







“Assessing gender differences in managerial roles, wages, education, and soft skills in Kazakhstan”

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ASSESSING GENDER DIFFERENCES IN MANAGERIAL ROLES, WAGES, EDUCATION, AND SOFT SKILLS IN KAZAKHSTAN

Abstract

Gender disparities affect employment, education, social interactions, and managerial roles. Therefore, this study aimed to conduct a complex analysis of differences based on representation in managerial positions, wage levels, educational opportunities, and soft skills. The analysis combines both qualitative and quantitative data. Quantitative data were collected from 2009 to 2022 from the Bureau of National Statistics of the Republic of Kazakhstan, the National Bank, and the World Bank. Qualitative data were obtained through surveys of 652 respondents filtered based on their correct understanding of the soft skills concept. Further, the Index for Stereotypes in Women's Employment (ISWE) was developed by identifying key indicators and gathering relevant data, followed by assigning weight coefficients based on their significance and ultimately combining these weighted impacts to compute the total index. The most significant impact on gender disparities was shown by the assessment of soft skills, contributing 13.1115, highlighting the need for their recognition in the labor market. Educational opportunities had a significant impact, contributing 2.1945, emphasizing equal opportunities for women and men. Differences in wages contributed to 1.394, indicating the pay gap. The low representation of women in managerial positions in state financial institutions (including second-tier banks) contributed 0.685, while barriers for women in managerial positions in state holdings across various sectors contributed 1.485. The findings offer actionable insights for policymakers and stakeholders committed to promoting gender equity.

Keywords

gender policy, differences, managerial roles, employment problems, Kazakhstan, soft skills

JEL Classification

J16, J71, M12

INTRODUCTION

Gender disparities manifest primarily in the specific behavior characteristics of men and women, known as gender roles. The formation of gender roles is determined by certain gender ideals and stereotypes inherent in each culture. An individual's gender identity, which is essential in fulfilling the corresponding gender role, is also shaped by various factors. Although the positions of many women have changed significantly in recent times, the issue of reducing gender disparities remains one of the most pressing and contentious in society. Nevertheless, the level of gender awareness and competence is increasing, and some countries have started to incorporate gender aspects into their development approaches and tools.

Differences in managerial positions have long been a critical issue in policy development, given their impact on equality, organizational effectiveness, and economic performance. One of the most noticeable manifestations of differences is the wage gap between men and women. Women in managerial roles often receive lower pay compared to men, which is associated with discrimination, differences in negotia-

tion approaches, and structural features of the labor market. Education plays a significant role in access to managerial positions. Women have achieved significant success in higher education, often surpassing men in enrollment and graduation rates. However, these achievements only sometimes lead to equal workplace opportunities, indicating additional barriers such as differences in pay, career advancement opportunities, and recognition of soft skills.

The importance of addressing gender disparities in managerial roles cannot be overstated. In Kazakhstan, these disparities are particularly pronounced, driven by persistent gender stereotypes and cultural norms. Despite having comparable education and skills, women often need help obtaining leadership positions and receive lower wages than men. Understanding the interrelationship between gender, managerial roles, wages, education, and soft skills is essential for developing strategies to eliminate these disparities.

1. LITERATURE REVIEW

Labor market opportunities vary significantly among individuals, primarily due to stereotypes. Despite notable progress in equality, some people face different roles and responsibilities, limiting their professional opportunities and impacting the modern economy. Stereotypes influence hiring practices, career promotion decisions, and workplace dynamics, creating substantial barriers for certain individuals in their professional lives. Differentiation based on these stereotypes often leads to people being perceived as less competent in management, which negatively affects career advancement and contributes to the gap in employment opportunities (Cameron, 2007; Kite et al., 2008; Heilman & Okimoto, 2008; Moss-Racusin et al., 2012; Eagly & Wood, 2013).

The influence of stereotypes extends to various forms of workplace discrimination, affecting participation in management and further limiting opportunities for certain individuals (Derks et al., 2011). Bobbitt-Zeher (2011) found that workplace discrimination often involves discretionary policies that negatively impact women, particularly in sex-segregated work environments. According to Castaño et al. (2019), stereotypes attributed to women regarding personal qualities and abilities lead to less favorable evaluations of them in management. Thus, women often face bias in assessing their performance and potential for career prospects (Cuddy et al., 2007). On the contrary, Blau and Kahn (2017), Busch (2020) and de Castro Romero et al. (2023) indicated that those transitioning to traditionally male-dominated professions may receive pay increases, highlighting the differentiation and undervaluation of occupations dominated by one gender.

In addition to workplace discrimination, labor market segregation is another significant consequence of stereotypes, as social structure and cultural norms differ among individuals. Certain groups occupy lower-paid, less prestigious positions (Charles & Grusky, 2004) and less frequently hold managerial positions, reducing their influence in organizational decision-making (England et al., 2007). Correll (2014) demonstrated how stereotypes and status constraints shape career aspirations for different individuals. Thus, fewer individuals are in mathematical professions because expectations of their skills from certain groups are overestimated, reinforcing labor market differentiation.

The hiring process itself is also profoundly affected by set stereotype differences based on gender. Studies indicate that employers differentiate men as more eligible for managerial positions than women due to biases regarding women's leadership qualities (Eagly & Karau, 2002). This bias is often rooted in attributed cultural norms and expectations based on gender, complicating the objective evaluation of candidates and reducing the likelihood of women being selected for high-level positions (Rudman & Phelan, 2008). Stereotypes and distorted self-assessments hinder women's career growth. Gender stereotypes affect the decision-making process in workgroups and organizations. Evidence suggests that solutions and ideas offered by women are less likely to be accepted and supported due to set expectations based on gender (Bear & Woolley, 2011; Hoogendoorn et al., 2013). Einarsdóttir et al. (2018) and Breda et al. (2020) identified structural and cultural barriers, such as the glass ceiling, where stereotypes about male

and female management styles suggest that men are more decisive and aggressive in decision-making, while women are expected to be more cautious and nurturing.

The significance of soft skills in the workplace adds another layer to the impact of stereotypes. Wood and De Menezes (1998) and Beauregard and Henry (2009) showed that certain individuals fit more into the public sector due to a greater inclination toward social and teamwork skills, while others are more eligible for the private sector, which is focused on merit-based pay. Internal recruiting tends to rate communication skills and professional attitude highly. Individuals possessing strong soft skills, particularly strong motivational and intercommunication skills, are more likely to be considered for managerial positions (Robles, 2012) and are better equipped to navigate complex organizational dynamics (Giudici & Filimonau, 2019). However, some studies have highlighted that employers give more credit to such soft skills as responsibility, teamwork, work ethics, professional attitude, interpersonal skills, and personal qualities (Tsirkas et al., 2020; Hirudayaraj et al., 2021). This differentiation in the valuation of soft skills further contributes to the disparities in career advancement opportunities.

Certain studies have addressed the relationship of the environment to soft skills development. Ellemers (2018) and Solbes-Canales et al. (2020) identified family and education as primary environments. At the same time, education can mitigate these stereotypes through perceptions of educational practices and social interactions by promoting diverse skills and counter-stereotypical role models. Rittle-Johnson et al. (2019) and Hernández-Padilla et al. (2023) highlighted the crucial role of early learning environments and parental involvement in later educational outcomes. Thus, integrating personal and institutional factors affects soft skills development, particularly in volatile, uncertain, complex, and ambiguous environments (Ginda et al., 2019; Horstmeyer, 2020). Abisheva and Yeralina (2022) identified that soft skills develop differently in various environments. Thus, the family develops basic soft skills such as responsibility or politeness; education develops teamwork and communication skills, emphasizing previously less developed soft skills in higher education.

This literature review indicates that differences significantly influence women's employment, manifesting in hiring practices, wage disparities, and leadership opportunities. Existing research primarily offers fragmented insights into the impact of stereotypes on women's employment. Therefore, a thorough evaluation of the effect of disparities on various aspects of life, including employment, education, social interactions, and leadership roles, is essential. This necessitates the complex analysis of differences across four key dimensions: representation in managerial positions, wage levels, educational opportunities, and soft skills. This approach will enable a holistic understanding of how disparities shape women's economic participation, offering actionable insights for policymakers and stakeholders committed to promoting equity in the workplace.

2. METHODOLOGY

A complex analysis of differences should address representation in managerial positions, wage levels, educational opportunities, and soft skills between males and females. In order to achieve this, this work proposes an integrated approach combining qualitative and quantitative methods. Therefore, a complex index is proposed to facilitate a detailed analysis of differences to highlight areas needing improvement. This paper presents a methodology for assessing the impact of stereotypes on women's employment in Kazakhstan. For this purpose, the index Impact of Stereotypes on Women's Employment (ISWE) was developed. The research stages are presented in Figure 1.

The initial stage involves identifying key indicators and collecting relevant data, which includes employment rates, wage levels, educational opportunities, leadership roles, and soft skills assessment. Subsequently, weight coefficients are assigned based on relative importance in contributing to gender disparities. Finally, the weighted impacts are combined to calculate the ISWE, followed by a thorough analysis and interpretation of the results to identify areas with significant gender disparities.

In order to calculate the ISWE, the indicators were categorized into four major blocks: managerial positions, wages, educational potential, and soft skills assessment. The ISWE was calculated using formula (1):

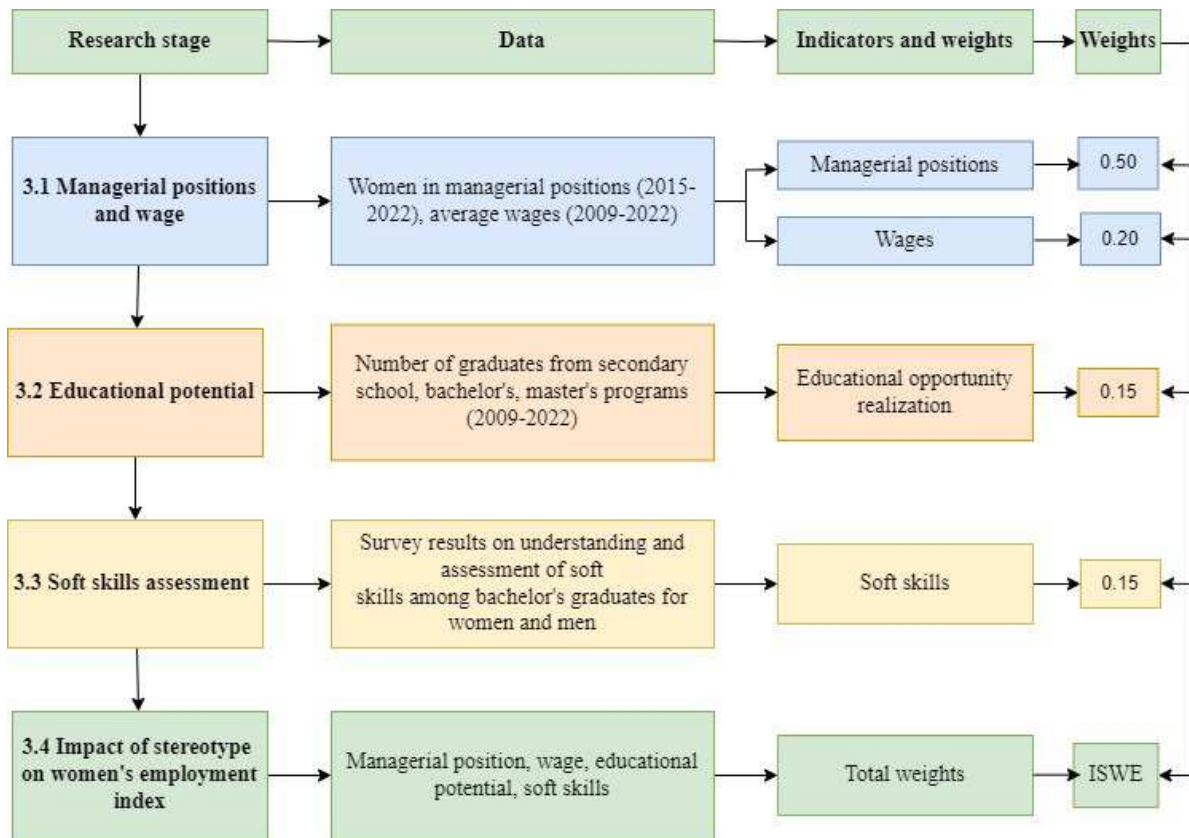


Figure 1. Research stages

$$ISWE = \frac{\sum_{i=1}^n W_i \cdot S_i}{n}, \quad (1)$$

where n is the total number of indicators; W_i is the weight assigned to each indicator; S_i is the score or value of each indicator.

Each indicator is associated with specific statistical data collected over defined periods, expected results in terms of gender ratios, and assigned weight coefficients reflecting their importance regarding gender disparities in the labor market. To determine the total number of graduates for each educational level, data aggregation over the specified period was applied (2):

$$N_{level} = \sum_{i=2009}^{2022} n_{level,i}, \quad (2)$$

where $n_{level,i}$ represents the number of graduates at "level" in year "I".

The calculation to identify the difference in the number of graduates between successive educational levels is as follows (3):

$$\Delta_{level1-level2} = N_{level1} - N_{level2}. \quad (3)$$

The study of annual trends is carried out by determining the percentage change in the number of graduates for each subsequent year (4):

$$\% \Delta n_{level} = \frac{n_{level} - n_{level,i-1}}{n_{level,i-1}} \cdot 100. \quad (4)$$

To assess soft skills, responses from 652 respondents were used, who were filtered based on the criteria of correct understanding of the soft skills concept. Each skill was assigned a weight depending on the environment where it was formed. If a skill is formed in the specified environment, it is assigned a weight of 1. If a skill is formed in another environment, it is assigned a weight of 0.5.

Formula to calculate the total weight of skills in each environment (5):

$$Score = \sum (Weight_i \cdot Presence_i), \quad (5)$$

where $Weight_i$ is the weight of the skill (1 or 0.5). $Presence_i$ is the presence of the skill (1 – the skill is present, 0 – otherwise).

Soft skills development varies by environment: politeness and loyalty to principles are cultivated in the family, motivational skills and professional attitude in university, and a positive attitude in school.

Skills influenced by multiple environments include communication (school and university), interpersonal communication and responsibility (family, school, and university), teamwork, work ethic, flexibility (school and university), and interactive skills (family and university).

The assessment was based on the understanding of soft skills. Correct definitions made subsequent answers valid, while incorrect ones were initially unreliable but counted as correct if logically consistent and relevant. This approach avoids penalizing respondents with a practical understanding of soft skills. The following formula was used (6):

$$\text{Soft skills assessment} = \frac{\text{Share of women understanding soft skills}}{\text{Share of men understanding soft skills}} \cdot 10. \quad (6)$$

Next, the proportion of women and men who demonstrated an understanding of soft skills was calculated.

This methodology offers a comprehensive framework for analyzing differences through a compos-

ite index. By focusing on managerial representation, wage levels, educational opportunities, and soft skills, the study aims to deliver a thorough analysis for developing effective gender equality strategies.

3. RESULTS

3.1. Managerial positions and wages

The wage ratio between men and women, as well as their representation in managerial positions, were calculated. These indicators were assigned a greater weight in the study as they are significant for a complex analysis of differences by gender. From 2009 to 2022, there has been a significant increase in average wages for both men and women, reflecting overall economic growth. During this period, the average wage for men increased from KZT 80,491 to KZT 355,296, while the average wage for women increased from KZT 53,276 to KZT 265,762. Despite this growth, women’s wages remain substantially lower than men’s. Figure 2 provides data on the ratio of wages by gender between 2009 and 2022.

The ratio of women’s to men’s average wages has shown significant fluctuations over the period. In 2009, women earned 66% of men’s wages. In sub-

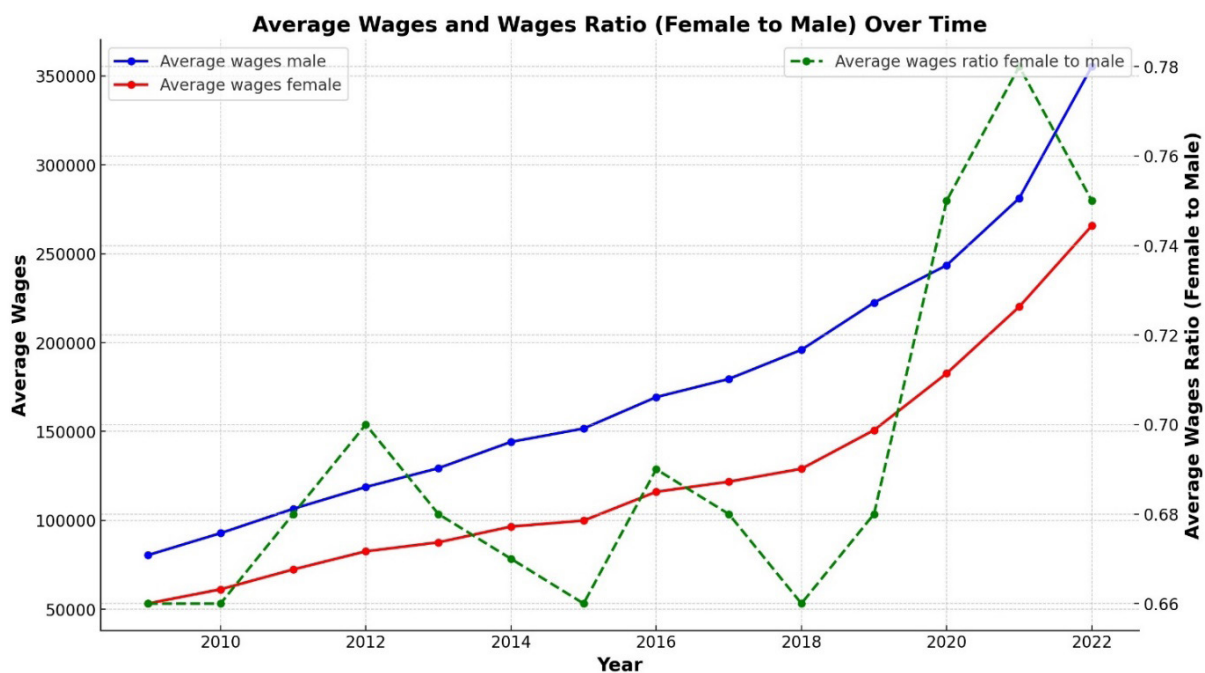


Figure 2. The ratio of wages by gender

sequent years, this ratio experienced changes, with noticeable periods of increase and decrease. There were several periods of growth; thus, women’s earnings, relative to men’s, significantly improved. In 2012, the ratio peaked at 0.70%, likely due to economic policies to reduce the gender pay gap. In 2016, the ratio rose by 0.69%, which may be attributed to structural changes in the labor market or measures supporting gender equality.

The most significant improvements occurred in 2020 and 2021, when the ratio reached 0.75% and 0.78%, respectively. These improvements can be explained by the response to the COVID-19 pandemic and the need to adjust working models, favoring more equitable wage distributions. Conversely, there were also periods of decline in the wage ratio, indicating a widening gender pay gap. In 2015, the ratio fell to 0.66%, likely due to economic conditions that disproportionately affected women’s employment and wage growth. Similarly, in 2018, the ratio dropped by 0.66%, which may be linked to economic policies or market conditions favoring male-dominated sectors. In 2022, a slight decline of 0.75% was observed after the peak of 0.78% in 2021, possibly due to the normalization of the labor market post-pandemic, where traditional wage structures might have re-

asserted themselves. The sharp increase in the ratio from 2018 to 2020 suggests significant changes in economic or political conditions that led to better relative wage growth for women. This may include increased representation of women in high-paying positions or sectors, improved policies for gender pay equity, or broader economic reforms that inadvertently favored women’s wage growth.

Figure 3 presents data on the employment of women and men in managerial positions in holding companies across various sectors of the economy from 2015 to 2021. These data reveal significant trends and differences between the two industries, providing a comprehensive view of the gender distribution in leadership roles.

From 2015 to 2018, the number of managerial positions for men and women remained relatively stable with minor fluctuations. Starting in 2019, there is a sharp increase in managerial positions for both genders, with a more pronounced rise among men. By 2021, the number of managerial positions for men reached approximately 20,300, while for women, it was around 12,054. This significant growth in managerial positions starting from 2019 can be attributed to various economic reforms and policies to strengthen the role of state

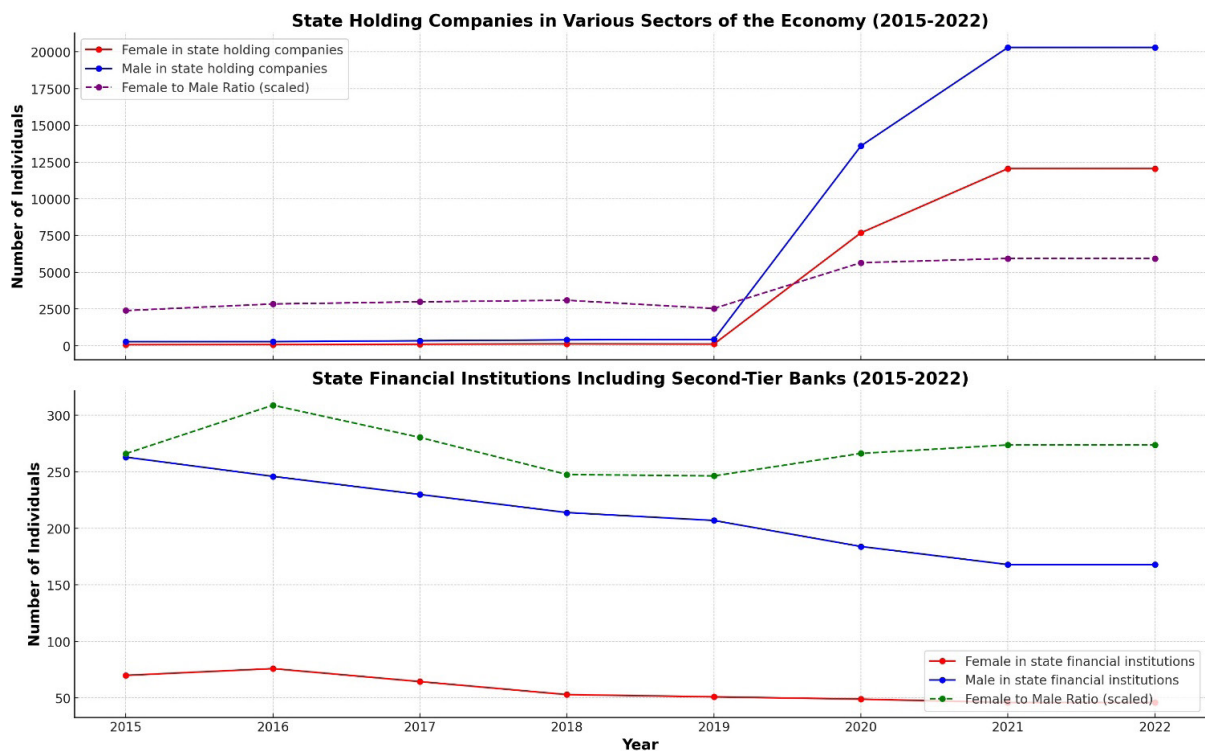


Figure 3. The dynamic in managerial positions by gender

enterprises and sectors. Kazakhstan has focused on diversifying and modernizing its economy in recent years, which likely required increased leadership positions. The sharp rise in 2020 and 2021 may also be related to government efforts to stabilize the economy in response to the global COVID-19 pandemic, necessitating enhanced management to navigate economic challenges. In 2022, the number of managerial positions for men and women remained the same as in 2021.

The opposite trend was observed in state financial institutions, including second-tier banks. From 2015 to 2021, the number of managerial positions for men and women significantly decreased. The number of managerial positions among men dropped from approximately 263 in 2015 to about 168 in 2021. This decrease was from around 70 in 2015 to approximately 46 in 2021 for women. The decline in managerial positions within state financial institutions may reflect broader trends in the financial sector, including consolidation, efforts to increase efficiency, and the impact of digital banking reducing the need for traditional managerial roles. Economic pressures and reforms to enhance financial sector stability might have led to operational optimization and reduced managerial staff. Additionally, the growing emphasis on digital transformation in banking could have decreased reliance on traditional managerial roles. In 2022, the number of managerial positions for men and women remained the same as in 2021.

It is also important to note that digitalization and technological advancements significantly impact employment in professions related to science, technology, engineering, and mathematics (STEM) for women and men. In recent years, the government of Kazakhstan has made efforts to improve parity in the representation of women and men in these fields, which may explain the rise in the number of women in managerial positions in state-holding companies. However, despite these efforts, the number of women in managerial positions in financial institutions continues to decline, indicating the need for additional measures to support women in these sectors, especially in digital transformation. Thus, the observed changes in managerial positions in state-owned companies and financial institutions in Kazakhstan highlight differences in economic strategies and the influence

of external economic factors. The rapid increase in managerial positions in state-holding companies after 2018 indicates a response to economic modernization and management during the pandemic. Meanwhile, the steady decline in managerial positions in state financial institutions reflects a shift toward increased efficiency and digital transformation in the financial sector. The increase in the number of women in managerial positions in holding companies also indicates positive changes in the representation of women in STEM and technology professions. Still, further efforts are required to achieve sustainable growth in the financial sector.

3.2. Educational potential

The ratio of females to males was calculated to determine how much educational potential has been realized in secondary education and bachelor's and master's levels. This indicator helps to understand how educational opportunities are distributed between the genders and what changes occur in the gender balance at different levels of education. From 2009 to 2016, the ratio of females to males in secondary education was relatively stable, fluctuating between 1.08% and 1.11%, indicating a consistent distribution of students by gender, which may be linked to Kazakhstan's steady economic growth following the global financial crisis 2008. The economic recovery likely contributed to a stable demographic situation and an even distribution of students by gender. Significant changes in educational policy were likely minimal during this period, contributing to this stability.

For bachelor's and master's degrees during the same period, fluctuations were observed. From 2009 to 2016, the ratio of females to males in bachelor's programs fluctuated between 1.34% and 1.41%, while in master's programs it ranged from 1.58% to 1.89%. In 2017, both levels experienced a decline: the ratio for bachelor's degrees dropped to 1.32 and master's degrees to 1.51. These changes may be associated with the Bologna Declaration, which impacted education costs and admission requirements. The introduction of the Unified National Testing (UNT) also played a role, as high admission standards could have reduced the number of females entering bachelor's programs.

The period from 2017 to 2019 was marked by significant economic challenges due to falling oil prices. This likely affected access to higher education, particularly for low-income families. Economic difficulties may have led to migration processes, impacting demographic indicators within the education system. For secondary education, 2018 saw a sharp drop in the ratio to 0.79%, possibly related to family migrations in search of better job opportunities. Bachelor's and master's degrees also experienced changes: in 2018, the ratio in bachelor's programs decreased to 1.29%, while in master's programs, it fell to 1.44%. The COVID-19 pandemic in 2020 significantly impacted the global education system, including Kazakhstan. For secondary education, the ratio sharply increased to 1.80% in 2020, possibly due to the shift to remote learning and changes in access to education. For bachelor's degrees, the ratio remained stable at 1.25%, while for master's degrees, it increased to 1.67%, potentially due to new forms of learning and access to resources. In 2021 and 2022, the ratio in secondary education decreased to 1.54% and 1%, respectively, indicating a return to a more balanced distribution. For bachelor's degrees, the ratio decreased to 1.21% in 2021 but then increased to 1.24% in 2022, showing some recovery. For master's degrees, the ratio increased to 1.71% in 2021 but decreased to 1.56% in 2022, indicating a gradual return to a more balanced gender distribution.

It is important to note that bachelor's and master's degrees are closely linked. Changes in bachelor's degrees directly affect master's degrees, as students graduating with bachelor's degrees continue their education in master's degrees. Fluctuations in the gender ratio at the bachelor's level can be reflected in the master's level. For example, high UNT requirements might have reduced the number of females entering bachelor's degrees, leading to a decrease in their master's degrees. Implementing new educational standards and reforms also influences both levels, creating interdependence.

Figure 4 illustrates the educational opportunity rate for women relative to men at the secondary education and bachelor's and master's levels from 2009 to 2022.

The educational potential of females is realized unevenly across different education levels. The ratio of females to males in secondary education remains relatively stable, indicating equal opportunities for obtaining basic education. However, significant fluctuations are observed in bachelor's and master's programs due to economic, migration, and educational factors. Despite the challenges, females demonstrate resilience and the ability to overcome barriers, especially during the COVID-19 pandemic, when they maintained a high level of participation in education even with the shift to remote learning. This reflects the high educational potential of females, which can be

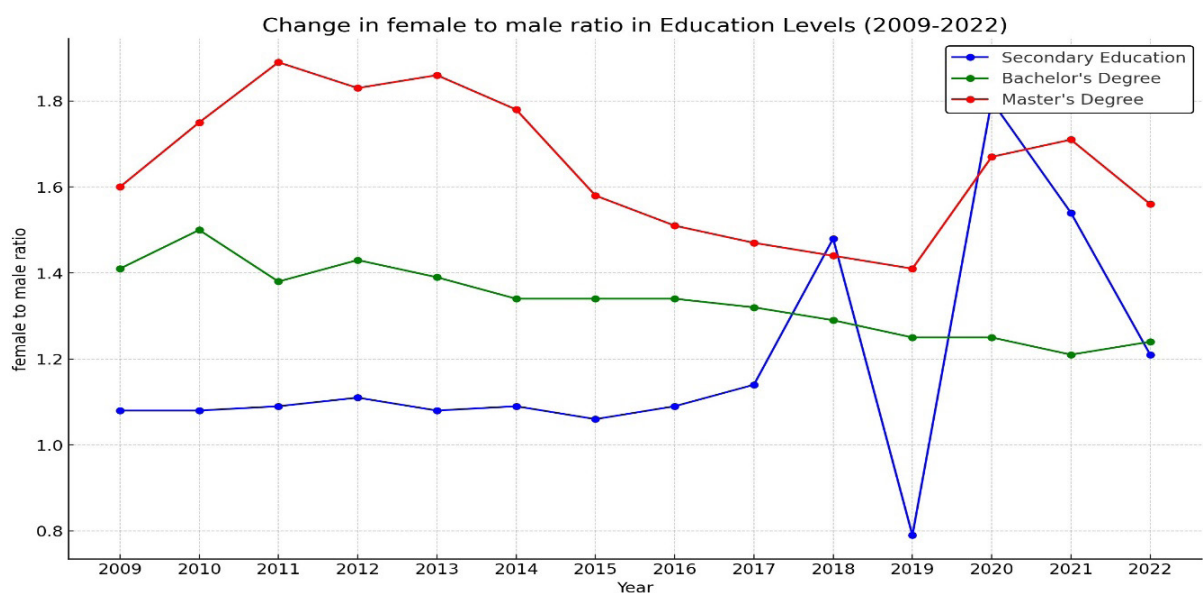


Figure 4. The ratio of educational opportunity realization

fully realized by creating favorable conditions and support from the educational system and the state. Therefore, including the educational potential of women in the analysis is crucial.

3.3. Soft skills assessment

Soft skills assessment included several stages. All hypotheses on the formation and perception of necessary skills for employment were tested in three stages: general, based on the environment, and based on the gender factor.

Particular attention is given to self-assessment, evaluation by others, and understanding the skills necessary for employment. The research methodology ensured the validity and reliability of re-

spondents' answers based on their knowledge of soft skills. Responses from respondents who correctly defined soft skills were considered significant and reliable. In cases where responses demonstrated logical consistency and practical relevance, they were also regarded as valid, even if the definition of soft skills was incorrect.

Figure 5 presents the coefficients, *p*-values, and *R*-squared values for various factors, such as family, school, and university, and their influence on self-assessment, evaluation by others, and understanding of the skills necessary for employment. These data form the basis for further analysis, presented as regression trees, where key factors and their interactions are examined in detail.

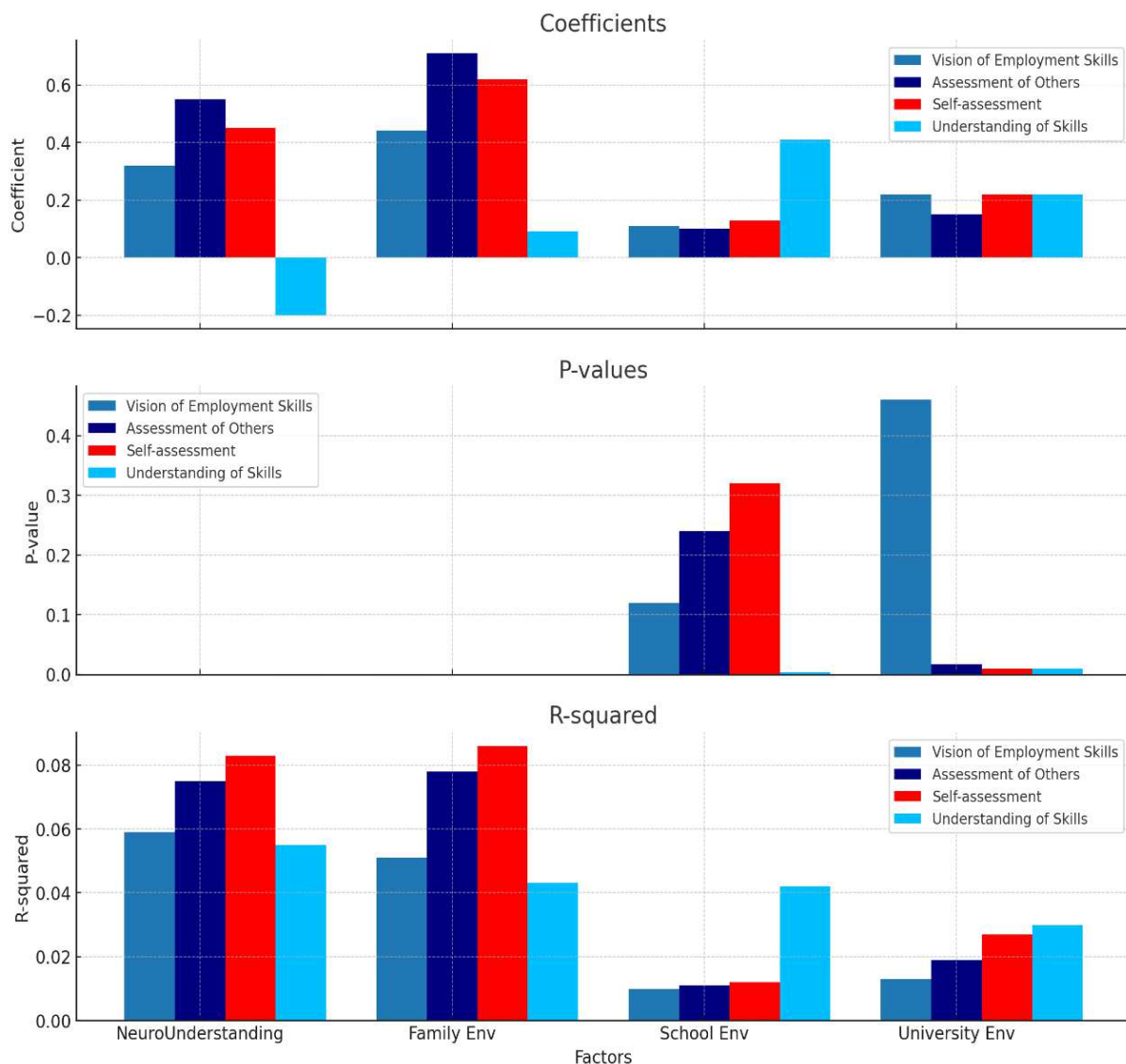


Figure 5. Impact of various factors on soft skills

Figure 6 presents the results as a regression tree, which provides a general assessment of the three environments' impact on soft skills formation.

Coefficients show the relationship strength and direction between factors and dependent variables. Misunderstanding of soft skills has a moderate positive impact on necessary skills for employment (0.30), while the family environment has a high positive impact (0.51). The school (0.10) and university (0.06) environments have lower impacts. For assessment by others, misunderstanding has a very high positive impact (0.63), and the family environment also has a significant positive impact (0.51), with lower impacts from the school (0.10) and university (0.06) environments. For self-assessment, misunderstanding shows a considerable positive impact (0.41), family environment has a high positive impact (0.51), and school (0.10) and university (0.06) environments have lower impacts. Misunderstanding has a moderate negative impact on understanding skills (-0.22), with family environment having a high positive influence (0.51) and minimal impacts from school (0.10) and university (0.06).

p-values indicate the statistical significance of the results. Misunderstanding (0.0002) and family environment (0.000) consistently show significant impacts. School environment (0.45) has non-significant impacts, while university environment shows mixed significance (0.017).

R-squared values reveal the proportion of variance explained by factors. For necessary skills for employment, misunderstanding explains 5% of the variance, family environment – 10%, school – 1%, and university – 3%. For assessment by others, misunderstanding accounts for 9%, family environment – 10%, school – 1%, and university – 3%. For self-assessment, misunderstanding explains 15%, family environment – 10%, school – 1%, and university – 3%. For understanding skills, misunderstanding explains 16%, family environment – 10%, school – 1%, and university – 3%.

This decision tree analysis reveals the critical factors influencing the formation and perception of soft skills. The study identifies school environment, represented by the variable *Coeff.S* (School Coefficient), as the most significant factor that prominently shapes subsequent outcomes. The impact on soft skills formation is minimal for *Coeff.S* values less than or equal to 0.252, averaging around 0.072, with further reductions to 0.008 and 0.026 for *Coeff.S* values less than or equal to 0.145. Conversely, for *Coeff.S* values between 0.145 and 0.252, the impact value significantly increases to 0.134, indicating a threshold effect where moderate levels of school influence result in a notable enhancement of soft skills.

Although a secondary factor, university influence is represented by the variable *Coeff.U* (University Coefficient), which plays a significant role at mod-

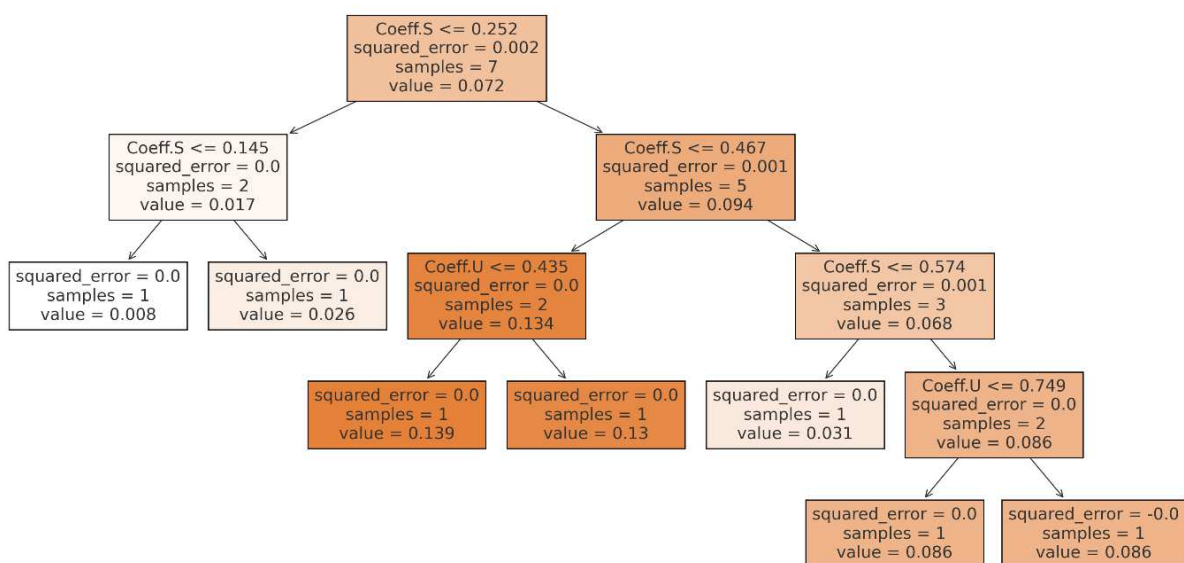


Figure 6. General regression tree

erate Coeff.S levels. Specifically, for Coeff.S values less than or equal to 0.467 and Coeff.U values less than or equal to 0.435, the impact rises to 0.134. For Coeff.S values greater than 0.467 with Coeff.U values up to 0.749, the effect is notable, reaching up to 0.086. This suggests that while school influence is predominant, university contributions become more substantial when the school influence is moderate to high.

The squared error reduction at each node quantifies the variance explained by the splits. For example, the initial split at $\text{Coeff.S} \leq 0.252$ reduces the squared error to 0.002, demonstrating the significant explanatory power of this variable. Subsequent splits continue to refine the model, reducing the error to 0.0 at terminal nodes, indicating high precision in the predictions at these points.

Figure 7 shows results for assessing the impact of family, school, and university on the formation and perception of soft skills for women.

The decision tree analysis demonstrates the impact of various factors on the formation and perception of soft skills for women. The school (Coeff.F) is the primary factor influencing the outcomes. The impact is minimal for Coeff.F values less than or equal to 0.081, with values of 0.017, further breaking down to 0.026 and 0.008. For Coeff.F values between 0.081 and 0.212, the impact value sig-

nificantly increases to 0.134. University (Coeff.F2) becomes a secondary but significant factor when Coeff.F values are moderate. Specifically for Coeff.F values up to 0.297, and Coeff.F2 values up to 0.388, the impact value is notable, reaching up to 0.139. For higher Coeff.F2 values (up to 0.491), the impact remains substantial at 0.086. Overall, while family, school, and university factors collectively influence soft skills development, school factors predominate, with university factors becoming more influential at moderate school influence levels.

Figure 8 shows results for assessing the impact of family, school, and university on men's soft skills formation and perception.

The decision tree analysis highlights the influence of various factors on soft skills for men. Here, family (Coeff.F) is identified as the most critical factor. The impact is minimal for Coeff.F values less than or equal to 0.106, with a value of 0.017, breaking down further to 0.022 and 0.011. For Coeff.F values greater than 0.106, the impact increases to 0.043, depending on Coeff.U values. University (Coeff.U) plays a significant role when family influence is moderate, with Coeff.U values up to 0.264 showing an impact up to 0.046. For higher Coeff.F values (up to 0.454) and specific conditions of R2, the impact is substantial, reaching up to 0.094. Therefore, while family, school, and university all influence the development of soft skills,

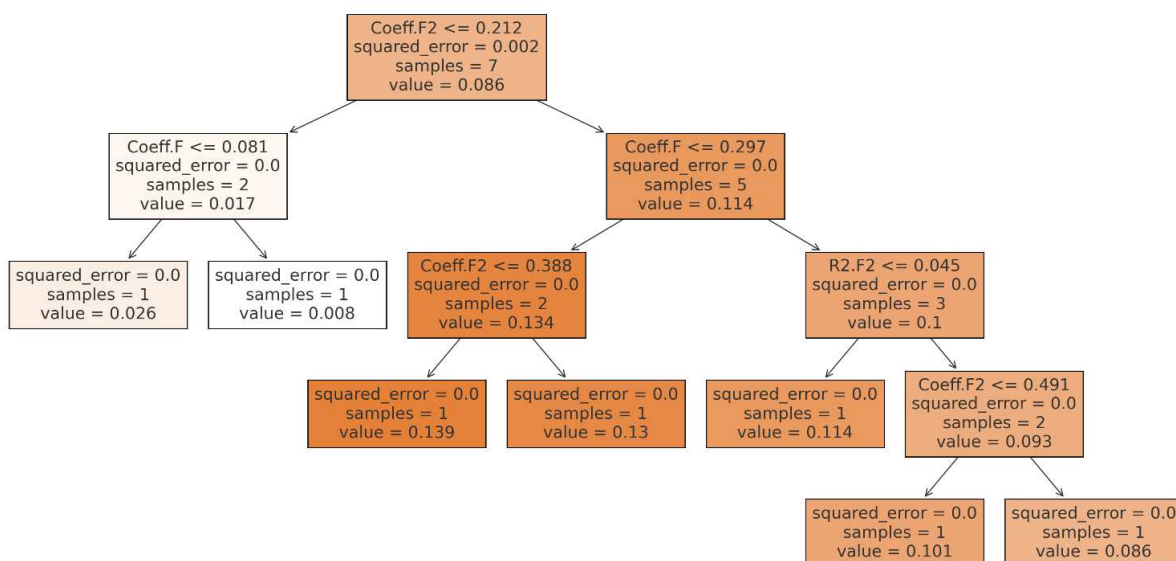


Figure 7. The impact of three environments on the formation and perception of soft skills for women

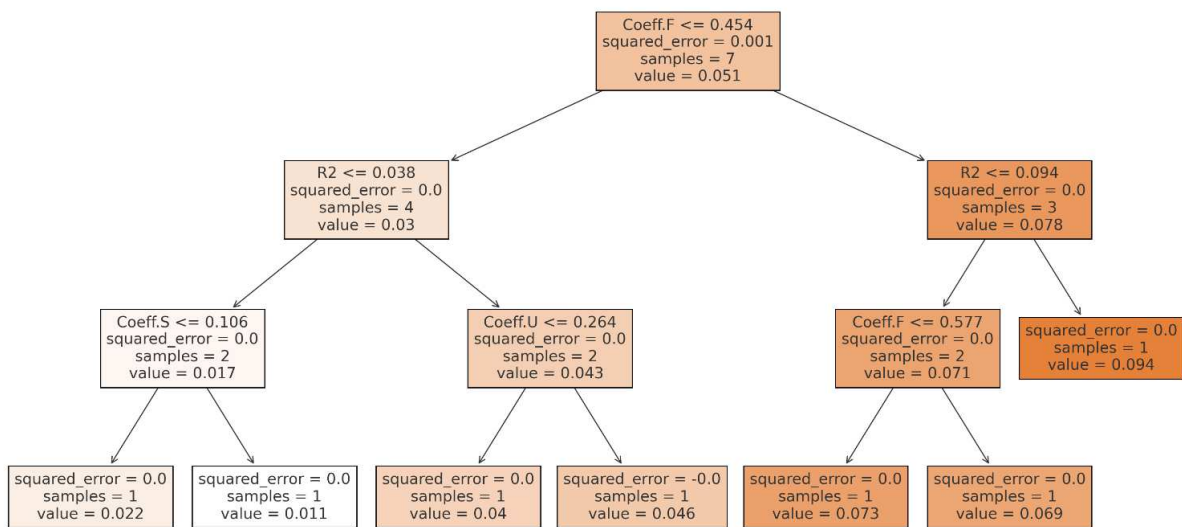


Figure 8. The impact of three environments on the formation and perception of soft skills for men

Table 1. Soft skills assessment

Gender	Total respondents	Respondents understanding soft skills	Proportion understanding soft skills
Female	458	400	87.41
Male	194	19	10.00

family factors are the most influential, with university factors gaining prominence under moderate family influence levels.

The decision tree analyses reveal that the formation and perception of soft skills are influenced by family, school, and university factors, with the impact varying by gender. For women, school emerges as the most significant factor, indicating that educational experiences during school years play a pivotal role in shaping their soft skills. University factors also contribute notably, especially at moderate levels of school influence, suggesting that higher education further refines these skills.

For men, family is identified as the primary factor influencing soft skills development, emphasizing the importance of family environment and upbringing. University factors become more significant when family influence is moderate, indicating that higher education plays a crucial role in enhancing soft skills, but primarily when family influence is balanced.

The models are validated by examining the statistical significance of the splits and the reduction in squared error at each node. The *R*-squared values

indicate the proportion of variance explained by the models, with high values at terminal nodes suggesting predictive solid power. The identified thresholds, such as *Coeff.S* <= 0.252 for women and *Coeff.F* <= 0.106 for men highlights critical points where the impact of the respective environments shifts significantly. Overall, while both genders are affected by family, school, and university factors, the primary influences differ: school is more critical for women, and family is more critical for men. Table 1 presents the results of the soft skills assessment by gender.

The analysis reveals a significant gender disparity in the understanding of soft skills. Specifically, 87.41 percent of female respondents demonstrated an understanding of soft skills, compared to only 10 percent of male respondents. Moreover, it highlights the influence of societal expectations and stereotypes, which may encourage the development of soft skills more strongly in women than in men.

3.4. ISWE calculation

The ISWE was developed to analyze differences based on four aspects: representation in managerial positions, wage levels, educational opportuni-

Table 2. ISWE calculation

Indicator	Weight (W _i)	Value (S _i)	Calculation	Result
Managerial position in state financial institutions, including second-tier banks	0.25	2.74	0.25x2.74	0.685
Managerial position in state-holding companies in various sectors of the economy	0.25	5.94	0.25x5.94	1.485
Wage	0.20	6.97	0.20x6.97	1.394
Educational opportunity realization	0.15	14.63	0.15x14.63	2.1945
Soft skills assessment	0.15	87.41	0.15x87.41	13.1115
Total ISWE			Sum	18.87

ties, and soft skills. This index quantifies the influence of various factors on employment opportunities across different categories of personal characteristics. The index highlights areas with low indicators, such as low representation of women in managerial positions in state financial institutions, including second-tier banks, which shows significant barriers for women in achieving leadership roles. Similarly, the low wage levels for women compared to men revealed existing gender disparities in pay. Despite high scores in educational opportunities and soft skills, women may still face discrimination and stereotypes that limit their career growth and opportunities. Table 2 provides the results of the index calculations.

The calculated ISWE is approximately 18.87. This value provides a comprehensive measure of the influence of various factors on women's employment opportunities, with a particular focus on managerial roles.

The analysis reveals that stereotypes significantly affect women's participation in management positions. The increased and equal weights for "Managerial position in state financial institutions including second-tier banks" and "Managerial position in state holding companies in various sectors of the economy" underscore women's substantial barriers to attaining leadership roles in these sectors. The results indicate that stereotypes impact these managerial roles considerably, contributing 0.685 and 1.485 to the ISWE, respectively. This highlights women's persistent challenges in accessing higher-level positions within these institutions.

Furthermore, the gender pay gap also contributes significantly to the overall index, with a result of 1.394. These findings suggest that broader issues related to pay equity continue to affect women's career trajectories beyond managerial positions.

Educational opportunity realization and soft skills assessment contribute 2.1945 and 13.1115 to the ISWE, respectively, indicating that while educational opportunities and soft skills are crucial, their impact is moderated by the pervasive influence of stereotypes.

Overall, the ISWE of 18.87 demonstrates the multifaceted nature of stereotypes on women's employment, particularly emphasizing the importance of addressing biases in managerial roles to enhance gender equality in the workplace.

4. DISCUSSION

The analysis of managerial positions and wages shows persistent differences among diverse groups. Women earn, on average, less than men despite overall income growth. These results are consistent with Cuddy et al. (2007) and Bobbitt-Zeher (2011), who demonstrate that certain groups often face workplace discrimination and receive lower pay compared to others, even with similar qualifications and experience. Women in management in state financial institutions, including second-tier banks, show that the number of women in managerial positions decreased from 2015 to 2021, while the number has significantly increased in state-holding companies in various sectors of the economy in recent years. These results confirm the findings of Eagly and Karau (2002) and Derks et al. (2011), indicating the existence of a 'glass ceiling' and obstacles for certain groups in achieving managerial positions. Additionally, the managerial position in state financial institutions, including second-tier banks indicator, contributes 0.685 to the ISWE, indicating that women are less likely to be employed than men. This supports findings by Heilman and Okimoto (2008), highlighting ongoing biases in hiring practices based on personal characteristics.

Furthermore, managerial positions in state-holding companies in various sectors of the economy contribute 1.485 to the ISWE. Although women achieve higher education levels, more is needed to translate into equal employment opportunities fully. This aligns with Breda et al. (2020), emphasizing the gap between educational attainment and employment based on various personal characteristics. For instance, results for women in management showed that managerial positions in state financial institutions, including second-tier banks, contribute 0.685 to the ISWE, suggesting fewer women in leadership positions within this sector. This supports Derks et al. (2011), who discuss barriers specific to certain groups in advancing to leadership roles. Similarly, women in management in state-holding companies in various sectors of the economy contribute 1.485 to the ISWE, indicating a need for more women in top management. This finding aligns with Ellemers (2018), highlighting women's challenges in reaching executive positions. Moreover, wage level disparity contributes 1.394 to the ISWE, highlighting significant gender wage gaps. This is consistent with findings by England et al. (2007), indicating that some individuals receive lower compensation than others for similar work.

The results align with Breda et al. (2020), emphasizing the gap between educational attainment and employment. According to the obtained data, the

number of women enrolling in higher education institutions consistently exceeds that of men. Kite et al. (2008) and Eagly and Wood (2013) indicate different influences of stereotypes on educational opportunities and career prospects for individuals. The study of soft skills revealed that the family environment plays a crucial role in women's development, while the university environment is more significant for men. The data support the findings of Ellemers (2018) and Zippert and Rittle-Johnson (2018), who emphasize the importance of family environment and educational setting in developing soft skills.

Thus, the influence of these factors varies significantly across different demographic groups, further illustrating the complex dynamic between personal characteristics and career advancement. The varying impacts highlight how certain groups face distinct challenges and disparities in accessing managerial roles, contributing to persistent gaps in leadership positions within state financial institutions and holding companies. The understanding and assessing soft skills have the highest contribution to the ISWE, at 13.1115. This significant impact highlights that women possess strong soft skills, which are often undervalued in the labor market. This finding aligns with Robles (2012) and Giudici and Filimonau (2019), who demonstrate that soft skills are crucial for leadership but often overlooked.

CONCLUSION

This study aimed to conduct a complex analysis of differences based on representation in managerial positions, wage levels, educational opportunities, and soft skills. The developed Index for Stereotypes in Women's Employment allows for a quantitative assessment of the extent to which stereotypes affect employment opportunities, wage levels, educational achievements, and women's representation in leadership positions. The main results of the study revealed significant gender disparities across various indicators.

Firstly, despite women consistently outperforming men in education at all levels (secondary education, bachelor's, and master's degrees), this does not translate into equal employment opportunities. Secondly, women earn substantially less, although the wage gap has narrowed somewhat over time. Thirdly, women are underrepresented in managerial positions in state financial institutions, including second-tier banks, and state-holding companies in various sectors of the economy, although recent years have seen significant growth in female leadership in national holdings. Lastly, women demonstrate a higher understanding and possession of soft skills compared to men.

The novelty of this study lies in the development of the Index for Stereotypes in Women's Employment. This comprehensive index integrates multiple factors to assess the impact of stereotypes on women's

employment. This index provides a detailed and quantitative evaluation of gender disparities, making it a valuable tool for policymakers, educational institutions, and organizations.

The application of the Index for Stereotypes in Women's Employment can aid in the development of targeted measures to reduce gender disparities in the labor market, including the implementation of gender-neutral hiring practices, the promotion of pay equity, and the encouragement of female leadership. Educational institutions can use the study's findings to bridge the gap between educational achievements and employment opportunities for women. At the same time, organizations can benefit from recognizing and valuing soft skills in recruitment and promotion processes, creating a more inclusive and equitable work environment. The results underscore the need for gender-sensitive approaches in educational and developmental programs to enhance soft skills.

Future research may include additional variables that contribute to the formation and perception of necessary skills for employment. It should also conduct longitudinal studies to track the impact of interventions over time and their effectiveness in reducing gender disparities, as well as cross-cultural comparisons of the Index for Stereotypes in Women's Employment with data from other countries to understand its global applicability and identify best practices in overcoming gender disparities. The study can also be expanded to analyze the impact of gender stereotypes in different sectors, allowing for more effective adaptation of intervention measures.

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