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DETERMINANTS AND STRATEGIC DIRECTIONS FOR ENHANCING WOMEN'S ACCESS TO QUALITY EMPLOYMENT IN KAZAKHSTAN

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Abstract. The article examines the factors that determine women's access to quality employment in the Republic of Kazakhstan and substantiates strategic directions to reduce gender disparities in the labour market. The empirical basis of the study is data from a sample survey of population employment. The total volume of the analysed sample was 6,000 observations. To assess the determinants of quality employment, logit and linear regression models were applied, and a comprehensive employment quality index was developed that accounted for the nature of employment, working hours, the formality of labour relations, the presence of social protection, and wage levels. The study results showed that the share of quality employment among women is 40.7%, and among men, 45.3%, corresponding to a gender gap of 4.6 percentage points. The average value of the comprehensive employment quality index for women is 2.2 points lower than for men. Econometric estimates indicate that the statistically significant negative effect of being female persists even after controlling for educational, demographic, and structural characteristics. Education and accumulated work experience positively affect the quality of employment, whereas the presence of minor

children is associated with a reduced likelihood of access to high-quality jobs. Special attention is paid to the regional and sectoral differentiation of women's employment. Based on the results obtained, strategic directions are proposed, including developing gender-neutral personnel practices, expanding opportunities for women's professional and digital training, improving childcare infrastructure, applying differentiated regional measures to promote employment, and further developing women's entrepreneurship.

Keywords: quality employment, gender equality, women's employment, labour market, human capital, social protection, digital competencies

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ҚАЗАҚСТАНДА ӘЙЕЛДЕРДІҢ САПАЛЫ ЖҰМЫСПЕН ҚАМТЫЛУЫНА ҚОЛЖЕТІМДІЛІКТІ КЕҢЕЙТУДІҢ ДЕТЕРМИНАНТТАРЫ МЕН СТРАТЕГИЯЛЫҚ БАҒЫТТАРЫ

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Аннотация. Мақалада әйелдердің Қазақстан Республикасында сапалы жұмыспен қамтуға қол жеткізуін айқындайтын факторлар зерттелді және еңбек нарығындағы гендерлік теңсіздіктерді қысқартудың стратегиялық бағыттары негізделді. Зерттеудің эмпирикалық негізі халықтың жұмыспен қамтылуын іріктеп зерттеу деректері болды. Талданған үлгінің жалпы көлемі 6000 бақылауды құрады. Сапалы жұмыспен қамтудың детерминанттарын бағалау үшін логит және сызықтық регрессиялық модельдер қолданылды,

сондай-ақ Жұмыспен қамтудың сипатын, жұмыс уақытының ұзақтығын, еңбек қатынастарының формальдылығын, әлеуметтік қорғаудың болуын және еңбекақы төлеу деңгейін ескеретін жұмыспен қамту сапасының кешенді индексі қалыптастырылды. Зерттеу нәтижелері әйелдер арасында сапалы жұмыспен қамтылғандардың үлесі 40,7%, ал ерлер арасында 45,3% екенін көрсетті, бұл 4,6 пайыздық тармақтағы гендерлік алшақтыққа сәйкес келеді. Әйелдердің жұмыспен қамту сапасының кешенді индексінің орташа мәні ерлерге қарағанда 2,3 баллға төмен. Эконометрикалық бағалау білім беру, демографиялық және құрылымдық сипаттамаларды ескергеннен кейін әйел жынысының статистикалық маңызды теріс әсерінің сақталуын көрсетеді. Жұмыспен қамту сапасына білім мен жинақталған еңбек тәжірибесі оң әсер етеді, ал кәметке толмаған балалардың болуы сапалы жұмыс орындарына қол жеткізу ықтималдығының төмендеуімен байланысты. Әйелдердің жұмыспен қамтылуын өңірлік және салалық саралауға ерекше назар аударылды. Алынған нәтижелер негізінде гендерлік бейтарап Кадрлық практиканы дамытуды, әйелдерді кәсіби және цифрлық даярлау мүмкіндіктерін кеңейтуді, бала күтімі инфрақұрылымын жетілдіруді, жұмыспен қамтуға жәрдемдесудің сараланған өңірлік шараларын қолдануды және әйелдер кәсіпкерлігін одан әрі дамытуды көздейтін стратегиялық бағыттар ұсынылды.

Түйін сөздер: сапалы жұмыспен қамту, гендерлік теңдік, әйелдердің жұмыспен қамтылуы, еңбек нарығы, адами капитал, әлеуметтік қорғау, цифрлық құзыреттер

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ДЕТЕРМИНАНТЫ И СТРАТЕГИЧЕСКИЕ НАПРАВЛЕНИЯ РАСШИРЕНИЯ ДОСТУПА ЖЕНЩИН К КАЧЕСТВЕННОЙ ЗАНЯТОСТИ В КАЗАХСТАНЕ

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Аннотация. В статье исследованы факторы, определяющие доступ женщин к качественной занятости в Республике Казахстан, и обоснованы стратегические направления сокращения гендерных диспропорций на рынке труда. Эмпирической основой исследования послужили данные выборочного обследования занятости населения. Общий объём анализируемой выборки составил 6 000 наблюдений. Для оценки детерминант качественной занятости применены логит- и линейные регрессионные модели, а также сформирован комплексный индекс качества занятости, учитывающий характер занятости, продолжительность рабочего времени, формальность трудовых отношений, наличие социальной защиты и уровень оплаты труда. Результаты исследования показали, что доля качественно занятых среди женщин составляет 40,7 %, тогда как среди мужчин - 45,3 %, что соответствует гендерному разрыву в 4,6 процентного пункта. Среднее значение комплексного индекса качества занятости у женщин на 2,3 балла ниже, чем у мужчин. Эконометрические оценки свидетельствуют о сохранении статистически значимого отрицательного эффекта женского пола после учёта образовательных, демографических и структурных характеристик. Положительное влияние на качество занятости оказывают образование и накопленный трудовой опыт, тогда как наличие несовершеннолетних детей связано со снижением вероятности доступа к качественным рабочим местам. Отдельное внимание уделено региональной и отраслевой дифференциации женской занятости. На основании полученных результатов предложены стратегические направления, предусматривающие развитие гендерно нейтральных кадровых практик, расширение возможностей профессиональной и цифровой подготовки женщин, совершенствование инфраструктуры ухода за детьми, применение дифференцированных региональных мер содействия занятости и дальнейшее развитие женского предпринимательства.

Ключевые слова: качественная занятость, гендерное равенство, женская занятость, рынок труда, человеческий капитал, социальная защита, цифровые компетенции

Introduction: The modern development of Kazakhstan's labour market is accompanied by changes in the requirements for the quality of human capital, the spread of digital technologies, and the transformation of traditional employment models. Under these conditions, not only is the quantitative expansion of employment of particular importance, but there is also a need to ensure that various social groups have access to jobs characterised by stability, decent wages, social protection, and opportunities for professional development. In international research practice, this approach aligns with the concept of decent work and the multidimensional assessment of employment quality (Bescond et al., 2003; ILO, 2023).

The issue of employment quality becomes particularly relevant when applied

to women. Despite their high level of participation in economic activity and significant educational potential, equality in formal employment indicators does not yet guarantee equal access to stable, socially protected, and well-paid jobs. Studies on gender inequality show that differences in labour outcomes persist even with comparable human capital characteristics and are due to a combination of educational, professional, institutional, and family-demographic factors (Blau, Kahn, 2017).

In Kazakhstan, this problem has a distinct socio-economic specificity. According to the Bureau of National Statistics of the Republic of Kazakhstan, the number of employed women exceeds 4.5 million people, with a significant portion of them being wage workers. At the same time, differences between men and women persist in terms of unemployment rates, the sectoral structure of employment, and working conditions (Bureau of National Statistics of the Republic of Kazakhstan, 2025). The high concentration of women in education, healthcare, trade, and other service-sector occupations indicates the persistence of horizontal gender segregation in the labour market (National Statistics Bureau of the Republic of Kazakhstan, 2022).

The theoretical explanation of such differences is traditionally linked to several areas of economic research. Human capital theory considers education, professional training, and accumulated work experience as the main factors determining an employee's productivity and their position in the labour market (Becker, 1964; Mincer, 1974). At the same time, studies on occupational segregation show that the distribution of men and women across professions and industries depends not only on individual characteristics but also on persistent institutional and social mechanisms, including the specifics of occupational choice, family responsibilities, and established gendered employment patterns (Polachek, 1981; Reskin and Roos, 1990). The problem is exacerbated by the fact that women's high economic activity alone does not indicate gender equality. The characteristics of the jobs available to them are of significant importance: the formality of employment relations, the length of working hours, social security, wages, and employment stability. Therefore, an analysis of women's position in the labour market requires moving from assessing the mere fact of employment to studying its qualitative characteristics.

Recent studies have additionally focused on the impact of digital transformation on gender differences in the labour market. The spread of digital technologies and platform-based employment creates new opportunities for professional mobility, but at the same time it increases the requirements for digital competencies and may create new mechanisms for segmenting workers (Dong et al., 2024; Stenzhorn, 2025). In this regard, women's access to digital skills and technology-oriented professions is becoming a key area of modern policy aimed at expanding women's economic opportunities (UN Women, 2024).

For Kazakhstan, issues of gender inequality in the labour market are primarily

addressed through differences in wages, the sectoral and regional structure of employment, and men's and women's access to certain types of economic activity (Kenzheali et al., 2024; Bureau of National Statistics of the Republic of Kazakhstan, 2022). Significant analytical material is also presented in studies by international organisations devoted to expanding women's economic opportunities, human development, and ensuring gender equality (UN Women, 2024; UNDP, 2023).

At the same time, a considerable portion of existing research focuses on individual indicators-employment, unemployment, wages, or the professional and sectoral structure. The issue of comprehensively assessing the quality of women's employment, which involves simultaneously considering multiple workplace characteristics, remains underexplored. The influence of the combination of educational, demographic, regional, and sectoral factors on the likelihood that women access quality employment has not been sufficiently studied.

Thus, the scientific problem of the study lies in the need to move from assessing the extent of women's participation in the workforce to comprehensively measuring the quality characteristics of their employment and identifying the factors that facilitate or hinder access to quality jobs.

The study aims to identify the main determinants of women's access to quality employment in the Republic of Kazakhstan and, on this basis, to substantiate strategic directions for expanding it.

To achieve the goal, the following tasks have been identified:

1. to systematise theoretical approaches to the study of quality employment in the context of gender economics;
2. to develop methodological tools for the quantitative assessment of the quality of employment and to determine the scale of gender differences;
3. to identify the impact of educational, demographic, regional, and sectoral factors on the likelihood of quality employment;
4. to assess gender differences in the integral characteristics of the quality of employment;
5. to substantiate strategic directions for expanding women's access to quality jobs.

The object of the study is the employment of the population of the Republic of Kazakhstan.

The study examines the economic, socio-demographic, and structural factors that determine women's access to quality employment, as well as the strategic directions for expanding that access.

The methodological basis of the study was based on the provisions of the theory of human capital (Becker, 1964; Mincer, 1974), the concepts of occupational and sectoral segregation (Polachek, 1981; Reskin, Roos, 1990), as well as modern approaches to multidimensional assessment of decent work and quality of employment (Bescond et al., 2003; ILO, 2023).

The scientific novelty of the study lies in a comprehensive assessment of gender

differences in employment quality using an integral index and an econometric analysis of factors that determine the likelihood of access to high-quality jobs. Unlike approaches that are limited to comparing the employment levels or wages of men and women, the proposed approach considers the quality of employment as the cumulative result of labour relations, working hours, employment formality, social security, and remuneration.

The practical significance of the study lies in the potential to use the results obtained to improve state employment policy, develop regional programs to promote women's employment, develop mechanisms for professional training and retraining, and formulate measures to reduce gender disparities in access to quality jobs.

Literature review. The issue of employment quality has developed at the intersection of research on the labour market, human capital, social protection, and decent work. In international practice, the most common conceptual foundation is the International Labour Organisation's approach, in which decent employment is understood as a combination of productive labour activity, an acceptable level of income, social protection, respect for labour rights, and opportunities for professional development (ILO, 2023). This approach предполагает отказ from assessing employment solely through the presence of a job and a shift in focus to the qualitative characteristics of labour activity.

One of the first attempts at the quantitative operationalisation of decent work was the indicator system proposed by D. Bescond, A. Châtaignier, and F. Mehran. The authors demonstrated that the quality of employment should be assessed using a set of indicators reflecting wage levels, working hours, labour market stability, social protection, and working conditions (Bescond et al., 2003). This approach served as the basis for the subsequent development of multidimensional indices of employment quality, which are used in comparative studies of labour markets.

The theory of human capital is of significant importance for analysing gender differences. According to G. Becker and J. Mincer, an employee's position in the labour market is determined by accumulated investments in education, professional training, and work experience (Becker, 1964; Mincer, 1974). From this perspective, a higher level of education should contribute to increased labour productivity, higher wages, and access to better jobs. However, empirical studies show that for women, the benefits of human capital do not always translate into labour outcomes comparable to those of men.

Blau and Kahn note that gender differences in wages and professional outcomes cannot be explained solely by differences in education and experience. Occupational segregation, family responsibilities, differences in employment duration, and the institutional characteristics of the labour market play significant roles (Blau and Kahn, 2017). This suggests that an assessment of gender inequality should take into account not only the individual characteristics of workers but also the structural features of the jobs available to them.

The theory of occupational segregation provides an additional explanation for gender differences. Polachek links the distribution of men and women across professions to differences in the expected duration of a working career and the likelihood of employment interruptions (Polachek, 1981). Reskin and Roos, in turn, show that occupational distribution is shaped by institutional barriers, gender stereotypes, and differences in access to specific occupational segments (Reskin and Roos, 1990). For Kazakhstan, the problem of occupational and sectoral segregation is pronounced. According to data from the Bureau of National Statistics of the Republic of Kazakhstan, women are significantly represented in education, healthcare, trade, and several other service sector activities. At the same time, their share is substantially lower in construction, the extractive industry, transport, and some technical activities (Bureau of National Statistics of the Republic of Kazakhstan, 2022). This concentration may affect wages, job stability, career mobility, and access to social guarantees.

In domestic literature, considerable attention is paid to the gender pay gap. The study by Kenzheali et al. examines regional and sectoral differences in earnings between men and women in Kazakhstan. It demonstrates the persistence of gender differentiation despite women's high educational potential (Kenzheali et al., 2024). However, wages are only one element of employment quality and do not fully reflect the nature of labour relations, social security, and job stability.

New research questions concern the digital transformation of the labour market. The spread of platform employment, remote work, automation, and digital technologies is changing the requirements for workers' competencies and creating new segments of employment. Studies show that digitalisation can simultaneously expand opportunities for flexible employment and reinforce existing gender differences in access to high-paying technology professions (Dong et al., 2024; Stenzhorn, 2025). An important factor is the presence of digital competencies and professional training in the fields of natural sciences, technology, engineering, and mathematics. At the same time, the impact of these characteristics on the quality of employment depends on the economy's sectoral structure, education, professional experience, and the worker's overall position in the labour market. Therefore, it is advisable to consider digital skills and STEM competencies not as isolated factors, but as part of a broader set of characteristics of human capital and professional specialisation.

International studies also emphasise the importance of family and demographic factors. The uneven distribution of childcare responsibilities can limit women's professional mobility, reduce their opportunities for continuous employment, and create what is known as the "motherhood penalty."

Materials and methods. The empirical basis of the study consisted of data from a population employment survey, official statistical materials from the Bureau of National Statistics of the Republic of Kazakhstan, and administrative data from the Ministry of Labour and Social Protection of the Population of the Republic of

Kazakhstan. The analytical sample includes 6,000 observations from working-age respondents. The study included men and women living in various regions of the country and engaged in the main economic activities.

For each respondent, a set of socio-demographic and labour characteristics was used, including gender, age, education, work experience, marital status, the presence and number of children, place of residence, sector of employment, availability of digital skills, and affiliation with STEM fields of study. The main sources of macroeconomic and structural information were the official publications of the Bureau of National Statistics of the Republic of Kazakhstan on the labour market and gender statistics (Bureau of National Statistics of the Republic of Kazakhstan, 2022; Bureau of National Statistics of the Republic of Kazakhstan, 2025).

To quantify employment quality, a comprehensive employment quality index (CIC) has been developed. Its construction is based on a multidimensional approach to assessing decent work and takes into account the provisions presented in the International Labour Organisation's research and in the system of indicators of decent employment (Bescond et al., 2003; ILO, 2023).

Component	Weight, %	Measurement method:
Wage employment	20	1 — employee; 0 — other form of employment
Full-time work	20	1 — full-time employment; 0 — part-time employment
Formal sector	25	1 — formal employment; 0 — informal employment
Social protection	20	1 — mandatory pension contributions; 0 — absence
Decent wages	15	1 — salary above the median level; 0 — below or equal to the median level

The composite index is calculated as a weighted sum of five binary components:

$$KIKZ_i = 20E_i + 20F_i + 25S_i + 20P_i + 15W_i$$

where:

E_i - status of wage employment;

F_i - full-time employment;

S_i - belonging to the formal sector;

P_i - presence of social protection;

W_i - level of wages relative to the median value.

The index takes values from 0 to 100 points. Within the framework of the study, employment is classified as qualitative if the value is:

$$KIKZ_i \geq 80$$

The 80-point threshold enables the identification of workers who simultaneously exhibit a high level of compliance with most of the index's criteria.

It is important to note that the index is an author's analytical tool and does

not claim to replace the International Labour Organisation's official decent work indicators. Its purpose is to provide a comparative assessment of the situation of men and women in the sample.

Econometric strategy

To identify the factors determining access to decent employment, two complementary econometric models were used.

The first model estimates the probability that a respondent belongs to the group of well-employed respondents. Since the dependent variable takes two values, a binary logit regression is used:

$$\ln \left[\frac{P(Q_i = 1)}{(1 - P(Q_i = 1))} \right] = \beta_0 + \beta_1 Female_i + \sum \beta_j X_{ji} + \varepsilon_i,$$

where:

Q_i is a binary indicator of quality employment, taking the value 1 if $KIKZ_i \geq 80$ and 0 in all other cases;

$Female_i$ is a dummy gender variable, taking the value 1 for women and 0 for men;

X_{ji} is a set of control variables;

β_0 is a constant;

β_1, β_j are estimated coefficients;

ε_i is a random error.

The set of explanatory variables includes the level of education, work experience, place of residence, marital status, the presence and number of children, STEM training, digital skills, and industry effects.

The second model is used to assess the factors associated with changes in the continuous value of the comprehensive employment quality index:

$$KIKZ_i = \gamma_0 + \gamma_1 Female_i + \sum \gamma_j X_{ji} + \mu_i$$

where $(KIKZ_i)$ represents the value of the employment quality index for a specific respondent, and the other designations correspond to the logic of the first model.

where γ_0 is a constant; γ_1 and γ_j are estimated coefficients; μ_i is a random error. The second specification was estimated using the least squares method. To improve the stability of statistical inferences, heteroskedasticity-robust standard errors (HC3) were used to interpret the coefficients. When interpreting the results of a logit model, the coefficients indicate the direction and statistical significance of the influence of the corresponding factors on the logarithm of the odds ratio for quality employment. Therefore, the coefficients of the logit regression are not directly interpreted as percentage-point changes in probability.

To accurately assess the change in the probability of quality employment, it is necessary to calculate the marginal effects:

$$AME_j = \left(\frac{1}{n}\right) \Sigma \left[\frac{\partial P(Q_i = 1)}{\partial X_{ji}} \right]$$

If marginal effects are not calculated separately, conclusions are formulated in terms of increases or decreases in the likelihood of quality employment without converting the coefficients into percentage points.

The coefficients of the linear model are interpreted as the change in CIKZ per unit change in the corresponding explanatory variable, all else equal.

Statistical significance test

The statistical significance of the coefficients is assessed at the 1%, 5%, and 10% levels. The tables use the following notations:

*** - ($p < 0.01$);

** - ($p < 0.05$);

* - ($p < 0.10$).

When interpreting the results, the main focus is not only on the sign of the coefficients but also on the level of their statistical significance. Variables that do not reach the standard levels of statistical significance are not considered confirmed independent determinants of employment quality.

This approach is particularly important when applied to variables related to STEM education and digital skills: their substantive significance for the structure of the modern labour market may be high, but the conclusion about their independent statistical impact should be based directly on the estimated model's results.

Results. The calculation results show persistent gender differences in employment quality. According to the 2025 results, the share of respondents who met the established criterion for quality employment in the overall sample was 43.0%. Among men, this figure reached 45.3%, while among women it was 40.7%. Thus, the gender gap amounted to 4.6 percentage points.

Differences were also identified in the average value of the comprehensive employment quality index. For men, the KIQW averaged 65.6 points, while for women it was 63.3 points, a gap of 2.3 points. The results indicate that the differences between men and women manifest not only in the likelihood of falling into the category of quality-employed individuals but also in the overall characteristics of employment.

Table 1 – Components of employment quality by gender, %

Component	Men	Women	Women Gap, pp.
Wage employment	63,4	61,3	2,1
Full-time work	72,5	72,5	0,0
Formal sector	57,7	54,2	3,5
Social protection	69,6	67,3	2,3
Decent wages	68,7	64,8	3,9

Source: compiled by the authors based on the results of the study.

As shown in Table 1, the most pronounced gender differences are observed in components related to remuneration levels and employment formality. The share of women earning above the median is 3.9 percentage points lower than that for men. The gap in terms of belonging to the formal sector is 3.5 percentage points, and in terms of the presence of social protection, 2.3 percentage points.

There are no differences between men and women in terms of full employment: both groups have a value of 72.5%. This means that the identified gender gap is not so much related to the length of working hours as to the quality characteristics of the workplace itself - the formality of employment relations, the level of pay, and social protection.

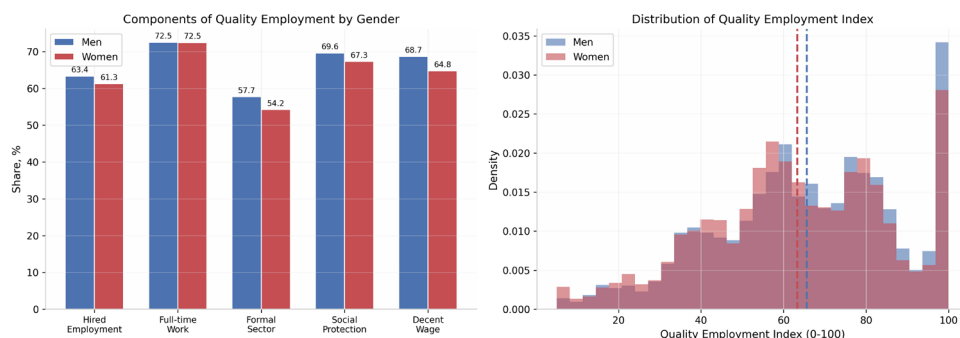


Figure 1 – Components of employment quality and distribution of the KIKZ by gender

The calculations show significant territorial heterogeneity in employment quality. The value of the quality employment indicator ranges from 33.3 % in the Turkestan Region to 48.6 % in the city of Almaty. Thus, the difference between the minimum and maximum regional values exceeds 15 percentage points.

In 11 of 17 regions analysed, the share of men with quality employment exceeds that of women. At the same time, in six regions - the cities of Almaty and Astana, and the Karaganda, West Kazakhstan, Aktobe, and Kyzylorda regions - women's indicators turn out to be higher. The resulting regional differentiation indicates that gender differences in employment quality are not uniform and depend on the structure of the regional labour market. In regions with a higher concentration of formal employment in the education, healthcare, finance, and public sectors, the situation of women may be relatively favourable. In contrast, in regions with a high share of informal and low-productivity employment, gender differences intensify.

At the same time, this explanation should be considered an analytical interpretation of the identified differences, since a rigorous verification of the impact of the regional sectoral structure requires separate modelling of regional effects.

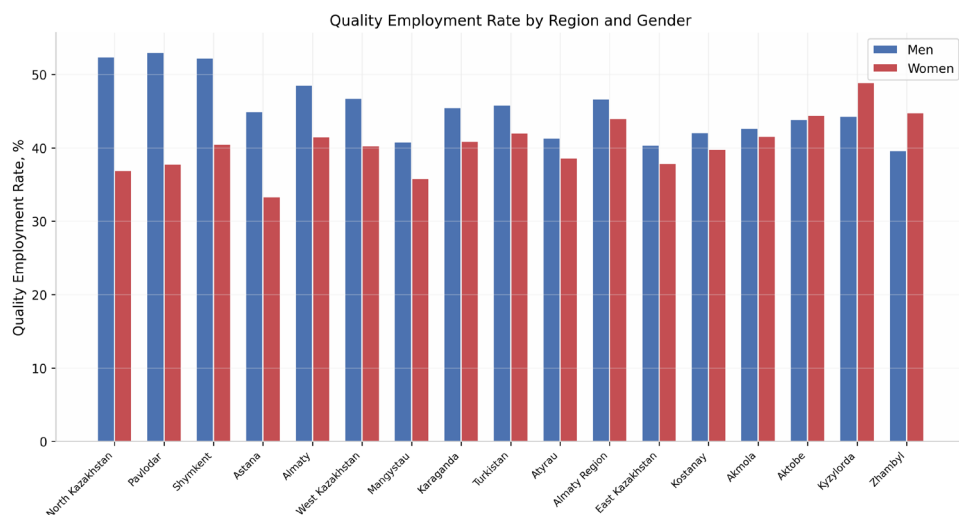


Figure 2 – The level of quality employment by region and gender.

Sectoral differentiation of the quality of employment. Significant differences have also been identified between types of economic activity. The highest levels of quality employment were recorded in the fields of information and communication technologies (48.6%), financial activities (46.9%), and industry (46.3%). The lowest values are observed in the hotel and restaurant business – 35.2%, real estate transactions – 37.3%, and trade – 39.4%.

The data obtained confirm the significance of sectoral affiliation for the quality of employment. Sectors with a higher degree of formalisation of labour relations, greater productivity, and relatively high wages show better employment quality indicators. Conversely, industries with a high share of low-paying, service-oriented, and less stable employment are characterised by lower index values.

Since women in Kazakhstan are largely concentrated in certain segments of the service sector, sectoral distribution may be one channel through which gender differences in the quality of employment emerge. This conclusion aligns with the principles of the theory of occupational and sectoral segregation, which holds that the uneven distribution of men and women across professions and types of economic activity can sustain persistent differences in labour outcomes (Polachek, 1981; Reskin, Roos, 1990).

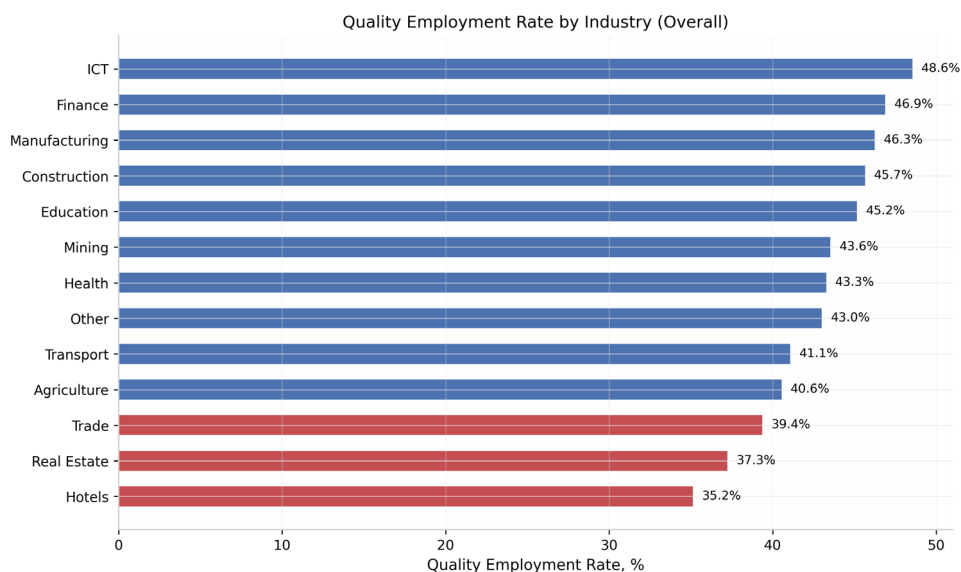


Figure 3 – Level of quality employment by type of economic activity

To assess the factors associated with the probability of quality employment, two specifications of a binary logit model were constructed. Model 1 includes basic socio-demographic characteristics, while Model 2 additionally accounts for STEM training, digital skills, and sectoral effects.

Table 2 – Logit regression results
Dependent variable: presence of quality employment

Variable	Model 1	Model 2
Woman	−0,1922***	−0,1914***
Education, years	0,0891***	0,0886***
Experience, years	0,0325***	0,0321***
Urban residence	0,0319	0,0272
Married	0,0103	0,0069
Presence of children	−0,1095*	−0,1106*
Number of children	−0,0140	−0,0175
STEM training	-	0,0452
Digital skills	-	−0,0360
Industry effects	No	Yes
N	6 000	6 000
Pseudo R ²	0,020	0,023

*Note: ***, *, * - statistical significance at the 1%, 5%, and 10% levels, respectively. Robust HC3 standard errors were used.

The results for both specifications show a statistically significant negative coefficient on the gender variable. In Model 2, the coefficient for the “female”

variable is -0.1914 , with a significance level of $p < 0.01$. This means that, all else equal, being female is associated with a decrease in the logarithm of the odds ratio for quality employment compared with men.

For a more intuitive interpretation, the coefficient can be converted into an odds ratio:

$$OR = \exp(-0,1914) \approx 0,826$$

Consequently, all other things being equal, women's chances of having quality employment are about 82.6 % of men's corresponding chances, i.e., approximately 17.4 % lower.

However, this result should not be interpreted as a 17.4 percentage-point reduction in the probability of quality employment, since the coefficients of the logit model characterise the odds ratio rather than the direct change in probability.

Education has a consistent positive effect. In the full specification, the coefficient is 0.0886 and is statistically significant at the 1 % level. The odds ratio is calculated as follows:

$$OR = \exp(0,0886) \approx 1,093$$

Thus, each additional year of education is associated with approximately a 9.3% increase in the chances of quality employment, all else being equal.

A similar positive relationship was identified for work experience. The coefficient of 0.0321 means that an additional year of experience is associated with approximately a 3.3% increase in the chances of quality employment:

$$OR = \exp(0,0321) \approx 1,033$$

The presence of children is characterised by a negative coefficient of -0.1106 , which is statistically significant at the 10% level. This indicates a negative relationship between the presence of children and the likelihood of quality employment. However, the statistical stability of this effect is lower than that for gender, education, and experience.

At the same time, the number of children, urban residence, and marital status do not demonstrate a statistically significant independent relationship with quality employment.

The coefficients for the STEM training and digital skills variables in Model 2 are also statistically insignificant. Therefore, based on this specification, there are insufficient statistical grounds to assert that these characteristics independently determine the probability of quality employment after accounting for other factors and industry affiliation.

Including industry effects, STEM training, and digital skills only slightly increases the Pseudo R^2 value - from 0.020 to 0.023. Consequently, a significant portion of the individual variation in the probability of quality employment is explained by factors not included in the presented model.

To analyse the factors associated not only with achieving the threshold for quality employment but also with the overall level of the KIKZ, a linear regression model was used.

Table 3 – Results of the linear regression
Dependent variable: KIKZ, points

Variable	Model 1	Model 2
Woman	–2,2860***	–2,4652***
Education, years	1,1825***	1,2187***
Experience, years	0,3393***	0,3330***
Urban residence	1,1440**	1,1060*
Married	0,2034	0,1527
Presence of children	–1,7414**	–1,7322**
Number of children	–0,0385	–0,0823
STEM training	-	–0,4754
Digital skills	-	–1,0390
Sectoral effects	No	Yes
N	6 000	6 000
R ²	0,034	0,037

*Note: ***, *, * - statistical significance at the 1%, 5%, and 10% levels, respectively. Robust HC3 standard errors were used.

The results of the linear model confirm the presence of a gender difference in employment quality. After including an extended set of control variables, the coefficient for the “female” variable is –2.4652 and is statistically significant at the 1% level. This means that, all else being equal, the KIKZ score for women is, on average, 2.47 points lower than that for men.

Education shows the strongest positive relationship with the index among the quantitative characteristics of human capital. Each additional year of education is associated with an average increase in KIKZ of 1.22 points, all else equal.

Work experience also has a positive impact: an additional year of experience is associated with an increase of approximately 0.33 points in the index.

Urban residence in the full model is associated with an increase in KIKZ of approximately 1.11 points. However, the statistical significance of the coefficient is at the 10 % level, which requires caution in interpretation.

The presence of children is associated with a 1.73-point reduction in the index, which is statistically significant at the 5% level. The obtained result indicates a possible impact of family burden on the quality of employment and is consistent with studies linking family responsibilities to restrictions on women’s professional mobility and the emergence of a “motherhood penalty” (ILO, 2023; UN Women, 2024).

At the same time, the coefficients for the number of children, marital status, STEM training, and digital skills are statistically insignificant. Therefore, they cannot be considered confirmed independent determinants of the KIKZ within

the framework of the presented specification. The value of the determination coefficient R^2 increases from 0.034 in the first model to 0.037 in the second. The relatively low explanatory power of the models indicates the presence of additional factors affecting employment quality that are not included in the set of variables used. These may potentially include employer characteristics, company size, job status, profession, working hours, the presence of flexible working arrangements, the type of employment contract, and individual career trajectories.



Figure 4 – The relationship between the level of education and the KIKZ by gender.

The descriptive visualisation suggests differences between men and women, such as in the relationship between education and employment quality. However, the claim about a statistically significant difference in the return on education by gender requires a special econometric test that includes the interaction between gender and education:

$$KIKZ_i = \gamma_0 + \gamma_1 \text{Female}_i + \gamma_2 \text{Education}_i + \gamma_3 (\text{Female}_i \times \text{Education}_i) + \sum \gamma_j X_{ji} + \mu_i$$

Figure 4 reflects the differences in the relationship between the level of education and the quality of employment for men and women. However, to statistically confirm differences in the return to education by gender, an additional econometric assessment is required, including an interaction term between gender and education level.

Discussion. The results confirm the persistence of gender differences in the quality of employment in Kazakhstan. Women are less likely to reach the established threshold value for quality employment, and their average score on the comprehensive quality of employment index is lower than that of men. At the same time, the negative coefficient on the gender variable remains statistically significant after controlling for educational, demographic, and structural characteristics, indicating factors that go beyond individual human capital.

This conclusion is consistent with studies on gender inequality in the labour market, which show that the differences between men and women cannot be fully explained by education and accumulated professional experience. Even with comparable human capital characteristics, occupational segregation, family responsibilities, career trajectories, and the institutional structure of the labour market remain significant (Blau, Kahn, 2017).

The positive relationship between education and quality employment confirms the main provisions of human capital theory. According to Becker's and Mincer's approaches, investments in education increase a worker's productivity and expand their opportunities to obtain more stable and well-paid employment (Becker, 1964; Mincer, 1974). In the study, an additional year of education is statistically significantly associated with both an increase in the likelihood of quality employment and an increase in the CIKZ value.

At the same time, the persistence of a statistically significant negative coefficient for the gender variable after controlling for education allows us to conclude that women's educational advantages alone do not fully eliminate gender differences. This result aligns with findings from studies examining the gender pay gap and professional outcomes, which emphasise the limited ability of human capital alone to account for persistent differences between men and women (Blau, Kahn, 2017; Kenzheali et al., 2024).

A significant outcome of the study is the identified negative relationship between having children and employment quality. In the logit model, the presence of children is associated with a negative coefficient, whereas in the linear model it is associated with a decrease in the CIKZ. The estimates obtained are consistent with international studies identifying family responsibilities and the uneven distribution of unpaid labour as factors that limit women's economic opportunities (ILO, 2023; UN Women, 2024).

This mechanism is often described as a "motherhood penalty," which manifests as reduced career mobility, limited working hours, the choice of more flexible but lower-paid employment, and temporary breaks in employment. However, in the context of this study, this conclusion should be drawn with caution, since the model assesses the overall effect of having children across the entire sample rather than the separate effect of motherhood on women. To directly test this mechanism in subsequent studies, it would be advisable to include a variable representing the interaction between gender and the presence of children.

The regional analysis revealed significant heterogeneity in the quality of employment. The gap between the minimum and maximum values exceeds 15 percentage points, indicating a significant influence of the economy's territorial structure and regional labour markets. At the same time, the gender advantage of men is not observed in all regions, which confirms the need to abandon a one-size-fits-all approach to women's employment policy.

The identified regional differences may be related to the varying sectoral structure of employment, the level of urbanisation, the prevalence of formal labour relations, the availability of social services, and the scale of the public sector. However, to rigorously verify the impact of these factors, separate regional modelling is required.

The sectoral structure is also an important element in explaining gender inequality. The results show that indicators of employment quality vary significantly across economic activity types. This is consistent with the theory of occupational segregation, according to which the persistent distribution of men and women across different professions and sectors can lead to systematic differences in pay, social security, and career opportunities (Polachek, 1981; Reskin, Roos, 1990).

The results regarding STEM training and digital skills require special attention. In the extended model, the corresponding coefficients did not reach the standard levels of statistical significance. Consequently, based on the modelling conducted, it cannot be stated that these characteristics have an independent effect on the quality of employment after controlling for education, industry affiliation, and other factors.

The lack of statistical significance does not mean that digital competencies and STEM training are of no practical importance for women's position in the labour market. It only shows that their independent effect was not confirmed in the specification used. A possible explanation may be that digital skills are closely linked

3. Development of childcare infrastructure

A statistically significant negative relationship between having children and employment quality underscores the importance of family infrastructure in expanding economic opportunities for the population, particularly women.

Priority measures include increasing the accessibility of preschool institutions, developing a network of nurseries for young children, encouraging employers to create corporate childcare rooms and care centres, and developing flexible forms of work organisation without reducing workers' social security.

Special attention should be paid to regions where access to preschool infrastructure is limited. Under such conditions, family responsibilities can directly reduce women's opportunities to enter the formal labour market and limit their professional mobility (ILO, 2023; UN Women, 2024).

4. Developing a differentiated regional policy

Significant differences between regions show that a single set of measures cannot be equally effective for all territories.

In regions with low levels of quality employment, it is necessary to combine vocational training with measures to formalise employment, stimulate the creation of productive jobs, and develop social infrastructure.

Funding for such programs may be provided from the republican and local budgets, as well as through public-private partnership mechanisms.

In large cities with higher levels of formal employment, priority may be given to measures to expand women's access to leadership positions, high-tech professions, and the corporate sector.

5. Reducing sectoral segregation

Sectoral differentiation in the quality of employment indicates the need to stimulate women's professional mobility across economic activities.

State vocational training programs can be supplemented by special transition trajectories from low-productivity, low-paying service segments to industries with higher labour productivity and a larger share of formal employment.

At the same time, it is necessary to maintain a focus not only on attracting women to traditionally "male" industries but also on improving job quality in sectors where women already make up a significant share of the workforce, including education, healthcare, and the service sector.

6. Expanding support for women's entrepreneurship

Women's entrepreneurship can serve as an additional channel for economic mobility, especially in regions with a limited supply of formal jobs. Kazakhstan already has infrastructure supporting women's entrepreneurship, but its further development should be linked to improving business sustainability, digitalisation, access to financing, and entry into new markets.

Not only are the quantitative indicators of new business start-ups important, but also their ability to generate sustainable income, create formal jobs, and provide social protection for entrepreneurs and employees.

7. Improving the monitoring of employment quality

The existing labour market statistics are primarily focused on indicators of employment, unemployment, wages, and sectoral structure. At the same time, the results of this study demonstrate the usefulness of more widespread use of multidimensional indicators of employment quality.

The monitoring system could include indicators of the formality of labour relations, social protection, remuneration levels, access to training, job stability, and career mobility.

Gender disaggregation of such data will make it possible to more accurately identify problematic groups and assess the effectiveness of implemented state policy measures.

Conclusion. The study enabled assessment of gender differences in the quality of employment in the Republic of Kazakhstan and identification of factors related to the population's access to quality jobs.

It was found that the share of quality-employed women is 40.7 %, while that of

men is 45.3 %. The gender gap is 4.6 percentage points. The average value of the comprehensive employment quality index for women is 63.2 points, compared to 65.6 points for men.

The most pronounced differences between men and women were observed in wage levels, employment formality, and social security. No significant differences were found in terms of working hours. Econometric analysis confirmed a statistically significant negative relationship between being female and quality employment. After controlling for education, experience, family-demographic characteristics, and sectoral effects, women's chances of having quality employment remain lower than those of men.

Education and work experience are stable positive factors. Each additional year of study is associated with an increase in the likelihood of quality employment and an increase in the value of CIC, supporting the human capital theory (Becker, 1964; Mincer, 1974). Having children, on the contrary, is associated with a negative relationship with employment quality. This result highlights the importance of further developing child care infrastructure and measures that support a balance between family and professional responsibilities.

Regional and sectoral differentiation indicates the structural nature of gender differences. The quality of employment depends significantly on the territorial and sectoral structure of the labour market, which requires a differentiated approach to the development of public policy measures. At the same time, the presented econometric models did not show a statistically significant independent effect of STEM training and digital skills. Therefore, these characteristics should be considered as promising areas of professional development, but not as confirmed independent determinants of employment quality in this study.

Based on the obtained results, strategic directions have been proposed, including the development of gender-neutral personnel practices, increasing the return on women's human capital, expanding the childcare infrastructure, forming a differentiated regional policy, reducing sectoral segregation, supporting women's entrepreneurship, and improving the system for monitoring the quality of employment. The scientific significance of the study lies in the development of a multidimensional approach to assessing gender differences in the labour market and in the transition from analysing the very fact of employment to assessing its qualitative characteristics. The practical significance lies in the potential to use the findings to develop state and regional employment policies, vocational training programs, and measures to expand women's economic opportunities.

The limitations of the study include the relatively low explanatory power of the econometric models, the absence of several employer and workplace characteristics, and the use of cross-sectional data, which does not allow for direct assessment of individual changes over time. The prospects for further research include the use of panel data, the assessment of interactions among gender, education, and family characteristics, the analysis of occupational and job segregation, and the study of

the impact of digital transformation and algorithmic management on the quality of employment for men and women.

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