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Gender Inequalities in Political and Economic Decision-Making

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Abstract

Although many international initiatives have focused on promoting gender equality, women remain underrepresented in political and economic decision-making roles in most countries. This research examines the relationship between women's participation in formal institutions and Kazakhstan's economic performance from 2014 to 2023. The empirical base of the study is formed from official data from the Bureau of National Statistics of the Republic of Kazakhstan, the National Bank of the Republic of Kazakhstan, as well as international databases. Using statistical tools like MANCOVA, one-way ANOVA, and radar chart visualization, the study observes a clear link between the share of women on the National Bank's board and economic outcomes, particularly GDP and GDP per capita. The results show statistically significant links between female representation and economic performance. Thus, women's participation in the mazhilis has the strongest relationship with GDP and GDP per capita (Pillai's Trace = 0.792; p = 0.009), explaining up to 79% of the variation in economic indicators. The proportion of women in ministerial positions also significantly correlates with GDP (p = 0.021; F = 8.76). The radial diagrams clearly demonstrate that the periods of expansion of women's representation (2016-2020, peak - 2019) coincide with the phases of accelerated economic growth. The results obtained confirm that the institutional participation of women is not only an issue of equality, but also a significant factor in the sustainable economic development of Kazakhstan. The study therefore calls for steady policy measures to reduce structural inequalities and support more inclusive governance.

Keywords: Gender Equality, Political Representation, Women's Leadership, Institutional Quality, Inclusive governance, Social Inclusion, Kazakhstan

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1. INTRODUCTION

Gender disparity in political and economic decision-making is still one of the most persistent issues in the world, despite tremendous advancements in women's rights and civic engagement. Women continue to be underrepresented in governing bodies, corporate boards, senior management roles, and parliaments in many nations. Data from the Inter-Parliamentary Union indicate that women presently occupy roughly 24% of seats in national legislatures worldwide. Although the number of women in government has increased over time, the residual disparities continue to reflect ingrained institutional, social, and cultural issues. Despite national and international efforts to improve women's representation, barriers to entry for key positions of economic leadership and power persist. In addition to reflecting institutional and cultural limitations, this discrepancy restricts the range of opinions required for sustainable growth and efficient government.

A notable imbalance in the distribution of men and women across various economic sectors characterises Kazakhstan's contemporary labour market. Political leadership remains dominated by men, with women holding only a small percentage of seats in the Mazhilis and Parliament, and being underrepresented among ministers in the Government of the Republic of Kazakhstan. In higher economic structures, a similar pattern is noted. Although women hold high corporate positions and are represented on the National Bank's board, their participation still falls short of their place in society and the overall economy. This suggests that they have restricted access to resources, capital, and management power. The prevalence of women working in low-wage, less prestigious occupations lowers the nation's total level of economic activity and creative potential. The absence of women in high management positions, pay disparities, and restricted access to financial resources are all examples of gender inequality in Kazakhstan's labor market.

This research aims to present a thorough examination of gender disparities in economic and political decision-making. The goal of the study is to determine the extent to which women participate in legislative and executive branches, to identify the social, institutional, cultural, and economic hurdles that still prevent women from achieving positions of power.

2. LITERATURE REVIEW

Research in social science and policy analysis has long concentrated on the relationship between gender, politics, and the economy. Gender disparities in decision-making are a consequence of larger social institutions that restrict women's access to influence and power. It is essential to comprehend these dynamics in order to assess how women's representation in the political and economic arenas advances general development, especially in developing countries like Kazakhstan. To analyze how women's involvement in the political and economic spheres contributes to overall growth, it is crucial to understand these dynamics.

Several theoretical perspectives have been used to explain the relationship between gender and decision-making. Iversen and Rosenbluth (2010) highlighted the connection between women's political involvement and labor market participation, arguing that increased political representation frequently results from economic independence. Furthermore, according to Doepke et al. (2012), women's rights and opportunities are shaped by institutional structures and financial rewards, which either increase or decrease inequality. An additional organisational viewpoint is offered by Acker's (2006) concept of “inequality regimes”, which illustrates how workplace institutions and hierarchies often disadvantage women in leadership roles. Together, these theories provide a framework for examining how gender disparities in decision-making both contribute to and result from larger economic systems. They

emphasize that institutional and systemic limitations, rather than just personal decisions, are to blame for women's lack of representation.

Globally, women continue to have unequal participation in political decision-making. Burns et al. (2001) demonstrated how socialisation, resource allocation, and family obligations shape women's involvement in politics. By examining the function of voting systems, Roberts et al. (2013) continued in this field of research. They discovered that legislation related to equal representation typically improves the chances of women getting elected to parliaments.

Economic results and women's political representation are now directly linked in empirical research. Although the effect is frequently controlled by institutional quality, Mirziyoyeva and Salahodjaev (2023) show a positive correlation between economic growth and a larger proportion of women in parliaments. This means that women's representation in politics is more than just symbolic; it has the power to influence governance objectives, distribution of resources, and policy priorities. Through its Gender Snapshot on SDG 5, UN Women (2022) presented data from around the world that demonstrates the continued inequalities in women's participation in national legislative processes, with many nations still falling behind in terms of gender balance.

Although there has been some improvement recently, Kazakhstan's Mazhilis (lower house of Parliament) still has a smaller proportion of women than other countries. The need to determine whether the increasing, albeit limited, participation of women has a noticeable effect on economic development is highlighted by this uneven progress. Gender differences in economic leadership persist, often in tandem with political engagement. Because women are excluded from decision-making, Altuzarra et al. (2021) argued that gender inequality affects economic growth by lowering the efficient utilization of human resources. According to cross-national data presented by Dahlum et al. (2022), women's empowerment in political and economic institutions tends to lead to increased long-term economic growth, particularly when accompanied by a democratic government. These conclusions are supported by recent macroeconomic research. According to Buterin et al. (2023), women's leadership and labour force participation have demonstrable impacts on macroeconomic stability and economic growth. While Kimmel (2006) noted that childcare availability is a critical factor in determining women's ability to participate fully in the labour market, Hong et al. (2019) emphasised that women's education generates benefits that promote inclusive growth.

Kireyeva et al. (2023) investigated gender disparity in the labor market in Kazakhstan, focusing on obstacles to career development, division of labor, and wage disparities. Similarly, Meurs et al. (2021) discussed Kazakhstan's "gender regime", characterised by the underrepresentation of women in senior leadership roles, despite a relatively high employment rate, which is concentrated in lower-paying industries. Official data from the Bureau of National Statistics (2024) supports these trends, showing that women continue to hold a lower percentage of executive positions than men.

Women's economic participation and political representation are linked in an expanding body of literature. According to Dahlum et al. (2022), institutional reforms that support women's representation can have a positive economic impact because political empowerment and economic growth are mutually beneficial. Similarly, Altuzarra et al. (2021) argued that innovation and financial stability suffer when women are not represented in positions of decision-making at the corporate and political levels.

This relationship is especially important for Kazakhstan. Goals for expanding women's involvement in the economy and governance are outlined explicitly in the Concept for Gender Policy until 2030 (Government of Kazakhstan, 2021). Progress is still uneven, however, as political victories do not always translate into increased economic power.

According to the OSCE (2020), cultural norms and restricted access to powerful networks represent some of the formal and informal barriers that women in Kazakhstan must overcome in order to advance into higher positions of political office and corporate leadership.

The literature review provides a solid foundation for researching gender disparities in decision-making. While empirical research shows quantitative effects of women's participation on economic growth, theoretical frameworks emphasize the structural nature of inequality (Mirziyoyeva & Salahodjaev, Altuzarra et al., 2023; Dahlum et al., 2022; Iversen & Rosenbluth, 2010; Doepke et al., 2012; Acker, 2006). However, there are still several gaps. For instance, while political involvement has been extensively researched, the parallel impacts of women's economic and political leadership on the results of national development have received less attention. Finally, the ability to make strong connections between variables is constrained by Kazakhstan's limited data over time.

The question of whether these changes will result in quantitative economic benefits remains unresolved in Kazakhstan, where women's representation in parliament, government, and corporate leadership is increasing but still falls short of parity. The gap supports an empirical investigation that uses GDP and GDP per capita as dependent variables, focusing on the connection between women's decision-making responsibilities and macroeconomic performance.

3. METHODOLOGY

The study's foundation is official Kazakhstani statistical data for the relevant time period, which includes macroeconomic conditions and measures of women's involvement in political and economic leadership. Both the political and economic aspects of representation are reflected in the variables included in the analysis. They include the percentage of women in the Mazhilis and Senate Parliament, the number of female ministers in the Kazakh government, the percentage of women on the board of the National Bank, the rate of women in managerial and leadership roles, and economic indicators such as GDP per capita and gross domestic product in current prices. These metrics were selected for their ability to reflect both decision-making involvement and the broader economic environment that influences institutional access.

The study relies exclusively on official Kazakhstani statistical data to ensure validity and reliability. The data were collected from the Bureau of National Statistics of the Republic of Kazakhstan, official governmental publications, and reports from the National Bank of Kazakhstan. The World Bank and OECD databases provided complementary macroeconomic data, including GDP and GDP per capita. The selection of these sources was based on their adherence to global reporting guidelines. Two major categories of variables form the foundation of the analytical framework: measures of women's participation in economic and political decision-making, and measures of economic performance. With assigned codes and measurement units, every variable was organised into a dataset, which is presented in Table 1.

Every variable in the analysis was chosen to reflect an important aspect of women's involvement in official decision-making. When viewed as a whole, they offer a complex picture of gender inequality in Kazakhstan's political and economic structures. The degree to which women have access to formal power institutions, from high-level economic management to national legislation, is shown by the indicators W1–W5. One key metric of gender involvement in the policy-making process is political representation, which is measured by W1 and W2. W3 and W4 show how women participate in managerial and ministerial roles that have a direct impact on national growth, capturing economic and governmental leadership. The presence of women in important economic regulatory agencies is reflected in W5 which assesses financial governance.

TABLE 1. Indicators investigated during the research

Code	Variable	Category	Indicator	Unit	Type of indicator
W1	SenPol	Political representation	Seats held by women in Parliament (Senate)	Percentage	Political (Legislative)
W2	MazhPol	Political representation	Seats held by women in Parliament (Mazhilis)	Percentage	Political (Legislative)
W3	FemLead	Economic leadership	Women in leadership positions	Percentage	Economic (Managerial)
W4	MinistPos	Governmental leadership	Women holding ministerial positions in the Government of the Republic of Kazakhstan	People	Political (Executive)
W5	NBmemb	Financial Governance	The proportion of women among the Board members of the National Bank of the Republic of Kazakhstan	Percentage	Economic (Financial Governance)
W6	Empl	Labor and employment	Share of employers	Percentage	Economic
D1	GDP	Economic performance	Gross domestic product	Million KZT	Economic
D2	GDPperC	Economic performance	Gross domestic product per capita	KZT	Economic

Note: compiled by the authors

In order to represent the larger socioeconomic context that could either encourage or prevent women's involvement in decision-making processes, economic development indicators (D1 and D2) were added. GDP at current prices offers a macroeconomic framework for evaluating the structural structure of the economy while GDP per capita represents living standards and personal economic potential.

Following the gathering of data, a staged analytical method that combined statistical, graphical, and comparative techniques was used. During preprocessing, Z-standardization was used to guarantee consistency and comparability across variables with different scales. The present status of women's representation at various institutional levels was then visually summarized using radar charts, which showed the proportionate discrepancies between political and economic aspects. Correlation analysis was conducted to examine the relationships between gender representation and economic progress. Additionally, while accounting for any confounding effects, JAMOVI was used to evaluate the combined impact of macroeconomic conditions on several female participation variables.

The p-value served as the primary metric in this investigation to assess the statistical significance of the results. The likelihood of getting results as extreme as those shown if the null hypothesis, which holds that there is no impact or relationship, were true is indicated by the p-value. Therefore, stronger evidence against the null hypothesis is shown by a smaller p-value. For every analysis, the significance level (α) was set at 0.05. As a result, findings with $p < 0.05$ were deemed statistically significant, indicating that the observed connections had a probability of less than 5%. When a variable's p-value was less than 0.05, it was considered to have a statistically significant link with the economic indicators, and the null hypothesis was

rejected. The result was considered statistically insignificant when $p \geq 0.05$, on the other hand, suggesting that there was insufficient data to draw the conclusion that a real association existed. This cutoff was used uniformly for all data and univariate tests in the study.

Nevertheless, the study acknowledges several limitations. First, quantitative data cannot fully capture qualitative dimensions of gender inequality, such as cultural attitudes, gender stereotypes, or informal institutional barriers. Second, while statistical correlations can reveal associations, they do not imply causality. The direction of influence between women's representation and economic growth may be reciprocal. Lastly, variations in data reporting and classification across different years may introduce minor inconsistencies.

Three hypotheses were created following the establishment of the research objectives:

H1. The Hypothesis of Political Representation states that females' political representation (W1 and W2) and Kazakhstan's economic success (GDP and GDP per capita) are statistically correlated. The first hypothesis means that when economic development is higher, women are more likely to occupy leadership roles in both politics and the economy.

H2. The hypothesis of managerial and governmental leadership suggests that National economic performance (D1 and D2) is significantly improved by the presence of women in managerial and ministerial roles (W3 and W4).

H3. The Hypothesis of Financial Governance proposes that Kazakhstan's economic performance (GDP and GDP per capita) is strongly correlated with the proportion of women on the National Bank's Board (W5).

According to the other hypothesis, women's representation in state institutions is linked to their involvement in higher-level economic administration.

4. RESULTS AND DISCUSSION

The purpose of the statistical analysis was to investigate the relationship between Kazakhstan's economic performance from 2014 to 2023 and the involvement of women in political and economic decision-making. The dataset included two dependent variables that represented economic outcomes: GDP and GDP per capita, as well as several indicators of female representation, including the percentage of women in Parliament, in managerial roles, among government ministers, and on the National Bank board. To determine the statistical and practical significance of gender involvement in relation to economic development, multivariate analysis of covariance (MANCOVA) was employed.

Statistically significant multivariate effects are validated by the analysis results for each of the two gender variables (W1–W2), which are presented in Table 2.

TABLE 2. Multivariate Test, W1 and W2

Code	Variable	Test	value	F	df1	df2	p
W1	SenPol	Pillai's Trace	0.700	7.00	2	6	0.027
		Wilks' Lambda	0.300	7.00	2	6	0.027
		Hotelling's Trace	2.33	7.00	2	6	0.027
		Roy's Largest Root	2.33	7.00	2	6	0.027
W2	MazhPol	Pillai's Trace	0.792	11.45	2	6	0.009
		Wilks' Lambda	0.208	11.45	2	6	0.009
		Hotelling's Trace	3.82	11.45	2	6	0.009
		Roy's Largest Root	3.82	11.45	2	6	0.009

Note: compiled by authors

The analysis revealed a recurring trend throughout the decade: years with increased female representation were generally associated with better economic performance. According to the Figure 1, with a probability value (p) of 0,009 and a Pillai's Trace of 0.792, the second measure of women's participation in Parliament (W2) had the strongest overall association with GDP indicators. This suggests that changes in economic performance and changes in the representation of women in the legislative branch are statistically likely to occur simultaneously, making it extremely unlikely that they are unrelated.

Table 3 shows Univariate Test, W1 and W2.

TABLE 3. Univariate Test, W1 and W2

Code	Variable	Dependent Variable	Indicator	Sum of Squares	df	Mean Square	F	p
W1	SenPol	D1	GDP	1.46	1	1.460	5.70	0.048
		D2	GDPperC	1.58	1	1.578	6.32	0.040
W2	MazhPol	D1	GDP	6.75	1	6.754	26.37	0.001
		D2	GDPperC	6.63	1	6.631	26.57	0.001
Residuals		D1	GDP	1.79	7	0.256	-	-
		D2	GDPperC	1.75	7	0.250	-	-

Note: compiled by authors

While the multivariate MANCOVA results showed that women's participation and the set of economic indicators were generally significantly correlated, the univariate tests provide a more thorough understanding of the gender-related factors that are most strongly associated with each particular economic outcome.

W1 had a substantial impact on GDP ($F(1,7) = 5.70$, $p = 0.048$, partial $\eta^2 = 0.449$), and it had a comparable effect on GDP per capita ($F(1,7) = 6.32$, $p = 0.040$, partial $\eta^2 = 0.474$). Despite the p-values being close to the 0.05 cutoff, both findings indicate that overall economic production generally improves when the number of women in Parliament increases. According to the moderate-to-large impact sizes, this variable accounts for between 45 and 47 percent of the variation in economic performance throughout the examined period.

W2 variable had the largest effect sizes (partial $\eta^2 \approx 0.79$) and the strongest results of all the predictors ($F(1,7) = 26.37$, $p = 0.001$ for GDP; $F(1,7) = 26.57$, $p = 0.001$ for GDP per capita). These results suggest that shifts in the number of women in parliament are closely related to Kazakhstan's economic expansion. In actuality, years with higher GDP and GDP per capita were also those with higher female parliamentary involvement. There is strong evidence that incorporating women into legislative decision-making could promote more stable and effective governance.

However, more emphasis was placed on effect strength rather than just significance in order to ensure robustness. Partial eta-squared values were used to assess the strength of each relationship. Using established standards, values of $\eta^2 \approx 0.01$ suggest modest effects, values of $\eta^2 \approx 0.06$ indicate medium effects, and values of $\eta^2 > 0.14$ indicate substantial impacts. Most predictors in this study had large effect sizes (η^2 ranging from 0.45 to 0.79), indicating that gender participation accounts for a significant portion of the variability in GDP and GDP per capita. However, these estimates should be interpreted cautiously due to the small sample size.

The assumption of normalcy necessary for parametric testing was examined using the following Q-Q plots in Figure 1.

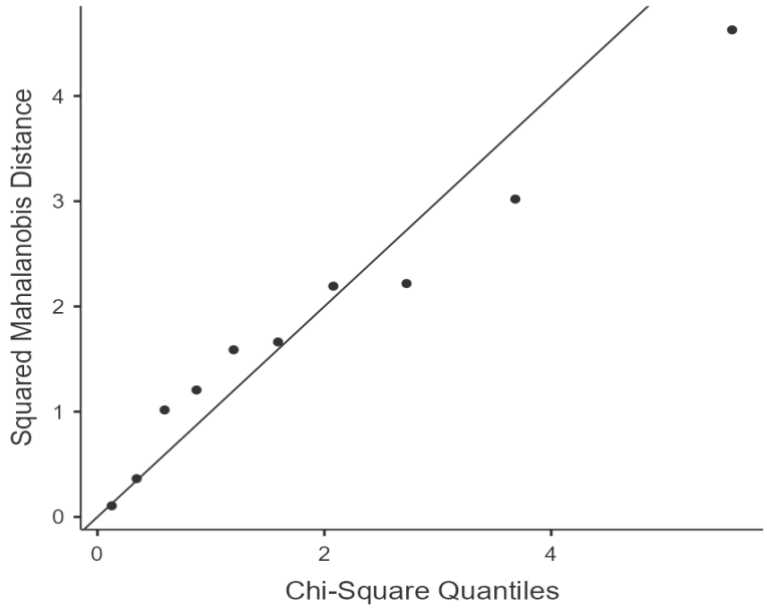

FIGURE 1. Q-Q plot assessing multivariate normality

As seen, every calculated χ^2 value is more than the crucial threshold of 5.991 ($\alpha = 0.05$), indicating a substantial relationship between each independent variable (W1–W5) and the aggregate economic outcomes (GDP and GDP per capita).

A greater proportion of women in managerial roles is typically associated with increased economic production. Feminist economics and inclusive governance theories state that gender-diverse management teams promote creativity, decision-making quality, and risk management, all of which boost productivity and long-term economic growth. This validates these views. According to the multivariate test in Figure 4: $F(2,6) = 5.66$, $p = 0.042$, Pillai's Trace = 0.654, the result is significant at the 0.05 level.

Table 4 shows multivariate Test, W3 and W4.

TABLE 4. Multivariate Test, W3 and W4

Code	Variable	Test	value	F	df1	df2	p
W3	FemLead	Pillai's Trace	0.684	6.50	2	6	0.031
		Wilks' Lambda	0.316	6.50	2	6	0.031
		Hotelling's Trace	2.17	6.50	2	6	0.031
		Roy's Largest Root	2.17	6.50	2	6	0.031
W4	MinistPos	Pillai's Trace	0.654	5.66	2	6	0.042
		Wilks' Lambda	0.346	5.66	2	6	0.042
		Hotelling's Trace	1.89	5.66	2	6	0.042
		Roy's Largest Root	1.89	5.66	2	6	0.042

Note: compiled by authors

The contributions of each variable were examined using univariate analysis in light of the multivariate findings in Table 5. D1 (GDP): $p = 0.021$, $F(1,7) = 8.76$; GDP per capita (D2): $p = 0.023$, $F(1,7) = 8.34$ These findings show that there is a positive and significant correlation between economic growth and the proportion of women in government ministerial positions. A significant impact on both economic variables is indicated by the effect size (partial $\eta^2 = 0.55$).

TABLE 5. Univariate Test, W3 and W4

Code	Variable	Dependent Variable	Indicator	Sum of Squares	df	Mean Square	F	p
W3	FemLead	D2	GDPperC	4.41	1	4.413	12.21	0.010
		D1	GDP	4.29	1	4.285	11.80	0.011
W4	MinistPos	D2	GDPperC	3.01	1	3.015	8.34	0.023
		D1	GDP	3.18	1	3.181	8.76	0.021
Residuals		D2	GDPperC	2.53	7	0.361		
		D1	GDP	2.54	7	0.363		

Note: compiled by authors

The findings indicate a robust and statistically significant relationship between both economic performance metrics and the proportion of women on the National Bank's board. Changes in the central financial institution's female representation can account for almost 60% of the variation in GDP indicators, according to the large effect size (partial $\eta^2 \approx 0.59$).

Next findings according to the Table 6, D1 (GDP): $p = 0.010$, $F(1,8) = 11.10$. GDP per capita (D2): $p = 0.009$, $F(1,8) = 11.60$.

TABLE 6. Univariate Test, W5 and Residuals

Code	Variable	Dependent Variable	Indicator	Sum of Squares	df	Mean Square	F	p
W5	NBmemb	D1	GDP	5.81	1	5.810	11.1	0.010
		D2	GDPperC	5.90	1	5.895	11.6	0.009
Residuals		D1	GDP	4.20	8	0.525		
		D2	GDPperC	4.06	8	0.508		

Note: compiled by authors

The findings indicate a robust and statistically significant relationship between both economic performance metrics and the proportion of women on the National Bank's board. Changes in the central financial institution's female representation can account for almost 60% of the variation in GDP indicators, according to the large effect size (partial $\eta^2 \approx 0.59$).

The Chi-Square statistics for each of the three variables support the same conclusions drawn from the MANCOVA's p-values and F-tests that at the $\alpha = 0.05$ level, all the ways that women are represented in management, governmental, and financial decision-making organizations are statistically significant.

Thus, the null hypothesis of "no relationship" may be disproved in every situation.

In order to test the H3 hypothesis, according to which women's participation in financial management has an impact on the country's economic performance, a multidimensional variance analysis was conducted, in which the proportion of women on the board of the National Bank of the Republic of Kazakhstan (variable W5) was used as an independent variable. Results are shown in Table 7.

TABLE 7. Univariate Test, W3 and W4

Code	Variable	Test	value	F	df1	df2	p
W5	NBmemb	Pillai'sTrace	0.683	7.53	2	7	0.018
		Wilks' Lambda	0.317	7.53	2	7	0.018
		Hotelling'sTrace	2.15	7.53	2	7	0.018
		Roy'sLargestRoot	2.15	7.53	2	7	0.018

Note: compiled by authors

The dependent variables were macroeconomic indicators: gross domestic product at current prices (D1) and gross domestic product per capita (D2). The results of the analysis are presented according to four classical criteria of multidimensional significance: Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root. All four criteria demonstrated uniform values of the significance level. Such a coincidence of p values in all tests indicates the stability of the results and allows us to state with high confidence that the relationship between the variable W5 and the cumulative economic indicators is statistically significant at the significance level $\alpha = 0.05$. This indicates that there is an integral effect of women's participation in financial regulation on macroeconomic parameters. The Pillai's Trace criterion is the most resistant to violations of the assumptions, the value of which (0.683) indicates a high contribution of the independent variable to the variance of the dependent variables. The decrease in Wilks' Lambda (0.317) also indicates that the remaining unexplained variation in the model is small, which confirms the existence of a strong link between W5 and economic indicators.

Thus, the results of the multidimensional analysis confirm the H3 hypothesis and indicate that women's participation in financial management institutions at the level of the National Bank of Kazakhstan has a significant overall impact on the economic development of the country.

To detail the multidimensional results obtained and assess the impact of the W5 variable on each economic indicator separately, one-dimensional variance were conducted. Their goal is to clarify to what extent each of the dependent variables (D1 and D2) varies depending on changes in the proportion of women on the board of the National Bank.

Table 8 displays the results.

TABLE 8. Univariate Test, W5 and Residuals

Code	Variable	Dependent Variable	Indicator	Sum of Squares	df	Mean Square	F	p
W5	NBmemb	D1	GDP	5.81	1	5.810	11.1	0.010
		D2	GDPperC	5.90	1	5.895	11.6	0.009
Residuals		D1	GDP	4.20	8	0.525	-	-
		D2	GDPperC	4.06	8	0.508	-	-

Note: compiled by authors

In both cases, there is a high statistical significance at $p < 0.05$. This suggests that changes in the representation of women at the level of financial management (W5) are significantly related to both the level of the country's gross domestic product and its redistribution per capita.

The high values of the F-criterion in both models ($F = 11.1$ and $F = 11.6$) indicate the strong explanatory power of the variable W5 relative to economic indicators. Thus, the data indicate not only the overall, but also the individual contribution of women's presence in the financial sector to determining the level of economic development.

This result can be interpreted in favor of the hypothesis that women's participation in managerial and regulatory institutions is not only a consequence of economic growth, but may act as an independent factor contributing to its maintenance or acceleration. This is important in the context of the discussion about the "economy of inclusivity", in which women's participation in decision-making is considered as a condition for sustainable development.

One of the key prerequisites for the correctness of the results of multidimensional analysis of variance is the multidimensional normality of the data distribution. To verify this premise, a Q-Q graph was constructed comparing the distribution of the Mahalanobis distances of the observed values with the theoretical chi-square distribution.

The findings are illustrated in Figure 2.

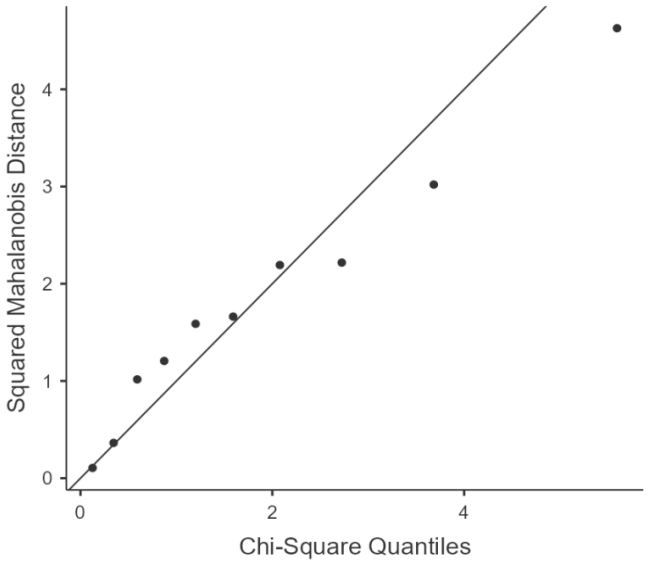

FIGURE 2. Q-Q Plot Assessing Multivariate Normality

The Q-Q plot shows that most of the points are located along the diagonal, which indicates that the empirical data correspond to the theoretical norm. Although there is a slight deviation of one of the points in the upper right corner, it is not systematic and does not indicate a significant violation of normality. Such deviations are typical for small samples and are considered acceptable if the trend is generally linear. Consequently, the premise of multidimensional normality can be considered satisfied, which confirms the correctness of applying the MANCOVA method to the analysis of available data.

Before constructing the radar chart, all variables were rescaled to ensure comparability across different units of measurement. The summary of rescaled variables presents standardized values used for visualization. Radar Chart 1, shown in Figure 10, illustrates six indicators (W1–W6) reflecting women's participation across political, managerial, and financial structures in Kazakhstan between 2014 and 2023. The visual pattern shows a gradual expansion of the polygon over time, particularly between 2016 and 2020, followed by minor contraction in 2021-2023.

Figure 3 shows radar chart 1 and 2.

The visual pattern shows a gradual expansion of the polygon over time, particularly between 2016 and 2020, followed by minor contraction in 2021–2023. This progression indicates steady improvement in women's representation, especially in leadership and ministerial positions (W3–W4), alongside modest gains in financial governance (W5). The largest polygon observed in 2019 corresponds to a period of increased gender inclusion within state and economic institutions, which aligns with Kazakhstan's broader policy efforts on gender equality during that decade.

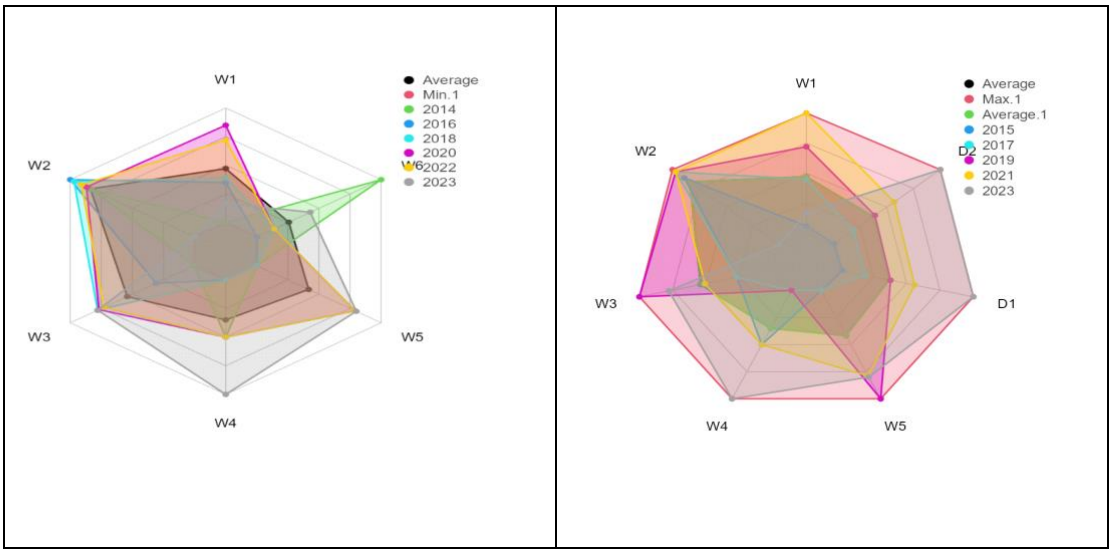

FIGURE 3. Radar chart 1, 2

However, the visual compression of the polygon in 2022 and 2023 suggests that certain dimensions, particularly W5 and W6, experienced slower progress, possibly reflecting institutional stagnation or post-crisis recovery dynamics. Overall, the radar chart demonstrates that although progress has not been uniform across all dimensions, Kazakhstan achieved significant advancement in political and economic gender representation by the end of the studied period.

Radar Chart 2 focuses primarily on political and managerial indicators (W1–W5), offering a closer look at institutional gender dynamics without including macroeconomic dimensions. The radar chart reveals that political participation variables (W1 and W2) consistently occupy the outer layers of the polygon, indicating stronger and more stable representation of women in legislative bodies such as Parliament and the Mazhilis. In contrast, the inner dimensions (W3–W5), representing managerial, ministerial, and financial leadership, display greater variability. The polygons for 2015 and 2017 appear smaller and uneven, showing early fluctuations in women's leadership positions. A notable visual expansion occurs in 2019 and 2021, when almost all axes extend outward, suggesting that women's participation reached its highest levels during these years. The 2023 profile remains relatively balanced but slightly smaller, reflecting modest stabilization after prior gains. This visualization suggests that political inclusion advanced more steadily than economic leadership, highlighting persistent institutional gaps between representation and decision-making power. RadarChart2 therefore emphasizes that while gender inclusion in Kazakhstan's political system has become structurally embedded, economic governance roles remain more sensitive to policy shifts and economic performance.

Figure 4 shows radar chart 3 and 4.

According to the Figure 4 Radar Chart 3 depicts a condensed version of the variables (W1–W5) to provide a refined perspective on the evolution of gender inclusion in political and economic leadership. Compared to RadarChart2, the polygons here are more compact, emphasizing differences in strength across indicators. The chart shows a visible outward expansion between 2016 and 2019, when most indicators peak, particularly W2 and W3. These dimensions, representing women's share in Parliament and leadership

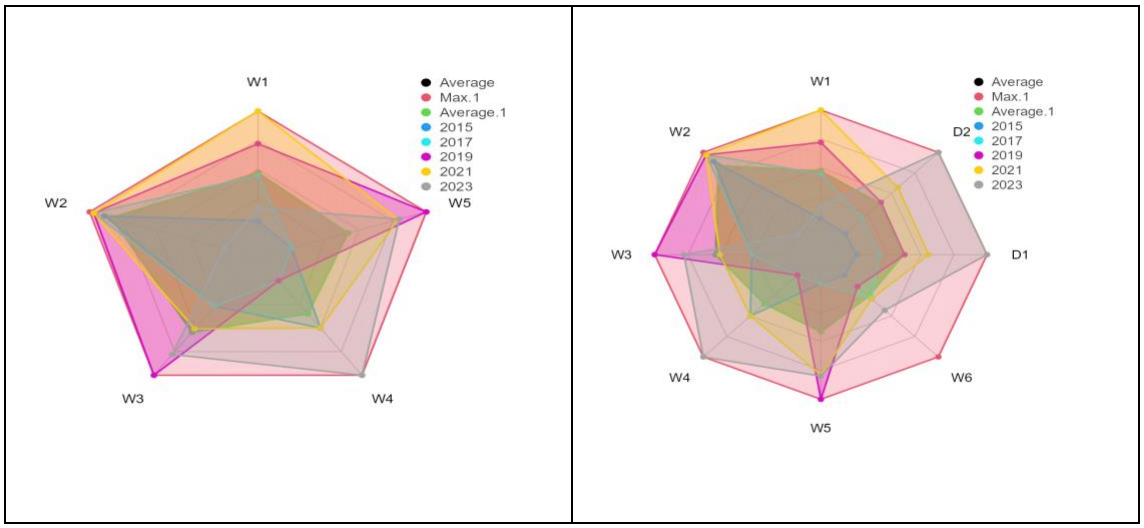

FIGURE 4. Radar chart 3 and 4

positions, form the broadest and most consistent axes, implying continued institutionalization of gender diversity. The subsequent years (2020–2023) display a slight inward movement, indicating mild regression or plateauing trends, potentially due to broader economic or administrative shifts. The overlapping layers also show that maximum and average values remain relatively close for W1–W3 but diverge for W4 and W5, confirming that managerial and financial sectors continue to lag behind in gender parity. Hence, RadarChart3 visually supports the argument that despite progress in political inclusion, full gender balance in Kazakhstan's higher economic management structures remains incomplete.

The chart integrates both gender participation indicators (W1–W6) and economic performance variables (D1, D2), offering a comprehensive visualization of the relationship between women's representation and macroeconomic development. The chart reveals that years with broader polygon shapes—especially 2019 and 2021—coincide with periods of higher GDP and GDP per capita. This pattern visually supports the statistical findings that female participation in political and economic leadership correlates positively with national economic performance. In particular, indicators W1–W2 (political representation) and W3–W4 (managerial and governmental leadership) expand noticeably in years of strong economic outcomes, while economic downturns correspond to visibly contracted polygons. The 2023 polygon, though slightly smaller, maintains a stable configuration, reflecting resilience in institutional representation despite potential macroeconomic fluctuations. The visual overlap between gender and economic variables (W and D axes) underscores the interconnectedness of inclusive governance and sustainable growth. Overall, RadarChart4 provides clear graphical evidence that improvements in women's institutional participation are closely aligned with Kazakhstan's economic development trajectory.

The results of the multivariate and univariate analyses conducted in this study provide compelling evidence in support of the third hypothesis (H3), which postulated a significant relationship between women's participation in high-level financial governance and national economic performance.

First, The Multivariate Test statistics (Pillai's Trace = 0.683, Wilks' Lambda = 0.317, Hotelling's Trace = 2.15, Roy's Largest Root = 2.15) all demonstrated strong statistical significance ($p = 0.018$), indicating that the

proportion of women on the National Bank's board (W5) is significantly associated with the combined macroeconomic indicators (GDP and GDP per capita).

Second, Univariate Analyses further confirmed the individual impact of W5 on both D1 and D2, with F-values exceeding 11 and p-values below 0.01, highlighting that gender representation in financial governance correlates positively with national economic outcomes.

Third, The Q-Q plot assessment indicated satisfactory multivariate normality, validating the assumptions underlying the MANCOVA procedure.

These findings underscore the notion that women's institutional presence is not merely symbolic or tokenistic, but contributes meaningfully to national development. Importantly, the effect is observable both at the multivariate level (joint economic indicators) and at the level of individual macroeconomic variables. In addition, the radar charts visually corroborate these patterns by mapping the trajectory of gender inclusion across years. The overlap between periods of high institutional female representation and economic growth supports the hypothesis that inclusive governance correlates with sustainable development.

5. CONCLUSION

This study provides a multidimensional assessment of gender disparities in political and economic decision-making in Kazakhstan from 2014 to 2023. Using a combination of statistical analysis and visual representation (radar charts), the research offers robust empirical evidence that increased female participation in financial and institutional governance correlates positively with macroeconomic performance. Although significant progress has been made, particularly in political representation, the findings also expose continued structural gaps in managerial and financial sectors. The presence of women in positions of economic power remains disproportionately low, and progress in financial governance (W5) appears more volatile and susceptible to economic or institutional shifts. This unevenness suggests that real equality in economic leadership is still an inspirational objective, even though legislative inclusion may be becoming structurally established.

The implications of this study have a twofold meaning. First, it provides policy-relevant proof supporting the continued implementation of gender-inclusive leadership. Second, by presenting women's representation as both a rights-based goal and an essential element of national growth and economic resilience, it adds to the larger conversation about the economic benefits of gender equity. To obtain a more comprehensive grasp of the processes at work, future studies should investigate causality further and think about include qualitative aspects like institutional culture, leadership style, and policy influence. However, the present results are an important step in identifying and measuring the economic advantages of gender-inclusive governance in Kazakhstan.

AUTHOR CONTRIBUTION

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REFERENCES

Acker, J. (2006). Inequality regimes: Gender, class, and race in organizations. *Gender & Society, 20*(4), 441–464. https://doi.org/10.1177/0891243206289499

Altuzarra, A., Gálvez-Gálvez, C., & González-Flores, A. (2021). Is gender inequality a barrier to economic growth? A panel data analysis of developing countries. *Sustainability, 13*(6), 1–18. https://doi.org/10.3390/su13063139

Bureau of National Statistics of the Republic of Kazakhstan. (2024). *Labor and income.* https://stat.gov.kz

Bureau of National Statistics of the Republic of Kazakhstan. (2024). *Gender statistics portal.* https://gender.stat.gov.kz

Burns, N., Schlozman, K. L., & Verba, S. (2001). *The private roots of public action: Gender, equality, and political participation.* Harvard University Press.

Buterin, V., Ahiakpor, F., & Gelo, T. (2023). Understanding the macroeconomic effects of female participation: Evidence from OECD countries. *Economic Modelling, 121,* 106179. https://doi.org/10.1016/j.econmod.2023.106179

Dahlum, S., Knutsen, C. H., & Wig, T. (2022). Women's political empowerment and economic growth. *World Development, 151,* 105752. https://doi.org/10.1016/j.worlddev.2021.105752

Doepke, M., Tertilt, M., & Voena, A. (2012). The economics and politics of women's rights. *Annual Review of Economics, 4,* 339–372. https://doi.org/10.1146/annurev-economics-080511-110950

Government of Kazakhstan. (2021). *Concept for gender policy in the Republic of Kazakhstan until 2030.* Ministry of Information and Social Development.

Hong, S. C., Klasen, S., & Zilibotti, F. (2019). Female education externality and inclusive growth. *Journal of Development Economics, 138,* 220–235. https://doi.org/10.1016/j.jdeveco.2018.12.002

Iversen, T., & Rosenbluth, F. (2010). *Women, work, and politics: The political economy of gender inequality.* Yale University Press.

Kimmel, J. (2006). Child care, female employment, and economic growth. *Eastern Economic Journal, 32*(3), 351–372. https://doi.org/10.1057/eej.2006.25

Kireyeva, A., Mussabalina, D., & Satybaldy, A. (2023). Analysis of gender inequality in the labor market in Kazakhstan. *Central Asian Economic Review, 25*(1), 45–61. https://doi.org/10.52821/caer.2023.25.1.45

McKinsey & Company. (2018). *Women matter: Ten years of insights on gender diversity.* McKinsey Global Institute. https://www.mckinsey.com

Meurs, M., Gatskova, K., & Baslevent, C. (2021). Gender regime and women's employment in Kazakhstan and Central Asia. *Post-Communist Economies, 33*(7), 905–924. https://doi.org/10.1080/14631377.2020.1832094

Mirziyoyeva, G., & Salahodjaev, R. (2023). Does representation of women in parliament promote economic growth? Evidence from developing countries. *Economic Analysis and Policy, 77,* 634–647. https://doi.org/10.1016/j.eap.2023.01.004

Norris, P., & Krook, M. L. (2011). *Gender equality in elected office: A six-step action plan.* OSCE Office for Democratic Institutions and Human Rights.

OSCE. (2020). *Promoting gender equality in politics: Challenges and opportunities in Central Asia.* Organization for Security and Co-operation in Europe.

Phillips, A. (1995). *The politics of presence.* Oxford University Press.

R Core Team. (2024). *R: A language and environment for statistical computing* (Version 4.4) [Computer software]. https://cran.r-project.org

Roberts, A., Seawright, J., & Cyr, J. (2013). Do electoral laws affect women's representation? *Comparative Political Studies, 46*(12), 1555–1581. https://doi.org/10.1177/0010414012463902

Seol, H. (2024). *snowLatent: Latent class analysis for jamovi* (Version 2.5.1) [jamovi module]. https://github.com/hyunsooseol/snowLatent

The jamovi project. (2024). *jamovi* (Version 2.6) [Computer software]. https://www.jamovi.org

UN Women. (2022). *Gender snapshot 2022: Progress on the Sustainable Development Goals.* United Nations. https://www.unwomen.org

World Bank. (2020). *Women, business and the law 2020.* World Bank Group. https://openknowledge.worldbank.org
World Economic Forum. (2023). *Global gender gap report 2023.* https://www.weforum.org

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Appendix 1

Summary of rescaling variables

Radar Chart 1

	W1	W2	W3	W4	W5	W6
Max	1.000	1.000	1.000	1.00	1.000	1.000
Min	0.000	0.000	0.000	0.00	0.000	0.000
Average	0.471	0.838	0.542	0.35	0.417	0.257
2014	0.000	0.830	0.000	0.50	0.000	1.000
2015	0.060	0.890	0.270	0.50	0.000	0.000
2016	0.350	1.000	0.310	0.00	0.000	0.000
2017	0.450	0.970	0.270	0.00	0.000	0.290
2018	0.390	0.970	0.780	0.00	0.000	0.140
2019	0.720	0.970	1.000	0.00	1.000	0.140
2020	0.850	0.870	0.770	0.50	0.790	0.140
2021	1.000	0.970	0.510	0.50	0.790	0.290
2022	0.720	0.910	0.730	0.50	0.790	0.140
2023	0.170	0.000	0.780	1.00	0.800	0.43

Radar Chart 2

	W1	W2	W3	W4	W5	D1	D2
Max	1.000	1.000	1.000	1.00	1.000	1.000	1.000
Min	0.000	0.000	0.000	0.00	0.000	0.000	0.000
Average	0.471	0.838	0.542	0.35	0.417	0.371	0.375
2014	0.000	0.830	0.000	0.50	0.000	0.000	0.000
2015	0.060	0.890	0.270	0.50	0.000	0.020	0.010
2016	0.350	1.000	0.310	0.00	0.000	0.090	0.090
2017	0.450	0.970	0.270	0.00	0.000	0.190	0.190
2018	0.390	0.970	0.780	0.00	0.000	0.280	0.290
2019	0.720	0.970	1.000	0.00	1.000	0.380	0.390
2020	0.850	0.870	0.770	0.50	0.790	0.390	0.400
2021	1.000	0.970	0.510	0.50	0.790	0.560	0.570
2022	0.720	0.910	0.730	0.50	0.790	0.800	0.810
2023	0.170	0.000	0.780	1.00	0.800	1.000	1.000

Radar Chart 3

	W1	W2	W3	W4	W5
Max	1.000	1.000	1.000	1.00	1.000
Min	0.000	0.000	0.000	0.00	0.000
Average	0.471	0.838	0.542	0.35	0.417
2014	0.000	0.830	0.000	0.50	0.000
2015	0.060	0.890	0.270	0.50	0.000
2016	0.350	1.000	0.310	0.00	0.000
2017	0.450	0.970	0.270	0.00	0.000

Radar Chart 4

	W1	W2	W3	W4	W5	W6	D1	D2
Max	1.000	1.000	1.000	1.00	1.000	1.000	1.000	1.000
Min	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Average	0.471	0.838	0.542	0.35	0.417	0.257	0.371	0.375

2018 0.390 0.970 0.780 0.00 0.000 2019 0.720 0.970 1.000 0.00 1.000 2020 0.850 0.870 0.770 0.50 0.790 2021 1.000 0.970 0.510 0.50 0.790 2022 0.720 0.910 0.730 0.50 0.790 2023 0.170 0.000 0.780 1.00 0.800	2014 0.000 0.830 0.000 0.50 0.000 1.000 0.000 0.000 2015 0.060 0.890 0.270 0.50 0.000 0.000 0.020 0.010 2016 0.350 1.000 0.310 0.00 0.000 0.000 0.090 0.090 2017 0.450 0.970 0.270 0.00 0.000 0.290 0.190 0.190 2018 0.390 0.970 0.780 0.00 0.000 0.140 0.280 0.290 2019 0.720 0.970 1.000 0.00 1.000 0.140 0.380 0.390 2020 0.850 0.870 0.770 0.50 0.790 0.140 0.390 0.400 2021 1.000 0.970 0.510 0.50 0.790 0.290 0.560 0.570 2022 0.720 0.910 0.730 0.50 0.790 0.140 0.800 0.810 2023 0.170 0.000 0.780 1.00 0.800 0.430 1.000 1.000