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How does gender inequality in education and labor force participation affect Afghanistan's economic growth?

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Abstract

This study examines the effect of gender inequality in education and labor force participation on Afghanistan's economic growth. Using time-series data from 2000 to 2022 and applying the Autoregressive Distributed Lag (ARDL) model, the results reveal that gender inequality in both employment and education significantly hinders economic growth. Particularly, a 1% increase in gender inequality in education leads to a 9.039% decline in economic growth, while a similar increase in labor force participation inequality results in a 16.67% reduction. These findings highlight the essential role of women's full participation in education and the workforce as a key driver of economic growth. Policy recommendations emphasize expanding educational opportunities through scholarships and distance learning programs for girls and women, creating employment initiatives to enhance women's participation in the labor market, and fostering national and international collaboration to drive political and structural reforms aimed at restoring gender equality. The study ultimately concludes that addressing gender inequality is not only a matter of human rights but also an economic necessity for Afghanistan's long-term stability and development. Ensuring equal access to education and employment for women is imperative for fostering inclusive economic growth and breaking the cycle of poverty and underdevelopment.

Keywords: Gender inequality, Education, Labor force participation, Economic growth, and Afghanistan
Jel codes: J16, I25, J21

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1. Introduction

Gender inequality and its impact on economic growth is a major global issue, particularly in developing countries. Achieving gender equality is a key Sustainable Development Goal set by the United Nations in 2015 (*Global Sustainable Development Report, 2015 edition* 2015). Gender equality does not imply that men and women should be identical, but that individuals' rights, freedoms, and opportunities should not be determined by their gender (Igbuzor n.d.). Gender inequality refers to limited access to basic resources, disparities in asset ownership, unequal educational and economic opportunities, and an unequal division of labor both within households and in society (A. Sen, 2001). It highlights the barriers that individuals face in accessing resources, opportunities, and privileges due to their gender (Onogwu, 2021).

Women constitute half of the skilled workforce in any country, making them a vital factor in global competitiveness (Karoui and Feki, 2018a). Education is a crucial component of a skilled workforce and can serve as a driver for both economic and social development. The level and distribution of education significantly shape the effectiveness of this development. (A. K. Sen, 1989) argues that education is the most important resource for increasing production in any economy. Research consistently supports the idea that gender equality, particularly in women's participation in the labor force, positively affects economic growth. According to (Blackden et al., 2007), gender equality in women's labor force participation has both direct and indirect positive effects on economic growth through various channels. Numerous studies have also shown that existing gender relations in society significantly influence economic outcomes (Bourdon et al., 2006; Hill and King, 1995; Klasen, 2000, 2002; Klasen and Lamanna, 2009; Klasen and Minasyan, 2017; Knowles et al., 2002; Mishra et al., 2020; Seguino, 2000a, 2000b; van Staveren, 2011). The analysis of gender inequality in education and the labor force, and its relationship with economic growth, is especially important for developing countries. According to (Knowles et al., 2002), increased access to education for women in developing countries leads to better outcomes, such as improved child education and reduced child and infant mortality rates. (Klasen, 2002) suggests that lower levels of education for women result in reduced human capital, which ultimately hinders economic growth.

Afghanistan, a developing and war-torn country, is heavily impacted by decades of internal conflict and remains surrounded by traditional patriarchal structures. The gender inequality in Afghanistan is one of the most extreme issues, with the 2023 WEF Global Gender Report ranking the country last among 146 nations, with a gender gap index of 0.405 ("Global Gender Gap Report 2023", n.d.). Women in Afghanistan have historically faced exclusion and discrimination. Gender inequality affects Afghanistan's economic growth through multiple channels. Addressing gender inequality and its impact on economic growth is particularly crucial in a country like Afghanistan, where half of the population, women, have repeatedly been excluded from key societal functions. Researching the link between gender inequality and economic growth will shed light on both the visible and hidden aspects of this issue. The primary goal of the current study is to examine the effects of gender inequality in education and labor force participation on Afghanistan's economic growth. To achieve this, we have used variables the ratio of female to male mean years of schooling and the ratio of female to male labour force participation as the primary independent variables, variable % of the annual total population growth rate as a subsidiary independent variable, and variable % of annual GDP growth rate as the dependent variable. This analysis will cover the period from 2000 to 2022. Although similar research has been conducted globally, the distinct and unique feature of the present study lies in the specific social and cultural structure of Afghanistan as the study area, where the relationship between gender inequality and economic growth has not yet been explored. The hypothesis of this study is the existence of a significant relationship between gender inequality and the economic growth of Afghanistan. The findings of this study will provide original, evidence-based insights that can inform the development of strategies to address gender inequality, benefiting stakeholders such as the Afghan government and international policymakers.

2. Literature Review

Researchers have consistently explored the relationship between gender inequality and economic growth, with much of the focus on the role of gender as a key factor influencing a country's economic development. It is widely accepted that gender disparities in education and employment are among the most significant drivers of economic growth, with compelling evidence to support this view. Gender discrimination, particularly in education, can result in a shortage of skilled labor, which in turn affects the labor market and hampers economic growth. Previous studies have revealed both positive and negative effects of gender inequality on economic growth, giving rise to two contrasting perspectives on the issue. These perspectives are discussed below.

Several studies suggest that gender inequality in education and employment, through various mechanisms, can potentially enhance economic growth, though these findings have been the subject of debate. For instance, (Blecker and Seguino, 2002; Seguino, 2000a, 2000b) argue that lower educational attainment for women, leading to reduced wages, can decrease labor costs per unit of production, which may benefit labor-intensive industries. This reduction in labor costs helps lower production expenses for export-oriented economies, thereby improving their competitiveness and attracting investments, which ultimately spurs economic growth. Similarly, studies by (Barro and Lee, 1994; Barro and Sala-i-Martin, 2004; Perotti, 1996) suggest a negative relationship between women's education and economic growth. The studies that highlight the potential positive effects of gender inequality on economic growth have been criticized by a number of researchers, including (Brummet, 2008; Dollar and Gatti, 1999; Klasen and Lamanna, 2009; Knowles et al., 2002). On the other hand, a significant body of research indicates that gender inequality has a detrimental effect on economic growth, either directly or indirectly. Notable works in this area include those by (Andaish and Assadi, 2024; Baliamoune-Lutz, 2007; Benavot, 1989; Galor and Weil, 1996; Hill and King, 1995; E. M. King et al., 2008; E. King and Mason, 2001; Klasen, 2000; Klasen and Lamanna, 2009; Knowles et al., 2002; Morrison et al., 2007)

(Baliamoune-Lutz, 2007; Benavot, 1989) argue that denying women access to education often results in families investing more in the education of sons than daughters, despite evidence that girls have greater educational potential than boys. This gender bias in educational investment hampers human capital development and, consequently, impedes economic growth. Empirical studies have consistently supported this viewpoint. (Brummet, 2008; Karoui and Feki, 2018b) found that gender inequality in education negatively impacts GDP growth, underscoring the importance of enrolling girls in schools to improve economic performance in African countries. (Karoui and Feki, 2018a) investigated the effect of gender inequality in education on economic growth in Tanzania using the co-integration model, finding a long-term relationship. Similarly, (Yumusak et al., 2013) using the co-integration approach, also studied the effects of gender inequality in education on Turkey’s economic growth from 1968 to 2005. They found that low education levels for women had a negative effect on economic growth, and reducing gender inequality in education would promote favorable long-term economic development in Turkey.

In their study of 139 countries, (Klasen and Lamanna, 2009) discovered that countries, with the exception of those in Latin America and Africa, that reduced gender inequality in education and employment experienced notable economic growth. (Sinha, 2022) examined gender inequality in education and its impact on economic growth in India over the period 1971-2017 using the Vector Error Correction Model (VECM). The results revealed that gender inequality in secondary and post-secondary education had a negative impact on economic growth, and the study emphasized that improving women's education could lead to higher long-term growth rates. (Koengkan et al., 2022) employed the Ordinary Least Squares (OLS) regression model and quantile moments model to assess the effects of gender inequality on economic growth in Latin America between 1990 and 2016. Their findings indicated that gender inequality hindered GDP per capita in the region, with the gender gap serving as a barrier to economic progress. (Igboanugo and Iwegbu, 2020) explored the impact of gender inequality in education and labor force participation on Nigeria's economic growth from 2005 to 2015 using the VECM model. Their findings revealed significant gender inequalities, particularly in urban areas, and suggested that such disparities had a considerable negative effect on Nigeria’s economic growth.

(Indangasi et al., 2016) used the ARDL model to examine the impact of gender inequality in education and labor force participation on Kenya's economic growth from 1990 to 2012. Their study concluded that gender inequality in education negatively affected economic growth, while gender inequality in the labor force did not have a significant impact.(Esen and Seren, 2021) examined the impact of gender inequality in education and employment on economic growth in Turkey from 1975 to 2018 using two regression models (DOLS and FMOLS). Their findings indicated that improvements in gender equality in both education and employment had significant positive effects on the country's long-term GDP per capita, suggesting that gender inequality in these areas is detrimental to economic growth. (Ruiters and Charteris, 2020) investigated gender equality in labor force participation and its impact on economic growth in South Africa between 2008 and 2018 using the ARDL model. Their research found that while long-term economic development positively influenced gender equality, increasing women's participation in the labor market did not have a direct effect on economic growth in South Africa. This suggests that the broader connection between economic development and gender equality exists, but the direct impact of women's increased labor market participation may not be as pronounced in some countries. (Chaudhry, 2007) studied the impact of gender inequality in education on economic growth in Pakistan during 1970-2005. The study found that gender inequality in education had a significant negative effect on Pakistan's economic growth.

3. Methodology and data source

This research seeks to empirically examine the effects of gender inequality in education and the labor force, along with other contributing factors, on economic growth. we utilized secondary data from the World Bank Development Indicators database, covering the years from 2000 to 2022. This study employs the Autoregressive Distributed Lag (ARDL) model, which facilitates a detailed understanding of the relationships among the various variables.

Below is the functional form model of the current study, as described in Equation 1.

$$GDPG = f(GIE, GILFP, POPG) \quad (1)$$

Where:

GDPG stand for the % of annual GDP growth rate used as a proxy for economic growth, which is used as the dependent variable in this study.

GIE stand for gender inequality in education proxied by the ratio of female to male mean years of schooling.

GILFP stand for Gender inequality in the labour force participation rate, proxied by the ratio of female to male labour force participation. The female-to-male labour force participation helps to measure the gender difference in terms of labour force participation for males and females and has been used widely in literature review (Blankenship and Kubicek 2018; Klasen and Lamanna 2009; Ruiters and Charteris 2020).

POPG stand for % of the annual total population growth rate.

The study utilizes an autoregressive distributed lag (ARDL) model to effectively analyze the impact of gender inequality in education and labor force participation on economic growth in Afghanistan. This approach, developed by (Pesaran and Smith, 1995) and further refined by(Pesaran et al., 2001), provides valuable insights into the relationship between gender inequality in education and labor force participation and economic growth in Afghanistan.

The Baseline model examines the link between economic growth and gender inequality in education and labor force, while the population growth rate serves as a control variable.

$$GDPGt = \alpha + \beta_1 GIE + \beta_2 GILFP + \beta_3 POP + \varepsilon_t \quad (2)$$

Where GDPG stands for the economic growth rate, GIE refers to the gender inequality in education (which is used as a proxy to capture the effect of gender inequality in education), GILFP indicates gender inequality in labore force participation, and POP represents the growth rate of population.

$\Delta GDPG_{t-1} = \alpha + \beta_0\ GDPG_{t-1} + \beta_1\ GIE_{t-1} + \beta_2 GILFP_{t-1} + \beta_3\ POP_{t-1} + \sum_{i=1}^{m} \delta 1i\ \Delta GDPGt - 1 + \sum_{i=0}^{n} \delta 2i\ \Delta GIEt - 1 + \sum_{i=0}^{q} \delta 3i\ \Delta GILFPt - 1 + \sum_{i=0}^{r} \delta 4i\ \Delta POPt - 1$ (3)

Where Δ is the first difference; m, n, q, r and s are the lag length and is the residual term. And where - β_1/β_0, - β_2/β_0, $-\beta_3/\beta_0$, $-\beta_4/\beta_0$ represent the long run coefficients, and δ_1, δ_2, δ_3, δ_4 represent the short-run coefficients (Emara,2020).

4. Result and discussion

The Dick-Fuller unit root test and the Phillips-Perron (PP) test are the most important tests for examining the stability of time series data.

Table 1. Unit Root Tests

At level		
Variable	Phillips Perron (PP)	Dickey-Fuller (ADF)
LnGDPG	0.091	0.091
LnPOP	0.028**	0.022**
LnGILFP	0.764	0.000***
LnGIE	0.626	0.003***
At 1st difference		
LnGDPG	0.0001***	0.0002***
LnPOP	0.0005***	0.083
LnGILFP	1.0000	0.046***
LnGIE	0.691	0.039***

Source: Author calculation

Table 1 presents the results of unit root tests (Dickey-Fuller (ADF) and Phillips-Perron (PP) at both the level and first difference for four variables such as log GDP growth (LnGDPG), log population growth LnPOP, log gender inequality in labore force participation (LnGILGP), and log gender inequality in education (LnGIE). At the level, LnGDPG indicates p-values of 0.091 for both ADF and PP tests, which are above the 5% significance level, suggesting that LnGDP is non-stationary at the level and has a unit root. On the other hand, LnPOP has p-values of 0.028 for PP and 0.022 for ADF, both of which are lower than 5%, showing that LnPOP is stationary at the level and does not exhibit a unit root. For LnGILFP, the PP test indicates a p-value of 0.764, which is much higher than 5%, suggesting that it is non-stationary at the level. However, the ADF test results p-value of 0.000, which is less than 5%, indicates non-stationarity for LnGILFP based on the ADF test at the level. LnGIE indicates p-values of 0.626 for PP and 0.003 for ADF, where the PP test suggests this variable is non-stationary at the level, while the ADF test indicates stationarity. Shifting to the first difference, LnGDPG becomes stationary with very small p-values (0.0001 for PP and 0.0002 for ADF), revealing that this indicator is stationary at the first difference. In conclusion, LnPOP is stationary at the level for both tests, LnGILFP and LnGIE are stationary according to the ADF test, but not the PP test. LnGDPG is non-stationary at the level for both tests. After first differencing, LnGDPG becomes stationary.

Table 2. ARDL Bound testing

ARDL Bound Testing Approach						
Dependent Variable GDPG ARDL (3.3.3.3.2)						
F-Statistics	Critical values					
8.590	0.10		0.5		0.01	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
	2.676	3.586	3.272	4.306	4.614	5.966

Source: Author calculation

Table 2 displays the results of the Autoregressive Distributed Lag Bound Testing approach, which assesses the presence of a long-run relationship between the variables. In this analysis, the dependent variable is GDPG, which represents the annual growth rate of GDP. The model specification used is ARDL (3,3,3,3,2), reflecting the lag structure of the independent variables included in the study. The F-statistic for the bound test is 8.590, and this value is compared to the critical values at various significance levels (0.10, 0.05, 0.01) to determine the existence of a long-run relationship.

The critical values for the bound test are specified for two distinct scenarios: when the variables are I(0) stationary at the level and I(1) stationary at the first difference. It is important to comprehend these critical values to interpret the results accurately. The critical values at significance levels of 0.10, 0.05, and 0.01 are as follows:

- For I(0), the critical values are 2.676, 3.272, and 4.614.
- For I(1), the critical values are 3.586, 4.306, and 5.966.

By utilizing these values, you can effectively assess the stability of your variables and make well-informed decisions based on the test results. The F-statistic of 8.590 is assessed against critical values to determine whether we can reject the null hypothesis of no long-run relationship. Given that the F-statistic (8.590) is greater than the critical values at all significance levels (0.10, 0.05, and 0.01), we can confidently reject the null hypothesis. This finding indicates a significant long-run relationship between the independent variables and GDP growth rate (GDPG) within the ARDL model. Therefore, the results of this bound test suggest that the variables in the model are cointegrated, implying they share a long-term equilibrium relationship.

Table 3. Long–Run Relationships

ARDL Long Run Results ARDL (3.3.3.3) Dependent Variable LGDPG Period 2000- 2022			
Variable	Co-efficient	Standard-error	(prob)
LnGILFP	-16.67304	2.748939	0.0037
LnGIE	-9.038668	1.173604	0.0015
LnPOP	-1.335717	0.395632	0.0279
C	15.37451	2.967908	0.0066

Source: Author calculation

Table 3 presents the long-run results of the ARDL model, with the dependent variable LGDPG (Logarithm of Gross Domestic Product) for the period 2000-2022. The independent variables in the

model include LnGILFP (Logarithm of Gender Inequality in labor force Participation), LnGIE (Logarithm of Gender Inequality in Education), LnPOP (Logarithm of Population Growth), and the constant term C. The coefficient for LnGILFP is -16.67304, with a standard error of 2.748939 and a p-value of 0.0037, indicating a significant negative relationship between gender inequality in labor force participation and economic growth, it shows that a 1 % increase in gender inequality in labor force caused 16.67 decreases on the economic growth. This suggests that an increase in gender inequality is associated with a decrease in economic growth in the long run. The coefficient for LnGIE is -9.038668, with a standard error of 1.173604 and a p-value of 0.0015, revealing a significant negative relationship between gender inequality in education and economic growth. This suggests that a 1 % rise in gender inequality in education results in a -9.038668 % decline in economic growth. This implies that, according to expectations, higher gender inequality in education is associated with a decrease in economic growth in the long run. The coefficient for LnPOP is -1.335717, with a standard error of 0.395632 and a p-value of 0.0279, indicating that an increase in population size has a negative long-term impact on economic growth. The p-value indicates statistical significance at the 5% level, meaning population growth tends to lower economic output. Finally, the constant term (C) is 15.37451, with a standard error of 2.967908 and a p-value of 0.0066. This indicates that the baseline level of GDP, when all independent variables are set to zero, is approximately 15.37. Additionally, this relationship is statistically significant at the 1% level. In summary, the long-run results reveal that gender inequality in labor force participation, gender inequality in education, and population growth all negatively affect Afghanistan's economic growth, indicating that these factors hinder economic growth over the long term.

Table 4. Error Correction Model

Variables	Coefficient	Std. Error	t-Statistic	Prob
D(LnGDPG(-1))	0.311192	0.089635	3.471768	0.0255
D(LnGDPG(-2))	0.091139	0.069682	1.307936	0.2610
D(LnGILFP)	-12.43964	1.078531	-11.53388	0.0003
D(LnGILFP (-1))	50.08634	4.063019	12.32737	0.0002
D(LnGILFP (-2)	28.66635	7.551296	3.796216	0.0192
D(LnGIE)	-15.15212	1.151973	-13.15318	0.0002
D(LnGIE(-1)	11.21373	1.497984	7.485880	0.0017
D(LnGIE(-2)	13.93689	2.783959	5.006140	0.0075
D(LnPOP)	-1.533764	0.270269	-5.674956	0.0048
D(LnPOP(-1)	1.267662	0.177016	7.161286	0.0020
D(LnPOP(-2)	0.490153	0.253896	1.930526	0.1257
CointEq(-1)*	-0.942104	0.209542	-9.268318	0.0008
R^2 = 0.92 Prob(F-statistic) = 0.0005		R^2 = 0.88		DW = 2. 89

Source: Author calculation

Table 4 presents the Error Correction Model results, which indicate significant short-run relationships between the independent variables and economic growth. The coefficient for D(LnGDPG(-1)) log GDP growth is positive and significant, indicating that past GDP growth influences current economic growth. D(LnGILFP) gender inequality in labor force participation has a strong negative impact on economic growth in the short run, but its lagged values D(LnGILFP (-1)) and D(LnGILFP (-2) show positive impacts, indicating that changes in labor force participation may have delayed positive consequences for economic growth. D(LnGIE) gender inequality in education negatively affects economic growth in the short run, while its lagged values D(LnGIE(-1) and D(LnGIE(-2) indicate a positive impact on

economic growth, suggesting the longer-term benefits of education. D(LnPOP) population growth has a negative short-run effect on economic growth, but its lag (D(LnPOP(-1))) positively contributes to economic growth, suggesting that population growth may have delayed benefits.

The CointEq(-1) term is both highly significant and negative, indicating a strong capacity for the model to correct deviations and move toward long-run equilibrium, with an impressive adjustment speed of 94.21%. Notably, the model accounts for 92% of the variation in economic growth, and the F-statistic is statistically significant (p-value = 0.0005), underscoring the overall importance of the model. Additionally, the Durbin-Watson statistic of 2.89 suggests that there is no significant autocorrelation in the residuals, further supporting the model's validity. In conclusion, the findings from the Error Correction Model (ECM) demonstrate that while there are observable short-run effects, the variables tend to adjust strongly toward a long-run equilibrium, highlighting a well-functioning economic model.

Table 5. Classical Tests

Null-Hypothesis	F- -Statistics	P- value
LM Test: Breusch-Godfrey Serial Correlation	0.760	0.670
Heteroscedasticity Test: Breusch Pagan-Godfrey	4.331	0.068
The normality of Jarque-Bera	0.791	0.673

Source: Author calculation

Table 5 provides the results of classical diagnostic tests performed on the model, specifically focusing on serial correlation, heteroscedasticity, and normality. Beginning with the Breusch-Godfrey Serial Correlation LM Test, we evaluate the null hypothesis that there is no serial correlation present in the residuals. The results yield an F-statistic of 0.760 and a p-value of 0.670. Since the p-value significantly exceeds the conventional significance level of 0.05, we fail to reject the null hypothesis. This finding indicates that there is no substantial serial correlation in the residuals, suggesting that the model is well-specified in terms of autocorrelation. Overall, these results support the integrity of the model and provide a strong basis for further analysis. The Breusch-Pagan-Godfrey Heteroscedasticity Test is designed to assess the presence of heteroscedasticity in the model, which occurs when the variance of the residuals is not uniform across observations. In this instance, the F-statistic is 4.331, and the p-value is 0.068. Although the p-value is marginally above the 0.05 threshold, it suggests a slight indication of heteroscedasticity. However, since the p-value exceeds 0.05, we do not reject the null hypothesis of homoscedasticity, implying that there is insufficient evidence to support the presence of heteroscedasticity in the model.

Lastly, the null hypothesis that the residuals are normally distributed is investigated with the Jarque-Bera Test for Normality. The p-value is 0.673, and the test statistic is 0.791. We fail to reject the null hypothesis of normality because the p-value is significantly higher than the 0.05 significance level. This implies that the residuals have a normal distribution, which is a desired characteristic for the model's validity. In the end, the findings show that the model is well-specified and meets essential requirements for trustworthy inference, as evidenced by the normally distributed residuals and the absence of serial correlation and heteroscedasticity.

5. Conclusion and policy implementation

Women constitute nearly half of any society’s population, and they should have equal rights and opportunities as men. However, throughout history, they have faced systemic inequality and discrimination, particularly in developing countries with fragile social and economic structures lacking justice. It is evident that humans, as living beings, are the primary agents in economic activities, which require both production and consumption. The exclusion of women from education and economic participation has both direct and indirect severe consequences on national economic development. In Afghanistan, a country with a war-torn and unstable economy, this issue is particularly critical. The current study investigated the impact of gender inequality in education and labour force participation on Afghanistan’s economic growth. The central research question in this study is: What impact does gender inequality in education and employment have on Afghanistan's economic growth? To address

this question, three independent variables were selected: the ratio of female to male mean years of schooling, the ratio of female to male labor force participation, and the annual total population growth rate, with Afghanistan's annual GDP growth rate as the dependent variable. Using time-series data from 2000 to 2022 and utilizing the Autoregressive Distributed Lag (ARDL) model for analysis.

The findings indicate that a 1% increase in gender inequality in labor force participation leads to a 16.67% reduction in economic growth, revealing the profound important role of women's participation in the workforce. Similarly, a 1% increase in gender inequality in education results in a 9.039% decline in economic growth, highlighting the crucial role of women's educational attainment in economic productivity. Additionally, a 1% increase in population growth corresponds to a 1.33% diminishing in economic growth. Although the study period from 2000 to 2022 included years during which Afghan women had relatively more access to education and employment opportunities than at any time, the findings confirm that gender inequality has consistently hindered economic growth. This trajectory poses a severe threat to Afghanistan's long-term economic stability and development. Reversing this decline will be both costly and challenging, necessitating comprehensive institutional, legal, and social reforms.

The study's empirical findings underscore the urgent and coordinated need for both international and national interventions to address gender inequality and its economic consequences. In light of Afghanistan's current economic crisis, which has already led to severe socio-economic consequences, with GDP plummeting by -20.7% in 2021 and 14.8 million people facing extreme food insecurity ("WFP Afghanistan" 2025). Addressing gender inequality is not solely a human rights issue, but it is an economic imperative for the survival of a country such as Afghanistan. This requires improving Women's participation in the economic sector. It can be achieved through the strategic allocation of development and humanitarian aid towards gender-sensitive empowerment initiatives, especially in the education, humanitarian, and healthcare sectors, as well as economic incentives for women's employment. Additionally, it can be supported by uplifting women-led enterprises through vocational training and microfinance programs. Strengthening educational opportunities for girls and women is another crucial step, which can be achieved by expanding scholarships and fellowship programs, ensuring continued international advocacy, and constructing alternative studying programs such as online community-based schools and online education for Afghan girls and women.

Despite direct policy changes remaining challenging, policy and institutional reforms are equally essential to address the gender inequality issue in Afghanistan. Step-by-step involvement through targeted development projects, economic incentives and humanitarian aid could improve women's rights. While political constraints continue to persist, consistent international diplomatic efforts must prioritize restoring at least some level of girl's and women's participation in education and labore market. Furthermore, international and regional collaboration, particularly by drawing insights from other Muslim- majority countries that have effectively integrated women into the labor market while considering cultural and religious values, could provide practical models for Afghanistan.

This study offers compelling evidence that gender inequality is a significant barrier to Afghanistan's economic growth. With the recent rise in gender disparities, the country's economic future remains precarious. To reverse this decline and foster long-term development, it is crucial to tackle gender inequality through education, employment opportunities, and institutional reforms. While enacting policy changes may prove challenging, targeted interventions, both domestic and international, can help mitigate the most severe economic repercussions and lay the groundwork for a more inclusive and prosperous future.

Data availability statement

Data is available in the World Bank, World Development Indicators, database.

Declaration of competing interest

All authors declare no conflict of interest.

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