

RESEARCH ARTICLE

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A Statistical Study of Kazakhstan's Gender Employment Gaps' Stability in 2014-2024

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Abstract

Today in Kazakhstan, there are still imbalances between men and women in the labour market. The purpose of the study is to determine the level and sustainability of gender differences in employment in Kazakhstan based on the analysis of selected factors using the methods of correlation, regression and cluster analysis. The research uses methods of descriptive statistics, correlation analysis, linear regression and K-means clustering. The initial data for the study were obtained from official statistical sources of the Bureau of National Statistics of the Republic of Kazakhstan and include annual employment figures for men and women. Regression analysis ($R^2 < 0.05$, $p > 0.1$) confirmed the absence of statistically significant upward or downward trends, indicating a structural and persistent gender gap. Correlation analysis revealed moderate positive associations between male employment and the share of industry and education in GDP ($r = 0.38-0.43$), while female employment was less correlated with the agricultural sector ($r = 0.28$). Data clusterisation divided the study period into two clusters of years with relatively low and high macroeconomic indicators. The results obtained confirm that gender inequality in employment in Kazakhstan has a structural and institutional nature and does not decrease automatically with economic growth. Future research areas include the development of models for assessing the impact of social norms, family policy, and digitalisation on women's employment.

Keywords: Gender, Gender Employment, Gender Economy, Discrimination, Labour Market, Women's Employment, Career Development

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1. INTRODUCTION

Gender discrimination in the workplace remains one of the most persistent problems in all labour markets around the world. Although overall trends in labour force participation have flattened in most countries, differences between men remain a reflection of entrenched social, economic and institutional structures. In the post-Soviet economies of Kazakhstan and other countries, economic restructuring created new inequalities as well as new opportunities as economic transformation changed the structure of employment in different sectors and at various levels. It is therefore necessary to understand the general trend in women's and men's work so that the trend towards equality can be examined, and what obstacles lie ahead to limit women's participation in the labour market.

Kazakhstan represents a special case in the study of gendered labour patterns. Thanks to sustained economic growth over the last decade and structural investment in industry and education in particular, a gap between men and women in the workplace still exists. According to official statistics, men's employment is higher than women's in all cases, raising significant questions as to why the gap has not narrowed. Although short-term trends may reflect episodic economic shocks, such as the 2015 oil price shock or the 2020 pandemic, it is unclear whether these shocks have affected employment inequality or whether the gender gap is relatively stable in the long term. The persistence of these imbalances suggests that gender discrimination in employment is not simply a consequence of temporary economic difficulties but is supported by the structural and institutional features of the national labour market. Occupational segregation, limited access to high-wage industries, and unequal distribution of household labour continue to impact women's labour force participation. The link between economic growth and social norms also helps to reinforce this asymmetry in the sense that progress in industrial development and education does not directly equalise the

corresponding levels of employment. Thus, an assessment of labour order in Kazakhstan will only be complete when quantitative indicators are included along with the sociocultural determinants that reinforce gendered labour hierarchies.

Moreover, long-term analysis of labour stability through statistical modelling can identify systemic trends that go beyond cyclical trends. Through correlation, regression and cluster analysis, this study places gender inequality in employment within its institutional framework so that even during times of economic recovery or change, labour imbalances are believed to remain stable. This analytical approach highlights the need for targeted interventions at organisational and policy levels, aiming not only to increase women's access to the labour force but also to transform the institutional arrangements that support unbalanced participation. The results thus contribute to the overall conversation about sustainable and equitable economic growth by demonstrating that gender balance in the workforce requires more than a legal framework - it involves a transformation of the distribution of opportunities in the new financial landscape.

The purpose of the study is to identify the nature and sustainability of gender differences in employment in Kazakhstan based on selected factors through the use of correlation, regression and cluster analysis. The study uses descriptive statistics to determine employment levels, correlates employment levels with patterns, and performs regression analysis to analyse long-term trends and stability. Cluster analysis to identify structural groups of years with similar economic and employment characteristics. Using these methods, the study will focus on addressing three key issues: (1) men's performance is never higher than women's, (2) manufacturing performance is sustained and, surprisingly, over the long term, and (3) whether gender differences have changed over the observed decade.

This article contributes to the scholarly literature on labour market inequality by offering a comprehensive statistical analysis of

gendered labour in Kazakhstan, which has been the subject of intense research interest for more than a decade. He constructs gender inequality in temporal and structural terms, explaining that inequality not only continues to exist, but is actually embedded in broader economic forces. The findings have policy implications, suggesting that economic growth alone is insufficient to counteract gender inequality, and concrete measures are needed to achieve equal participation in the labour market.

2. LITERATURE REVIEW

A significant body of evidence addresses gender inequality in labour markets and identifies it with broader economic, institutional and cultural mechanisms. Scientists have debated for decades whether gender differences reflect differences in productivity at the individual level or systemic barriers rooted in social and economic structures. Theoretical and empirical approaches have evolved, from early human capital models to sophisticated institutional and econometric models that identify structural inequalities across space and time.

The intellectual origins of such debates go back to classical human capital theory, developed in the second half of the twentieth century. Becker (1991) and Mincer (1974) viewed education and experience as investments that increase people's productivity levels and argued that differences in wages and employment between women and men reflect, to a large extent, differences in the accumulation of human capital. Later developments of this model, such as extended neoclassical models (Lucas, 1988; Romer, 1990; Mankiw et al., 1992), emphasised the fact that education and skills are the engines of economic growth. However, these models have been criticised for being quantitative in nature, as they tend to underestimate the social and institutional dimensions of gender inequality (Acker, 1990). Researchers have realised that markets themselves can reproduce inequalities if they are based on asymmetric access, cultural

codes and labour segmentation. In the 1990s, attention turned to transition economies as market liberalisation changed employment systems. Ogloblin (1999) proved that the post-Soviet transformation increased occupational segregation, and women took up low-paid and insecure social professions. Coudouel and Marnie (1999) found that women became more likely to work part-time and informally, while men were employed in industrial and technical occupations. Brainerd (2000) demonstrated that market reforms increased gender employment and wage inequality in Eastern Europe and the former Soviet Union, as privatisation disproportionately benefited men. Ashwin (2002) noted that family gender and traditional beliefs continue to limit women's participation in formal employment. Paci (2002) reached the same conclusion, finding a double pattern of inclusion: women's high levels of education are followed by exclusion from managerial and industrial occupations.

By the mid-2000s, the evidence was leaning toward institutional explanations. Reva (2005) noted that even during the years of economic recovery, women in Kazakhstan and other transition countries remained concentrated in low-wage social sectors, while men controlled high-productivity sectors. Heyat (2006) emphasised that gender stereotypes and societal expectations limit women's professional mobility. Reports by the International Labour Organisation (2004) and UNDP (2009) confirm that legal equality is not being respected due to inadequate institutions and poor enforcement. The World Bank (2008) found that women's employment in Kazakhstan declined during structural adjustment, and economic growth alone could not eradicate gender inequality. Taken together, these articles demonstrate that inequality persists because economic and legal reforms have not fundamentally altered deeply ingrained social and institutional values.

The 2010s saw a methodological shift towards econometric and data-driven research. Blau et al. (2017) showed that, despite high-income countries, gender inequality persists due to occupational segregation and unequal

distribution of unpaid domestic labour. Meurs et al. (2021) characterised the Kazakh labour market as a “gender regime” that combines Soviet institutional legacies with market discrimination, resulting in women's monopoly in low-paid social professions such as education and medicine. Qi (2023) used data mining techniques to examine job stability among college graduates and determined that gender plays a huge role in work conditions, with women experiencing longer job search durations and less job stability. Flynn et al. (2024) explained that gender differences in wages and employment arise not only from differences in productivity but also from behavioural asymmetries and employer discrimination. Nurbatsin et al. (2024) showed that occupational segregation is the most significant source of wage inequality in Kazakhstan, and Kuanova et al. (2024) showed that women's employment is more sensitive to macroeconomic shocks, despite improvements in the quality of employment.

At the global level, OECD (2020) reports and comparative analyses highlight that gender inequalities remain deeply structural. Despite increases in educational attainment and formal equality, women's representation in high-productivity occupations lags behind that of men due to persistent institutional and cultural barriers. These results support earlier research by Blau et al. (2000) and further support the view that gender differences are embedded in long-term structural configurations rather than short-term economic fluctuations.

Overall, the literature reviewed in this article shows the same trend over the decades from the 1970s to the 2020s: gender inequality in employment persists despite economic modernisation, educational progress, and policy reform. Neoclassical models provide practical explanations of individual differences, but institutional and structural models are better at explaining the persistence of inequality over time. For Kazakhstan and other countries with economies in transition, gender differences are determined not by fleeting distortions but by sustainable institutional mechanisms. This study builds on

this literature and applies descriptive, correlation, regression and cluster analyses to assess the persistence and determinants of gender inequality in employment in Kazakhstan for 2014-2024.

3. RESEARCH METHODS

Employment stability by gender in Kazakhstan in the period 2014-2024. The data is analysed in this book using a general quantitative approach, including descriptive, correlation, regression, and cluster analysis. In developing the methodology, every effort was made to take into account both the temporal and structural aspects of gender inequality in employment, and to determine whether macroeconomic conditions influence the employment rates of men and women separately or not.

A systematic approach provides methodological consistency to the study and helps move from data preparation to statistical interpretation. As shown in Figure 1, the study uses a consistent methodological sequence with five stages of analysis: data collection, descriptive and trend analysis, correlation analysis, regression and clustering models, and final interpretation.

The evidence is based on annual observations of the sex and age group of men and women of working age (in percentage) and macroeconomic indicators of the sectoral structure of the economy, i.e. the percentage share of agriculture, industry and education in gross domestic product (GDP). These were chosen because they reflect both the structural composition of the national economy and the composition of employment across broad sectors.

Before statistical testing, all variables were checked for consistency, precision, and completeness. Continuous variables were standardised to ensure comparability of scales and to prevent bias in multivariate analyses. Preprocessing ensured consistency of subsequent correlation and clustering operations.

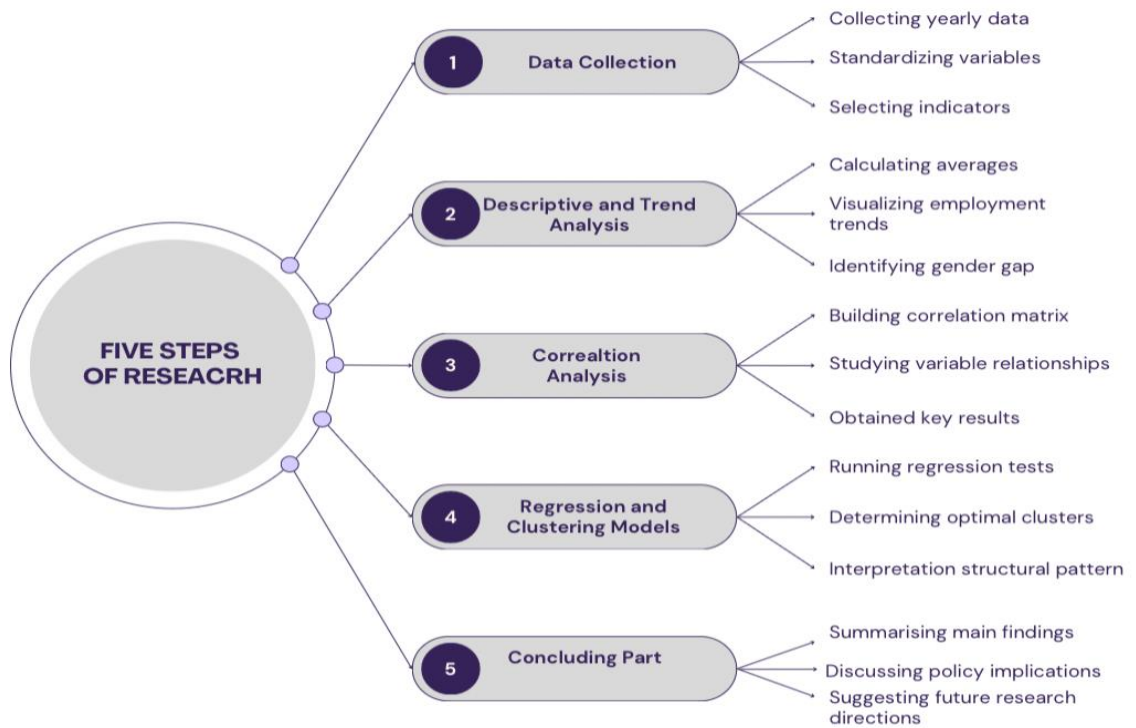


FIGURE 1. The scheme of the sequential steps of research

In this case, the variables were divided into two blocks of concepts: (1) employment indicators by gender, that is, Fem_Empl, Male_Empl, Gender_Gap, which reflect quantitative as well as structural differences in the labor force; and (2) economic structure indicators Agri_GDP, Ind_GDP, Educ_GDP, respectively, which reflect sectoral value added to GDP and reflect changes in employment in the future.

The Gender_Gap variable was defined as

the difference in the employment rates of men and women and was used as the leading indicator of gender inequality in the labour market. The Clusters variable documents structural clusters obtained using K-means clustering, which divided the observation period into two regimes with contrasting macroeconomic conditions and employment status.

Analysis variables, units of measurement, and data sources are listed in Table 1.

TABLE 1. Variables indicating units of measurement and data sources

Code	Variable	Unit of measurement	Data source
Fem_Empl	Employment rate of women	Percentage of total working-age female population	Bureau of National Statistics (2024)
Male_Empl	Employment rate of men	Percentage of total working-age male population	Bureau of National Statistics (2024)
Agri_GDP	Share of agriculture in GDP	Percentage of GDP	Bureau of National Statistics (2024)

Ind_GDP	Share of industry in GDP	Percentage of GDP	Bureau of National Statistics (2024)
Educ_GDP	Share of education in GDP	Percentage of GDP	Bureau of National Statistics (2024)
Gender_Gap	Difference between male and female employment rates	Percentage points	Calculated by authors based on Bureau of National Statistics (2024)
Clusters	Structural grouping by economic and employment indicators	Cluster index (1–2)	Calculated by authors using K-means clustering
Year	Observation year	2014–2024	Bureau of National Statistics (2024)

Note: compiled by the authors based on the Bureau of National Statistics (2024)

Descriptive statistics were used to describe gender patterns of employment over time. Trend analysis was also used to present trends in women's and men's employment over the course of a decade, and to determine whether changes reflected a cyclical or long-term pattern. Correlation analysis was then used to assess the direction and strength of the relationship between employment levels and macroeconomic indicators. The Pearson correlation matrix at the 95% confidence level was used to determine the relationships between female and male employment levels and the sectoral components of GDP - education, industry and agriculture. Separate linear regressions were estimated for male and female employment rates, with Year as the explanatory variable. Slope coefficients close to zero confirmed the absence of statistically

significant upward or downward trends, implying that gender inequality in employment is a structural feature of the Kazakhstan labour market rather than a function of cyclical conditions.

Finally, cluster analysis was used to determine employment and macroeconomic structural patterns. Using the K-means algorithm, the optimal number of clusters was determined using the elbow method, in which the within-cluster sum of squares (WCSS) curve showed a characteristic inflexion point at $k = 2$. As shown in Figure 2, the result indicates two broad structural regimes: years of relatively low employment and weaker macroeconomic performance, and years of higher employment and more substantial contribution to industry and education.

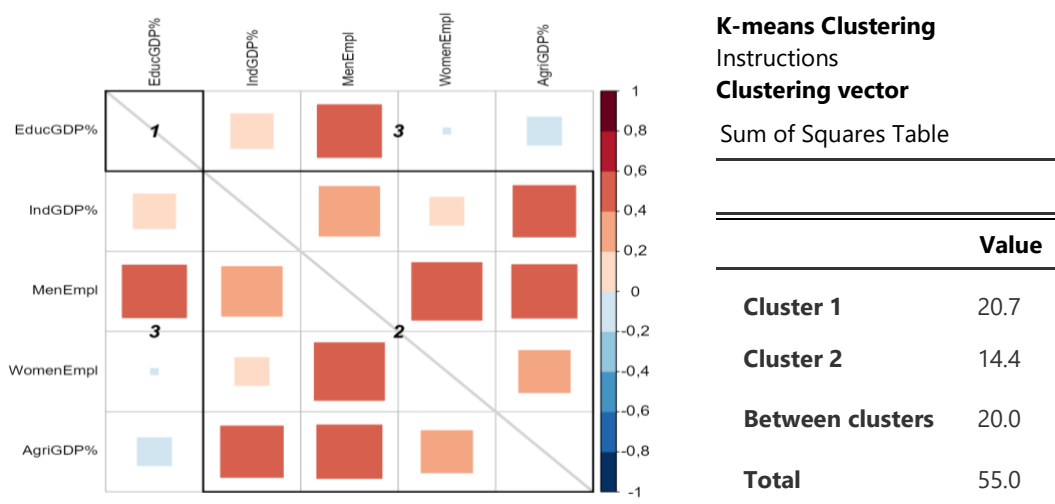


FIGURE 2. Correlation matrix

As shown in Figure 3, the cluster plot graphically illustrates these two modes. Confirmation that the observed differences are not spurious, but systematic, is the identification of clusters. Even within the high-performing cluster, the employment rate of men is still higher than that of women, which confirms the fact that gender discrimination in the labour market of Kazakhstan exists even with and without good and bad periods in the economy.

Overall, this mixed methodological framework, combining descriptive, correlation, regression and cluster analysis, provides a strong basis for studying the temporal stability and structural persistence of gender inequality in the labour market. The results obtained using this approach provide a comprehensive description of how economic modernisation intersects with long-standing institutional and social processes in the labour market of Kazakhstan.

4. RESULTS

To assess the interrelationships between gendered employment rates and the structural composition of Kazakhstan's economy, a correlation analysis was conducted using annual data for 2014–2024. This stage of the study aimed to identify the direction and strength of associations between male and female employment levels and the sectoral shares of agriculture, industry, and education in GDP. Pearson's correlation coefficients were calculated to measure linear relationships among these variables, while 95% confidence intervals and p-values were employed to evaluate the statistical robustness of the results. The correlation matrix summarizing these relationships is presented in Table 2, which provides a comprehensive overview of how employment patterns among men and women are connected to the broader structure of the national economy.

TABLE 2. Correlation analysis

Code	Meaning	FemEmpl	MaleEmpl	AgriGDP	IndGDP	EducGDP
FemEmpl	Pearson's r	-	-	-	-	-
	95% CI Lower	-	-	-	-	-
	95% CI Upper	-	-	-	-	-
	p-value	-	-	-	-	-
MaleEmpl	Pearson's r	0.518	-	-	-	-
	95% CI Lower	-0.119	-	-	-	-
	95% CI Upper	0.853	-	-	-	-
	p-value	1.000	-	-	-	-
AgriGDP	Pearson's r	0.277	0.447	-	-	-
	95% CI Lower	-0.387	-0.209	-	-	-
	95% CI Upper	0.752	0.825	-	-	-
	p-value	1.000	1.000	-	-	-
IndGDP	Pearson's r	0.121	0.384	0.412	-	-
	95% CI Lower	-0.516	-0.280	-0.250	-	-
	95% CI Upper	0.672	0.800	0.811	-	-
	p-value	1.000	1.000	1.000	-	-
EducGDP	Pearson's r	-0.006	0.433	-0.123	0.187	-
	95% CI Lower	-0.604	-0.226	-0.673	-0.465	-
	95% CI Upper	0.596	0.820	0.515	0.708	-
	p-value	1.000	1.000	1.000	1.000	-
* p < .05, ** p < .01, *** p < .001						
Simultaneous multiple correlation comparisons using BY method						

Note: compiled by the authors

The correlation matrix contains a quantitative resume of the level of employment of men and women and structural components of GDP, that is, agriculture, industry and education. Although none of the coefficients were statistically significant within the framework of ordinary standards, the matrix is still helpful in understanding the potential models of the association. The correlation between the employment levels of men and women was moderately positive ($R = 0.518$) over the decade of 2014-2024. An increase in the employment of men, as a rule, tended to coincide with an increase in women's employment. This suggests that both sexes can be susceptible to the same forces, such as long-term growth or recession, although the correlation is not particularly strong.

Although further discussion is considered below when labour is compared with the GDP structure, more differentiated patterns emerge. Male employment had a stronger correlation with the share of the industry GDP ($R = 0.384$) and the cost of education as a share of GDP ($R = 0.433$). This suggests that men's work may be more closely related to industries that require safe, official employment opportunities, such as industry and state education. Women's labour, on the other hand, had a moderate but positive correlation with agriculture ($R = 0.277$), which may reflect more women in seasonal or informal employment on the farm. Although the statistical significance was absent in these associations, the direction of the coefficients suggests significant structural relationships. These results indicate that, although men and women are collectively affected by trends, their individual components of the economy can have a direct impact on their employment status.

Between 2014 and 2024, the regression of men's employment indicates that the level of employment has remained relatively constant over the years. The installed regression line has a minimal slope, indicating that there was no strong long-term trend, either up or down. This suggests that, despite fluctuations in the national economy, including the collapse of world oil prices in 2015 and the onset of the

Covid-19 pandemic in 2020, the overall level of employment among men remained relatively unchanged. Instead, male employment, by the same measure, was recorded at a relatively high level, which is consistent with the continuity of men in labour.

This is important because it implies the stability of men's employment in the face of economic shocks. Although a short-term decrease or increase may occur in some years, the regression analysis clearly indicates that these fluctuations do not result in structural changes. Regarding the hypotheses in the study, the results strongly support Hypothesis 2, which suggests that employment indicators are relatively stable over time. In addition, since the employment of men is always greater than that of women in every observed year, this regression also indirectly confirms hypothesis 1, which emphasises the continuity of gender distinction.

The regression of employment levels between the same years reveals a similar stability pattern, albeit at lower levels over time than is immediately apparent to men. The tilt of the regression line is approximately zero, indicating no significant trend over time. This confirms that the employment of women did not increase or decrease significantly during the period, but remained stable. It should be especially noted that the absolute level of women's employment by several percentage points is lower than that of men in every year, and that this confirms the presence of a constant gender gap.

The constancy of women's employment in the context of structural economic changes suggests that the cyclic nature of the economy does not limit the presence of women in the labour market, but rather by more sustainable institutional and social factors. For example, gender roles, family responsibilities and the employment industry can limit the scale for a significant increase in women's employment coefficients. In 2020, during the COVID-19 pandemic, when it was expected that the care sector would be disproportionately affected by women, there was no observed structural decline in the regression model. This suggests

that the gender gap has deep roots and is less susceptible to short-term fluctuations. This regression confirms hypothesis 1, indicating that men have a higher level of employment

compared to women, and also confirms hypothesis 2, demonstrating stability in women's employment levels during the observation period (Table 3).

TABLE 3. Regression of the gender gap per year

No.	WomenEmpl	MenEmpl	AgriGDP	IndGDP	EducGDP
1	-0.500	-0.518	-0.505	-0.489	-0.159
2	0.875	0.906	0.884	0.856	0.278

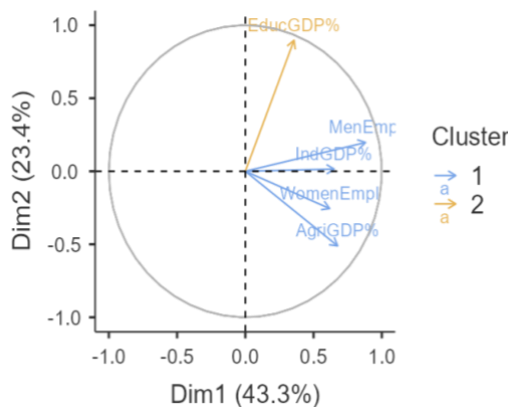
Note: compiled by the authors

The regression analysis of the gender gap in employment, that is, the difference in employment levels between men and women, also explains the persistence of inequality. The regression line indicates that there is no significant inclination, meaning the size of the gap has remained constant during the period from 2014 to 2024. Therefore, the results decisively confirm Hypothesis 3, namely, that the gender gap persists over time with minimal changes.

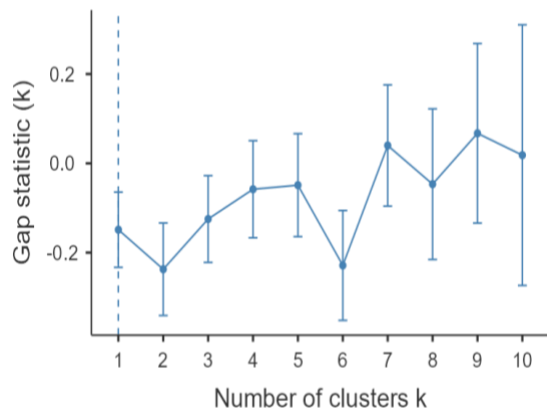
Such stability is especially intriguing, since it suggests that gender discrimination in the labour market is not just a fleeting phenomenon or the result of temporary economic fluctuations. Instead, this, according to the visible, is rather a structural feature of

the Kazakh market. The fact that the gap has persisted for eleven years emphasises the need to consider the inequality of employment as a result of deeply ingrained institutional and social forces, rather than as a temporary episode. It also assumes that, in the absence of direct political intervention, including a policy to expand women's presence in safe employment, the gap is unlikely to be closed in the future. Therefore, the regression results not only confirm the hypotheses but also yield important implications for political discourse.

As shown in Figure 3, clustering by the K-means method allowed us to identify two structural modes of the labour market in Kazakhstan, corresponding to years with low and high employment rates.



Employment clustering and economic indicators



Optimal number of clusters

FIGURE 3. Employment clustering and determination of the optimal number of clusters

A multidimensional addition to the study, analysis of K-medium group clustering groups for two clusters based on standardised values of men's employment, women's employment, and indicators of sector GDP. Cluster 1 is characterised by relatively lower employment and economic indicators, while Cluster 2 is characterised by higher employment levels and improving indicators. This dichotomisation suggests that the employment experiences of women and men are not entirely independent of the broader economic situation. Instead, the improved years of industry performance, especially in industry and education, will be associated with improved employment levels for both men and women.

Closure-centred also distinguishes these differences. Cluster 2 has values higher than the average for both men and women, as well as contributions to agriculture, industry, and education in GDP that exceed the average. Cluster 1 has values below the average for each of the variables. However, what is most important, even within the highly effective cluster, a gender gap in employment remains, assuming that although both groups benefit from any reduction in deficiency, structural inequality is not solved. Thus, the results of clustering confirm regression, showing that the stability of the gender gap is maintained across various economic conditions.

The “elbow method” was applied to determine the optimal number of clusters in the

K-means analysis. As shown in Figure 3, the curve represents the relationship between the number of clusters (k) and the within-cluster sum of squares (WCSS). The curve has an obvious inflexion point at $k = 2$, after which further increases in the number of clusters produce only a slight reduction in intra-cluster variance. This elbow indicates that the two-cluster solution provides the most parsimonious and interpretable model of the data, striking a balance between model simplicity and explanatory power.

The meaning of the opening is twofold. Statistically, this confirms that employment and performance in Kazakhstan between 2014 and 2024 will naturally cluster into two structurally coherent categories. Significantly, this suggests the existence of two distinct regimes for work during the observed period: one characterised by relatively lower employment rates and sectoral contribution to GDP, and another with higher economic performance and employment for both men and women. This structural dichotomy supports the assumption that the labour market in Kazakhstan is undergoing alternating phases of comparative economic strength and weakness, but without a significant change in gender employment deficits.

Furthermore, the two-dimensional K-means cluster plot in Figure 4 provides a visual representation of the differences between the identified groups.

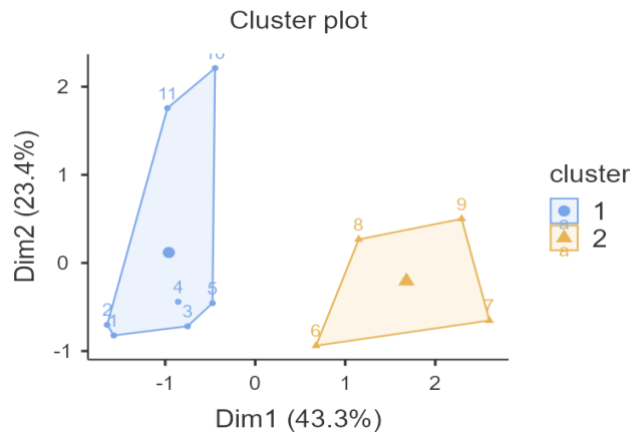


FIGURE 4. Cluster plot

The points on the graph represent separate annual observations from 2014 to 2024, displayed on standardised employment of men and women and related indicators (share of agriculture, industry, and education in GDP).

The visual separation between cluster 1 and cluster 2 is significant, which confirms the significance of the classification detected at the elbow point. Cluster 1 identifies years with low employment for both sexes and weaker indicators, particularly in the industry and education sectors. Cluster 2 identifies the years with better employment and increased sectoral contributions to GDP, reflecting periods of higher aggregate economic activity.

However, the most significant fact is that the gender gap in employment persists within each cluster. Even within a highly effective cluster, the level of employment of men consistently exceeds that of women, confirming the study's assertion that structural gender inequality in Kazakhstan's labour market is stable and resilient to fluctuations. Thus, the cluster schedule not only verifies the quantitative result of the regression and correlation analysis, but also graphically confirms that gender differences are inalienable characteristics of both economic regimes, rather than cyclic or short-term phenomena.

5. DISCUSSION

The findings of this study confirm gender-based labour discrimination in Kazakhstan as widespread and endemic to the country's labour market. During the observed period (2014–2024), men's employment rates consistently exceeded those of women, and the gap remained statistically stable even after accounting for the impact of fluctuations in conditions. Regression analysis revealed that the employment levels of men and women did not exhibit severe growth or decline trends, indicating that gender differences are structurally persistent and not cyclic or ephemeral. The persistence of inequality across booms, busts, and recessions illustrates

that cumulative shocks such as the 2015 oil price crisis and the 2020 COVID-19 pandemic did not significantly alter employment gender outcomes.

Correlation analysis provided further evidence of structural differentiation in the labour market in Kazakhstan. Men's employment indicated a stronger relationship with the industrial and educational sectors, and women's employment was weakly correlated with agriculture. This trend is consistent with the long-term occupational segregation that Nurbatsin and Kurmasheva (2024) and Meurs et al. Although the correlation coefficients were not found to be statistically significant, the direction of the trend suggests that growth alone has not led to more balanced gender employment opportunities. The cluster analysis also confirmed these conclusions. Of course, the data fell into two structural clusters: one is associated with weaker indicators and employment, and the other is associated with improving economic indicators and employment over the years. Despite these differences, gender differences have been preserved in both samples and confirm the statement that structural inequality is not related to the general economic level. This is consistent with the statement by Kuanova and Anissa (2024), who noted that the nature of employment for women has not increased in proportion, as there are persistent institutional and cultural barriers.

In combination with international data, these results confirm the work of Flynn, Todd, and Zhang (2024), which demonstrated that the institutional and behavioural asymmetry of influences, and not differences in performance, are responsible for most of the documented gender gap in remuneration in the labour market. Similarly, Qi (2023) demonstrated that even among new participants in the labour force, women face a more prolonged job search and fewer stable employment opportunities, illustrating how inequality is reproduced from the outset of their working lives. The preservation of such inequality in Kazakhstan confirms the characteristics of the Merus and

others. (2021) of the “gender regime” of the country, which involves official equality, supplemented by unofficial norms and professional stratification that limits the mobility of women. Thus, the statistical and theoretical data presented here demonstrate that gender inequality in Kazakhstan's labour market is a structural phenomenon, rather than a short-term deviation. Male workers and women face the same conditions, but structural, institutional, and socio-cultural imperatives consistently favour market outcomes for men. The stability of these trends across all economic cycles and sectors suggests that political measures aimed at either aggregate growth or education alone are insufficient to eliminate gender inequality.

6. CONCLUSION

This study provides compelling statistical and conceptual evidence that gender disparities in employment in Kazakhstan are not cyclical and short-term, but are deeply rooted in the structural environment of the national labour market. The decade from 2014 to 2024 shows that the gender employment gap is remarkably resilient, refusing to close significantly in the face of sustained economic growth, educational progress and institutional change. Both regression and clustering results show that while aggregate job levels fluctuate with overall economic performance, the relative position of women and men in the labour force does not change significantly. This persistence means that the mechanisms by which inequality is reproduced are not limited to short-term adjustments in production or policy, but are built into the very structure of the organisation of work, the distribution of opportunities and social expectations regarding gender roles.

The results show that men remain overrepresented in formal and stable sectors such as industry and education. In contrast, women remain disproportionately employed in the agricultural and informal sectors, too often in seasonal, insecure or unpaid work. This structural segmentation of the labour force not

only limits women's access to income security and social protection but also reproduces the gendered division of economic power and decision-making. The lack of statistically significant correlations between female employment and key structural indicators also provides further support for the interpretation that female labour supply in Kazakhstan is determined less by changes in industry efficiency and more by institutional and cultural barriers to women's occupational mobility.

Equally important is the fact that even in years of economic stability or sectoral expansion, the gender gap in employment has not been eliminated. Cluster analysis revealed two different regimes of national labour productivity—periods of relative stagnation and periods of increased activity—but in both of them, men consistently held a larger share of employment. This stability across different economic conditions shows that employment inequality is self-perpetuating: when the economy accelerates, the benefits accrue disproportionately to men; when it slows down, women remain more vulnerable to isolation and informality. Inequality dynamics thus resist conventional policy measures of aggregate growth or isolated human capital formation.

These findings contribute to a growing body of international evidence that highlights the fact that the prevalence of gender inequality cannot be explained by individual productivity or education alone. Instead, it is the result of a complex interplay of institutional inertia, historical legacies, and long-term cultural structures that continue to allocate differentiated social and occupational roles between men and women. Kazakhstan combines the Soviet legacy of formal equality with a market structure that encourages competitiveness and sectoral specialisation—areas traditionally associated with male labour. Consequently, women, even though they are well educated and included in the labour force, remain concentrated in industries with low productivity and low levels of progress,

perpetuating the duality between formal inclusion and absolute exclusion.

The policy implications of these results are profound. Economic development and investment in education, although necessary, have been insufficient to achieve gender equality in the labour market. Closing this gap requires multipronged policies—strengthening legal enforcement of equal opportunity, promoting inclusive industrial policies that prioritise women's entry into more profitable industries, and reforming social protection systems to account for unpaid care work. Specific support for women's entrepreneurship, training in technological skills, and flexible work hours can also mitigate the institutional barriers that persist in the traditional division of labour.

Overall, a statistical comparison over a decade confirms that gender inequality in the Kazakh labour market is a long-term structural feature rather than a temporary imbalance. Regardless of fluctuations in growth rates, productivity and industrial structure, the hierarchy of employment opportunities for women and men is fixed and persistent. This problem can be addressed not only through economic and institutional policies, but also through restructuring the social and cultural meanings of gender roles in work and family life. Without such profound changes, the numerical equality promised by modernisation will be superficial, and the underlying structure of inequality will remain intact

AUTHOR CONTRIBUTION

Writing – original draft: Ayaulym Baitekova, Valeriy Kim.

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