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Determinants of Gender Inequality: Evidence from a 121-Country Panel

Gulbakhyt Olzhebayeva[1]*

[1]Almaty Management University, Almaty, Kazakhstan

Corresponding author:
*Gulbakhyt Olzhebayeva – PhD student, Almaty Management University, Almaty, Kazakhstan.
Email: g.olzhebayeva@gmail.com

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Abstract

This paper provides a comprehensive assessment of the determinants of gender inequality by analysing an unbalanced panel of 121 countries for the period 2000–2023. Using a fixed-effects model, the analysis investigates the impact of economic development, financial stability, women's political representation, labour market characteristics, and female health indicators on the Gender Inequality Index (GII). The empirical strategy accounts for unobserved heterogeneity across countries and over time, allowing for robust identification of persistent causal patterns. The results indicate that higher levels of economic development and greater political representation of women are associated with lower gender inequality. In contrast, increases in female unemployment and vulnerable employment intensify gender disparities. Maternal mortality does not exhibit a statistically significant effect on GII, suggesting that its influence may operate indirectly through other structural and institutional channels. Financial stability, as measured by reserves, is negatively associated with gender inequality, indicating an understudied macro-financial dimension of gender outcomes. Overall, the findings contribute to a deeper understanding of the multidimensional drivers of gender inequality and provide evidence for the design of more effective policies. The study shows that advancing gender equality requires a combination of economic development, institutional reforms, improved healthcare systems, and strengthened political inclusion of women.

Keywords: Gender Inequality, Economic Development, Labour Market, Maternal Mortality, Women's Political Representation

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1. INTRODUCTION

Gender inequality remains one of the most persistent social and economic challenges in the contemporary world, affecting human capital, economic growth, and institutional quality (Klasen, 2020). Despite significant progress in expanding women's access to education, healthcare, and political participation, many countries continue to experience substantial disparities in opportunities and outcomes that influence the pace of sustainable development (Jayachandran, 2021; Tisdell, 2021). Gender disparities constrain economic productivity, limit the innovation potential, and hinder the achievement of the Sustainable Development Goals (World Bank, 2012).

Contemporary research demonstrates that gender inequality is shaped by a combination of socio-economic, institutional, and demographic factors (Saha, Sinha, & Abbas, 2022; Bigorne, Boggian, & Tubeuf, 2023; Ying, Tian, & Na, 2025). The influence of economic development, the quality of governance, women's political representation, labour market structure, and the condition of healthcare systems has been examined in numerous studies; however, the results remain inconclusive and often depend on the context of specific countries or regions (Tverdostup, 2023; Moghadam & Karami, 2023; Malyshava & McCoy, 2024). Moreover, a substantial share of the literature relies on cross-sectional data or focuses on specific geographic groups, thereby limiting the ability to identify global patterns (Tisdell, 2021; Jayachandran, 2021).

The paper aims to assess the influence of key social, economic, institutional, and demographic factors on the level of gender inequality across countries. Using an unbalanced panel of 121 countries for the period 2000–2023, the study employs a fixed-effects model to assess the effects of economic development, financial stability, women's political representation, labour market parameters, and health indicators on the Gender Inequality Index (GII). This approach ensures a more accurate identification of stable relationships across different national contexts and provides a new empirical contribution to the study of the determinants of gender disparities.

This study formulates and tests a set of hypotheses that reflect the expected directions and mechanisms through which key factors influence the level of gender inequality.

H1. Higher levels of a country's economic development contribute to a reduction in gender inequality.

H2. The volume of international reserves (log_RESERVES) hurts gender inequality.

H3. Higher maternal mortality (MatMORT) is associated with an increase in gender inequality.

H4. An increase in the share of women in parliament reduces gender inequality.

H5. Growth in female vulnerable employment (Vulnempl) intensifies gender inequality.

H6. Higher levels of female unemployment (Unempl) increase gender inequality.

The findings deepen understanding of the multidimensional nature of gender inequality and provide a foundation for developing effective public policy measures. The analysis underscores that advancing gender equality requires comprehensive solutions that encompass not only economic development but also institutional reforms, improvements in social policy, improvements in healthcare quality, and the expansion of women's participation in political processes.

2. LITERATURE REVIEW

A combination of socio-economic, institutional, and demographic factors shapes gender inequality. According to Benería and Sen (1982), gender norms create persistent constraints that determine women's access to employment, education, and social benefits. Cultural expectations, institutional norms, and the historically entrenched division of labour function as key mechanisms reproducing gender inequality (Agassi, 1989).

Structural and cultural constraints are most evident in the economic sphere, where they

transform into differences in employment, income, and working conditions. Research shows that the gender wage gap is shaped by a combination of structural factors, such as occupational segregation, differences in labour mobility, differences in hours worked, and direct forms of discrimination (Coverman, 1983; Jones, 1983; Almquist, 1987). Gender inequality is also reflected in severance pay systems (Callender, 1985). Moreover, gender disparities manifest not only in wages but also in access to job autonomy, property assets, and opportunities for wealth accumulation (Jaffee, 1989). As a result, gender asymmetry is also evident in social protection and pension systems, where women face lower benefits, shorter contribution periods, and greater dependence on family-based welfare arrangements (MacDonald, 1998).

The gender gaps that arise in the labour market have implications not only for individual workers but also for macroeconomic dynamics, affecting productivity and economic growth. Uneven economic development reinforces gender stratification, as it is associated with global economic processes, structural transformation, and socio-economic policy (Lantican, Gladwin, & Seale, 1996). Gender inequality, in turn, directly affects economic growth: disparities in women's access to education, employment, and material resources limit human capital accumulation, reduce productivity, and slow long-term economic development (Schultz, 1998; Sen, 1998).

Gender wage gaps, on the one hand, reduce women's incomes and undermine the sustainability of economic growth. On the other hand, through the mechanism of "cheap female labour", they may temporarily support export-oriented development models (Seguino, 2000). Another important indicator of gender inequality is unequal access to quality jobs; studies show that reducing discriminatory practices in the labour market increases the efficiency of labour allocation and contributes to economic growth (Jarrell & Stanley, 2004).

The impact of gender inequality is also evident through access to healthcare and reproductive services, which shape human capital quality and long-term development trajectories. Access to medical services is determined by a combination of gender, age, and income factors, reflecting the multilayered nature of inequality in healthcare (Diaz, 2002). Regions with higher GDP per capita and more developed healthcare systems exhibit smaller gender gaps (Martínez-Peinado & Cairó-I-Céspedes, 2004). Conversely, high maternal mortality and limited access to reproductive services are markers of deep structural inequality (Buvinic, Das Gupta, & Casabonne, 2009). According to Bhalotra and Rawlings (2011), improving women's health is an important mechanism contributing to sustainable economic development. Gender inequality in access to healthcare, reproductive health, and key socio-economic resources leads to the intergenerational transmission of adverse outcomes and reduces long-term economic growth potential (Meurs & Giddings, 2012).

Differences in women's health highlight deep institutional problems, underscoring the need for political reforms and stronger social protection. Economic growth does not guarantee a reduction in gender inequality, as sustainable progress requires political and institutional reforms, including the empowerment of women, labour market reform, and improvements in social protection systems (Bandiera & Natraj, 2013; Rendall, 2013; Hiller, 2014). Women's political participation directly influences their economic activity and decision-making engagement, and also contributes to a more equal distribution of income within households (Dreher, Gehring, & Klasen, 2015; Milazzo & Goldstein, 2019).

Gender wage gaps, vertical and horizontal segregation, regional disparities, and employment polarisation contribute to the continued reproduction of income and status inequalities. Studies on vulnerable employment, the informal sector, and precarious labour show that women are disproportionately concentrated in vulnerable employment and are more likely to experience unemployment, part-time work, and limited career advancement opportunities (Borland &

Coelli, 2016; He & Wu, 2018; Perugini & Vladisavljevic, 2019).

In contemporary research, gender inequality is examined through the lens of global shocks, technological changes, financial inclusion, and institutional evolution. External shocks, such as pandemics and economic crises, can intensify existing structural gaps, thereby increasing the burden of unpaid labour on women and reducing their economic activity (Brzezinski, 2021; Tverdostup, 2023). Key areas of gender research include unequal opportunities in health, education, and social protection: gender differences in the health of older populations (Bigorne, Boggian, & Tubeuf, 2023), cross-country disparities in access to education (Meili, Harttgen, & Guenther, 2025), and institutional distortions in social protection systems (Malyshava & McCoy, 2024).

The influence of financial and digital technologies on the redistribution of economic opportunities is also examined: FinTech tools help expand women's financial autonomy by lowering barriers to financial services and entrepreneurship (Moghadam & Karami, 2023), while gender inclusivity in green finance remains limited (Saha, Sinha, & Abbas, 2022). Furthermore, research highlights the role of corporate and cultural institutions: clan-based and patriarchal structures hinder the promotion of women to leadership positions (Ying, Tian, & Na, 2025), and corporate practices and intra-organisational segregation significantly affect the dynamics of the gender wage gap (Masso, Meriküll, & Vahter, 2022). Thus, contemporary literature confirms that gender inequality results from a complex interplay of socioeconomic factors, institutional rules, technological conditions, and cultural norms, necessitating comprehensive approaches to its measurement and reduction.

Despite extensive research on individual aspects of gender inequality, a systematic assessment of the influence of such macroeconomic factors as GDP per capita, employment structure, parliamentary representation, and women's health indicators remains limited. There is a lack of studies that examine the combined effects of these variables in long-term dynamics and cross-country variation. This creates a research gap that necessitates a comprehensive statistical analysis of GII determinants using large-scale panel data.

Many studies focus primarily on social, institutional, and structural-economic determinants of gender inequality. However, macro-financial indicators such as international reserves are systematically overlooked. This reflects the dominance of a socio-institutional approach centred on human capital, employment, and political institutions, while the potential channel through which a state's financial stability affects gender outcomes remains underexplored and requires further investigation.

3. METHODOLOGY

The research employs a quantitative methodology to assess the factors influencing gender inequality during the period 2000–2023. The data were retrieved from the World Bank and UNDP databases. The study uses an unbalanced panel dataset covering 121 countries (n = 121) with varying time periods (T = 19–24), resulting in a total of N = 2,836 observations. The use of an unbalanced panel dataset is explained by the differential availability of indicators across countries, which results in varying time coverage for each country.

Table 1 presents the descriptive statistics for the variables included in the empirical analysis.

The selection of variables is grounded in their ability to capture the principal social, economic, institutional, and demographic factors that, according to international empirical research, shape gender inequality at the country level. These indicators enable a comprehensive assessment of economic development, health outcomes, women's political representation, and the quality of their labour-market participation.

The data illustrates the research cycle, beginning with the collection of initial data

TABLE 1. Descriptive statistics

Variable	Mean	Standard error	Standard deviation	Sample variance	Min	Max
Country	61	0,648	34,935	1220,420	1	121
Year	2011,500	0,128	6,923	47,933	2000	2023
Gender Inequality Index	0,333	0,003	0,186	0,035	0,003	0,82
Total reserves (includes gold, current US$)	7373621 8791,597	5163187592, 287	278142022607, 784		116396 63,81	3,90E+1 2
Maternal mortality ratio (modelled estimate, per 100,000 live births)	105,764	3,445	185,673	34474,447	1	1603
Proportion of seats held by women in national parliaments (%)	20,783	0,223	11,872	140,943	0	63,75
GDP per capita (current US$)	15877,97 4	376,371	20282,193	41136734 5,741	111,40 7	134965, 815
Vulnerable employment, female (% of female employment) (modelled ILO estimate)	32,424	0,504	27,154	737,319	0,023	96,612
Unemployment, female (% of female labour force) (modelled ILO estimate)	8,860	0,121	6,546	42,855	0,15	38,091

Note: compiled by the author

from international sources and culminating in the interpretation of the final results (see Figure 1). The first stage involves constructing the dataset using indicators from the World Bank and UNDP for the period 2000–2023. The second stage comprises data cleaning, including the removal of missing values, log-transformations of necessary variables, and the selection of countries with sufficient time-series coverage. The third stage represents the analytical component of the study, encompassing descriptive statistics, correlation analysis, econometric modelling (OLS, RE, FE), the Hausman test, and model diagnostics. The final stage includes identifying significant determinants of gender inequality, selecting the optimal model (FE), interpreting coefficients, and formulating the main conclusions.

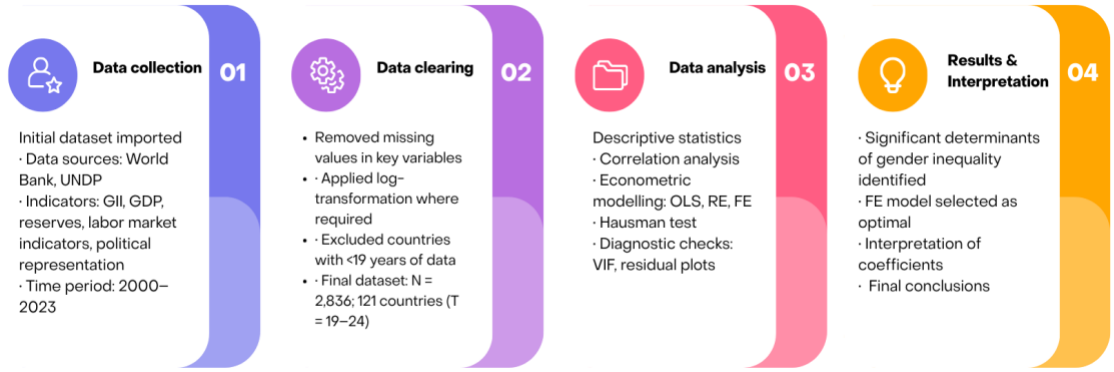

Figure 1. Research workflow and data processing stages

The econometric methods employed in the study are examined in detail. In the first stage, Pearson correlation analysis was conducted to assess relationships among the explanatory variables, and VIF coefficients were calculated to detect and address multicollinearity. At the second stage, a baseline regression was estimated using ordinary least squares (OLS), which does not account for country-level heterogeneity.

In the third stage, panel data models were estimated using fixed-effects (FE) and random-effects (RE) specifications. The FE model controls for time-invariant country-specific characteristics that may be correlated with the explanatory variables, thereby allowing identification of factor effects through within-country variation and eliminating bias from unobserved country-specific heterogeneity. The RE model, in contrast, assumes no correlation between individual effects and the regressors and incorporates both between- and within-country variation; its estimation is necessary for comparison with the FE model and for selecting the appropriate specification.

At the fourth stage, the Hausman test was performed to determine the preferred model between FE and RE. The obtained result ($\chi^2 = 182.16$; $p < 0.001$) indicates significant differences between the model estimates, suggesting a correlation between country-specific characteristics and the explanatory variables. Therefore, the fixed-effects model is preferred because it yields unbiased and consistent estimates.

To enhance the robustness of the results, heteroskedasticity- and cluster-robust standard errors were employed. Additionally, Component + Residual Plots (partial residual plots) were constructed to verify the correctness of the linear specification and to detect potential nonlinear relationships.

4. RESULTS

Gender equality remains a key global challenge for socio-economic development. Despite significant progress over the past decades, no country has yet achieved full gender equality. The most stable achievements are observed in the Nordic countries, where well-developed social protection institutions ensure equal access for women and men. Figure 2 presents the global variation in the Gender Inequality Index (GII).

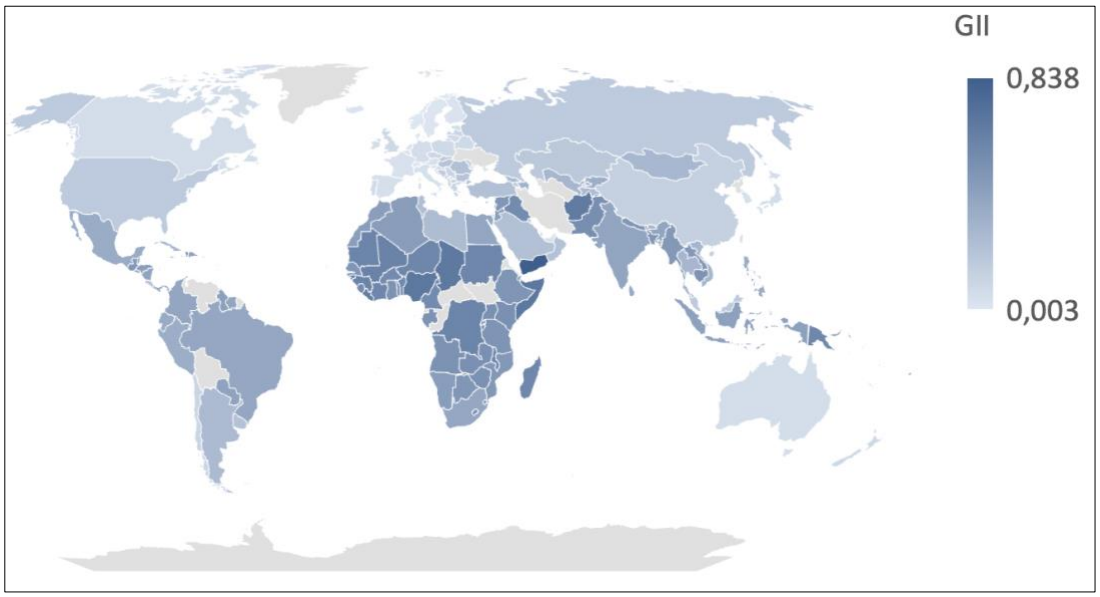

Figure 2. Global distribution of the Gender Inequality Index (GII)

At the same time, countries with low- and middle-income levels continue to experience substantial gender gaps, particularly in access to quality healthcare, in the prevalence of vulnerable employment, and in political representation. Women in such regions more often face limited access to education, high maternal mortality rates, and discrimination in the labour market. Gender equality is linked to the level of social and institutional development, the effectiveness of public policy, access to infrastructure, and the norms that shape women's roles in society. The data 2 illustrates the global distribution of the Gender Inequality Index (GII), showing cross-country variation in gender disparities.

The highest levels of inequality are predominantly concentrated in Sub-Saharan Africa, parts of the Middle East, and South Asia. These regions exhibit GII values approaching the upper bound of the scale (0.838), reflecting persistent structural barriers, including limited access to reproductive health care, high maternal mortality, low levels of women's political representation, and restricted economic opportunities.

In contrast, countries in Europe, North America, East Asia, and Oceania are characterised by comparatively lower levels of gender inequality and tend to have more developed institutional frameworks, stronger social protection systems, and higher female participation in economic and political life.

The Pearson correlation analysis was conducted to evaluate the relationship between gender inequality and key social and economic factors, as presented in Figure 3.

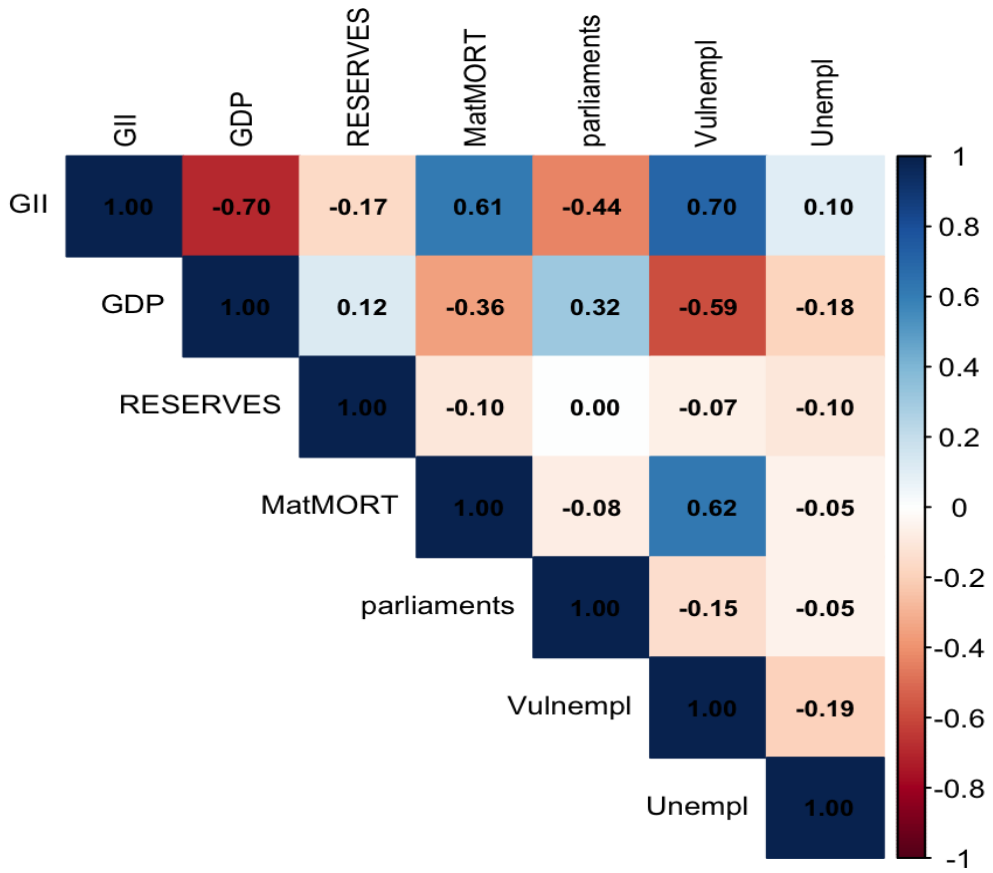

Figure 3. Pearson correlation matrix for gender inequality and explanatory variables

The results revealed several consistent patterns. The Gender Inequality Index (GII) exhibits a strong negative correlation with GDP per capita (r = –0.70), indicating that lower levels of gender inequality characterise more economically developed countries. At the same time, GII is positively associated with maternal mortality (MatMORT, r = 0.61) and vulnerable employment (Vulnempl, r = 0.70), suggesting that adverse health conditions and instability in labour markets exacerbate gender disparities. The proportion of women in parliaments is negatively correlated with GII (r = –0.44), suggesting that women's political representation is associated with lower inequality. The correlations among the explanatory variables are generally moderate, except for a relatively strong correlation between maternal mortality and vulnerable employment (r = 0.62). Since no strong correlations are observed among the variables ($|r| \geq 0.8$), the risk of multicollinearity is minimal, which is further confirmed by the VIF results presented in Table 2.

TABLE 2. VIF values for the model regressors

GDP	RESERVES	MatMORT	Parliaments	Vulnempl	Unempl
1.940815	1.029888	1.659685	1.118661	2.527519	1.225943

Note: compiled by the author

The VIF values for all regressors range from 1.0 to 2.5, indicating the absence of problematic multicollinearity and confirming the independence of the explanatory variables. Therefore, the selected model specification is statistically robust and suitable for reliable interpretation. Table 3 pooled OLS with robust standard errors.

TABLE 3. Pooled OLS with robust standard errors

Variable	Estimate	Std.Error	t-value	Pr(>|t|)	Signif
(Intercept)	0,812	0,027	29,82	<2e-16	***
log_GDP	-0,053	0,002	-22,12	<2e-16	***
log_RESERVES	-0,001	0,001	-1,09	0.276	
MatMORT	0,000	1,3E-05	17,92	<2e-16	***
parliaments	-0,004	0,000	-28,89	<2e-16	***
Vulnempl	0,001	0,000	11,4	<2e-16	***
Unempl	0,003	0,000	11,94	<2e-16	***

Note: compiled by the author

The Pooled OLS results indicate stable, statistically significant relationships between social and economic factors and the gender inequality index (GII) across countries. Economic development, measured by the logarithm of gross domestic product (log_GDP), is associated with lower GII, indicating that gender inequality decreases as income and economic activity increase. Thus, more economically developed areas tend to provide women with broader access to education, employment, and social services. The variable log_RESERVES is not statistically significant, suggesting that the volume of national reserves does not have a direct effect on gender inequality dynamics, at least in the short term. Maternal mortality (MatMORT) shows a positive and highly significant effect, indicating that poor reproductive health and inadequate medical services exacerbate structural gender disadvantages. Therefore, investment in health systems represents an important mechanism for reducing gender inequality. Women's representation in parliament (parliaments) exhibits a negative and statistically significant influence: an increase in the proportion of women in legislative bodies is associated with

a reduction in gender inequality. Political inclusion is essential for promoting more inclusive policy design and decision-making. Labour-market variables—female vulnerable employment (Vulnempl) and female unemployment (Unempl) show positive and significant effects on GII. Countries where women are more likely to be engaged in unstable, informal, or low-paid employment, or face higher unemployment, tend to exhibit higher levels of gender inequality. Hence, labour-market instability and unequal access to quality employment opportunities constitute key drivers of persistent gender disparities.

The model demonstrates high explanatory power: the Multiple R-squared of 0.7481 indicates that the included socioeconomic variables account for approximately 75% of the variation in gender inequality (GII) across observations. The Adjusted R-squared (0.7476) indicates that the explanatory strength remains high after adjusting for the number of regressors, supporting the validity of the chosen specification.

The slight residual standard error (0.093) suggests a strong fit between predicted and observed values. The high F-statistic (1401) and the extremely small p-value (< 2.2e-16) indicate that the model is statistically significant overall: collectively, the included variables meaningfully explain the variation in GII. Table 4 presents the model coefficients and t-test results, which indicate which variables have a statistically significant effect on the dependent variable, GII.

TABLE 4. T-test reults

Variable	Estimate	Std.Error	t-value	Pr(>|t|)	Signif
(Intercept)	0,811869	0,029788	27,2549	<2e-16	***
log_GDP	-0,05282	0,002404	-21,9771	<2e-16	***
log_RESERVES	-0,001	0,000975	-1,0286	0.3038	
MatMORT	0,000232	1,51E-05	15,3541	<2e-16	***
parliaments	-0,00441	0,000191	-23,0568	<2e-16	***
Vulnempl	0,001435	0,000142	10,1023	<2e-16	***
Unempl	0,003454	0,000374	9,2322	<2e-16	***

Note: compiled by the author

The t-test results indicate that state-level economic development (log_GDP) significantly reduces gender inequality, whereas maternal mortality, female vulnerable employment, and female unemployment substantially increase it. Women's representation in parliament has a pronounced adverse effect on GII, highlighting the importance of political inclusiveness. The variable log_RESERVES is not statistically significant, indicating no direct short-term relationship between reserve volumes and gender inequality. Although the OLS model yields effects in the expected directions, it does not account for country heterogeneity, which may lead to biased estimates; therefore, a panel specification was employed.

Table 5 presents the estimation results of the Fixed Effects (FE) model, which accounts for time-invariant country-specific characteristics and isolates the within-country effects of explanatory variables on gender inequality (GII).

TABLE 5. Fixed effects model (FE)

Variable	Estimate	Std.Error	t-value	Pr(>|t|)	Signif
log_GDP	-0,02436	0,002961	-8,227	2.946e-16	***
log_RESERVES	-0,00948	0,001762	-5,3827	7.965e-08	***
MatMORT	3,23E-05	1,35E-05	2,3896	0.0169340	*
parliaments	-0,00521	0,000148	-35,2043	<2.2e-16	***

Vulnempl	0,000386	0,000244	1,5822	0.1137244	
Unempl	-0,00106	0,000299	-3,5338	0.0004166	***

Note: compiled by the author

The results show that within-country changes in economic development (log_GDP) and national reserves (log_RESERVES) significantly reduce gender inequality, underscoring the importance of sustainable economic growth and fiscal capacity for narrowing gender disparities. The variable MatMORT exhibits a weak but statistically significant positive effect, confirming that deterioration in women's reproductive health conditions contributes to higher gender inequality. Women's representation in parliament has a consistently adverse effect on the GII, underscoring the importance of political inclusiveness and women's participation in decision-making processes. Female vulnerable employment (Vulnempl) does not reach statistical significance within countries, which may reflect the limited within-country variation of this indicator over time. In contrast, female unemployment (Unempl) shows a significant adverse effect, which may indicate structural differences across countries and changes in the quality of women's employment over time.

The R-squared value of 0.572 indicates that the fixed-effects model explains approximately 57% of the within-panel variation in gender inequality, demonstrating relatively high explanatory power in capturing within-country dynamics. The adjusted R-squared (Adjusted R-squared = 0.553) confirms the robustness of the results after accounting for the number of regressors. The high F-statistic (≈ 604.6) and the extremely small p-value (< 2.2e-16) indicate that the model is statistically significant overall and that the explanatory variables jointly exert a substantial influence on the dynamics of the GII. Table 6 shows T-test of coefficients.

Table 6. T-test of coefficients

Variable	Estimate	Std.Error	t-value	Pr(>|t|)	Signif
log_GDP	-0,02436	0,007235	-3,3669	0.0007708	***
log_RESERVES	-0,00948	0,004146	-2,2874	0.0222467	*
MatMORT	3,23E-05	2,96E-05	1,0921	0.2748702	
parliaments	-0,00521	0,000791	-6,5854	5.428e-11	***
Vulnempl	0,000386	0,000742	0,52	0.6030923	
Unempl	-0,00106	0,000745	-1,4197	0.1557961	

Note: compiled by the author

The t-test results indicate that increases in economic development (log_GDP) and national reserves (log_RESERVES) significantly reduce gender inequality, highlighting the role of economic stability in fostering more equitable conditions for women. Women's representation in parliament also has a pronounced adverse effect on GII, reaffirming the importance of political inclusiveness. In contrast, maternal mortality, female vulnerable employment, and female unemployment do not exhibit statistically significant within-country effects, which may reflect the limited temporal variation of these indicators.

Figure 4 shows component and residual plots for assessing linearity between gii and explanatory variables. The graphs indicate that a linear specification is appropriate for most variables, although slight signs of nonlinearity are observed in some instances. In particular, log_GDP and parliaments exhibit a pronounced negative relationship, consistent with the regression results. For log_RESERVES and Unempl, the relationship appears weaker bu t generally maintains an

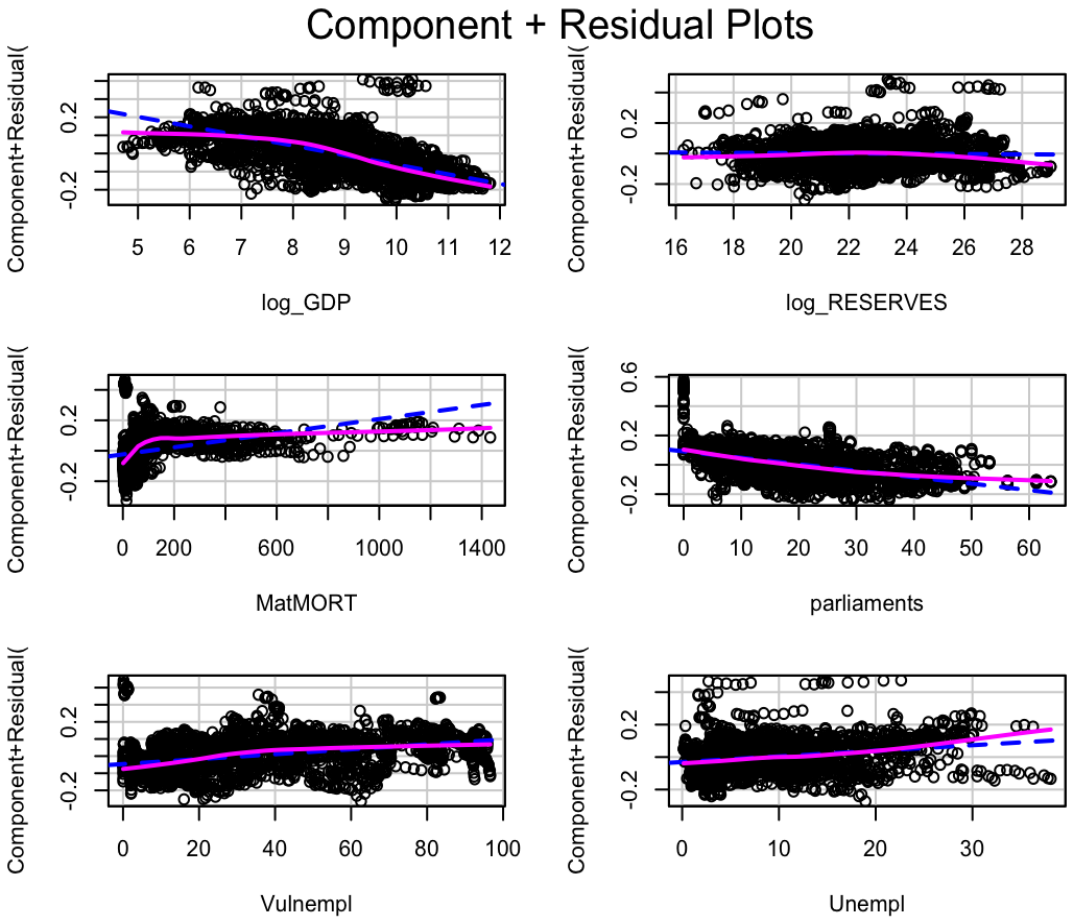

Figure 4. Component and residual plots for assessing linearity between variables

approximately linear pattern, with no apparent systematic deviations. The variables MatMORT and Vulnempl exhibit mild nonlinearity at low values, which may indicate threshold effects or heterogeneous effects across different ranges of the data. However, these deviations are not systematic and do not indicate substantial violations of the linear specification. Overall, the visual diagnostics confirm the adequacy of the chosen functional form and show no serious departures that would require model respecification.

5. CONCLUSION

The empirical findings of this study provide evidence of the significant social, economic, and institutional determinants shaping gender inequality across countries during 2000–2023. The fixed effects model demonstrates that several key variables exert a systematic and robust influence on the Gender Inequality Index (GII).

Regarding H1, the results indicate that countries with higher economic development exhibit lower gender inequality. The finding is consistent with previous research showing that economic growth reduces gender disparities only when accompanied by targeted social and institutional reforms (Seguino, 2000).

Regarding H2, the results show that countries with larger international reserves—an indicator of fiscal stability—tend to have lower gender inequality. Greater

macroeconomic capacity enables governments to allocate more resources to social programs, gender-responsive budgeting, and the expansion of public services that support women's well-being and economic participation. Fiscal resilience, therefore, appears to contribute indirectly to reducing gender disparities by strengthening a state's capacity to implement inclusive development policies.

H3 is not confirmed. Despite prior studies finding a positive association between maternal mortality and gender inequality (Buvinic, Das Gupta & Casabonne, 2009; Martínez-Peinado & Cairó-i-Céspedes, 2004), the empirical results in this study indicate that the coefficient is not statistically significant ($p > 0.1$). Cross-country differences in maternal mortality do not exert a stable or detectable linear effect on gender inequality within the examined panel. One possible explanation is that maternal mortality reflects deeper structural and institutional deficiencies that may manifest through other correlated indicators, thereby attenuating its independent statistical influence in the model.

H4 is confirmed. The results strongly suggest that women's parliamentary representation reduces gender inequality. Countries with higher levels of women's political participation consistently demonstrate lower GII values. This result aligns with the literature emphasising the role of institutional empowerment and women's involvement in decision-making processes in advancing gender equality.

H5 and H6 are not confirmed. The coefficient for female vulnerable employment is not statistically significant, indicating that cross-country variation in vulnerable female employment does not have a clear or consistent effect on gender inequality. For H6, the coefficient is negative and statistically significant, indicating that female unemployment is not a universal indicator of gender inequality across countries. Possible explanations include differences in the quality of employment, the structure of national labour markets, and statistical reporting practices.

Overall, the results highlight that gender inequality remains a multifaceted phenomenon influenced simultaneously by political representation, socio-economic development, and health-related conditions. Progress toward equality, therefore, depends not only on economic advancement but also on institutional reforms, stronger social policy frameworks, and improved access for women to healthcare and decent employment opportunities. These findings reinforce the need for integrated, evidence-based policy approaches tailored to country-specific contexts.

There are at least three potential limitations concerning the results of this study. A first limitation concerns Data availability and the unbalanced panel structure. The dataset exhibits gaps across countries and years, which, although addressed through robust econometric techniques, may still influence the precision of estimates. A second potential limitation is that some potentially influential determinants—cultural norms, legal frameworks, and governance quality—were excluded due to data availability constraints. A third limitation is that the fixed-effects model captures within-country variation but does not fully distinguish between regional clusters (e.g., OECD vs. developing countries).

Despite these limitations, these results suggest several theoretical and practical implications:

– Increasing the share of women in national parliaments has a significant and measurable effect on reducing gender inequality. Policies should therefore promote gender quotas, leadership training programs, and institutional reforms that enhance women’s representation in decision-making bodies.

– The strong association between maternal mortality and gender inequality signals the need to expand access to reproductive healthcare, strengthen obstetric services, and invest in preventive health programs.

– Economic growth alone is insufficient. Policies must address structural barriers in

labour markets, including vulnerable employment, informal work, and discriminatory hiring practices.

– Enhancing the effectiveness of social protection systems, introducing gender-sensitive budgeting, and improving national statistical systems for gender-disaggregated data are essential for designing evidence-based interventions.

Future research could incorporate additional institutional, governance, and labour-market indicators, as well as explore nonlinear or dynamic panel models to capture more complex relationships that drive gender inequality. Expanding the analysis to regional or income-group subpanels may also reveal context-specific mechanisms that are not observable in aggregate cross-country models.

AUTHOR CONTRIBUTION

Writing – original draft: Gulbakhyt Olzhebayeva.
Conceptualization: Gulbakhyt Olzhebayeva.
Formal analysis and investigation: Gulbakhyt Olzhebayeva.
Development of research methodology: Gulbakhyt Olzhebayeva.
Resources: Gulbakhyt Olzhebayeva.
Software and supervisions: Gulbakhyt Olzhebayeva.
Data collection, analysis and interpretation: Gulbakhyt Olzhebayeva.
Visualization: Gulbakhyt Olzhebayeva.
Writing review and editing research: Gulbakhyt Olzhebayeva.

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AUTHOR BIOGRAPHIES

***Gulbakhyt Olzhebayeva** – PhD student, Almaty Management University, Almaty, Kazakhstan. Email: g.olzhebayeva@gmail.com, ORCID ID: https://orcid.org/0000-0002-4964-2747