

**RESEARCH ARTICLE**

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# Regional Dynamics and Institutional Drivers of Women's Entrepreneurship in Kazakhstan

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**Abstract**

Women's entrepreneurship is an important component of inclusive economic development in Kazakhstan; however, its quantitative expansion is still accompanied by organisational, sectoral, financial, and regional inequalities. This study aims to assess the dynamics and structural characteristics of women's entrepreneurship and identify the institutional and socio-economic factors influencing women's representation among managers of small and medium-sized enterprises. The research methodology combines descriptive, structural, and comparative analysis, the construction of a comprehensive gender entrepreneurship index, and panel regression modeling using pooled ordinary least squares, regional fixed-effects, and dynamic specifications. The empirical analysis is based on official regional statistics for Kazakhstan for 2022–2025, comprising 68 region-year observations, supplemented by data from national financial and government institutions. The results indicate that the number of women heading small and medium-sized enterprises increased from 912.3 thousand in 2022 to 1,024.0 thousand in 2025, while their share rose from 46.9% to 49.5%. Nevertheless, women-led businesses remained concentrated in individual entrepreneurship, trade, and services, whereas their participation in legal entities and capital-intensive sectors was limited. The comprehensive gender entrepreneurship index increased from 0.506 to 0.564. In the fixed-effects model, government support per capita had a positive and statistically significant effect on women's representation among managers of small and medium-sized enterprises, with a coefficient of 3.018. The findings substantiate the need for gender-responsive financial instruments, regionally differentiated support measures, sectoral diversification, and programs to improve the sustainability and scalability of women-led businesses.

**Keywords:** Women, Gender Equality, Gender Inclusion, Employment, Finance, Entrepreneurship, Leadership

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# 1. INTRODUCTION

Entrepreneurship is one of the key drivers of economic growth, innovation, employment, and increased social mobility. In the modern economy, small and medium-sized enterprises (hereinafter – SMEs) play a particularly important role by contributing to job creation, supporting self-employment, facilitating the formation of the middle class, and promoting national economic diversification (Marlow & McAdam, 2013; Minniti & Naudé, 2010). The development of SMEs is of strategic importance for Kazakhstan, as this sector broadens the tax base, supports regional economic activity, and helps reduce the country's dependence on extractive industries.

Within the global sustainable development agenda, the gender dimension of entrepreneurship has become increasingly important. Sustainable Development Goal 5 aims to achieve gender equality and empower women and girls. In this context, women's entrepreneurship is regarded not only as a form of economic activity but also as an instrument for strengthening women's financial independence, reducing poverty, and ensuring the fuller utilisation of human capital (Brush et al., 2019; UN Women, 2022). Greater participation of women in entrepreneurial activity contributes to the formation of a more inclusive model of economic growth and strengthens social resilience (World Bank, 2022).

Kazakhstan has experienced a noticeable increase in women's participation in the entrepreneurial sector in recent years. In 2025, the number of women-led SMEs reached 1.024 million, accounting for 49.5% of all small and medium-sized businesses. These figures indicate a high level of women's quantitative representation in business and make it possible to regard women's entrepreneurship as an important component of the national economy.

However, progress towards quantitative parity does not mean that gender inequality in entrepreneurship has been fully overcome. Women remain predominantly represented in individual entrepreneurship, trade, and service

activities. In contrast, their participation among the managers of legal entities and in manufacturing, high-technology, export-oriented, and capital-intensive sectors remains more limited. Consequently, entrepreneurship is characterised not only by a quantitative gender gap but also by a qualitative one, reflected in differences in organisational forms, sectoral specialisation, access to resources, and opportunities for business expansion.

Several circumstances determine the relevance of this study. Firstly, between 2022 and 2025, women's entrepreneurship developed amid the post-pandemic economic recovery, the growing use of digital sales channels, the expansion of e-commerce, and changes in employment models. Secondly, the increase in the number of women entrepreneurs was accompanied by the continuing concentration of women-led businesses in microentrepreneurship and traditional service sectors. Thirdly, regional differences in urbanisation, economic specialisation, infrastructure development, and access to financial institutions create unequal conditions for the development of women-owned businesses.

Government support for entrepreneurship is particularly important in this context. Interest-rate subsidies, credit guarantees, advisory assistance, and business support services can reduce financial and institutional barriers. Nevertheless, formally equal access to support programs does not necessarily ensure equal opportunities in practice. Women may face insufficient collateral, lower levels of start-up capital, limited participation in professional and business networks, and a greater burden of unpaid domestic and care work.

Contemporary research indicates that the assessment of women's entrepreneurship should not be limited to the number of registered business entities. The sustainability and size of enterprises, their sectoral affiliation, access to financing, participation in innovation and export activities, and capacity for scaling are also important. Therefore, the analysis of women-led businesses requires a

comprehensive approach combining structural, regional, institutional, and econometric assessments.

Despite the growing academic interest in the gender dimensions of entrepreneurship, the combined effects of government support, digitalisation, human capital, sectoral structure, and regional heterogeneity remain insufficiently studied in Kazakhstan. In addition, integrated indicators that can measure changes in the conditions for the development of women's entrepreneurship over time are used only to a limited extent. This creates a research gap between the high quantitative representation of women in the SME sector and the insufficient assessment of the sustainability, quality, and scalability of their businesses.

This study aims to assess the dynamics and structural characteristics of women's entrepreneurship and identify the institutional and socio-economic factors influencing women's representation among managers of small and medium-sized enterprises. To achieve this aim, the study analyses the dynamics and organisational and legal structure of women's entrepreneurship, its sectoral and regional differentiation, access to financial and non-financial support, and the effects of digitalisation, education, the gender pay gap, banking infrastructure, and regional economic specialisation.

## 2. LITERATURE REVIEW

Theoretical understanding of the gender aspect of entrepreneurship requires addressing several interrelated areas in the scientific literature: classical theories of entrepreneurship, the concept of human capital, gender economics, the institutional approach, research on entrepreneurial ecosystems, and studies of financial and sectoral barriers to women's businesses. This logic allows us to consider women's entrepreneurship not only as a statistical category reflecting the proportion of women among SMEs, but also as a complex socio-economic phenomenon shaped by resources,

institutions, social norms, access to finance, and market structure.

The foundations of the theory of entrepreneurship were laid by Schumpeter, who regarded the entrepreneur as an agent of "creative destruction" capable of generating innovations, transforming markets, and disrupting existing economic equilibria (Schumpeter, 1912). Within the neoclassical framework, T. Schultz interpreted entrepreneurship as a specific form of human capital, emphasising the importance of education, experience, adaptability, and decision-making under uncertainty (Schultz, 1975). Developing this perspective, Marvel et al. (2016) demonstrated that entrepreneurial human capital, including education, professional experience, knowledge, and skills, plays a significant role in opportunity recognition, venture creation, innovation, and business performance. Kirzner, developing the Austrian school, focused on entrepreneurial alertness, that is, the ability of an individual to notice and use market opportunities that go unnoticed by other market participants (Kirzner, 1973).

Despite the importance of these approaches, classical theories of entrepreneurship were mostly gender neutral. In them, the entrepreneur was considered a universal economic agent. At the same time, social characteristics, including gender, marital status, access to resources, and the influence of cultural norms, were excluded from the analysis. That is why classical theories do not fully explain why men and women, with comparable levels of education and motivation, face different opportunities when creating, financing, and scaling businesses.

A critical turn in the study of women's entrepreneurship occurred in the 1980s and 1990s, when researchers began to consider entrepreneurial behaviour as gender based. Works of Goffee and Scase, as well as Hisrich and Brush, have shown that women entrepreneurs operate in an environment of asymmetric resource allocation, limited access to financial institutions, weak business networks, and stable social expectations

regarding women's family responsibilities (Goffee & Scase, 1985; Hisrich & Brush, 1984). During this period, an independent line of research on women's entrepreneurship emerged, with particular attention to barriers to entry into business, women's motivation, enterprise scale, and industry structure.

In the 1990s, research on women's entrepreneurship increasingly revealed that women face systemic constraints beyond individual characteristics. Such limitations include limited access to credit, insufficient collateral, lack of entrepreneurial experience, less involvement in business networks, and the need to combine entrepreneurial activity with family workload (Carter & Cannon, 1992; Moore, 1990). Comparative evidence from the United Kingdom also demonstrated that women and men business owners differ in the sectoral distribution, scale, development trajectories, and growth characteristics of their enterprises, indicating that entrepreneurial outcomes are shaped by gender-specific social and economic conditions (Carter & Anderson, 2001). The scientific literature has shown that women entrepreneurs may face disadvantages in access to business networks, professional contacts, and information resources, which can limit opportunities for business development and growth (Aldrich et al., 1989).

In the 2000s, there was a shift from descriptive studies of women's entrepreneurship to deeper theoretical analysis. H. Ahl critically rethought the dominant discourse of women's entrepreneurship research, showing that many studies compared women with the male entrepreneurial norm and treated differences in women's businesses as disadvantages rather than as the result of different institutional and social positions (Ahl, 2006). This approach allowed the research focus to shift from the question of "why women are less successful" to what institutional, cultural, and financial conditions limit women's entrepreneurial opportunities.

A significant contribution to the development of entrepreneurship research was made by Kuratko et al. (2005), who demonstrated that organisational conditions,

including management support, autonomy, reward systems, time availability, and the flexibility of organisational boundaries, strongly influence entrepreneurial behaviour. These factors shape individuals' ability to initiate and implement entrepreneurial activities within existing organisations. From this perspective, limited access to managerial support, decision-making autonomy, and organisational resources may constrain the development and scaling of entrepreneurial initiatives.

The theoretical foundations of the institutional approach were developed by North (1990), who defined institutions as formal rules, informal constraints, and enforcement mechanisms that shape economic behaviour and determine the incentives available to entrepreneurs. The institutional approach developed by Welter and Smallbone has become particularly important for analysing women's entrepreneurship in countries with transformational economies. This approach considers entrepreneurship because of the interaction of formal institutions - legislation, government programs, financial mechanisms, and the educational system - and informal institutions that include cultural norms, gender stereotypes, family expectations, and social perceptions of "appropriate" fields of activity for men and women (Welter & Smallbone, 2011). In the post-Soviet space, informal institutions often have a significant impact on women's choice of business sector, the scale of their enterprises, and their willingness to attract external financing and participate in support programs.

The current stage of women's entrepreneurship research is associated with the development of an ecosystem approach. Brush et al. (2019) proposed a "5M" model that includes markets, money, management, mentoring, and macroculture as key elements of an entrepreneurial ecosystem. In this model, the success of women entrepreneurs is determined not only by their personal qualities but also by the quality of the institutional environment, access to financial resources, mentoring, market access, and a supportive

cultural environment. This approach is especially important for analysing Kazakhstan, where formal support programs exist but do not always account for the specific barriers women face.

One of the most consistent findings in contemporary literature is that limited access to finance remains a major constraint on women's entrepreneurship. Coleman (2000) found that women-owned firms were less likely to use external financing, although the observed differences could not be attributed solely to direct discrimination by lenders. Subsequent research demonstrated that women entrepreneurs differ from men in their demand for bank finance, the characteristics of their businesses, and their participation in formal lending markets (Cowling et al., 2020). Women may also refrain from applying for formal loans because they expect rejection, consider collateral requirements excessive or perceive the application process as difficult and risky (Naegels et al., 2022). Recent research confirms that insufficient collateral, limited credit histories, restricted access to financial information, and discriminatory lending practices continue to impede women entrepreneurs' ability to obtain the external financing required for business creation and expansion (Anderson et al., 2025). Recent international evidence further indicates that women entrepreneurs tend to request smaller amounts of finance and often have more limited collateral and credit histories. At the same time, their access to venture capital remains considerably lower than that of men (OECD, 2025). These barriers have both institutional and behavioural dimensions: financial systems may inadequately account for the characteristics of women-led enterprises. At the same time, potential borrowers may become "discouraged borrowers" and withdraw from the credit market before applying for credit.

The phenomenon of discouraged borrowers is particularly important in developing economies, where access to capital largely determines the feasibility of transitioning from microbusiness to more sustainable and scalable

forms of entrepreneurship. Kilincarslan and Li show that negative perceptions of credit conditions and the expectation of rejection foster persistent caution among women towards external financing, thereby limiting the growth of their enterprises (Kilincarslan & Li, 2024). Consequently, the problem of women's entrepreneurship lies not only in the presence or absence of support programs, but also in trust in financial institutions, the availability of information, the quality of consulting support and the availability of guaranteed mechanisms.

The Women Entrepreneurs Finance Initiative (2022) emphasises that reducing the financing gap requires a comprehensive combination of financial products, capacity-building programs, digital technologies, improved market access, and institutional reforms specifically aimed at women-owned and women-led small and medium-sized enterprises.

An important area of modern research is the analysis of the sectoral segmentation of women's entrepreneurship. In many countries, women are more likely to be concentrated in trade, catering, education, household and social services. At the same time, their participation in manufacturing, high-tech sectors, logistics, construction, and export-oriented businesses remains limited. Lower entry barriers, a reduced need for start-up capital, and the possibility of flexible work organisation explain this concentration. However, it also poses a risk of women becoming entrenched in low-productivity, low-margin segments of the economy (Sabarwal & Terrell, 2008).

In Central Asia and the post-Soviet space, the gender aspects of entrepreneurship have their own specifics. Research shows that gender gaps in the labour market persist in the region, manifesting as industry segmentation, wage differences, limited access for women to leadership positions, and uneven distribution of unpaid domestic work (Khitarishvili, 2016). These factors directly influence women's entrepreneurial behaviour: industry choice,

business scale, risk-taking, access to networks and external financing.

In Kazakhstan, women's entrepreneurship exhibits high quantitative representation but still shows signs of structural asymmetry. Recent national data indicate that women account for a substantial proportion of entrepreneurs in the small and medium-sized business sector, reflecting their growing contribution to employment and entrepreneurial activity. Women are actively involved in the SME sector but are more frequently represented in individual entrepreneurship, trade, and service activities. Women are actively involved in the SME sector, but are more often represented in individual entrepreneurship, trade and service areas. Their participation in legal entities, medium-sized businesses, capital-intensive and technologically complex industries remains more limited. This means that the problem lies not only in the number of women entrepreneurs but also in the quality of their economic participation, business sustainability, access to resources, and ability to scale.

Shahzatkhan (2026) shows that the main challenge for women's entrepreneurship in Kazakhstan is not their overall participation in business, but their concentration in micro and small enterprises, service activities, and less capital-intensive sectors. Women remain less represented in larger, technologically complex, and scalable businesses, while restricted access to finance, professional networks, mentoring, and public procurement continues to constrain business growth.

UN Women's research highlights that women entrepreneurs in Kazakhstan face institutional and social barriers when choosing their field of activity, applying for financing, interacting with business partners, and resolving collateral issues (UN Women, 2022). At the same time, women's entrepreneurship has significant socio-economic potential: companies led by women are often characterized by greater social orientation, responsibility, law-abiding behavior, and attention to sustainable development.

Therefore, the empowerment of women in entrepreneurship can be considered not only as a task of gender policy but also as a factor in improving the quality of economic development.

The state policy of Kazakhstan in the field of entrepreneurship support includes preferential loans, guarantees, grant support, consulting and service services. Programs to support women's entrepreneurship, implemented jointly with international institutions, including the European Bank for Reconstruction and Development, play an important role. The Women in Business program, as well as new support tools such as the Umit program, are aimed at increasing women's access to financial resources, training, consultations and the development of managerial competencies. These measures contribute to the quantitative growth of women's entrepreneurship and increase its institutional visibility.

However, the scientific literature and analytical reviews emphasise that the policy of supporting SMEs in Kazakhstan remains largely universal and does not always contain clear gender guidelines. This approach can be described as "gender-blind", as it assumes formally equal access to support programs, but does not consider differences in the starting conditions of men and women, access to collateral, business networks, time, information, and managerial experience (OECD, 2025). As a result, universal programs may be less effective for groups facing specific barriers.

Thus, an analysis of the literature shows that women's entrepreneurship must be considered at the intersection of entrepreneurship theory, gender economics, institutional approach and the concept of an entrepreneurial ecosystem. Existing research confirms that women entrepreneurs face a range of financial, institutional, industry, and social constraints. However, in the Kazakh context, quantitative approaches to assessing structural changes in women's entrepreneurship, the impact of government support, regional heterogeneity and the

dynamics of gender conditions for SME development have not been sufficiently developed.

The research gap lies in the absence of a comprehensive model that combines the analysis of structural shifts, institutional barriers, and regional differentiation with the quantitative assessment of gender entrepreneurship. The present study aims to fill this gap by developing a comprehensive gender entrepreneurship index and using panel econometric modelling across regions of Kazakhstan. This approach allows us to move from describing the scale of women's entrepreneurship to analysing the factors that determine its sustainability, quality, and potential for inclusive development.

### 3. METHODOLOGY

The research methodology was designed to assess the dynamics, structure, and determinants of women's entrepreneurship in Kazakhstan. The study employed descriptive statistics, structural and comparative analysis, index-based assessment, and panel regression modelling.

The empirical analysis was based on data covering the period from 2022 to 2025. The main data sources included the Bureau of National Statistics (2025), the Damu Entrepreneurship Development Fund, the National Bank of Kazakhstan, and the Ministry of Digital Development, Innovation and Aerospace Industry of Kazakhstan.

The descriptive analysis examined the number of women heading small and medium-sized enterprises, their share of the overall entrepreneurial landscape, and their distribution across organisational and legal forms. The growth rate of each indicator was calculated as following formula (1):

$$T_x = ((X_{2025} / X_{2022}) - 1) \times 100\% \quad (1)$$

where:

$X_{2022}$  and  $X_{2025}$  – the values of the relevant indicator at the beginning and end of the study period, respectively.

To assess the organisational, legal, and sectoral structure of women's entrepreneurship, the shares of individual categories were calculated using the following formula (2):

$$S_{kt} = (X_{kt} / \sum X_{kt}) \times 100\% \quad (2)$$

where:

$S_{kt}$  – the share of category (k) in period (t);

$X_{kt}$  – the number of business entities in the corresponding category.

Regional differences were assessed by examining changes in the share of women among SME managers as shown in formula (3):

$$\Delta WENT_i = WENT_{i,2025} - WENT_{i,2022} \quad (3)$$

where:

$WENT_{i,t}$  – the share of women among SME managers in region (i) in year (t).

A comprehensive gender entrepreneurship index was constructed to provide an integrated assessment of the conditions affecting the development of women-led businesses. The index comprised five components: women's entrepreneurial activity, women's representation in managerial positions, the inverted female unemployment rate, the inverted gender pay gap, and the growth in the number of women heading SMEs.

The comprehensive index was calculated as following formula (4):

$$CEGI_t = \sum (w_j \times I_{jt}), j = 1, \dots, 5 \quad (4)$$

where:

$CEGI_t$  – the comprehensive gender entrepreneurship index in period (t);

$I_{jt}$  – the normalised value of component (j);

$w_j$  – the weight assigned to the corresponding component.

Equal weights were assigned to all five components ( $w_j = 0,2$ ). For indicators with a positive effect on the development of women's entrepreneurship, direct min-max normalisation was applied as shown in formula (5):

$$I_{jt} = (x_{jt} - x_{jmin}) / (x_{jmax} - x_{jmin}) \quad (5)$$

where:

$x_{jt}$  – the observed value of indicator (j) in period (t);

$x_{jmin}$  and  $x_{jmax}$  – the minimum and maximum values of the indicator over the study period.

The female unemployment rate and the gender pay gap were treated as negative indicators because decreases in these variables

were interpreted as improvements in the conditions for the development of women's entrepreneurship.

The econometric analysis was conducted using a balanced panel comprising 17 comparable regional units observed from 2022 to 2025. The full sample included 68 region-year observations. After introducing one-year-lagged variables into the dynamic specification, the sample size was reduced to 51 observations.

The dependent variable was the share of women among SME managers. The explanatory variables included the regional digitalisation index, government entrepreneurship support per capita, women's educational attainment, the gender pay gap, banking infrastructure density, the share of employment in trade and services, and gross regional product per capita.

The baseline regression specification was expressed as following formula (6):

$$WENT_{it} = \alpha + \beta_1 DIG_{it} + \beta_2 SUP_{it} + \beta_3 EDU_{it} + \beta_4 GPG_{it} + \beta_5 BANK_{it} + \beta_6 SERV_{it} + \beta_7 GRP_{it} + \varepsilon_{it} \quad (6)$$

where:

$WENT_{it}$  – the share of women among SME managers in region (i) in year (t);

$DIG_{it}$  – the regional digitalisation index;

$SUP_{it}$  – the amount of government entrepreneurship support per capita;

$EDU_{it}$  – the educational attainment level of women;

$GPG_{it}$  – the gender pay gap;

$BANK_{it}$  – the density of banking infrastructure;

$SERV_{it}$  – the share of employment in trade and service activities;

$GRP_{it}$  – the gross regional product per capita

$\varepsilon_{it}$  – the idiosyncratic error term.

Five model specifications were estimated: a pooled ordinary least squares model, a full fixed-effects model, a fixed-effects model excluding gross regional product per capita, a dynamic fixed-effects model, and a reduced specification containing only the key explanatory variables.

The choice between fixed- and random-effects estimators was guided by the Hausman specification test. Multicollinearity among the explanatory variables was assessed using the variance inflation factor. Model performance was evaluated using the coefficient of

determination, adjusted  $R^2$ , the F-statistics, and the statistical significance levels of the estimated coefficients. All calculations were performed in Python 3.12 using the pandas and statsmodels libraries.

## 4. ANALYSIS AND RESULTS

The empirical analysis identified the main trends in the development of women's entrepreneurship in Kazakhstan, its organisational, legal, and sectoral characteristics, regional disparities, access to

government support, and the factors associated with women’s representation among the managers of small and medium-sized enterprises.

The results are presented sequentially, beginning with the overall dynamics of women-led businesses, followed by sectoral and regional analyses, an assessment of institutional support, the dynamics of the comprehensive gender entrepreneurship index, and the results of panel regression modelling. Between 2022 and 2025, the number of SMEs

headed by women increased steadily. The number of women SME managers rose from 912.3 thousand in 2022 to 1,024.0 thousand in 2025, representing an increase of 12.2%. At the same time, their share in the total number of SMEs increased from 46.9% to 49.5%, approaching gender parity.

As shown in Table 1, the increase in the number of women SME managers was accompanied by changes in the organisational and legal structure of entrepreneurship.

**Table 1.** Organisational and legal structure of women’s entrepreneurship for 2022–2025, thousand entities

| Year | Total SMEs | Women SME managers | Share of women, % | Individual entrepreneurs | Legal entities | Peasant farms |
|------|------------|--------------------|-------------------|--------------------------|----------------|---------------|
| 2022 | 1,945.6    | 912.3              | 46.9              | 768.5                    | 105.3          | 38.5          |
| 2023 | 2,001.4    | 958.6              | 47.9              | 803.2                    | 108.7          | 46.7          |
| 2024 | 2,038.7    | 991.4              | 48.6              | 832.1                    | 110.2          | 49.1          |
| 2025 | 2,071.0    | 1 024.0            | 49.5              | 726.9                    | 99.9           | 65.1          |

Note: compiled by the authors

Women-led businesses remained concentrated in individual entrepreneurship. In 2025, women accounted for 58.88% of individual entrepreneurs, 29.08% of managers of legal entities, and 27.05% of heads of peasant farms. The predominance of individual entrepreneurship indicates women’s strong involvement in microbusiness activities characterised by relatively low entry barriers, limited initial capital requirements, and flexible forms of business organisation. However, women’s limited representation among the managers of legal entities demonstrates a persistent gap between their quantitative participation in entrepreneurship and their presence in more formalised and scalable business structures.

The growth of women’s entrepreneurship between 2022 and 2025 occurred against the backdrop of recovering business activity, expanding e-commerce, the wider use of remote forms of employment, and increased availability of government support programmes. Nevertheless, the movement towards quantitative gender parity does not imply the complete elimination of structural constraints, as a substantial proportion of women-led enterprises remains concentrated in

microbusinesses and traditional service activities.

The high concentration of women-owned businesses in these sectors indicates the persistence of sectoral segmentation. Women are predominantly represented in activities characterised by relatively low initial investment requirements, short capital turnover cycles, and opportunities to operate on a small scale. Although this structure facilitates entry into entrepreneurship, it may simultaneously constrain productivity growth, innovation, and the creation of higher value added.

Women’s representation was lowest in mining, construction, manufacturing, and information and communication. However, the highest growth rates between 2022 and 2025 were recorded in the information and communication, transportation and storage, and food service activities sectors. The number of women-led enterprises increased by 35.7% in the information and communication sector, by 28.6% in transportation and logistics, and by 21.5% in food service activities.

To identify the sectoral specialisation of women-led enterprises, the distribution of women-headed SMEs across the principal economic activity types analysed (Table 2).

**Table 2.** Sectoral structure of women's entrepreneurship in 2025

| <b>Economic sector</b>               | <b>Women-led SMEs, thousands</b> | <b>Share of women-led SMEs, %</b> | <b>Change in 2022–2025, %</b> |
|--------------------------------------|----------------------------------|-----------------------------------|-------------------------------|
| Wholesale and retail trade           | 438.3                            | 42.8                              | +12.4                         |
| Other service activities             | 179.8                            | 17.5                              | +15.2                         |
| Agriculture, forestry, and fishing   | 81.9                             | 8.0                               | +18.6                         |
| Education                            | 62.4                             | 6.1                               | +8.3                          |
| Food and beverage service activities | 58.7                             | 5.7                               | +21.5                         |
| Beauty and personal services         | 52.3                             | 5.1                               | +14.7                         |
| Real estate activities               | 38.6                             | 3.8                               | +11.2                         |
| Transportation and storage           | 28.4                             | 2.8                               | +28.6                         |
| Manufacturing                        | 22.7                             | 2.2                               | +6.8                          |
| Construction                         | 18.9                             | 1.8                               | +5.4                          |
| Information and communication        | 15.2                             | 1.5                               | +35.7                         |
| Mining and quarrying                 | 3.1                              | 0.3                               | +3.2                          |
| Other sectors                        | 22.7                             | 2.2                               | +9.1                          |

Note: compiled by the authors

As shown in Table 2, wholesale and retail trade remained the largest area of women's entrepreneurship, accounting for 42.8% of all women-led enterprises. Other service activities accounted for a further 17.5%. Thus, more than 60% of women-led SMEs were concentrated in the trade and services sectors.

These findings indicate a gradual diversification of the sectoral structure of women's entrepreneurship. Nevertheless, growth in emerging sectors started from a relatively low initial base and has not yet substantially altered the overall pattern dominated by trade and traditional services.

The largest increase between 2022 and 2025 was recorded in the Turkistan region, where the share of women SME managers rose by 5.2 percentage points, from 42.1% to 47.3%. Relatively high growth rates were also observed in Ulytau, Karaganda, Zhetysu, and Abai regions. At the same time, the lowest values persisted in Abai, Zhetysu, Ulytau, Atyrau, and Mangystau regions. In oil- and gas-producing regions, the relatively limited representation of women may be associated with the sectoral specialisation of the regional economy. In the newly established administrative regions, infrastructural and

institutional constraints may be particularly important. In the leading and lowest-performing regions, the gap gradually narrowed. In 2022, the difference between Almaty city and the Abai region amounted to 17.1 percentage points, compared with 15.8 percentage points in 2025. Thus, interregional disparities decreased over the study period, although they remained substantial.

In large cities, women's entrepreneurship was predominantly represented by individual entrepreneurs and legal entities operating in trade and services. In agricultural regions, peasant farms played a more visible role. The structure of women-led businesses in industrial regions was more diversified, although women's participation in large, capital-intensive enterprises remained limited.

The sectoral structure of women-led businesses also varied across regions. Regional differentiation was associated with the level of urbanisation, territorial economic specialisation, population density, the quality of business infrastructure, and the availability of financial and advisory services. To assess territorial differences, Table 3 presents the share of women among SME managers in 2022 and 2025.

**Table 3.** Regional dynamics of women's representation among SME managers for 2022–2025, %

| Region           | 2022 | 2025 | Change, percentage points |
|------------------|------|------|---------------------------|
| Almaty city      | 48.6 | 51.2 | +2.6                      |
| Astana city      | 47.8 | 50.8 | +3.0                      |
| Shymkent city    | 45.2 | 48.6 | +3.4                      |
| Turkistan        | 42.1 | 47.3 | +5.2                      |
| Karaganda        | 42.8 | 46.8 | +4.0                      |
| East Kazakhstan  | 43.5 | 45.2 | +1.7                      |
| Akmola           | 42.5 | 44.9 | +2.4                      |
| Almaty           | 41.8 | 43.7 | +1.9                      |
| Zhambyl          | 40.5 | 42.8 | +2.3                      |
| Pavlodar         | 40.2 | 42.1 | +1.9                      |
| Kostanay         | 39.5 | 41.5 | +2.0                      |
| North Kazakhstan | 39.2 | 40.8 | +1.6                      |
| Aktobe           | 38.6 | 40.2 | +1.6                      |
| West Kazakhstan  | 37.8 | 39.6 | +1.8                      |
| Kyzylorda        | 37.2 | 39.1 | +1.9                      |
| Mangystau        | 36.5 | 38.5 | +2.0                      |
| Atyrau           | 35.2 | 37.8 | +2.6                      |
| Ulytau           | 32.1 | 36.2 | +4.1                      |
| Zhetysu          | 31.8 | 35.8 | +4.0                      |
| Abai             | 31.5 | 35.4 | +3.9                      |

Note: compiled by the authors

The results presented in Table 3 indicate positive dynamics in all regions. The highest levels of women's representation in 2025 were recorded in Almaty and Astana, where women accounted for 51.2% and 50.8% of SME managers, respectively. In Shymkent, the corresponding share reached 48.6%. The high values observed in cities significance may be associated with the concentration of financial institutions, digital platforms, educational organisations, and business support infrastructure. These cities also have a higher proportion of legal entities and enterprises

engaged in professional, information, and business services. The identified regional differences confirm the need to account for persistent territorial heterogeneity in econometric modelling.

Government support represents one of the principal institutional factors influencing women's entrepreneurship. Such support includes interest-rate subsidies, credit guarantees, advisory assistance, and business services. The dynamics of women-led projects participating in financial and non-financial support programmes are presented in Table 4.

**Table 4.** Dynamics of government support for women's entrepreneurship for 2022–2025

| Year | Women-led projects receiving financial support | Volume of financial support, KZT billion | Women-led projects receiving non-financial support | Share of women in all supported projects, % |
|------|------------------------------------------------|------------------------------------------|----------------------------------------------------|---------------------------------------------|
| 2022 | 1,056                                          | 178.5                                    | 9,820                                              | 41.5                                        |
| 2023 | 1,198                                          | 215.2                                    | 11,350                                             | 42.8                                        |
| 2024 | 1,312                                          | 268.4                                    | 13,680                                             | 43.5                                        |
| 2025 | 1,423                                          | 365.7                                    | 16,326                                             | 42.2                                        |

Note: compiled by the authors

As shown in Table 4, the number of women-led projects receiving financial support increased from 1,056 in 2022 to 1,423 in 2025, representing a 34.7% increase. The total volume of financial support increased from KZT 178.5 billion to KZT 365.7 billion, more than doubling over the study period. The number of women-led projects receiving non-financial support increased from 9,820 to 16,326.

In 2025, women accounted for 42.2% of loan subsidy recipients and 40.6% of guaranteed recipients. Both figures were below women's overall share among SME managers, which reached 49.5%. This suggests that women's high level of participation in entrepreneurship did not fully translate into equal access to financial support instruments.

Differences were also observed in the use of non-financial services. Women accounted for 27.1% of recipients of advisory support, compared with 90.2% of recipients of business services. This distribution indicates a predominance of applied support related to

accounting, reporting, and routine business operations, while women's participation in strategic advisory services remained more limited.

Despite the steady increase in the absolute number of supported women-led projects, their share among all programme beneficiaries declined from 43.5% in 2024 to 42.2% in 2025. This result indicates that the expansion of government support programmes was not accompanied by a proportional increase in women's participation.

A comprehensive gender entrepreneurship index was calculated to assess the overall conditions for the development of women-led businesses. The index combines women's entrepreneurial activity, managerial representation, the inverted female unemployment rate, the inverted gender pay gap, and changes in the number of women heading SMEs. The values of the individual components and the aggregate index are presented in Table 5.

**Table 5.** Dynamics of the comprehensive gender entrepreneurship index for 2022–2025

| Year                                                        | Entrepreneurial activity | Managerial representation | Inverted unemployment | Inverted inequality | SME dynamics | Comprehensive index |
|-------------------------------------------------------------|--------------------------|---------------------------|-----------------------|---------------------|--------------|---------------------|
| 2022                                                        | 0.47                     | 0.33                      | 0.62                  | 0.43                | 0.68         | 0.506               |
| 2023                                                        | 0.48                     | 0.34                      | 0.64                  | 0.44                | 0.72         | 0.524               |
| 2024                                                        | 0.50                     | 0.34                      | 0.65                  | 0.45                | 0.78         | 0.544               |
| 2025                                                        | 0.52                     | 0.35                      | 0.67                  | 0.46                | 0.82         | 0.564               |
| The index components were normalised to a range from 0 to 1 |                          |                           |                       |                     |              |                     |

Note: compiled by the authors

The results in Table 5 demonstrate a gradual improvement in the overall conditions for women's entrepreneurship. The comprehensive index increased from 0.506 in 2022 to 0.564 in 2025. The overall increase amounted to 0.058 points, or 11.5%.

The most pronounced positive change was observed in the component reflecting growth in the number of women-led SMEs, which increased from 0.68 to 0.82. Women's entrepreneurial activity rose from 0.47 to 0.52, while the component associated with the decline in female unemployment increased from 0.62 to 0.67.

By contrast, women's managerial representation increased only marginally, from 0.33 to 0.35. This suggests that growth in the number of women entrepreneurs occurred more rapidly than growth in their participation in the management of larger and more formalised enterprises. The relatively slow improvement in this component is consistent with the predominance of individual entrepreneurship and the limited representation of women among managers of legal entities.

Panel regression analysis was conducted to quantify the factors associated with the share of women among SME managers from 2022 to

2025. The analysis used a balanced panel comprising 17 comparable regional units observed over four years. The full sample consisted of 68 region-year observations. After including one-year-lagged variables, the number of observations in the dynamic model decreased to 51.

To assess the robustness of the findings, five specifications were estimated: a pooled

ordinary least squares model, a full regional fixed-effects model, a fixed-effects model excluding gross regional product per capita, a dynamic model with lagged variables, and a reduced fixed-effects model including the key explanatory variables.

The estimation results are presented in Table 6.

**Table 6.** Panel regression results for the determinants of women's entrepreneurship for 2022–2025

| Variable                                  | Model 1:<br>Pooled<br>OLS | Model 2:<br>Full FE | Model 3: FE<br>without GRP | Model 4:<br>Dynamic FE | Model 5: FE,<br>key variables |
|-------------------------------------------|---------------------------|---------------------|----------------------------|------------------------|-------------------------------|
| Constant                                  | 28.452*<br>(15.234)       | 27.185*<br>(13.876) | 28.014**<br>(13.654)       | 72.341***<br>(21.456)  | 41.236***<br>(7.128)          |
| Digitalisation index                      | −0.041<br>(0.038)         | 0.008<br>(0.035)    | 0.015 (0.032)              | 0.049 (0.054)          | 0.038 (0.024)                 |
| Government support<br>per capita          | 2.124*<br>(1.356)         | 3.018**<br>(1.215)  | 3.102***<br>(1.187)        | 0.412 (1.708)          | 2.954**<br>(1.189)            |
| Women's education                         | 0.318<br>(0.256)          | 0.402<br>(0.231)    | 0.418*<br>(0.228)          | −0.008<br>(0.325)      | –                             |
| Gender pay gap                            | −0.095<br>(0.312)         | −0.012<br>(0.282)   | −0.018<br>(0.281)          | −0.098<br>(0.362)      | −0.132 (0.271)                |
| Banking density                           | −0.089<br>(0.856)         | 0.312<br>(0.845)    | 0.338 (0.838)              | −1.156<br>(1.012)      | 0.245 (0.843)                 |
| Employment share<br>in trade and services | −0.156<br>(0.148)         | −0.072<br>(0.138)   | −0.064<br>(0.135)          | −0.278*<br>(0.167)     | –                             |
| GRP per capita                            | 0.003**<br>(0.001)        | 0.000<br>(0.001)    | –                          | –                      | –                             |
| Digitalisation index,<br>lag 1            | –                         | –                   | –                          | 0.035 (0.047)          | –                             |
| Government<br>support, lag 1              | –                         | –                   | –                          | 0.098 (1.856)          | –                             |
| Gender pay gap, lag<br>1                  | –                         | –                   | –                          | −0.756*<br>(0.398)     | –                             |
| (R <sup>2</sup> )                         | 0.5248                    | 0.7126              | 0.7118                     | 0.4982                 | 0.7014                        |
| Adjusted (R <sup>2</sup> )                | 0.4893                    | 0.6284              | 0.6276                     | 0.4385                 | 0.6298                        |
| F-statistic                               | 14.785                    | 8.452               | 8.876                      | 8.324                  | 9.456                         |
| Probability of F-<br>statistic            | 0.000                     | 0.000               | 0.000                      | 0.000                  | 0.000                         |
| Observations                              | 68                        | 68                  | 68                         | 51                     | 68                            |

Note: compiled by the authors

As shown in Table 6, all estimated models were jointly statistically significant, with the F-statistical probability below 0.01 in every specification. The models with regional fixed effects demonstrated the greatest explanatory power. The (R<sup>2</sup>) values of Models 2, 3, and 5 ranged from 0.7014 to 0.7126, while the

adjusted (R<sup>2</sup>) values ranged from 0.6276 to 0.6298. These results indicate that the included explanatory factors and persistent regional characteristics accounted for a substantial proportion of the variation in women's representation among SME managers.

The preference for fixed-effects models was supported by the Hausman test results ( $\chi^2=18.456$ ;  $p=0.002$ ). The rejection of the null hypothesis indicates systematic differences between the fixed- and random-effects estimates and confirms the need to control time-invariant regional heterogeneity. Such heterogeneity may reflect differences in economic specialisation, urbanisation, business infrastructure, financial accessibility, and the design of regional entrepreneurship support programmes.

Government support per capita showed the strongest association with women's representation among SME managers. In the full fixed-effects model, the estimated coefficient was 3.018 and statistically significant at the 5% level. After excluding GRP per capita, the coefficient increased to 3.102 and became significant at the 1% level. In the reduced model, its value was 2.954 and remained statistically significant. The positive sign and robustness of the coefficient across several specifications confirm a positive relationship between government support and the share of women heading SMEs.

The substantive interpretation of the government support coefficient depends on the unit in which the variable was measured. If one unit corresponds to KZT 10,000 per capita, a one-unit increase in government support would be associated with approximately a 3-percentage-point increase in the share of women SME managers. The final version of the study should therefore clearly specify the measurement scale of this variable.

Gross regional product per capita had a positive and statistically significant coefficient only in the pooled OLS model. After regional fixed effects were introduced, the coefficient approached zero and lost statistical significance. This suggests that the observed association between regional economic development and women's entrepreneurship mainly reflects persistent differences across regions rather than changes occurring within regions over the relatively short study period.

Women's educational attainment had a positive coefficient in the static specifications.

In the fixed-effects model excluding GRP per capita, the coefficient on GRP per capita was 0.418 and statistically significant at the 10% level. This result suggests a potentially positive role of human capital in increasing women's participation in entrepreneurship. However, because the coefficient was not consistently significant across all specifications, the effect should be interpreted cautiously.

The digitalisation index was not statistically significant in either its contemporaneous or lagged form. This may be explained by the fact that an aggregate regional digitalisation indicator does not fully capture women entrepreneurs' actual use of marketplaces, electronic payment systems, social media, digital marketing tools, and remote sales platforms. Therefore, the absence of statistical significance should not be interpreted as evidence that digital technologies have no effect. Rather, it indicates the need for more disaggregated and behaviour-oriented measures of business digitalisation.

The contemporaneous gender pay gap had a negative coefficient but did not reach conventional levels of statistical significance in the static models. In the dynamic specification, its one-year lagged value was  $-0.756$  and statistically significant at the 10% level. This finding suggests a possible delayed effect of gender wage inequality on women's entrepreneurial participation. A larger gender pay gap in the preceding period may limit women's ability to accumulate start-up capital, obtain credit, and invest in business development.

The share of employment in trade and services had a negative coefficient in all specifications and became statistically significant in the dynamic model. The estimated coefficient of  $-0.278$  may indicate saturation in the traditional trade and service segments, where a substantial proportion of women-led businesses is concentrated. This implies that further expansion of women's entrepreneurship may require greater participation in manufacturing, information technology, logistics, processing industries, and other more scalable sectors.

Banking infrastructure density was not statistically significant in any of the estimated models. This result suggests that the physical availability of banking facilities alone does not necessarily promote women's participation in entrepreneurship. Lending conditions, collateral requirements, access to guarantee schemes, and the suitability of financial products for small women-led enterprises may be more important than the number of banking institutions.

In the dynamic model, neither the current nor the lagged measures of digitalisation and government support were statistically significant. One possible explanation is the decline in the number of observations from 68 to 51 after the inclusion of one-year lags, which reduced the statistical power of the estimates. In addition, the effects of these factors may emerge over a longer period or depend on the quality of regional institutions.

Overall, the panel regression results indicate that women's entrepreneurship is not determined solely by the general level of regional economic development. Government support and persistent regional institutional conditions appear to play a more consistent role. At the same time, the negative effects of the lagged gender pay gap and the concentration of employment in trade and services point to long-term structural constraints.

The econometric findings are broadly consistent with the descriptive and structural analysis. Between 2022 and 2025, women's entrepreneurship expanded quantitatively, while regional disparities gradually narrowed. Nevertheless, women-led businesses remained concentrated in individual entrepreneurship, trade, and services, whereas women's participation in more capital-intensive and scalable business forms remained limited.

The positive dynamics of the comprehensive gender entrepreneurship index confirm that the overall conditions for women-led businesses improved during the study period. However, the relatively slow increase in managerial representation indicates that the growth in the number of women entrepreneurs

occurred more rapidly than changes in the organisational and managerial structure of business.

Thus, government support was the most robust factor associated with the expansion of women's entrepreneurship between 2022 and 2025. The effect of women's education was observed only in selected specifications, while digitalisation, banking density, and the contemporaneous gender pay gap did not demonstrate consistent statistical significance. The negative coefficients of the lagged gender pay gap and sectoral concentration confirm that the further development of women-led businesses depends not only on current support programmes but also on overcoming deeper structural and institutional barriers.

## 5. DISCUSSION

The findings indicate that the development of women's entrepreneurship should be assessed not only by the number of women engaged in business but also by the qualitative characteristics of their entrepreneurial activity. A high level of women's representation in the small and medium-sized enterprise sector does not necessarily imply equality of opportunity, as disparities persist in access to capital, business scaling, sectoral participation, and managerial representation.

The observed dynamics suggest a gradual transition from the quantitative expansion of women's entrepreneurship towards the need for its qualitative transformation. The growth of entrepreneurial activity reflects broader opportunities for self-employment, the development of digital sales channels, and changing employment models. However, the predominance of individual entrepreneurship indicates that women often enter business through the most accessible forms, which are also generally less stable and less scalable.

The concentration of women-led businesses in trade and services further confirms the persistence of structural segmentation. These sectors are characterised by relatively low entry barriers, but also by intense competition and limited opportunities to generate high

value-added. Consequently, an increase in the number of women entrepreneurs does not always lead to a comparable improvement in productivity, job creation, or business sustainability.

At the same time, the growing participation of women in digital activities, logistics, and other emerging sectors demonstrates the potential for greater sectoral diversification. Realising this potential requires not only financial support but also access to professional training, digital and managerial competencies, mentoring, public procurement opportunities, and export infrastructure.

Regional disparities confirm that the development of women's entrepreneurship depends substantially on the quality of the local business environment. A high level of regional economic activity does not automatically ensure equal participation by women when financial institutions, advisory services, and support infrastructure remain insufficiently accessible. This finding supports the need for a differentiated approach to women's entrepreneurship policy that reflects regional development levels and sectoral specialisation.

The positive effect of government support is particularly important. It demonstrates that institutional mechanisms can reduce financial and infrastructural barriers to women's participation in entrepreneurship. However, the effectiveness of support programmes depends not only on the amount of funding provided but also on their design and orientation. Programmes focused mainly on establishing microenterprises may increase the number of entrepreneurs without necessarily ensuring the subsequent growth and consolidation of their businesses.

It is therefore important to distinguish between instruments that support entry into entrepreneurship and those intended to facilitate business scaling. At the initial stage, training, microfinance, and basic advisory services are particularly relevant. At later stages of business development, larger credit products, guarantee mechanisms, investment financing, export support, and technology adoption become increasingly important.

The absence of a consistent statistical effect of digitalisation should not be interpreted as evidence of its limited importance. Rather, aggregate regional indicators may not adequately reflect entrepreneurs' actual use of marketplaces, electronic payment systems, social media, digital marketing, and online sales platforms. The effect of digitalisation should therefore be examined further using firm-level or individual-level data.

The negative effect of the lagged gender pay gap suggests a possible transmission of inequality from paid employment into entrepreneurship. Lower earnings in wage employment may constrain women's ability to accumulate start-up capital, provide collateral, and invest in education and technology. Reducing the gender pay gap may therefore be regarded as one of the long-term conditions for strengthening women's entrepreneurial capacity.

The comprehensive gender entrepreneurship index provides a multidimensional assessment of the development of women-led businesses. However, an increase in the aggregate index should not be interpreted solely as evidence that existing constraints have been removed. Positive changes in the overall indicator may coexist with slow progress in managerial representation and limited women's participation in larger and more formalised business structures.

Accordingly, the monitoring of women's entrepreneurship should extend beyond the number of registered enterprises. It should also include business survival, enterprise size, revenue, productivity, employment creation, export participation, and access to finance. Such an approach would make it possible to distinguish between the formal expansion of entrepreneurial activity and the actual strengthening of women's economic position.

The findings are also relevant to achieving Sustainable Development Goal 5. Entrepreneurship can strengthen women's economic opportunities and financial independence, but only when women have

sufficient access to capital, technology, markets, and managerial resources.

Thus, the main direction of future policy should shift from the quantitative promotion of women's entrepreneurship to the improvement of its sustainability, productivity, and scalability. This requires gender-responsive financial instruments, regionally differentiated support measures, the development of digital and managerial competencies, and broader participation of women in manufacturing, technology-intensive, and export-oriented sectors.

## 6. CONCLUSION

This study provided a comprehensive assessment of the dynamics, structure, and determinants of women's entrepreneurship in Kazakhstan from 2022 to 2025. The findings show that women's participation in the SME sector expanded consistently, while their share among SME managers approached gender parity.

However, quantitative growth was not accompanied by comparable changes in the qualitative characteristics of women-led businesses. Women were predominantly represented in individual entrepreneurship, trade, and services, whereas their participation among managers of legal entities and in capital-intensive manufacturing and technology-based sectors remained limited. This confirms the persistence of organisational and sectoral segmentation in women's entrepreneurship.

The regional analysis revealed substantial and persistent territorial disparities. The highest levels of women's representation were observed in large cities with relatively developed entrepreneurial, financial, and digital infrastructure. Lower levels persisted in oil- and gas-producing regions and in newly established administrative regions. Although interregional disparities gradually narrowed, territorial heterogeneity continued to shape the opportunities available for women-led businesses.

The analysis of support mechanisms demonstrated an increase in both the number of women-led projects receiving assistance and the total volume of financing. Nevertheless, women's share among the recipients of certain financial instruments remained below their overall representation in the SME sector. This finding indicates the need to improve access to credit, guarantees, and advisory support, particularly for enterprises seeking to scale their operations.

The comprehensive gender entrepreneurship index displayed positive dynamics, reflecting an overall improvement in the conditions for women-led businesses. At the same time, managerial representation was the slowest-changing component, confirming the continued presence of barriers preventing women from moving into larger and more formalised forms of entrepreneurship.

The panel regression results showed that government support was the most consistent factor associated with an increase in women's representation among SME managers. The effect of women's education emerged in selected specifications, whereas digitalisation, banking density, and the contemporaneous gender pay gap did not demonstrate robust statistical significance. The negative effects of the lagged gender pay gap and employment concentration in trade and services point to delayed and structural constraints.

The further development of women's entrepreneurship, therefore, requires a shift from quantitative expansion towards qualitative transformation. Priority areas include broader access to long-term finance, the development of guaranteed mechanisms, support for sectoral diversification, the strengthening of digital and managerial competencies, assistance in entering export markets, and greater consideration of regional specificities.

The practical significance of the study lies in the potential use of comprehensive index and panel modelling results to monitor women's entrepreneurship and to inform public policy. The findings may support the development of gender-responsive SME

programmes to enhance the sustainability, productivity, and scalability of women-led businesses.

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