country has a lower-middle income level (Lower-Middle), L4 = 1 if the country has a low-income level (Low)	2021	World Bank

The level of a country's income per capita, since a higher level of wealth can be achieved by more efficient and full use of the labour force, i.e., the involvement of women in reproductive processes. To analyze this factor, we used the GNI per capita Atlas method (current US\$) (Table 2) (Koengkan, 2022; World Bank, 2023d). We also determined whether there is a correlation between the GGGI and the income group into which all countries are divided (low, lower-middle, upper-middle, and high income).

The number of migrants in the country, as better opportunities attract economically active migrants (including women) to countries with a smaller gender gap. To analyze this factor, we used two indicators: International migrant stock, total, and Net migration (Table 2).

Thus, the Global Gender Gap Index is the dependent variable in our study. All other factors are predictors (independent variables). Due to incomplete statistical information, some of the objects (observations) were excluded from the study, so the test of the hypotheses is based on data from 131 countries. Descriptive statistics of the variables under consideration are

presented in the table, but they are assessed only for those observations for which all information is known (Table 3).

**Table 3. Descriptive statistics**

Variables	Average	Standard deviation	Maximum	Minimum
GCCI (2022)	0,7125	0,06710	0,908	0,435
GNI (2021)	16303,5878	21941,77298	122470	220
AV FR	3,6128	1,68519	7,51166667	1,27
AV POPF	50,3862	1,96966	54,2243991	33,279745
IMST (2015)	1491075,2672	4422718,25212	46627102	141
NMIG (2017)	42422,3664	666808,14664	4774029	-3266243
PGRR (1970-2020)	155,3052	224,54018	3015,66169	-92,15503
DEM I	5,7352	2,18901	9,75	0,32
SDGS	68,5844	9,71393	86,51	39,05

First, we analyze the correlation matrix presented in Table 4. Superfluously correlation coefficient values may indicate potential multicollinearity between variables, which significantly distorts the regression analysis results – the coefficient estimates and their *p*-values will be considered unreliable.

**Table 4. Correlation matrix**

	GCCI	GNI	AV_FR	AV_POPF	IMST	NMIG	PGRR	DEM_I	SDGS	L1	L2	L3	
Pearson correlation	GCCI	1,00	0,48	-0,50	0,32	0,12	0,24	-0,35	0,59	0,51	0,39	0,10	-0,31
	GNI	0,48	1,00	-0,61	-0,10	0,35	0,38	-0,08	0,66	0,64	0,83	-0,26	-0,39
	AV FR	-0,50	-0,61	1,00	-0,21	-0,20	-0,20	0,50	-0,69	-0,92	-0,63	-0,20	0,38
	AV POPF	0,32	-0,10	-0,21	1,00	0,00	0,10	-0,80	0,16	0,13	0,01	0,02	-0,04
	IMST	0,12	0,35	-0,20	0,00	1,00	0,70	-0,06	0,19	0,18	0,27	-0,10	-0,10
	NMIG	0,24	0,38	-0,20	0,10	0,70	1,00	-0,02	0,26	0,22	0,33	-0,02	-0,31
	PGRR	-0,35	-0,08	0,50	-0,80	-0,06	-0,02	1,00	-0,36	-0,43	-0,13	-0,13	0,09
	DEM I	0,59	0,66	-0,69	0,16	0,19	0,26	-0,36	1,00	0,68	0,65	0,01	-0,37
	SDGS	0,51	0,64	-0,92	0,13	0,18	0,22	-0,43	0,68	1,00	0,68	0,10	-0,33
	L1	0,39	0,83	-0,63	0,01	0,27	0,33	-0,13	0,65	0,68	1,00	-0,42	-0,41
	L2	0,10	-0,26	-0,20	0,02	-0,10	-0,02	-0,13	0,01	0,10	-0,42	1,00	-0,39
	L3	-0,31	-0,39	0,38	-0,04	-0,10	-0,31	0,09	-0,37	-0,33	-0,41	-0,39	1,00
	Significance	GCCI		0,00	0,00	0,10	0,00	0,00	0,00	0,00	0,00	0,00	0,13
GNI		0,00		0,00	0,13	0,00	0,00	0,19	0,00	0,00	0,00	0,00	0,00
AV FR		0,00	0,00		0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,01	0,00
AV POPF		0,00	0,13	0,01		0,49	0,13	0,00	0,04	0,07	0,48	0,42	0,31
IMST		0,10	0,00	0,01	0,49		0,00	0,27	0,02	0,02	0,00	0,13	0,12
NMIG		0,00	0,00	0,01	0,13	0,00		0,43	0,00	0,00	0,00	0,41	0,00
PGRR		0,00	0,19	0,00	0,00	0,27	0,43		0,00	0,00	0,07	0,07	0,16
DEM I		0,00	0,00	0,00	0,04	0,02	0,00	0,00		0,00	0,00	0,45	0,00
SDGS		0,00	0,00	0,00	0,07	0,02	0,00	0,00	0,00		0,00	0,12	0,00
L1		0,00	0,00	0,00	0,48	0,00	0,00	0,07	0,00	0,00		0,00	0,00
L2		0,13	0,00	0,01	0,42	0,13	0,41	0,07	0,45	0,12	0,00		0,00
L3		0,00	0,00	0,00	0,31	0,12	0,00	0,16	0,00	0,00	0,00	0,00	

However, judging by the correlation matrix, in this case, the values are acceptable, indicating a slight or moderate correlation between the variables in the model. The only exception is the

coefficient of -0.92 between the variables featuring the fertility rate and the level of achievement of sustainable development goals. Excluding any of these factors would contradict the purpose of the study, so all selected variables are allowed to be used in the analysis.

In addition, to assess the regression model adequacy, it is essential to refer to the part of the report related to the variance analysis (Table 5). Regression statistics provide numerical information about the variation and how well the model explains the variance of the given observations.

**Table 5. Analysis of variance**

	Sum of squares	Degree of freedom	Middle square	F	Significance
Regression	0,288	11	0,026	10,478	0,000
Balance	0,297	119	0,002		
Total	0,585	130			

Here, the value of the *F*-statistic and its significance, which is less than 0.05, indicate that the built model explains most of the variance of the variables and is, therefore, adequate. In other words, the null hypothesis that all coefficients before the built regression model variables are equal to zero is rejected.

#### 4. Results and Discussion

The decision to accept the hypothesis is made based on the significance of the predictor in explaining the variation in the dependent variable. That is why Table 6, devoted to regression coefficients, is the centerpiece of this part of the study.

**Table 6. Regression model coefficients and their features**

	Non-standardized ratios		Standardized ratios	T	Significance
	B	Statistical error	Beta		
(Constant)	-0,387	0,277		-1,395	0,165
GNI (2021)	1,278E-06	0,000	0,418	3,122	0,002
AV FR	0,006	0,008	0,160	0,798	0,426
AV POPF	0,016	0,004	0,479	3,665	0,000
IMST (2015)	-6,933E-10	0,000	-0,046	-0,455	0,650
NMIG (2017)	8,801E-10	0,000	0,009	0,081	0,935
PGRR (1970-2020)	7,377E-05	0,000	0,247	1,670	0,098
DEM I	0,012	0,003	0,378	3,567	0,001
SDGS	0,002	0,001	0,353	1,849	0,067
L1	-0,041	0,035	-0,285	-1,191	0,236
L2	0,012	0,025	0,080	0,465	0,643
L3	-0,006	0,019	-0,038	-0,304	0,762

Table 6 shows that only three factors have significance levels below 0.05: GNI per capita, the share of women in the population, and the level of democracy. The coefficient before the variable featuring the level of achievement of the country's sustainable development goals can also be considered significant (the *p*-value is quite close to the critical value). Thus, the

hypothesis of a zero correlation between these predictors and the global gender gap index is rejected.

Before accepting or rejecting the presented hypotheses, evaluating the regression model quality is vital by referring to the corresponding Table 7.

**Table 7. Features of the regression model quality**

Model	R	R-square	Adjusted R-squared	Estimation error	Durbin-Watson
1	0,701	0,492	0,445	0,04998	2,140

Based on Table 7, the multiple correlation value is 0.701, which indicates a fairly close relationship between the selected factors and the global gender gap index. The determination coefficient or R-squared of 0.492 represents that the variation in the values of this index is 49.2%, explained by the variation in the independent variables. However, one should focus on the adjusted R-squared, as it adjusts the statistics based on the number of variables in the model. The value of this estimate is 0.445, which features the model's average quality, given the degree of information availability and the fact that the study is based on data from completely different countries. The value of the Durbin-Watson criterion of 2.140 indicates the absence of autocorrelation, which does not lead to a deterioration in the quality of the estimates of the regression parameters and does not indicate an overestimation of the test statistics used to check the quality of the model (i.e., no artificial improvement in the quality of the model relative to its actual level of accuracy is created).

The next potential problem may be heteroscedasticity, which refutes all assumptions about the model coefficients' significance. The estimates coefficient variance increases, but the least squares procedure (LSP) does not detect such an increase. To detect heteroscedasticity in this study, it is adequate to analyze the scatter plot of the residuals. Since all the residuals are uniformly distributed, it is concluded that the model is homoscedastic.

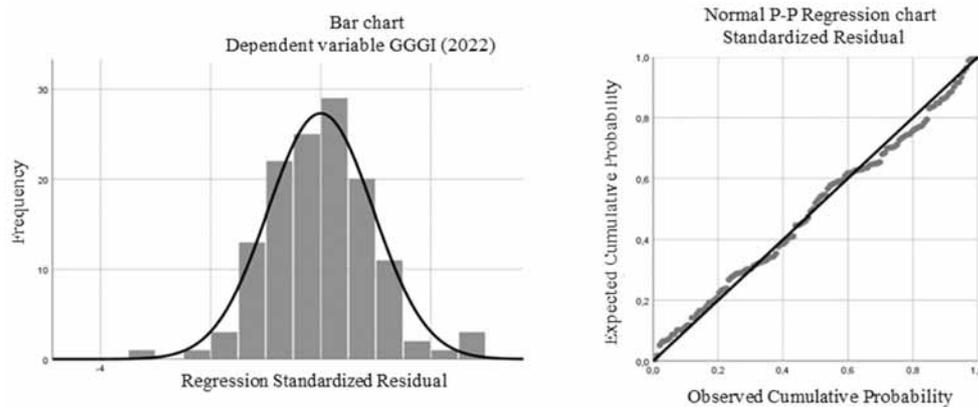
It is also important that the resulting residuals are normally distributed. That can be visually determined from the frequency bar chart and P-P chart shown in Figure 2.

It is difficult to conclude that the distribution is normal from a bar chart. However, from the P-P chart, it is obvious that the deviations of the point values from the line forming a 45-degree angle with the abscissa are insignificant, so the residuals are normally distributed.

All the prerequisites fulfilment for the LSP application (absence of multicollinearity, autocorrelation, heteroscedasticity, and normality of the distribution of residuals) indicate the reliability of the regression analysis results. That is why the conclusions regarding the acceptance or rejection of the hypotheses presented in the table can be considered accurate.

Thus, the statistically significant variables in our model are the share of women in the total population, the level of achievement of the Sustainable Development Goals, the level of democracy, and GNI per capita. The other variables we selected are insignificant and therefore do not affect the gender gap in the country.

**Figure 2. Residual frequency bar chart and P-P chart**



Thus, based on the mathematical model, we found that the country's fertility rate has no impact on the Global Gender Gap Index and that population growth does not impact the GGGI (the variables were insignificant). The Sustainable Development Goals achievement level has a minor but mathematically significant positive effect. Thus, by accelerating the Sustainable Development Goals achievement, the country also positively impacts reducing the gender gap.

Instead, the Global Gender Gap Index depends on the percentage of women in a country's total population. According to our model, a 1% increase in the share of women in a country leads to a 0.016 increase in the index in the next period. Given the rather significant long-term fluctuations in the share of women in African countries (from 2%), the systemic decline in the share of women in the Middle East (down to 20% since 1970), and the current migration processes that occur during military conflicts in some countries (for instance, Ukraine), this indicator is essential for reducing the gender gap between countries. The model showed that general migration processes, however, do not affect the condition of the gender gap. It is notable, however, that the migration processes whose statistics were used in the model do not correspond to the current migration processes in the aggressor country and Ukraine. Here, migration processes have a clear gender character: women left Ukraine mostly, and men left Russia. In our opinion, this fact can significantly affect the gender gap in the above countries, and we will have a special focus on further studies.

We have also determined the impact of the democracy level in a country on the Global Gender Gap Index. According to our model, a 1% increase in the level of democracy in a country leads to a 0.012 increase in the index in the next period. Given the very large gap in the level of democracy (min – 0.32, max – 9.75 with an average of 5.73), we note that countries that consistently increase the democracy level can significantly reduce the gender gap.

We found a statistically significant but minor effect of a country's GNI per capita on the Global Gender Gap Index. According to our model, a 1% increase in a country's GNI per

capita leads to a 0.000001278 increase in the index in the next period. This minor result is fully confirmed by the fact that in the final model, there is no significant correlation between the GGGI and income group into which the world's countries are divided. The differences are shown by fluctuations in the Global Gender Gap Index for different income groups below 3%, which is not significant. The smallest difference between the groups is in the Health and Survival sub-index, with a level of achievement on average (0.97). The largest difference between the groups is in the Political Empowerment sub-index at the level of achievement: from 0.18 (lower-middle income countries) to 0.32 (high-income countries). Thus, a country's income group does not play a significant role in the condition of the gender gap in general and its sub-index in particular. Political and military conflicts in low-income countries, and widespread poverty, lead to the need to enhance the role of women in society. Therefore, the GGGI of countries in this group is not the lowest.

## **5. Conclusions**

The article assesses the impact of changes in fertility, income level, migration rates, democracy, and the level of Sustainable Development Goals achieved on condition of gender gap. The research was based on the Global Gender Gap Index. Over the past 50 years, the global fertility rate has decreased by over twice. Moreover, over the 16 years of the Global Gender Gap Index statistical database, the fertility rate has decreased by about 11%, which has led to a similar increase in the maximum value of the index under study. Although a clear inverse correlation exists between the top 10 countries with the highest and lowest indexes and fertility rates, we did not find a significant negative correlation across all countries. The econometric model also did not confirm our hypothesis, as it found that the fertility rate was not statistically significant as a factor influencing the gender gap. Population growth in countries worldwide has no impact on changes in the gender gap.

By using additional indicators in the model, we found a significant impact on the gender gap of changes in the share of women in the country, which is especially essential in the context of current migration changes in the population structure of warring countries. We will study this issue separately in our next studies.

The article shows the great potential of countries with low democracy levels to decrease the gender gap through democratic reforms. The econometric model showed a fairly high impact of increasing the democracy level on the GGGI. The Political Empowerment sub-index of the Global Gender Gap Index has the highest potential for improvement. Simultaneously, the lowest level of its achievement is observed not in low-income countries but in countries with lower-middle income. Also, the gender gap is positively influenced by countries' progress towards achieving the Sustainable Development Goals.

Based on data from the last 16 years, we found a minor positive effect of GNI per capita growth in a country on the condition of the gender gap. The impact demonstrated by our model is much lower than that found in the World Bank study. That is because, firstly, we analyzed GNI per capita, which is also determined by changes in the country's population. Secondly, the GDP growth potential of the World Bank model is limited by real

unemployment, which restrains the use of the productive potential of not only all women in the economy but also some men. Low unemployment is known to stimulate high inflation.

## References

- Aragónés-Beltrán, P., González-Cruz, M. C., León-Camargo, A., Viñoles-Cebolla, R. (2022). Assessment of regional development needs according to criteria based on the Sustainable Development Goals in the Meta Region (Colombia). – *Sustainable Development*, 31(2), pp. 1101-1121. Portico. <https://doi.org/10.1002/sd.2443>.
- Balafoutas, L., Kerschbamer, R., Sutter, M. (2012). Distributional preferences and competitive behavior. – *Journal of Economic Behavior & Organization*, 83(1), pp. 125-135. <https://doi.org/10.1016/j.jebo.2011.06.018>.
- Benatar, D. (2006). *Better never to have been: The harm of coming into existence*. OUP Oxford.
- Bhandari, M. P. (2022). *Reducing Inequalities Towards Sustainable Development Goals: Multilevel Approach*. CRC Press.
- Boffey, D. (2017). UK gender inequality as bad as 10 years ago, EU league table shows. – *The Guardian*, 11. <https://www.theguardian.com/inequality/2017/oct/11/uk-no-further-forward-on-tackling-gender-inequality-eu-league-table-shows>.
- Bose, C. E. (2015). Patterns of global gender inequalities and regional gender regimes. – *Gender & Society*, 29(6), pp. 767-791. <https://www.jstor.org/stable/43670023>.
- Bui, T. M. H., Vo, X. V., Bui, D. T. (2018). Gender inequality and FDI: empirical evidence from developing Asia-Pacific countries. – *Eurasian Economic Review*, 8(3), pp. 393-416. <https://doi.org/10.1007/s40822-018-0097-1>.
- Chancel, L., Piketty, T., Saez, E., Zucman, G. (eds.). (2022). *World inequality report 2022*. Harvard University Press.
- Campbell, B. (2014). *End of Equality (Manifestos for the 21st century)*. Kolkata, India.
- Cascella, C., Williams, J., Pampaka, M. (2021). An Extended Regional Gender Gaps Index (eRGGI): Comparative Measurement of Gender Equality at Different Levels of Regionality. – *Social Indicators Research*, 159(2), pp. 757-800. <https://doi.org/10.1007/s11205-021-02764-x>.
- Charles, M., Grusky, D. B. (2007). Egalitarianism and gender inequality. *The inequality reader: Contemporary and foundational readings in race, class, and gender*, pp. 327-342.
- Choe, S.-A., Cho, S., Kim, H. (2016). Gender gap matters in maternal mortality in low and lower-middle-income countries: A study of the global Gender Gap Index. – *Global Public Health*, 12(9), pp. 1065-1076. <https://doi.org/10.1080/17441692.2016.1162318>.
- Dabla-Norris, E., Kochhar, K. (2019). Closing the gender gap. – *Finance and Development*, 56(1), pp. 8-11. <https://www.imf.org/external/pubs/ft/fandd/2019/03/pdf/closing-the-gender-gap-dabla.pdf>.
- Dalacoura, K. (2019). Women and gender in the Middle East and North Africa: mapping the field and addressing policy dilemmas at the post-2011 juncture. – *MENARA Final Reports*, (3). MENARA, Barcelona, Spain. [http://eprints.lse.ac.uk/100742/1/Dalacoura\\_Women\\_and\\_Gender.pdf](http://eprints.lse.ac.uk/100742/1/Dalacoura_Women_and_Gender.pdf).
- Dilli, S., Carmichael, S. G., Rijpa, A. (2018). Introducing the historical gender equality index. – *Feminist Economics*, 25(1), pp. 31-57. <https://doi.org/10.1080/13545701.2018.1442582>.
- Dinter, M., Grässle, S., Mosenhauer, M. (2022). The Effect of Fragile Self-Esteem on Course Completion in Higher Education. – *European Journal of Management Issues*, 30(3), pp. 131-141. <https://doi.org/10.15421/192212>.
- Dorius, S. F., Firebaugh, G. (2010). Trends in global gender inequality. – *Social forces*, 88(5), pp. 1941-1968. <https://doi.org/10.1353/sof.2010.0040>.
- Dugarova, E. (2018). *Gender equality as an accelerator for achieving the Sustainable Development Goals*. – Discussion Paper, United Nations Entity for Gender Equality and the Empowerment of Women, New York, USA.
- Edeh, F. O., Zayed, N. M., Perevozova, I., Kryshstal, H., Nitsenko, V. (2022). Talent Management in the Hospitality Sector: Predicting Discretionary Work Behaviour. – *Administrative Sciences*, 12(4), p. 122. <https://doi.org/10.3390/admsci12040122>.
- ESSEC. (n.d.). Gender Equality, what does it mean? ESSEC Business School. <http://gender-equality.essec.edu/home/gender-equality-what-does-it-mean#:~:text=Gender%20equality,%20also%20known%20as,needs%20equally,%20regardless%20of%20gender>.

- Gneezy, U., Haruvy, E., Roth, A. (2003). Bargaining under a deadline: evidence from the reverse ultimatum game. – *Games and Economic Behavior*, 45, pp. 347-368.
- Hakim, C. (2006). Women, careers, and work-life preferences. – *British Journal of Guidance & Counselling*, 34(3), pp. 279-294. <https://doi.org/10.1080/03069880600769118>.
- Harris, B. (2017). What is the gender gap (and why is it getting wider). – *World Economic Forum*. <https://www.weforum.org/agenda/2017/11/the-gender-gap-actually-got-worse-in-2017/>.
- Hausmann, R., Tyson, L. D., Zahidi, S. (2007). The global gender gap index 2007. – *The global gender gap report*, pp. 3-27. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=9730f4b16dc5bbd64d304c8ffdb921c8150339a67>.
- Hudoshnyk, O. V., Krupskyi, O. P. (2022). Science and comics: from popularization to the discipline of Comics Studies. – *History of Science and Technology*, 12(2), pp. 210-230. <https://doi.org/10.32703/2415-7422-2022-12-2-210-230>.
- Hudoshnyk, O. V., Krupskyi, O. P. (2023). Media Possibilities of Comics: Modern Tools for the Formation and Presentation of Organizational Culture. – *European Journal of Management Issues*, 31(1), pp. 40-49. <https://doi.org/10.15421/192304>.
- Huiskes, P., Dinis, M. A. P., Caridade, S. (2022). Technology-Facilitated Sexual Violence Victimization during the COVID-19 Pandemic: Behaviors and Attitudes. – *Journal of Aggression, Maltreatment & Trauma*, 31(9), pp. 1148-1167. <https://doi.org/10.1080/10926771.2022.2089863>.
- Koca, G. Ş. (2022). The classification of world countries in terms of Global Gender Gap with using cluster analysis. – *Women's Studies International Forum*, 92, p. 102592. <https://doi.org/10.1016/j.wsif.2022.102592>.
- Koengkan, M., Fuinhas, J. A., Belucio, M., Kazemzadeh, E., Poveda, Y. E. M., Alavijeh, N. K., Santiago, R. (2022). The Consequences of Gender Inequality on Latin America's Economic Growth: Macroeconomic Evidence. – *Sexes*, 3(3), pp. 396-412. <https://doi.org/10.3390/sexes3030030>.
- Leal Filho, W., Kovaleva, M., Tsani, S., Țircă, D.-M., Shiel, C., Dinis, M. A. P., Nicolau, M., Sima, M., Fritzen, B., Lange Salvia, A., Minhas, A., Kozlova, V., Doni, F., Spiteri, J., Gupta, T., Wakunuma, K., Sharma, M., Barbir, J., Shulla, K., ... Tripathi, S. (2022). Promoting gender equality across the sustainable development goals. – *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-022-02656-1>.
- Lubinski, D., Benbow, C. P., Kell, H. J. (2014). Life Paths and Accomplishments of Mathematically Precocious Males and Females Four Decades Later. – *Psychological Science*, 25(12), pp. 2217-2232. <https://doi.org/10.1177/0956797614551371>.
- Mateos, J. T., Fernández-Sáez, J., Marcos-Marcos, J., Álvarez-Dardet, C., Bamba, C., Popay, J., Baral, K., Musolino, C., Baum, F. (2020). Gender Equality and the Global Gender Gap in Life Expectancy: An Exploratory Analysis of 152 Countries. – *International Journal of Health Policy and Management*, 11(6), pp. 740-746. <https://doi.org/10.34172/ijhpm.2020.192>.
- Mehdi, T. (2020). Global gender gap index: a stochastic dominance approach. Available at SSRN 3663281. <http://dx.doi.org/10.2139/ssrn.3663281>.
- Morgan, R., Dhatt, R., Kharel, C., Muraya, K. (2020). A patchwork approach to gender equality weakens the SDGs: Time for cross-cutting action. – *Global Health Promotion*, 27(3), pp. 3-5. <https://doi.org/10.1177/1757975920949735>.
- Niederle, M., Segal, C., Vesterlund, L. (2013). How costly is diversity? Affirmative action in light of gender differences in competitiveness. – *Management Science*, 59(1), pp. 1-16. <https://doi.org/10.1287/mnsc.1120.1602>.
- Novta, N., Wong, J. (2017). Women at Work in Latin America and the Caribbean. – *IMF Working Papers*, 2017(034), p. 1. <https://doi.org/10.5089/9781475578928.001>.
- Odera, J. A., Mulusa, J. (2020). SDGs, Gender Equality and Women's Empowerment: What Prospects for Delivery?. – In: Kaltenborn, M., Krajewski, M., Kuhn, H. (eds.). *Sustainable Development Goals and Human Rights. Interdisciplinary Studies in Human Rights*, 5. Springer, Cham. [https://doi.org/10.1007/978-3-030-30469-0\\_6](https://doi.org/10.1007/978-3-030-30469-0_6).
- Pavlova, T., Zarutskaya, E., Pavlov, R., Kolomoichenko, O. (2019). Ethics and Law in Kant's Views: The Principle of Complementarity. – *International Journal of Ethics and Systems*, 35(4), pp. 651-664, <https://doi.org/10.1108/ijoes-04-2019-0080>.
- Pinker, S. (2010). *The sexual paradox: Extreme men, gifted women and the real gender gap*. Vintage Canada.
- Robinson, V. (2018). Gender Inequalities: "Past" Issues and Future Possibilities. In *Towards a New Enlightenment? A Transcendent Decade*, Madrid: BBVA. <https://www.bbvaopenmind.com/en/articles/gender-inequalities-past-issues-and-future-possibilities/>.
- Sardak, S. E., Shymanska, K. V., Girman, A. P., Krupskyi, O. P. (2021a). International youth migration: features, tendencies, regulation prospects. – *Journal of Geology, Geography and Geoecology*, 30(2), pp. 365-378.

- <https://doi.org/10.15421/112133>.
- Sardak, S., Britchenko, I., Vazov, R., Krupskiy, O. P. (2021b). Life cycle: formation, structure, management. – *Economic Studies (Ikonomicheski Izsledvania)*, 30(6), pp. 126-142. [https://www.iki.bas.bg/Journals/EconomicStudies/2021/2021-6/7\\_Krupskiy\\_f\\_f.pdf](https://www.iki.bas.bg/Journals/EconomicStudies/2021/2021-6/7_Krupskiy_f_f.pdf).
- Sen, A. (1990). Gender and cooperative conflicts. – In: *Persistent Inequalities: Women and World Development*, edited by Irene Tinker, pp. 123-149. New York: Oxford University Press.
- Shulla, K., Voigt, B.-F., Cibian, S., Scandone, G., Martinez, E., Nelkovski, F., Salehi, P. (2021). Effects of COVID-19 on the Sustainable Development Goals (SDGs). – *Discover Sustainability*, 2(1). <https://doi.org/10.1007/s43621-021-00026-x>.
- Stavytskyy, A., Kharlamova, G., Giedraitis, V. R., Cheberyako, O., Nikytenko, D. (2020). Gender question: Econometric answer. – *Economics & Sociology*, 13(4), pp. 241-255. <https://doi.org/10.14254/2071-789x.2020/13-4/15>.
- Stoet, G., Geary, D. C. (2019). A simplified approach to measuring national gender inequality. – *PLOS ONE*, 14(1), e0205349. <https://doi.org/10.1371/journal.pone.0205349>.
- Sutter, M., Glätzle-Rützle, D. (2010). Gender Differences in Competition Emerge Early in Life. – IZA Discussion Paper N 5015, <http://dx.doi.org/10.2139/ssrn.1631480>.
- Tewari, S., Chouhan, R., Sanjeev. (2020). Gender Gap Index for Employment Opportunity. – *International Journal of Engineering Technologies and Management Research*, 4(9), pp. 39-48. <https://doi.org/10.29121/ijetmr.v4.i9.2017.98>.
- The World Bank. (2023a April 06). The World Bank in Gender: overview. Retrieved May 31, 2023, from <https://www.worldbank.org/en/topic/gender/overview>.
- The World Bank. (2023b). Fertility rate, total (births per woman), Retrieved May 31, 2023, from <https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?view=chart>.
- The World Bank. (2023c). Population, female (% of total population), Retrieved May 31, 2023, from <https://data.worldbank.org/indicator/SP.POP.TOTL.FE.ZS?view=chart>.
- The World Bank. (2023d). GNI per capita, Atlas method (current US\$), Retrieved May 31, 2023, from <https://data.worldbank.org/indicator/NY.GNP.PCAP.CD>.
- Thieme, S. (2008). Sustaining livelihoods in multi-local settings: Possible theoretical linkages between transnational migration and livelihood studies. – *Mobilities*, 3(1), pp. 51-71.
- UN Department of Economic and Social Affairs. (2020). Goal 5. Achieve gender equality and empower all women and girls. <https://sdgs.un.org/goals/goal5>.
- UN. (2015). Transforming our world: the 2030 Agenda for Sustainable Development. United Nations Department of Economic and Social Affairs, Sustainable Development. <https://sdgs.un.org/2030agenda>.
- WEF. (2022). The Global Gender Gap Report 2022: Country Profiles. World Economic Forum 2022. <https://www.weforum.org/reports/global-gender-gap-report-2022/in-full/economy-profiles-5b89d90ea5>.