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Exploring gender disparity and economic growth in India: An ARDL approach

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Abstract

This study investigated the relationship between economic growth and gender disparity in India from 1991 to 2021. For gender disparity, the gender parity index (GPI) for gross primary and secondary school enrollment is used as a proxy. The results of the ARDL bound test reveal that there is a presence of long-run association among the variables. Also, the results highlight the positive association between gross enrollment ratio (GER) and economic growth. On the contrary, there is a negative impact on the female labor force and economic growth, which showcases the alarming situation for India as good education for females is not percolating towards female labor force participation, thereby negatively impacting economic growth. As gender disparity is a major obstacle in achieving high economic growth, the study suggests that it is imperative that both government and non-governmental organizations work collaboratively to produce an environment that fosters gender equality and empowers women across all sectors of Indian society. Policy makers should focus on societal education to identify and change behaviours that suppress women, utilize technology to promote women's empowerment, and collaborate with governmental and non-governmental organizations.

1. Introduction

According to economic theory, growth might enhance gender parity in two ways, i.e., by increasing women's employment and lowering poverty, which would lead to poorer families discriminating against women less in intra-household allocations (Balasubramanian, 2023). The intricate matter of gender inequality and economic advancement in India is shaped by a multitude of elements, such as customary practices, social limitations, and geographical differences. There are significant regional differences in gender bias, with some states like Kerala showing a smaller gender gap in private schooling compared to states like Rajasthan and Bihar (Maitra et al., 2016). The gender wage gap is also influenced by the labor supply of both men and women, with cultural and societal norms regulating female labor supply contributing to the persistence of this gap (Mahajan and Ramaswami, 2017). Additionally, the labor market structure and the substitutability between female and male labor can significantly impact gender wage inequality.

Both men and women are equal and essential to the formation and growth of their families as well as the larger community. In fact, one of the main issues of the global women's movement has been the fight for equality. For

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a long period, females in India have been marginalized and subjugated, being ignored for generations. Research has found evidence of gender discrimination against girls in intra-household allocation of education expenditures in India, particularly from age 10 onwards (Zimmermann, 2012). Furthermore, the decline in women's labor force participation in urban areas despite rising education levels has been noted as a paradox, with various theories proposed to explain this trend, including the income effect of other family income and social acceptability norms related to caste (Chatterjee et al., 2018). Political reservations for women have been implemented as a policy to increase gender parity, and studies have quantified the strengths and limits of these reservations in closing the gender gap in political participation and empowerment (Ghani et al., 2014). However, despite these efforts, women's role in the Indian economy still lags behind that of advanced economies, and the gender gap in India remains a significant issue (Nunley and Dutta, 2023).

The relationship between labour force participation rate and gender disparity is multifaceted. Also, despite reductions in education gaps and increases in labour force participation for women in developing countries, gendered occupational and sectoral segregation persists (Tisdell, 2021). Globally, women's labour force participation rate (LFPR) lags behind that of men, with significant regional variation.

Gender gaps in LFPR are inclined to be lesser in younger age cohorts but rise remarkably as women reach their reproductive years, indicating challenges in combining paid and unpaid work (Ospina et al., 2024). In the United States, women's workforce participation has risen since the 1970s, reaching 47% of the workforce by 2012 (Verick, 2014). However, women, along with immigrants, are often concentrated in low-skill, low-wage jobs without benefits and are the prominent ones to be laid off, creating a flexible cushion labour force. Moreover, rising female labour force participation is linked with women gaining more equality across sectors within a few exceptions, thus diminishing segregation in sectors and raising the occupations. Also, an unexplained portion of the gender wage gap which is related to occupational and sectoral segregation, has not declined since 1963 (U.S Department of Labor, 2023). Furthermore, the gender wage gap in India is sensitive to female labor supply, with a higher female labor supply leading to a lower female wage relative to male wage. In southern India, despite being more favourable to women in some respects, gender differentials in agricultural wages are the largest, because of greater labor force participation in these regions. Social norms and the role of caste also play a significant role in determining women's labor supply decisions and their participation in the labor force (Mahajan and Ramaswami, 2017). Moreover, the labor force participation of women in India has been declining, and this trend is determined by factors such as educational qualifications, family income, consent of family members, number of children, and the educational qualification of their husbands (Malhotra, 2017). In Indian, females not participating in the active labor force is perceived as a status symbol of the family, and even in households where both are working, this emphasizes the notion that men should inevitably be involved in paid labor (Verick, 2014). The overall labor market structure, including labor supply and the substitutability between female and male labor, may also have a significant impact on gender wage inequality.

The paradox of rising education levels among women but declining employment rates is attributed to various factors, including the type of jobs available, social acceptability for women of lower castes to be in the labor market, and the impact of the industrial structure on women's employment. The U-shaped relationship between women's education and labor force participation is influenced by the negative effect of other family income on women's labor force participation and the lack of sufficient salaried positions for moderately educated women (Chaudhary, 2021). Moreover, the returns on schooling in India are large and even larger for women, suggesting that increasing educational attainment for women could be a promising policy lever to improve well-being and economic output (Fulford, 2014; Kanjilal-Bhaduri and Pastore, 2018; Schündeln and Playforth, 2014; Vatta et al., 2016). Female disadvantage in schooling is also pronounced in private schooling choices, with boys more likely to be enrolled in private schools in comparison to girls in the same households, and it varies across regions and household characteristics. Gender disparities associated with higher levels of schooling continue across cohort groups, despite enhancements in the gender gap in schooling results towards the lower end of the education spectrum.

This study contributes to the existing literature in two prominent ways. Firstly, the study theoretically and systematically analyses the relationship between economic growth and gender disparity. Secondly. in the previous perspective, this study is an effort to bridge the gap in the literature in the context of India by incorporating female labor force and gross enrolment ratio as proxies for gender disparity and then investigating how these variables impact the economic growth in India. The trend figure for both measures of gender disparity is depicted below.

Figure 1 depicts the female labor force participation rate spiked in the year 2005 and afterward shows a downward trend. Figure 2 indicates that the GER ratio increased over the years, but after 2017, it steadily fell.

Figure 1: Female Labor Force Participation Rate in India

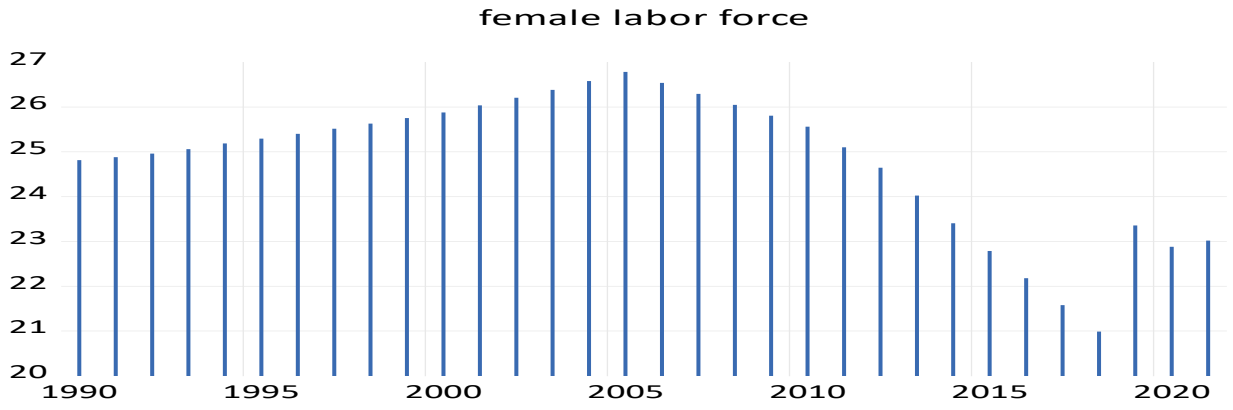
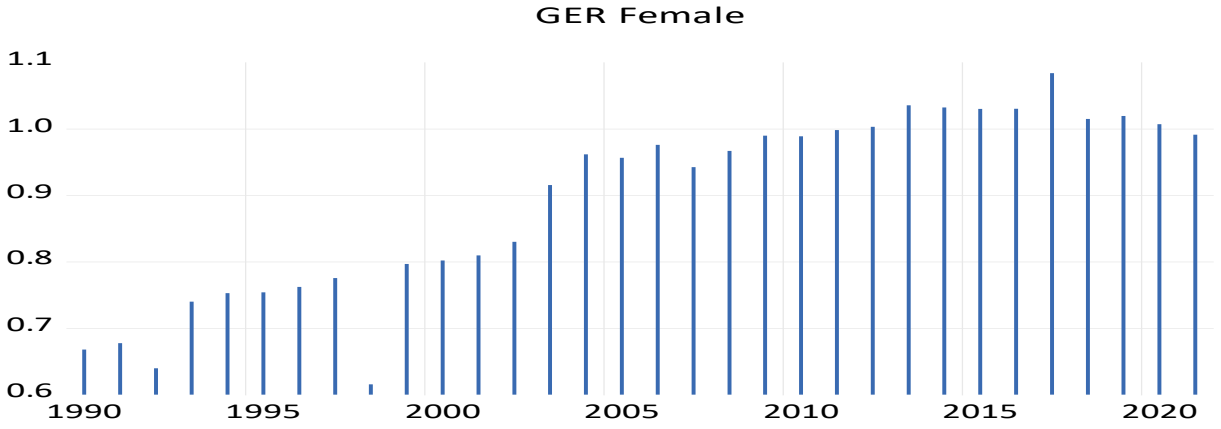


Figure 2: Female Gross Enrolment Ratio in India



The present study is organised into five sections. A variety of literature on this area is provided in Section 2, whereas data and methodology are provided in Section 3. Section 4 presents the empirical results and findings, while Section 5 presents the conclusion along with policy recommendations.

2. Literature Review

2.1 Economic Growth and Gender Disparity

According to Seguino (2000), in developing countries, there is positive relationship between GDP growth and gender wage inequality and the impact of gender wage inequality on economic growth is diffused through its augmenting effect on investment as a part of GDP while Kabeer (2016) found out that gender equality positively impacts economic growth, but the reverse relationship is less consistent, with a variety of pathways driving these asymmetric impacts. Eastin and Prakash (2013) comprehensively explain the association between economic development and gender inequality for the panel of 146 developing countries as being curvilinear (S-shaped), with three distinct stages. Economic development promotes gender equality in the first stage by facilitating higher female labor force participation. Gender discrimination and labor force stratification promote different male and female income trajectories in the second stage, which reduces the opportunity costs of female labor force withdrawal and strengthens social pushback against the rapidly emerging gender norms. In the last stage, gender equality improves once more as women have more employment opportunities due to increased educational attainment and technological advancements, which also raise the opportunity costs of staying at home. These factors also promote the emergence of new social institutions and norms that replace earlier discriminatory practices. In addition, it has been found that greater equality in economic opportunities leads to 1.3 percentage point growth improvements, while greater equality in political outcomes improves growth by 1.2 percentage points, depending on a country's stage of development (Mitra et al., 2015).

2.2 Economic Growth and Gender Disparity in India

Gender inequality in India is rooted in societal attitudes, sexism, and discrimination, affecting women's participation in social, political, and economic activities and negatively impacting economic growth (Amutha, 2017). Also, Esteve (2004) highlights that gender discrimination in the labor market and managerial positions lowers economic growth and per capita GDP, and both types of discrimination lead to lower female-to-male schooling ratios in India. Furthermore, Bhattacharya and Sachdev, 2021 pointed out that women's empowerment and inclusion in the workforce can boost India's GDP and reduce poverty, but gender inequality and violence at the workplace must be addressed for sustainable development. The female labour force

participation rate has been diminishing in India despite a sharp rise in economic growth. The declining share of the female population in the total labour force is a grave concern for the government. This created the question of the inclusiveness of economic growth (Debnath, 2022). Employment conditions are also considered to be precarious for women, as they have shorter working hours. The government's development strategies, such as cluster development, help to promote gender integration in the workforce and associated urbanisation. Even if economic necessity forces women to work, the benefits of income may not result in overall well-being. To optimize these consequences of socioeconomic policies, policy makers should be able to measure the benefits and loopholes of investment and its impact on human development (Srivastava and Cheema, 2019).

2.3 Women Education and Gender Disparity in India

In India, across different states and union territories in both rural and urban areas, households prefer to incur more expenditure on education for males than for females. Significant gender disparity exists in household educational expenditure in India, with discrimination not confined to "backward" or developing states (Saha, 2013). Higher education in India faces gender disparities, with females' enrolment percentages being lower than males, and these disparities persist across economic and caste-groups (Singh, 2014). In India, gender remains the most pervasive axis of educational stratification and disparities, with disparities varying across levels and influenced by factors such as caste, class, region, and religion (Alam, 2007).

2.4 Labour Force Participation and Gender Disparity in India

In India, declining female labour force participation is due to structural transformation, low education, and cultural constraints, while rising real wages in rural areas have a negative income effect outweighing the positive substitution effect. With the remarkable increase in female enrolment in secondary and tertiary levels of education, it could be anticipated that the substitution effect uptick in real wage would be strengthened if required measures are undertaken by the government (Mehrotra and Parida, 2017). The analysis highlights that, overall, labor girls face pointedly lower economic rates of returns to education than boys, and the reason for that is overall labor market discrimination (Kingdon, 1997). Gender inequalities in education and employment hamper women's empowerment and slow down the process of growth and development of a country. In India, women's employment is declining due to gender bias, with rural women facing sharp declines and rural employment being largely agriculture-driven, making them vulnerable to urban employment opportunities (Arora, 2020). In India, female labour force participation is dreadfully poor and has declined over the period in spite of the rise in education level. The causes for this are complex objective factors that embrace a whole diversity of social and cultural aspects. The social mindset that surrounds women becoming homemakers is one of the things creating this. Women's access to public workspaces has also been hindered by a lack of education and work-oriented courses, mobility issues, and workplace misogyny. Initiatives to fill this gap must, therefore, be comprehensive. All parties involved should work together to close this gap, as legislation alone will not suffice. This chapter looks at how the pandemic has affected economic empowerment and the gender gap in labor force participation (Baral et al., 2022).

3. Data and Methodology

3.1 Data Sources

For the purpose of empirical investigation, aggregate annual time series data for various variables was used to cover the period 1991-2021. The gender parity is measured by the female labor force and gross enrolment ratio. The list is given below.

Variables	Measuring Unit and Definition	Source
Economic Growth	Per capita GDP at current US$	WDI-2024
Female Labour Force	Female labor force as a percentage of the total shows the extent to which women are active in the labor force. Labor force comprises people ages 15 and older who supply labor for the	WDI-2024

	production of goods and services during a specified period.	
School enrollment, primary and secondary (gross), gender parity index (GPI)	Gender parity index for gross enrollment ratio in primary and secondary education is the ratio of girls to boys enrolled at primary and secondary levels in public and private schools.	UNESCO Institute for Statistics (UIS)-2022

3.2 Methodology

The ARDL model has been employed as the variables are stationary at level and first difference (Nkoro and Uko, 2016). The equation used in the study is given below:

$$\mathrm{GDP_t} = \alpha_t + \beta_1 \mathrm{GER_t} + \beta_2 \mathrm{FLF_t} + \varepsilon_t$$

Unit Root Test

Usually, macroeconomic time series variables are found to be non-stationary. A time series data is stationary if its mean and its variance are constant over time, while the value of the covariance between the two depends strictly on the point of view between the periods and not from the moment in which there is covariance measured. If one or both of these conditions are not met, then it is said that the process is not stationary. The stationarity of these data can be tested using the Augmented Dickey-Fuller (ADF), Phillips-Perron test, or the KPSS test.

For the application of ADF test, the three forms of regression equations are generated:

$\Delta Y_t = \propto_1 Y_{t-1} + \sum_{j=1}^{p} \gamma_j \Delta Y_{t-j} + \in_t,$

$\Delta Y_t = \propto_0 + \propto_1 Y_{t-1} + \sum_{j-1}^{p} \gamma_j \Delta Y_{t-j} + \in_t,$ (1)

$\Delta Y_t = \propto_0 + \propto_1 Y_{t-1} + \propto_2 t + \sum_{j=1}^{p} \gamma_j \Delta Y_{t-j} + \in_t$, here $\in_t$ are white noise error terms.

The hypothesis on which the ADF test based are the following:
H_0= Y_0 is nonstationary.
H_1= Y_0 is stationary. And here the p value of the test is comparable for the results of the significance.

ARDL Model

When calculating the ARDL model, the best length (p) is selected from the Final prediction error (FPE), Akaike Information Criterion (AIC) or Schwarz Bayesian Criteria (SBC), while ensuring that the errors are white noise. Time series (Ht) is called white noise if (H_t) is a sequence of random variables distributed identically and independently with a constant mean and variance. After determining the appropriate lag length, the ARDL model can be specified and estimated.

Simple form: The ARDL (1,1) model is given as:
$y_t = \propto_0 + \propto_1 y_{t-1} + \beta_0 x_t + \beta_1 x_{t-1} + \varepsilon_t$ (2)

Where the assumption is $\varepsilon_t \sim iid(0,\sigma^2)$ and $\alpha_1 < 1$. The meaning of model ARDL(1,1) is that both independent and dependent variable has a lag of one.
In long-run equilibrium, $x_t = x_{t-1}$, $y_t = y_{t-1}$ (3)
Put 3 in 2, then 2 becomes.

$y_t = \propto_0 + \propto_1 y_t + \beta_0 x_t + \beta_1 x \Leftarrow\Rightarrow$

$(1 - \propto_1 y_t = \propto_0 + (\beta_0 + \beta_1)x$ (4)

Then, the result of the long-run response to y becomes:

$k = \frac{\beta_0 + \beta_1}{1 - \alpha_1}$ (5)

Subtract y_{t-1} from (2) and then add and subtract $\beta_0 x_{t-1}$ to RHS so that there can be an establishment of the connection between the ARDL model and the Error Correction Model (ECM)

$y_t - y_{t-1} = \alpha_0 + (\alpha_1 - 1)y_{t-1} + \beta_0(x_t - x_{t-1}) + (\beta_0 + \beta_1)x_{t-1} + \epsilon_t$ (6)

Put $\beta_0+\beta_1 = k(1-\alpha_1)$ from 5 and $\Delta y = y_t - y_t\text{-}1$ and $\Delta x = x_t - x_t\text{-}1$ into 6 then we get

$\Delta y_t = \propto_0 + (\propto_1 - 1)(y_{t-1} - kx_t - 1) + \beta_0 \Delta x_{t-1} + \varepsilon_t$ (7)

The 7th equation is ECM which is basically implied by ARDL(1,1).

Generalized form: Generalized ARDL Model to two independent variables

ARDL(m,n) model with exogenous variable p, then we can write the model as ARDL(m,n,p) which is given by:

$y_t = \propto_0 + \sum_{i=1}^{m} \propto_1 y_{t-1} + \sum_{j=1}^{p} \sum_{i=0}^{n} \beta_{ij} x_{jt-1} + \varepsilon_t$ (8)

Here $\varepsilon_t \sim$ iid $(0,\sigma^2)$ and with the lag operator, we can write this as

$$\propto (L)y_t = \propto_0 + \sum_{j=1}^{p} \beta_j (L)x_{ij} + \varepsilon_t$$

Where $\propto (L) = 1 - \sum_{i=1}^{m} \propto_i L^i, \beta_j(L)x_{ij} = \sum_{j=1}^{n} \beta_{ji} L^i$ (9)

In the case of ARDL(m,n,1) and ARDL(m,n,2), then equation 9 can be written as:

$y_t = \propto_0 + \propto_1 y_{t-1} + \cdots \propto_m y_{t-m} + \beta_{01} x_{1t} + \beta_{11} x_{1t-1} + \cdots \beta_{n1} x_{1t-n} + \varepsilon_t$ (10)

The variables in this study are mixed and are integrated of order zero and one. Therefore, the ARDL approach developed by Pesaran et al. (2001) was used for analysis. The superiority over the earlier co-integration approaches is that it can be used if variables are I(0), I(1), or mixed of I(0) and I(1). The test is more efficient in small or finite sample data.

4. Results and Discussions

Table I presents a summary of the statistics of variables used in the analysis. The highest mean was found for GDP and the lowest for GER. However, the standard deviation of FLF was low compared to GDP. Skewness and kurtosis values suggested that non-normality persists in variables.

Table1: Descriptive Statistics

Measures	LnGDP	LnFLF	LnGER
Mean	6.830319	3.210144	0.893003
Median	6.764135	3.228448	0.959325
Maximum	7.571378	3.287815	1.084020
Minimum	6.166378	3.043838	0.615900
Std. Dev.	0.421102	0.063868	0.138271
Skewness	0.236155	-1.033664	-0.544067
Kurtosis	1.842275	3.145575	1.896944

From Tables 2 and 3 below, it is evident that the female labor force is stationary at a 5% significance level, while the rest are non-stationary. At first order difference, all series of variables are stationary.

Table 2: ADF Unit Root test results at Level

Variables	t-stat	p-value
LnGER	-1.512762	0.5136
LnFLF	-5.678122*	0.0334
LnGDP	-2.024540	0.2753

*: denotes 5 % level of significance

Table 3: ADF Unit Root test results at First Difference

Variables	t-stat	p-value
LnGER	-8.077919***	0.0000
LnFIF	-5.171140***	0.0002
LnGDP	-6.623707***	0.0000

***: denotes 1% level of significance

4.1 ARDL Results

The table below represents the results of the bound test. The null hypothesis is that there is no long-run relationship. If the F-value falls between the lower bound and upper bound, the result is inconclusive and restricts further analysis. For model 1, the computed F-value (13.58310) lies above the upper bound values at the 1% level of significance, thereby supporting the existence of a cointegration relationship.

Table 4: Bound Test Results

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	13.58310	10%	2.63	3.35
K	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

Tables 5 and 6 indicate the short-run and long-run impact of the gross enrolment ratio and female labor force on economic growth. From the long-run estimation, it can be concluded that both variables are statistically

significant. The gross enrollment ratio affects economic growth positively, with a 1 % increase in GER leading to a 0.41% rise in GDP. Hence, it shows there have been gains in female literacy and enrollment in higher education, and female education at all levels is potentially significant for generating growth. On the other hand, there is a negative association between the female labor force and economic growth. It highlights a decline in female labor force participation in India. Therefore, it is pertinent to understand the factors contributing to this trend. This shows that the gap between male and female labor force participation is widening.

The scenario is the same for short-run estimation. Also, the coefficient of the error-correction mechanism (ECM) is negative and significant in the model (-0.34%). This value signifies that the GER and FLF adjust to their equilibrium with a speed of 0.34%.

Table 5: Long-Run Estimation

Variables	Coefficient	t-stat	p-value
LnGER	0.410928***	3.486724	0.003
LnFLF	-0.497320***	-4.878787	0.000

Table 6: Short-Run Estimation

Variables	Coefficient	t-stat	p-value
COINTEQ(-1)	-0.343713***	-5.486724	0.0000
LnGER	0.170935***	6.763636	0.0002
LnFIF	-10.31909***	-15.12477	0.0000

***: denotes 1% level of significance

4.2 Structural Stability Tests

The study has also applied stability techniques to check the structural stability of the models. The cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) stability tests presented by Brown et al. (1975) can be seen in Fig. 3 and 4, which show that their statistics are significant at the 5% significance level, implying that the coefficients in the models are structurally stable.

Figure 3: Cumulative Sum

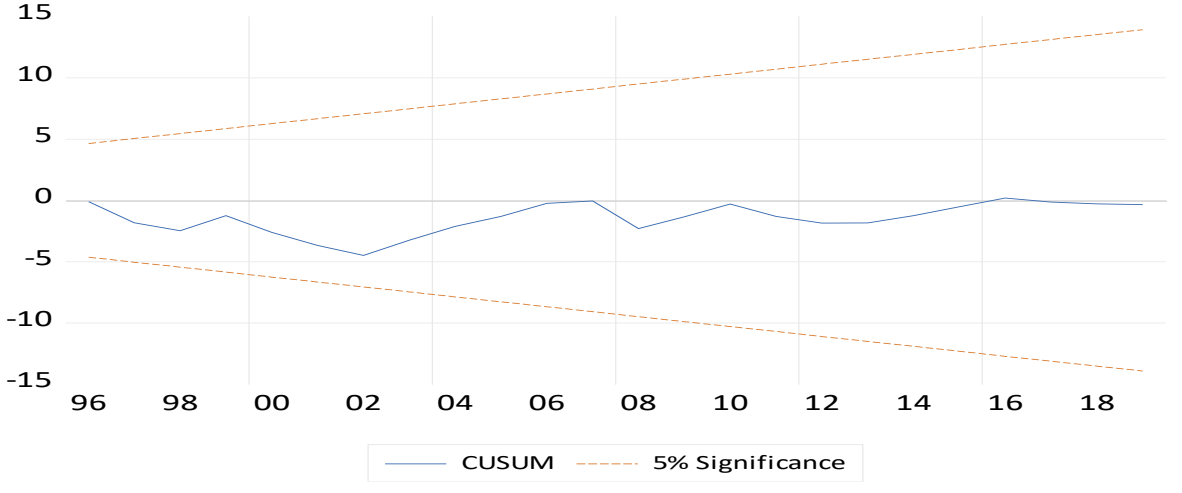
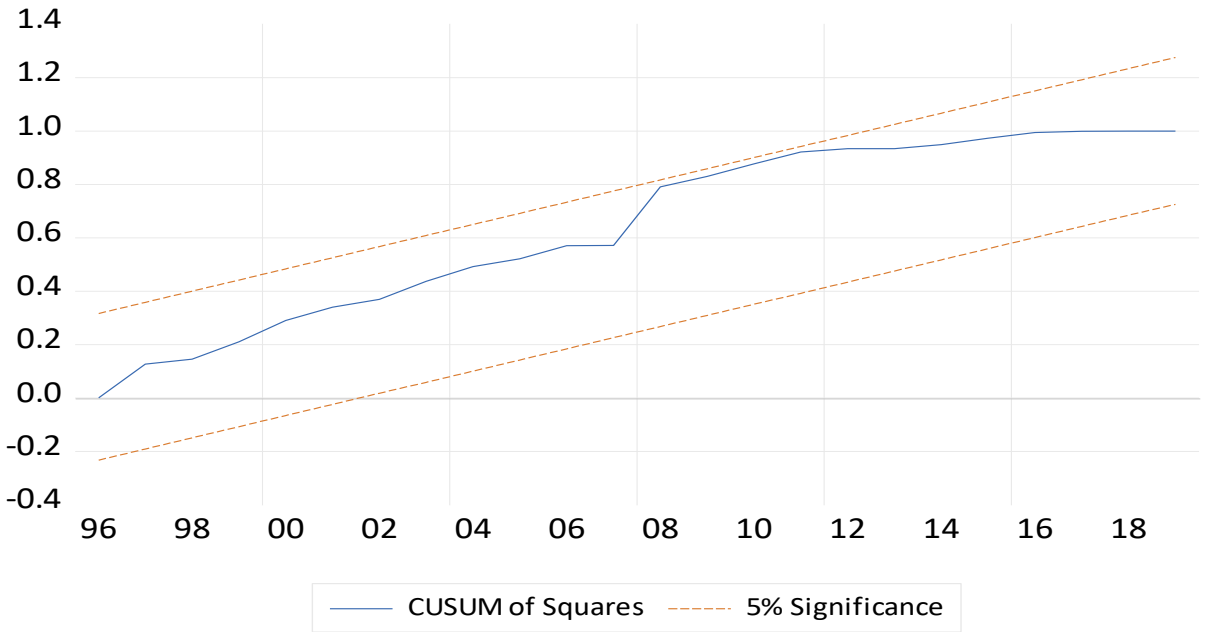


Figure 4: Plot Of Cumulative Sum of Squares



4.3 Diagnostic tests

The results of the diagnostic tests for serial correlation, Heteroskedasticity, and normality for the model are reported in Table 7. They confirm the absence of serial correlation and heteroscedasticity problems in the model. The result of the Jarque-Bera test of normal distribution shows that the variables are normally distributed.

Table 7: Results of diagnostic tests

Diagnostic Tests	F Statistic	P Value	Hypothesis	Result
Serial Correlation (Breusch-Godfrey test)	1.39	0.20	Null Hypothesis: No serial correlation	No serial correlation
Normality test (Jarque Bera test)	2.62	0.26	Null hypothesis: Normal Distribution	Normal Distribution
Heteroskedasticity test (Breusch-Godfrey test)	1.04	0.39	Null hypothesis: Homoskedasticity	No heteroskedasticity

5. Conclusion and Policy Suggestion

The main aim of this research is to critically assess the effects of gender disparity on economic growth in India. For gender disparity, the female labor force and school enrollment, as well as the primary and secondary (gross) gender parity index (GPI), are used as proxies. The study made an attempt to comprehensively gauge the association between economic growth and gender disparity in India by using the ARDL technique, as the variables are stationary at the level and first difference on the annual time series data from 1991-2021. The results of the ARDL Bound test reveal that a long-run relationship exists among the variables. Also, there is a positive association between gross enrollment ratio (GER) and economic growth, which indicates that there have been gains in female literacy and enrollment in higher education and female education at all levels, being potentially significant for generating growth. However, the findings highlight that the female labor force has a negative impact on economic growth, and this is an alarming situation for India as good education for females is not percolating towards female labor force participation, thereby negatively impacting economic growth. The study illustrates that the majority of Indian women are still facing the acute problem of gender inequality and discrimination. As per the UNDP report (2014), India ranks 132 out of 187 countries on the gender inequality index (GII). In addition, the report reveals that only 29% of Indian women above 15 in 2011 constituted the labor force, compared to 80.7% of men. In parliament, only 10.9% of lawmakers are women, 200 women die for every 100,000 childbirths, and 80% of Indian women had no bank account in 2016 (UNDP report, 2016). The results of the study have pertinent implications for the robust economic development in India, as gender disparity is a major obstacle to achieving high economic growth. The exclusion of women from the labor market due to gender discrimination results in inefficient allocation of talent and human capital, ultimately lowering economic growth and per capita GDP. So, policy makers in India need to focus on improving gender disparity in India. Policy makers should focus on societal education to identify and change behaviours that suppress women, utilize technology to promote women's empowerment, and collaborate with governmental and non-governmental organizations. Moreover, it is pertinent to focus on capacity building and changing the patriarchal mindset prevalent in Indian society. In a nutshell, it is imperative that both government and non-governmental organizations work collaboratively to create an environment that fosters gender equality and empowers women across all sectors of Indian society. The study has major limitations as the model estimated could suffer from omission-of-variable bias. Also, due to a lack of sufficient data, the time period has been reduced, which could hamper the precision of the analysis. The study can be further extended by analysing the linkages between environment, gender disparity and economic growth. Moreover, the cross-country comparison of India with its neighbouring countries with respect to these mentioned attributes can be examined comprehensively. Lastly, the controlled variables can be included for robust analysis.

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References

Alam, M. (2007). Interrogating gendered inequality in educational attainment in India. *Social Change*, 37, 153 - 179. https://doi.org/10.1177/004908570703700408.

Amutha, D. (2017). The roots of gender inequality in India. *AARN: Topics of Concern in Applied Anthropology*. https://doi.org/10.2139/SSRN.2906950.

Arora, M. (2020). The Indian labour market: A gendered perspective. *International Journal of Gender & Women's Studies*. https://doi.org/10.15640/ijgws.v8n1a4.

Balasubramanian, S. (2023). Could better jobs for men have improved gender equality? The relationship between economic growth and gender equality in India. *Asian Development Review*, 40, 241-269. https://doi.org/10.1142/S0116110523500105.

Baral, S., Mahapatra, D. and Patra, S. (2022). Facets of the gender gap in labour force participation and economic empowerment disruption. *Advances in Finance, Accounting, and Economics*, 146-161. https://doi.org/10.4018/978-1-7998-8258-9.ch009.

Bhattacharya, S. and Sachdev, B. (2021). Women and the employment sector in India – A Review. *World Journal of Advanced Research and Reviews, 12*(3), 137-142. https://doi.org/10.30574/wjarr.2021.12.3.0996.

Brown R.L., Durbin J. and Evans J.M. (1975). Techniques for testing the constancy of regression relationships over time. *Journal of the Royal Statistical Society. Series B (Methodological)*, 37(2), 149-192.

Chatterjee, E., Desai, S. and Vanneman, R. (2018). Indian paradox: Rising education, declining womens' employment. *Demographic Research*, 38, 855-878. http://doi.org/10.4054/demres.2018.38.31.

Chaudhary, R. (2021). Working or not: What determines women's labour force participation in India. *IWWAGE*. LEAD Leveraging Evidence for Access Ano Development, KREA University.

Debnath, A. (2022). Inter-relationship among female labour - force participation, fertility and economic development: Evidence from India. *Economic Affairs*, *67*(4), 673-680. https://doi.org/10.46852/0424-2513.4.2022.33.

Eastin, J. and Prakash, A. (2013). Economic development and gender equality: Is there a gender Kuznets curve? *World Politics*, 65, 156 - 186. https://doi.org/10.1017/S0043887112000275.

Esteve-Volart, B. (2004). Gender discrimination and growth: Theory and evidence from India. LSE Research Online Documents on Economics 6641, London School of Economics and Political Science, LSE Library.

Fulford, S. (2014). Returns to education in India. *World Development*. 59, 434-450. https://doi.org/10.1016/j.worlddev.2014.02.005.

Ghani, E., Kerr, W. R. and O'Connell, S. D. (2014). Political reservations and women's entrepreneurship in India. *Journal of Development Economics*, 108, 138-153. http://doi.org/10.1016/j.jdeveco.2014.01.008.

Kabeer, N. (2016). Gender equality, economic growth, and women's agency: The "endless variety" and "monotonous similarity" of patriarchal constraints. *Feminist Economics*, 22, 295 - 321. https://doi.org/10.1080/13545701.2015.1090009.

Kanjilal-Bhaduri, S. and Pastore, F. (2018). Returns to education and female participation nexus: Evidence from India. *The Indian Journal of Labour Economics*, *61*(3), 515-536.https://doi.org/10.1007/s41027-018-0143-2.

Kingdon, G. (1997). Does the labour market explain lower female schooling in India? *Labor: Human Capital*, *35*(1), 39-65. https://doi.org/10.1080/00220389808422554.

Mahajan, K. and Ramaswami, B. (2017). Caste, female labor supply, and the gender wage gap in India: Boserup revisited. *Economic Development and Cultural Change*, 65 (2), pp. 339–378. http://doi.org/10.1086/689352.

Maitra, P., Pal, S. and Sharma, A. (2016). Absence of altruism? Female disadvantage in private school enrollment in India. *World Development*, 85, 105-125. http://doi.org/10.1016/j.worlddev.2016.04.005

Malhotra, P. (2017). Declining female labour force participation in India—Does education impact female labour force participation in India. *Development Economics*, 1-31.

Mehrotra, S. and Parida, J. (2017). Why is the labour force participation of women declining in India. *World Development*, 98, 360-380. https://doi.org/10.1016/J.WORLDDEV.2017.05.003

Mitra, A., Bang, J. and Biswas, A. (2015). Gender equality and economic growth: Is it Equality of Opportunity or Equality of Outcomes? *Feminist Economics*, 21, 110 - 135. https://doi.org/10.1080/13545701.2014.930163.

Nkoro, E. and Uko, A. K. (2016). Autoregressive distributed lag (ARDL) cointegration technique: Application and interpretation. *Journal of Statistical and Econometric methods, 5*(4), 63-91.

Nunley, J. and Dutta, N. (2023). The gender gap in schooling outcomes: A cohort study of young men and women in India. *Demographic Research*, 48, 931-944. http://doi.org/10.4054/demres.2023.48.33.

Ospina, E., Tzvetkova, S. and Roser, M. (2024). *How does women's labor force participation differ across countries? How has it changed over time? What is behind these differences and changes?* https://ourworldindata.org/female-labor-supply

Pesaran, M. H., Shin, Y. and Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, *16*(3), 289-326.

Saha, A. (2013). An Assessment of Gender Discrimination in Household Expenditure on Education in India. *Oxford Development Studies*, 41, 220 - 238. https://doi.org/10.1080/13600818.2013.786694

Schündeln, M. and Playforth, J. (2014). Private versus social returns to human capital: Education and economic growth in India. *European Economic Review*, 66, 266-283. https://doi.org/10.1016/j.euroecorev.2013.08.011

Seguino, S. (2000). Gender inequality and economic growth: A cross-country analysis. *World Development*, 28, 1211-1230. https://doi.org/10.1016/S0305-750X(00)00018-8

Singh, S. (2014). Gender disparities in enrolment at higher education level. *Teacher Education Research*, 9, 54-58.

Srivastava, R. and Cheema, S. (2019). How gender integration can reduce the income-inequality gap. *Australasian Accounting, Business and Finance Journal 13*(2). https://doi.org/10.14453/aabfj.v13i2.3

Tisdell, C. A. (2021). How has India's economic growth and development affected its gender inequality? *Journal of the Asia Pacific Economy*, *26*(2), 209–229. https://doi.org/10.1080/13547860.2021.1917093

UNDP (United Nations Development Programme). 2014. *Human Development Report 2014: Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience*. New York.

UNDP (United Nations Development Programme). 2016. *Human Development Report 2016: Human Development for Everyone*. New York.

US Department of Labor. (2023). *FY 2023 Annual Performance Report*. New York.

Vatta, K., Sato, T. and Taneja, G. (2016). Indian labour markets and returns to education. *Millennial Asia, 7*(2), 107-130. https://doi.org/10.1177/0976399616655001

Verick, S. (2014). Women's labour force participation in India: Why is it so low? International Labor Organization. https://www.ilo.org › media.

Zimmermann, L. (2012). Reconsidering gender bias in intrahousehold allocation in India. *Journal of Development Studies*, 48(1), 151-163. http://doi.org/10.1080/00220388.2011.629652.