Journal of
*Risk and Financial Management*

MDPI

*Article*

# Mechanisms of Stimulation of Small- and Medium-Sized Entrepreneurship: The Experience of Kazakhstan

**Damira Kazbekova [1], Mariana Petrova [2,*], Olena Sushchenko [3,4], Anargul Belgibayeva [5] and Milen Mitkov [6]**

[1] Department of Economics and Marketing, Faculty of Business and Management, Esil University Astana, Akhmet Zhubanov St. 7, 020000 Astana, Kazakhstan
[2] Department of Information Technologies, St. Cyril and St. Methodius University of Veliko Tarnovo, 5000 Veliko Tarnovo, Bulgaria
[3] Faculty of International Economics and Entrepreneurship, Tourism Department, Simon Kuznets Kharkiv National University of Economics, 61166 Kharkiv, Ukraine; helen.sushchenko@gmail.com
[4] Institute of Culture and Creative Industries, Tourism, Hotel and Restaurant Business Department, Kyiv National University of Technologies and Design, Mala Shyianovska St. 2, 01011 Kyiv, Ukraine
[5] Department of Business and Services, Higher School of Business and Law, Sh. Ualikhanov Kokshetau University, Abay St. 76, 020000 Kokshetau, Kazakhstan
[6] Bulgarian Air Force Academy "Georgi Benkovski", University of Bulgaria, 5856 Dolna Mitropolia, Bulgaria; mmitkov@af-acad.bg
* Correspondence: m.petrova@ts.uni-vt.bg

**Abstract:** This study aimed to investigate the prerequisites, factors, and mechanisms for stimulating economic growth in small and medium-sized enterprises (SMEs), using the manufacturing industry of the Republic of Kazakhstan as a case study. Econometric tools, including statistical methods, regression analysis, time series analysis, scenario development methods, and the decision tree method, were employed to analyze the data. This research employed a range of scientific and applied methods, resulting in practical outcomes that can be utilized by SMEs to model various development scenarios. The key factors influencing SME development, such as the costs of technological innovations, average monthly wages, level of innovative activity, and investments in fixed capital, were identified. Based on these factors and the diagnosis of the state, a mechanism for state stimulation of entrepreneurship, encompassing financial incentives, tax breaks, infrastructure support, and targeted training programs, was developed. This mechanism includes a system of incentives, goal-setting, and tool formation. This study also developed a model to evaluate the potential impact of measures at the regional level on production volume growth in the manufacturing industry, presenting three scenarios—pessimistic, realistic, and optimistic—for consideration, which are significant for policymakers, practitioners, and stakeholders in the field. Stakeholders, including investors and industry practitioners, can apply the recommended strategies to foster innovation and drive economic growth. This study provided actionable recommendations and a robust framework for stimulating SME growth, offering valuable insights for enhancing the economic resilience and industrial development of Kazakhstan.

**Keywords:** small and medium-sized enterprises; mechanism of stimulation; policy; state stimulation; manufacturing industry



**Citation:** Kazbekova, Damira, Mariana Petrova, Olena Sushchenko, Anargul Belgibayeva, and Milen Mitkov. 2024. Mechanisms of Stimulation of Small- and Medium-Sized Entrepreneurship: The Experience of Kazakhstan. *Journal of Risk and Financial Management* 17: 257. https://doi.org/10.3390/jrfm17070257

Academic Editors: Nohade Nasrallah and Rim El Khoury

Received: 11 May 2024
Revised: 13 June 2024
Accepted: 15 June 2024
Published: 21 June 2024



## 1. Introduction

The study of economic mechanisms for stimulating small and medium-sized enterprises (hereinafter SMEs) is quite relevant, which is explained by their role in many economies, providing employment, promoting innovation, and ensuring the development of regional industries. Many countries recognize the importance of the development of SMEs as a key factor for achieving economic growth; for example, China (Cunningham 2011; Surya et al. 2021; Qader et al. 2022), Canada (Bommer and Jalajas 2002; Moraes et al. 2020), and Brazil (Schaefer et al. 2021). For example, it is worth mentioning Germany, which is famous for its

strong system of small business (Albaz et al. 2020) which plays a key role in the economy, while the country's government actively supports SMEs through financial instruments, technical support, and training programs (Brodny and Tutak 2022). The promotion of SMEs is an important aspect of economic policy in the USA as well (Acs et al. 1999), where financial support, grants, tax breaks, and other tools are provided to stimulate the development of these types of enterprises (Taiwo et al. 2012; Liu et al. 2022). In Japan, SMEs are considered a key source of innovation and technological development, and the Indian government actively promotes the development of SMEs as part of its strategy to grow the economy and reduce unemployment (Philbin et al. 2022). These examples show the diversity of approaches to promoting SMEs in different countries, but the general trend is that many countries recognize the importance of this sector for sustainable economic development (Parida et al. 2012; Games et al. 2022).

Unlike large corporations, SMEs, whose share in the world is almost 90% (Hilgenfeldt 2023) and the dynamics of their development from 2021 (322.99 million enterprises) (Dyvik 2023) increased to almost 400 million (Zhou 2023), are characterized by high flexibility, adaptability to external environmental conditions, and better distribution of income through an optimal management structure (Gherghina et al. 2020). The activity of SMEs differs from large enterprises in terms of the level of productivity, which is also determined by the specifics of the field of operation. In a report by McKinsey and Company (Albaz et al. 2020), the researchers noted that proper state support of SMEs could significantly accelerate economic growth. Differences in size and industries show uneven productivity; in the food and accommodation sector, the difference in productivity between SMEs and large enterprises is 29% in Italy or 41% in Germany, while in construction the gap is even greater—reaching 41% (Germany) and 54% (Italy). Identifying the economic mechanisms for stimulating sectors of the economy can provide valuable insights for the formulation of effective policies and appropriate support, where the stimulation of the manufacturing industry is an important aspect of economic policy, as this sector is defined by the production and processing of raw materials to create finished goods. SMEs are often the largest source of new jobs, and research in this area helps to understand what mechanisms can contribute to the creation and maintenance of jobs (Amoah et al. 2022; Melo et al. 2023), or contribute to increasing the competitiveness of the economy (Sushchenko et al. 2022; Akhmedyarov and Issabayev 2023; Andarova et al. 2016; Kurmanov et al. 2019; Shalbayeva et al. 2024; Toleuuly et al. 2020; Popova et al. 2023). Economic and social challenges, such as economic instability or crises, can seriously affect SMEs, so their development and support are key to sustainable economic growth and social development. Nevertheless, existing research on the activities of SMEs in the manufacturing industry, for the most part, focuses on issues of innovation and technological development (Laforet 2009; Evans and Bosua 2017; Obradović et al. 2021; Ramazanov and Petrova 2020; Jarmuševiča et al. 2019), financial stability and access to credit (Lee et al. 2015; Andrieu et al. 2018; Wasiuzzaman et al. 2020), globalization (Aldaba 2010; Raymond et al. 2014), international competition (Guzmán et al. 2012; Kharub et al. 2022), and sustainable development and environmental responsibility (Yacob et al. 2019; Baah et al. 2021). In addition to these economic factors, non-economic factors such as the education system and the development of entrepreneurial spirit play a crucial role in the growth and sustainability of SMEs. A robust education system equips potential entrepreneurs with the necessary skills and knowledge, fostering a culture of innovation and adaptability. Moreover, an entrepreneurial spirit, cultivated through targeted programs and initiatives, encourages individuals to take risks and pursue business ventures. These factors are instrumental in creating a supportive environment for SMEs, contributing to their long-term success and resilience.

The manufacturing industry serves as a cornerstone of economic development in many nations, facilitating job creation, technological innovation, and export diversification. Within this context, the Republic of Kazakhstan emerges as an intriguing case study due to its evolving economic landscape and strategic positioning within the Central Asian region. Firstly, the manufacturing sector in Kazakhstan holds immense potential for growth and

modernization, aligning with the country's long-term development objectives outlined in its strategic plans such as the "Kazakhstan 2050 Strategy" and the "Nurly Zhol—Path to the Future" program. As the nation seeks to transition from a resource-dependent economy to one driven by diversified industries, understanding the dynamics and challenges within the manufacturing sector becomes imperative.

Furthermore, the Republic of Kazakhstan occupies a unique geopolitical position, serving as a bridge between Europe and Asia, and as a key player in regional economic integration efforts such as the Eurasian Economic Union (EAEU). This positioning presents both opportunities and challenges for the manufacturing industry, including access to markets, infrastructure development, and regulatory alignment. Moreover, the study of SMEs within the manufacturing sector of Kazakhstan offers valuable insights into the effectiveness of economic policies, regulatory frameworks, and support mechanisms aimed at fostering entrepreneurship and industrial growth. Given the pivotal role SMEs play in driving innovation, job creation, and economic resilience, understanding the specific challenges and opportunities they encounter within the manufacturing landscape of Kazakhstan can inform targeted interventions and policy reforms.

By focusing on the manufacturing industry and the Republic of Kazakhstan, this study aims to fill a critical research gap, contribute to the body of knowledge on SME development and economic stimulation, and provide actionable recommendations for stakeholders invested in the sustainable growth and competitiveness of Kazakhstan's manufacturing sector.

The conducted research complements the current issues surrounding SME activity in the manufacturing industry. At the same time, the primary focus of this study is on understanding the economic mechanisms for stimulating small and medium-sized entrepreneurship using the example of Kazakhstan. Given the relative scarcity of research on SMEs in the manufacturing sector compared to large enterprises, this study's contribution is significant. It provides a unique opportunity to gain a deeper understanding of how enterprises of this type operate within the specific context of the manufacturing industry. As most emerging markets are characterized by financial incentives with weak capital markets (Wellalage and Fernandez 2019), a certain centralization of enterprise activity, and insufficiently effective mechanisms for stimulating SMEs, there is a need for more detailed research. The research gap this study aims to bridge is to study effective mechanisms of economic stimulation in the example of the manufacturing industry of the Republic of Kazakhstan and forecast possible development scenarios to determine optimal stimulation mechanisms.

This article is structured as follows: the literature review conducts an analysis of the scientific literature on entrepreneurship, SME development, and the consistency of activity in the manufacturing industry. The Materials and Methods Section specifies the information base, the data that served as the basis of the research, and the methods used in the work process. The Results Section evaluates the mechanisms for stimulating SMEs in the Republic of Kazakhstan in the manufacturing industry, determining the most significant factors influencing the development of SMEs in the manufacturing industry, with the construction of various development scenarios. The obtained empirical results are expected to significantly enrich knowledge regarding the assessment of the impact of economic mechanisms on the activity of SMEs in Kazakhstan. In the Discussion Section, the key problems of SME stimulation are identified, and a tree of their solutions is proposed. The final part consists of generalizing our conclusions and future directions of research.

These aspects can serve as a foundation for a deeper understanding of the realities of SMEs' functioning in the manufacturing industry and for developing effective strategies to support and develop them.

## 2. Literature Review

At the current stage of economic development, there is a growing need to systematize economic and theoretical knowledge about the concepts of entrepreneurial activity. In economics, one of the first researchers of entrepreneurial activity is R. Cantillon (Cantillon 2015;

Chabbouh and Boujelbene 2023). In this work, the opinion is expressed that an entrepreneur is a person who takes risks, buying at a known price and selling at an unknown price. Merchants, artisans, landowners, and capitalists who use other people's labor can play the role of an entrepreneur. The main role of an entrepreneur is to act and make decisions under conditions of risk and uncertainty. The function of an entrepreneur in Cantillon is directly related to the production or ownership of capital, consisting more in the development of the economy. Thus, Cantillon draws a distinction between a capitalist and an entrepreneur. Economic science returned to the study of the problem of entrepreneurship after 100 years. J.-B. Say addressed the problem of entrepreneurship in his work "Treatise on Political Economy" (Say 1803). The main function of an entrepreneur, according to Say, is the organization of production and coordination of production factors: labor, land, and capital. Such activity is associated with a certain risk.

Scientific research in the field of economic mechanisms for stimulating small and medium-sized entrepreneurship has garnered attention from numerous economists, business scholars, and experts in public administration (Acs et al. 1999). For instance, D. Storey's research delved into the role of small and medium-sized businesses in the economy and examined the influence of the state on their functioning (Storey 2003). Similarly, a team of researchers led by Gherghina et al. (Gherghina et al. 2020) emphasized that SMEs serve as engines of economic growth. Their work focused on providing support and fostering the development of SMEs through appropriate incentive tools, drawing insights from the experiences of small and medium-sized enterprises in Romania.

According to global economic practice, several groups of tools for stimulating and supporting entrepreneurship can be distinguished (Cunningham 2011; Surya et al. 2021; Bommer and Jalajas 2002):

(1) Financial and credit stimulation includes the provision of loans and guarantees for them, monetary assistance for the purchase and rental of premises, subsidies on interest rates for bank loans, and the stimulation of public investment in regional enterprises.
(2) Tax incentives involve reducing the tax burden on SMEs, providing various tax benefits, and simplifying financial and economic transactions and mechanisms for calculating tax payments. This includes reducing the number of required tax reporting documents.
(3) Legal stimulation—the development and adoption of laws, resolutions, and decrees; the simplification of procedures for the registration and closing of enterprises, and fighting against corruption in the sphere of distribution of financial and credit assistance from the state.
(4) Infrastructural stimulation through the creation of funds to support small and medium-sized enterprises, and the creation of infrastructure facilities for SME entities, such as information and analytical centers, development funds, SME agencies, business incubators, training centers, credit unions, and association entrepreneurs.
(5) Scientific and methodical stimulation—the special stimulation of enterprises focused on innovation. This includes the creation of innovative business incubators and business centers, the organization of training and retraining of personnel for SMEs, and the provision of consulting and information services with the involvement of research structures: institutes, universities, private consulting, and analytical centers.
(6) Organizational and administrative stimulation—the development and implementation of SME development projects and strategies, constant monitoring of the economic activity of SMEs, and the regulation of interactions between the state and SME subjects. Implementation of antimonopoly policies in the field of SMEs, protection against unfair competition, creation of incentives for fair competition, and provision of equal conditions for the conclusion of public procurement agreements.

The questions surrounding the economic mechanisms of incentives for SMEs in the manufacturing industry have been addressed by researchers worldwide, as evidenced by the works of scholars such as (Radicic et al. 2020; Ndubisi et al. 2021), underscoring the significance of the chosen issue. The research conducted by these scholars and many others

aims to explore effective strategies for stimulating small and medium-sized enterprises through various means, including tax incentives, access to credit, training, consulting, and the creation of a favorable business environment (Ismatullayevich and Bulturbayevich 2021; Ren and Albrecht 2023).

Hence, investigating economic mechanisms for stimulating SMEs in the manufacturing industry holds significant importance for shaping policies and programs aimed at bolstering this sector. These studies provide valuable insights that can inform the development of effective strategies geared towards enhancing the competitiveness and sustainability of SMEs within this domain.

Based on the stated goal of this study, our research hypotheses were developed as follows:

**Hypothesis 1.** *Economic stimulation mechanisms impact SME Growth in Kazakhstan's manufacturing industry.*

**Hypothesis 2.** *Forecasted development scenarios provide insights into the optimal stimulation mechanisms.*

These hypotheses aim to study the connection between economic stimulation mechanisms and SME growth in the manufacturing industry of Kazakhstan, as well as to explore the role of forecasted development scenarios and industry characteristics in shaping the optimal stimulation mechanisms.

## 3. Materials and Methods

This study employed a combination of quantitative and econometric methods to analyze the role of economic mechanisms in stimulating small and medium-sized enterprises (SMEs) in the manufacturing industry, focusing on the example of Kazakhstan. The theoretical and methodological basis of this study comprised the works of modern economists and the scientific literature on small and medium-sized enterprises, the manufacturing industry, and mechanisms for stimulating SMEs. This research involved a systematic, logical, and comparative analysis of methods for stimulating entrepreneurial activity and their impact on the manufacturing industry.

Other research methods, such as the use of structural and analytical groups and the study of dynamics, were also used during the analysis. These methods were applied in different combinations and at various stages of the research, depending on the goals and objectives. Econometric methods and statistical forecasting models were used to forecast production growth, along with scenario development methods that enabled the construction of pessimistic, realistic, and optimistic scenarios for manufacturing industry development.

The multiple regression method was employed to obtain reliable data from a significant population of data and influencing factors. Correlation analysis was used to select the most significant indicators, while the method of smoothing moving averages was used for forecasting factors.

Data from Eurostat, the Organization for Economic Cooperation and Development (OECD), and Statista reports, along with statistical data from the countries under study, were utilized to address the research questions. Additionally, this study involved a detailed analysis of the regulatory and legislative acts of the Republic of Kazakhstan. Furthermore, this research made use of results from studies initiated by the National Chamber of Entrepreneurs of the Republic of Kazakhstan, reports from the Entrepreneurship Development Fund, and official data from the national economy of the Republic of Kazakhstan provided by the State Revenue Committee of the Ministry of Finance.

## 4. Results

The relevance of studying economic mechanisms for stimulating small and medium-sized enterprises (SMEs) in the manufacturing industry is underscored by several key factors. SMEs frequently serve as the primary source of employment, and their development can play a vital role in reducing unemployment rates and enhancing overall employment levels. Additionally, fostering the growth of SMEs contributes to economic diversity and has the potential to catalyze the creation of new markets, thereby fostering competitiveness within the economy.

SMEs can serve as hubs of innovation within the manufacturing industry, and fostering research and development initiatives can bolster their competitiveness. Effective economic mechanisms can encourage the adoption of cutting-edge technologies and elevate the technical prowess of production processes. Moreover, the growth of SMEs can play a pivotal role in promoting decentralized development, mitigating regional disparities, and fostering the efficient allocation of economic resources. This, in turn, can bolster social stability and enhance the quality of life in local communities. Diversification is another critical aspect to consider, as expanding the presence of SMEs in the production chain can mitigate the risks associated with dependence on a limited number of large enterprises. Furthermore, small and medium-sized businesses can contribute to production stability and help prevent significant disruptions in manufacturing processes. Facilitating cooperation among SMEs and enhancing their capacity to adapt to changes in the global market are also essential components of effective economic stimulation strategies. Therefore, the key methods of economic stimulation that directly impact entrepreneurial activity in Kazakhstan include:

(1) Fiscal policy—changing the tax burden, creating economically active zones, and using investment tax credits;
(2) Customs policy—reducing export duty on products produced by entrepreneurs, reducing export duty on equipment and key raw materials;
(3) Budgetary policy—subsidies to entrepreneurship, formation of state orders for certain types of products, and subsidizing bank rates for financing certain types of activities;
(4) Institutional policy—the formation of transparent relations between business entities and authorities, the development of a system of mutually beneficial relations, and the fair arbitration of disputes;
(5) Administrative policy—reducing the number of inspections, reducing pressure on agreements, and increasing the responsibility of authorities for the decisions made;
(6) Tariff policy—maneuvering payment rates for housing and communal services for business entities, for fuel and energy resources for manufacturers, and for rental rates for new, developing businesses.

The first economic effect of economic incentives is a reduction in costs for entrepreneurs, freeing up additional funds for development. Secondly, economic incentives make it possible to increase the number of business entities in the regional economy, thereby expanding the tax base for the regional budget.

The main economic incentives for entrepreneurship differ from those for citizens, households, corporations, and state entities. This difference should be considered by regional state bodies developing a program of economic stimulation for entrepreneurial activity. The development of general principles for stimulating entrepreneurial activity is particularly important for developing economies, as it provides an opportunity to reduce dependence on raw materials and increase the population's employment level.

In addition, the types of support and stimulation differ at various stages of SME enterprise activity. In Kazakhstan, during the establishment of a new enterprise, common methods include budgeting, registration and consultation assistance, support with documentation, marketing consultations, and benefits for equipment leasing and premise rental. During the initial stages of SME operation, preferential lending is the primary form of stimulation, provided by both budgetary and extra-budgetary funds, as well as banks, with or without state agreements.

Consequently, a methodology was developed and a study conducted to assess the factors influencing SME activity, using manufacturing enterprises in the Republic of Kazakhstan as an example.

During the period 1976–1993, the number of jobs at large enterprises decreased by 500,000, while SMEs created 3.2 million new jobs during the same period (The State of Small Business 1994). A comparison of SME development levels across different countries (refer to Table 1) reveals that Kazakhstan is in the process of transitioning from an economy dominated by large enterprises to a more balanced system comprising SMEs and large businesses. While the share of SMEs in the total number of enterprises is already high, their contribution to GDP and employment remains significantly lower than that of developed countries.

**Table 1.** Main indicators of the role of SMEs in the economies of countries in 2020 (OECD 2022).

| Indicator | USA | Canada | Japan | Germany | France | Italy | Great Britain | Kazakhstan |
|---|---|---|---|---|---|---|---|---|
| Share of SMEs in GDP (%) | 44 | 50 | 60 | 59 | 55.8 | 62 | 53 | 31.6 |
| Share of SMEs in employment (%) | 46.4 | 67.7 | 68.8 | 56 | 47.6 | 80 | 61 | 38.6 |
| Share of SMEs in the number of enterprises | 99 | 98 | 99.7 | 99.3 | 99.9 | 99.9 | 99.9 | 96.4 |

The data presented in Table 1 underscore the vital role of SMEs in the country's economy. SMEs constitute the majority of operational enterprises, employing almost two-thirds of the population and contributing over half of the GDP. In 2018, Kazakhstan witnessed a 1.5 percentage point increase in the share of SMEs in GDP, reaching 28.3%. Subsequently, in 2019, this share further rose to 45.3%, indicating a significant enhancement in the role of SMEs in the Republic's socio-economic development. However, the COVID-19 pandemic had adverse effects on the country's economy as a whole, including the functioning of SMEs.

The industrial sector plays a leading role in the material production of the Republic of Kazakhstan, contributing significantly to the gross domestic product (GDP) and national income. Presently, industry accounts for more than one-fourth of the country's economy (Figure 1).

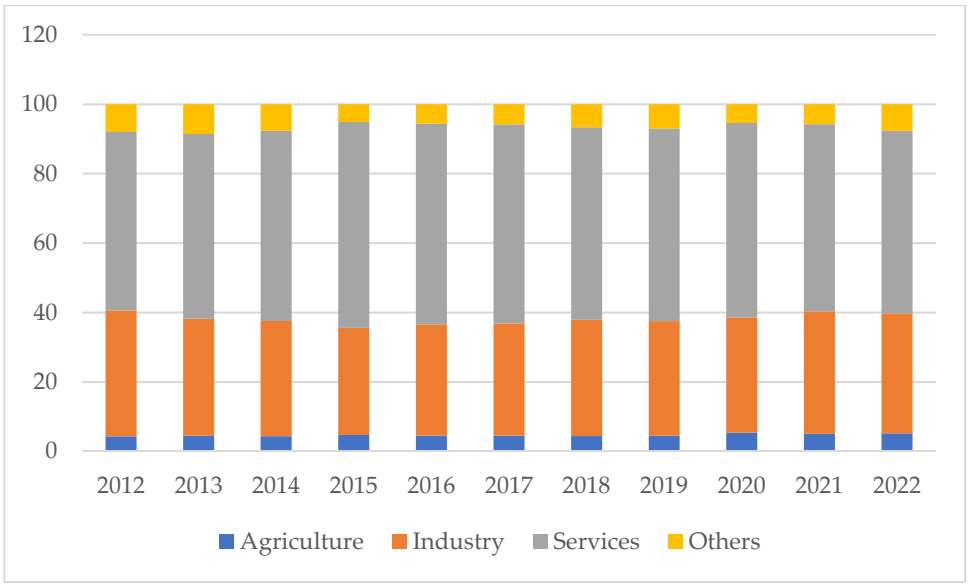


**Figure 1.** Share of economic sectors in GDP 2012–2022, % (O'Neill 2023).

In the structure of industrial production in the Republic of Kazakhstan, the manufacturing industry accounted for an average of 38.8% from 2014 to 2019. This period was selected to evaluate the state of the industry before the COVID-19 pandemic. The mining industry held the leading position in the Republic's industrial production volume, averaging 53.4% during this period. In 2019, the production volume of the mining industry amounted to KZT 16,114,069 million. Electricity supply ranked third in terms of economic activity share in industrial production, averaging 6.8%. In monetary terms, this amounted to KZT 1,549,435 million (Idrisov 2015).

During the process of industrialization, the focus in Kazakhstan's industry gradually shifted towards the manufacturing sector, although its level of development remains relatively low. The manufacturing industry accounts for less than 7% of employment and 12% of the country's gross added value. For comparison, the productivity level in Kazakhstan's manufacturing industry is approximately half that of the average in OECD member countries (Idrisov 2015). In 2019, the production volume of manufacturing industry products amounted to KZT 11,191,973 million out of a total volume of KZT 29,102,989 million. The manufacturing industry in Kazakhstan is largely represented by the metallurgical sector. On average, from 2014 to 2018, the metallurgical industry accounted for 39.4% of the manufacturing industry's structure, increasing to 43.7% in 2019. The production of agricultural products holds the second position, which is significant considering Kazakhstan's status as an agrarian country. The average share of the food industry during the same period was 17.2%, with a share of 14.6% in 2019. Mechanical engineering accounted for 12.3%, while the production of coke and oil refining products represented 7.5%, respectively.

Furthermore, it is important to acknowledge the technical and technological lag in the industry, as evidenced by the high physical and moral depreciation of fixed assets in domestic enterprises, reaching 80% (Khudova 2011). This situation contributes to low labor productivity, the increased labor intensity of production, and frequent production downtime. To address this issue, it is essential to consider exempting technological equipment imported from abroad from customs duties and value-added tax (VAT). Additionally, the establishment of a leasing company with state participation could facilitate the acquisition of this equipment under preferential conditions.

According to data from 2019 and 2020, Kazakhstan ranked among the top 25 countries for ease of doing business, as per the Doing Business rating by (The World Bank 2020). The country's greatest strengths include the ease of starting a business, property registration, the protection of minority investors, and the enforcement of obligations. However, weaknesses were identified in areas such as connections to electricity networks, tax payment procedures, and cross-border trade.

Measures to stimulate and support SMEs in the Republic of Kazakhstan are categorized into three levels, each comprising various initiatives. Among these, the most significant measures include stimulating increased labor productivity, subsidizing loans, providing service and information analytical services, offering financial preferences, financing working capital for both SMEs and large businesses, organizing preferential lending, and investing in authorized capital. As these stimulation measures are implemented, the criteria for stimulating SMEs become increasingly relevant (Table 2).

These criteria are generalized enough to be applicable to SMEs in any industry, while also ensuring effective development. In the Republic of Kazakhstan, some criteria are fully met, such as the protection of investors' rights and property rights, financial support for foreign economic activity, and the stimulation of self-employment, along with the fulfillment of social obligations by the state. However, other criteria lack specific measures aimed at providing long-term stimulation through the creation of stable and favorable institutional conditions, rather than short-term support through financial injections.

**Table 2.** Target criteria for the stimulation of SMEs in the Republic of Kazakhstan (Baitursunov 2018).

| Criterion | Description |
| --- | --- |
| Regulatory | Respect for property rights<br>Anti-corruption activities<br>Providing optimal conditions for creating, running, and liquidating a business<br>Incentive tax policy<br>Integration of responsibility centers in matters of business regulation |
| Economic | State support for SMEs<br>Involving entrepreneurs in innovative projects and programs<br>Support for foreign economic activity<br>Development of the financial market<br>Diffusion of new technologies<br>Support for competition<br>Stimulating self-employment |
| Social | Ensuring civil liberties<br>Freedom of business |

Currently, the capacity of state management bodies to determine policies for stimulating entrepreneurship development is closely linked to the transformation of the institutional and economic environment, along with a shift in the role of the state in this process. This role has been largely minimized and limited to establishing incentives, tax benefits, guarantees, and compensations within the framework of existing legislation. Many stimulation issues have been decentralized to the regional level, where they are determined by regional policies aimed at fostering private initiative development. These regional policies are integrated into the broader system of "state–business" relations. Hence, effective mechanisms from the state are especially pertinent for supporting and developing SMEs.

The state oversees the overall conditions for conducting business activities, while local authorities are responsible for regulating and promoting SMEs based on the local context. Noteworthy measures aimed at facilitating entrepreneurs' compliance with legislation include the following:

(1) The simplification of taxation for self-employed entrepreneurs;
(2) Exemption from audits for entities with small turnovers;
(3) The introduction of new simplified forms of tax reporting;
(4) Monitoring timely payments to SMEs by state bodies and large businesses.

In the early years of Kazakhstan's economic development, the macroeconomic state policy regarding the stimulation of entrepreneurial activity was characterized by excessive individual scrutiny, strict tax controls on entrepreneurs, widespread administrative barriers to establishing new small and medium-sized businesses, and a lack of appropriate subsidies.

However, as the country transitioned to a market economy and gained experience in the functioning of small and medium-sized enterprises within a changed institutional environment, the approach of state bodies evolved. Presently, Kazakhstan has set the goal of diversifying its economy away from a reliance on raw materials and towards the development of the manufacturing industry. Achieving this objective necessitates a concerted effort to stimulate the growth of small and medium-sized enterprises within the industry. The overarching aim of the system for stimulating entrepreneurial development in the relationship between the state and the business sector is to translate strategic sectoral development goals into practical actions aimed at addressing the following tasks:

(1) Enhancing the efficiency and competitiveness of small and medium-sized enterprises;
(2) Ensuring equitable compensation based on objective assessments of the work, required skills, abilities, and effort exerted by small and medium-sized business entities;
(3) Aligning the interests of all stakeholders involved in the stimulation process to foster adherence to established norms, rules, and legislation.

In the context of our research, the concept of production improvement is of particular interest. This concept emphasizes the importance of continuously satisfying consumer demands for existing products. It has long been employed by sellers in their operations, highlighting the need for management to focus on enhancing production processes and refining sales strategies and techniques.

The mechanism for state stimulation of business entities in the manufacturing industry should encompass all aspects of enterprise provision, including personnel, information, materials, finance, investments, energy, advertising, and sales activities. In addition to adhering to objective economic laws, the construction of this mechanism must also align with specific principles, such as the law of constant growth of needs and limited resources. The structure of the corresponding mechanism is illustrated in Figure 2.

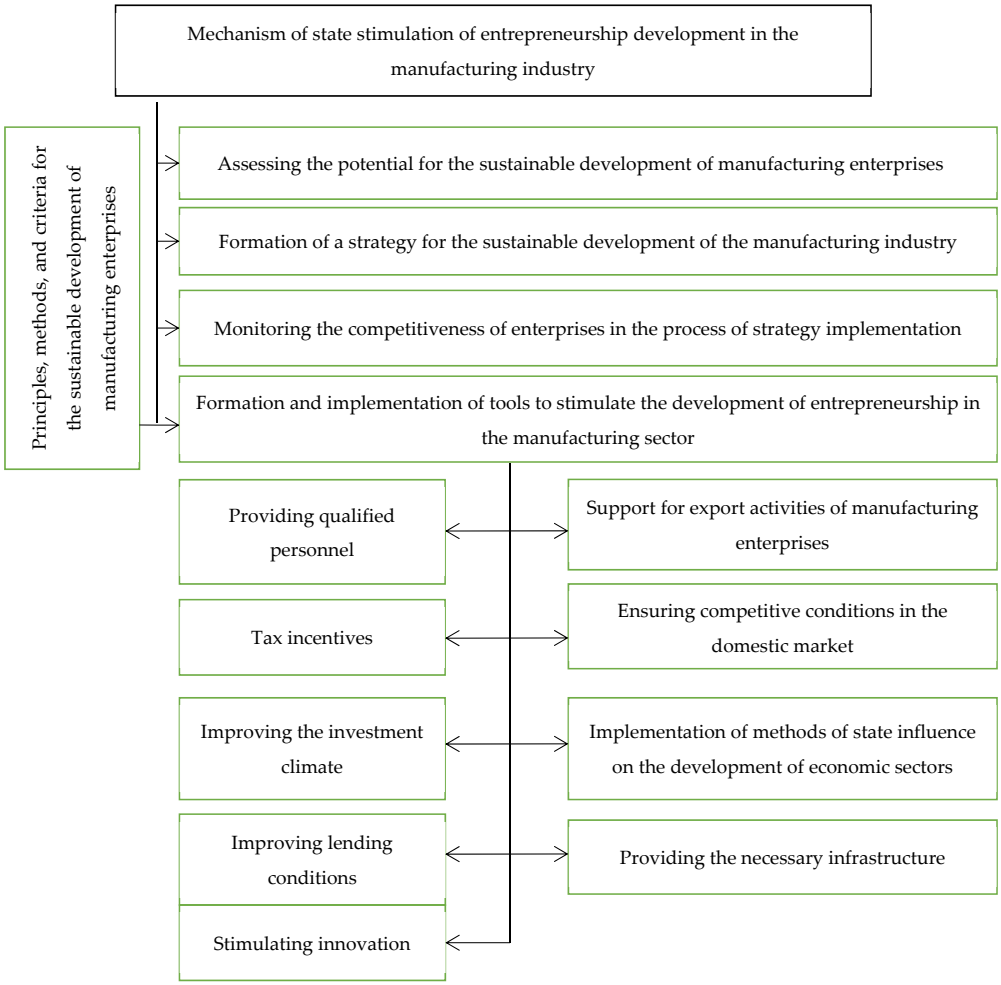


**Figure 2.** The structure of the mechanism of state stimulation of entrepreneurship development in the manufacturing industry.

The proposed mechanism for the state stimulation of entrepreneurship in the manufacturing industry comprises a system of incentives designed to enhance production efficiency through the establishment of goals and utilization of appropriate tools. It adds to the theoretical frameworks that explain how government interventions can drive economic development in emerging markets. The modern model of this mechanism must embody the following characteristics:

(1) It should be flexible to adapt to changes.
(2) It should adhere to the laws of evolutionary development.
(3) It should consider the influence and state of both the external and internal environment.
(4) It should adhere to basic principles, methods, and management levers.

It should possess a toolkit capable of enhancing the competitiveness of enterprises in both domestic and foreign markets. All of the above enable the conduct of a SWOT analysis, which is formed using a problem-oriented approach, primarily focusing on describing the issues inherent in the manufacturing industry of the Republic of Kazakhstan (Table 3). The primary aim of this SWOT analysis is to clearly define the challenges encountered by the manufacturing industry in implementing state policies regarding the imperative industrial and innovative development of the Republic of Kazakhstan.

**Table 3.** SWOT analysis of the manufacturing industry of the Republic of Kazakhstan.

| **Strengths (S)** | **Weaknesses (W)** |
|---|---|
| Low level of wear in some industries (automotive, oil and gas industry, biotechnology)<br>Systemic state support<br>High Doing Business rating<br>Growth in the number of SMEs<br>"Digital Kazakhstan" program | Insufficient supply of domestic products on the domestic market<br>Outdated material and technical base<br>Low labor productivity<br>Weak development of R&D<br>Shortage of qualified personnel<br>A high share of the mining industry<br>High credit burden on enterprises |
| **Opportunities (O)** | **Threats (T)** |
| Accession of the Republic of Kazakhstan to the integration associations (EAES)<br>Import substitution due to price competition<br>Diversification through income from the extractive sector<br>Restrictions on the export of raw materials in certain industries<br>Point support programs for manufacturing enterprises<br>Creation of regional clusters<br>Acceleration of urbanization in the Republic of Kazakhstan | Competition from the producers of EAEC countries<br>High barriers to entering the world market<br>Decrease in purchasing power<br>Dependence on the extractive sector<br>Developed wholesale markets of China (Khorgos) and Kyrgyzstan (Dordoi)<br>Increasing technological lag<br>Insufficient investment attractiveness |

Source: Authors' elaboration.

To ascertain the effective economic stimulation mechanisms, an analysis of SME development dynamics was conducted, utilizing the manufacturing industry of the Republic of Kazakhstan as an illustrative example. Additionally, the forecasting of potential development scenarios was undertaken to identify optimal stimulation mechanisms.

The figure below depicts the number of active SMEs ($y$-axis) from 2015 onwards. There has been consistent growth in SME numbers with an average annual growth rate of 3.5%. However, a significant decline can be observed in 2019, where the number decreased by 16.6% compared to previous years (Figure 3).

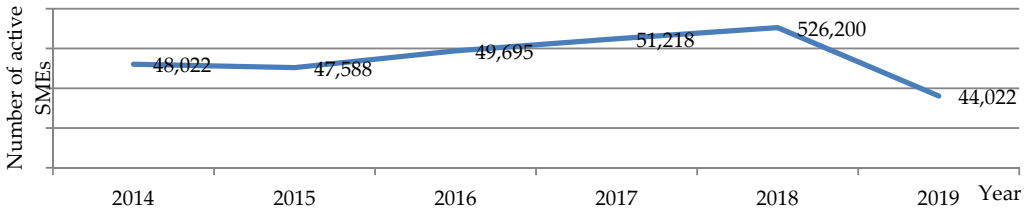


**Figure 3.** Number of active SMEs in the manufacturing industry, units (Agency for Strategic Planning and Reforms of the Republic of Kazakhstan Bureau of National Statistics 2020).

It should be noted that the significant decrease in the number of SMEs in Kazakhstan in 2019 could be attributed to various factors:

Economic downturn has led to reduced consumer spending, decreased demand for goods and services, and tighter credit conditions, all of which make it difficult for SMEs to survive;

Changes in taxation and government policy affected the viability of small businesses;

External factors such as global economic instability and geopolitical tensions have disrupted business operations and led to SME closures or bankruptcies;

Difficulties in accessing credit or loans from financial institutions hindered the growth and sustainability of small businesses.

Econometric methods were employed to forecast production growth in the manufacturing industry of the Republic of Kazakhstan, focusing on manufacturing enterprises in the Akmola region for the period 2019–2023. This forecast was based on statistical data encompassing four selected factor characteristics from 2009 to 2018.

Three scenarios were considered: pessimistic, optimistic, and realistic. Statistical forecasting models were utilized to analyze the data. Given that the growth of the manufacturing industry is influenced by a multitude of factors acting simultaneously and cumulatively, the multiple regression method was employed for modeling. Building a multiple regression model enables the determination of both the individual and cumulative impacts of various variable factors on the resulting factor; in this case, the production volume of the manufacturing industry.

To identify the most significant indicators, the correlation analysis method was employed. This involved assessing the significance of each factor's influence on the production volume of the manufacturing industry in the Akmola region and excluding any factors deemed insignificant from the model.

For forecasting factors affecting the next five years, the method of smoothing moving averages by five points was utilized. This method enables the consideration of not only the average growth rate but also the smoothing of non-dynamic changes.

Step 1. Factors were selected based on their potential to influence the growth of industrial production volume in the manufacturing industry (Table 4). The aim was to determine the most significant factors that correlate with the volume of industrial production in the manufacturing industry.

**Table 4.** Source data of the identification of the most significant factors that affect the volume of output of the manufacturing industry of the Akmola region.

| Year | Volume of Manufactured Products of the Manufacturing Industry, Million Tenge. (Y) | Number of Operating Enterprises and Production Facilities in the Manufacturing Industry, Units. ($X_1$) | Costs of Implementing Technological Innovations in the Manufacturing Industry, Million Tenge. ($X_2$) | Employment of the Population in the Manufacturing Industry, Thousand People ($X_3$) | Average Monthly Wage in Manufacturing Industry, Tenge ($X_4$) | Level of Innovative Activity of Manufacturing Enterprises, % ($X_5$) | Degree of Depreciation of Fixed Assets, % ($X_6$) | Investments in Fixed Capital of the Manufacturing Industry, Million Tenge. ($X_7$) |
|---|---|---|---|---|---|---|---|---|
| 2009 | 85,618.00 | 445.00 | 284.70 | 30.60 | 60,040.00 | 1.20 | 24.80 | 16,269.00 |
| 2010 | 127,489.00 | 446.00 | 629.50 | 30.20 | 68,497.00 | 0.70 | 27.60 | 15,169.00 |
| 2011 | 169,740.00 | 335.00 | 3951.60 | 30.50 | 76,674.00 | 1.00 | 30.40 | 11,393.00 |
| 2012 | 188,255.00 | 354.00 | 10,356.40 | 29.90 | 91,827.00 | 7.30 | 31.60 | 13,109.00 |
| 2013 | 210,163.00 | 335.00 | 7663.80 | 30.70 | 94,389.00 | 5.60 | 34.30 | 28,822.00 |
| 2014 | 223,104.00 | 603.00 | 10,056.60 | 29.60 | 99,926.00 | 7.30 | 31.40 | 35,385.00 |
| 2015 | 231,415.00 | 606.00 | 16,500.90 | 29.60 | 101,166.00 | 14.30 | 33.70 | 19,982.00 |
| 2016 | 329,309.00 | 610.00 | 9133.70 | 31.00 | 129,036.00 | 15.30 | 31.00 | 25,975.00 |
| 2017 | 444,042.00 | 610.00 | 30,392.60 | 31.30 | 143,362.00 | 14.90 | 31.00 | 31,180.00 |
| 2018 | 533,069.00 | 594.00 | 30,392.60 | 31.90 | 169,720.00 | 17.80 | 29.50 | 47,131.00 |

Source: Authors' calculations.

Further, the pairwise correlation coefficients presented in Table 5 were calculated.

**Table 5.** Matrix of paired correlation coefficients.

| | $X_1$ | $X_2$ | $X_3$ | $X_4$ | $X_5$ | $X_6$ | $X_7$ | Y |
|---|---|---|---|---|---|---|---|---|
| $X_1$ | 1 | strong | low | strong | strong | low | strong | strong |
| $X_2$ | 0.603052466 | 1 | strong | PERFECT | PERFECT | moderate | strong | PERFECT |
| $X_3$ | 0.186931255 | 0.538868989 | 1 | strong | moderate | low | strong | strong |
| $X_4$ | 0.647486089 | 0.90688004 | 0.668629003 | 1 | PERFECT | moderate | PERFECT | PERFECT |
| $X_5$ | 0.760259275 | 0.85099583 | 0.435658376 | 0.915392735 | 1 | low | strong | PERFECT |
| $X_6$ | 0.048489724 | 0.311299899 | −0.218686008 | 0.302706705 | 0.411152946 | 1 | low | low |
| $X_7$ | 0.61176277 | 0.718152746 | 0.547030964 | 0.819774374 | 0.675574077 | 0.196650719 | 1 | PERFECT |
| Y | 0.619505889 | 0.925951315 | 0.722201436 | 0.990329448 | 0.873293314 | 0.241698137 | 0.807332436 | 1 |

Source: Authors' calculations.

For correlation strength scores, we used a four-dimensional scale (perfect: 0.80 to 1.00; strong: 0.50 to 0.79; moderate: 0.30 to 0.49; weak: 0.00 to 0.29). An analysis of the correlation coefficient matrix reveals that the variables $X_3$ (employment of the population) and $X_6$ (degree of wear and tear of fixed assets) do not significantly impact Y (volume of production in the manufacturing industry). However, despite their low initial correlation with Y, they were retained due to their theoretical importance as supported by prior research. The VIF analysis confirmed that multicollinearity is not a concern, with all VIF values below 10. The remaining factors demonstrate a strong correlation with the production volume, as indicated by correlation coefficients exceeding 0.6. Consequently, four indicators were identified as statistically significant in influencing Y. Additionally, Table 5 illustrates a strong correlation between $X_2$ and $X_4$. While the average wage level and costs of technological innovation are theoretically unrelated, both variables were retained in the multiple regression analysis.

Step 2. Using the Statistica analysis package, we derived regression statistics and regression equations (Tables 6 and 7).

**Table 6.** Regression statistics, all variables.

| | |
|---|---|
| Multiple R | 0.999550 |
| R-squared | 0.999101 |
| Normalized $R^2$ | 0.995953 |
| Standard error | 44,576.08 |
| Observation | 10 |
| F (Fisher coefficient) | 317.4112 |
| Significance F | 0.003144 |

| | Coefficients | Standard error | t-statistics | *p*-Value | Bottom 95% | Upper 95% |
|---|---|---|---|---|---|---|
| Y-intersection | −969,637 | 333,642.5 | −2.90621 | 0.100811 | −2,405,184 | 465,911.2 |
| Variable $X_1$ | 134.50 | 61.3 | 2.19373 | 0.159512 | −129 | 398.3 |
| Variable $X_2$ | 2.69 | 0.7 | 3.97406 | 0.057876 | 0 | 5.6 |
| Variable $X_3$ | 23,864.26 | 9722.8 | 2.45447 | 0.133536 | −17,970 | 65,698.0 |
| Variable $X_4$ | 3.95 | 0.5 | 7.78357 | 0.016108 | 2 | 6.1 |
| Variable $X_5$ | −6258.10 | 2011.8 | −3.11072 | 0.089661 | −14,914 | 2397.9 |
| Variable $X_6$ | 2197.06 | 2033.1 | 1.08064 | 0.392839 | −6551 | 10,944.8 |
| Variable $X_7$ | −1.06 | 0.6 | −1.84194 | 0.206822 | −4 | 1.4 |

Source: Authors' calculations.

**Table 7.** Regression statistics with strong-to-perfect correlations only.

| | |
|---|---|
| Multiple R | 0.899235 |
| R-squared | 0.870445 |
| Normalized $R^2$ | 0.889538 |
| Standard error | 50,737.46 |
| Observation | 10 |
| F (Fisher coefficient) | 224.40431 |
| Significance F | 7.96182E−06 |

| | Coefficients | Standard error | t-statistics | *p*-Value | Bottom 95% | Upper 95% |
|---|---|---|---|---|---|---|
| Y-intersection | −178,578 | 29,267.8429 | −6.10152 | 0.001712 | −253814 | −103343 |
| Variable $X_2$ | 2.315947 | 1.035502005 | 2.236545 | 0.075542 | −0.3459 | 4.977789 |
| Variable $X_4$ | 4.536945 | 0.538160746 | 8.430465 | 0.000385 | 3.153559 | 5.920332 |
| Variable $X_5$ | −5467.28 | 1882.78951 | −2.90382 | 0.033641 | −10307.1 | −627.419 |
| Variable $X_7$ | −0.71859 | 0.760592862 | −0.94477 | 0.388155 | −2.67375 | 1.236577 |

Source: Authors' calculations.

The coefficient of determination (R-squared) indicates the proportion of the variance in the dependent variable (Y) that is predictable from the independent variables ($X_1$, $X_2$, $X_3$, etc.). A value between 0.8 and 0.95 suggests that the model explains a large portion of the variability in the dependent variable, indicating a good fit. The Fisher coefficient (F-statistic) tests the overall significance of the regression model. A high Fisher coefficient and a small significance level (*p*-value) indicate that the regression model is statistically significant, meaning that the independent variables collectively have a significant effect on the dependent variable.

In this case, the Fisher coefficient of 224.4 is quite high, and the significance level of 7.96182E−06 (which is essentially 0) indicates that the regression model is highly significant (Table 7). Therefore, the theoretical regression equation is valid and adequately reflects the relationship between the independent variables and the dependent variable in the sample data.

If a linear relationship exists between the variables, the multiple regression equation can be formulated as follows:

$$\hat{y} = b_0 + b_1x_1 + b_2x_2 + b_mx_m \quad (1)$$

This equation represents the multiple regression model, where the coefficients $\beta_0$, $\beta_1$, $\beta_2$, $\beta_3$, ... are estimated from the data to best fit the relationship between the independent variables and the dependent variable. Thus, the multiple regression model will look like this:

$$\begin{aligned} &\text{for all variables with strong correlation} \\ Y = &-969,636.55 + 134.5X_1 + 2.69X_2 + 23,864.26X_3 \\ &+3.95X_4 - 6258.1X_5 + 2197.06X_6 \\ &-197.X_7 \\ &\text{for the selected variables with strong correlation} \\ Y = &-178,578 + 2.315947X_2 + 4.536945X_4 - 4.53694X_5 - 4.53694X_7, \end{aligned} \quad (2)$$

where

Y—Volume of manufactured products of the manufacturing industry;
$X_1$—Number of operating enterprises and production facilities in the manufacturing industry, units;
$X_2$—Costs of implementing technological innovations in the manufacturing industry, million tenge;
$X_3$—Employment of the population in the manufacturing industry, thousand people;

$X_4$—Average monthly wage in manufacturing industry, tenge;
$X_5$—Level of innovative activity of manufacturing enterprises, %;
$X_6$—Degree of depreciation of fixed assets, %;
$X_7$—Investments in fixed capital of the manufacturing industry, million tenge.

Based on the model, it is concluded that production volumes in the manufacturing industry, as exemplified by the Akmola region of the Republic of Kazakhstan, are influenced by several factors, including the volume of costs for technological innovations, the average monthly salary, the level of innovative activity of enterprises, and the volume of investments in fixed capital. Specifically, the model suggests that an increase in costs for implementing technological innovations in the manufacturing industry by KZT 1 ($y$-axis on Figure 4) results in a corresponding increase in the production volume of the manufacturing industry by KZT 2.3 (or KZT 2.7 in the case of the extended regression model).

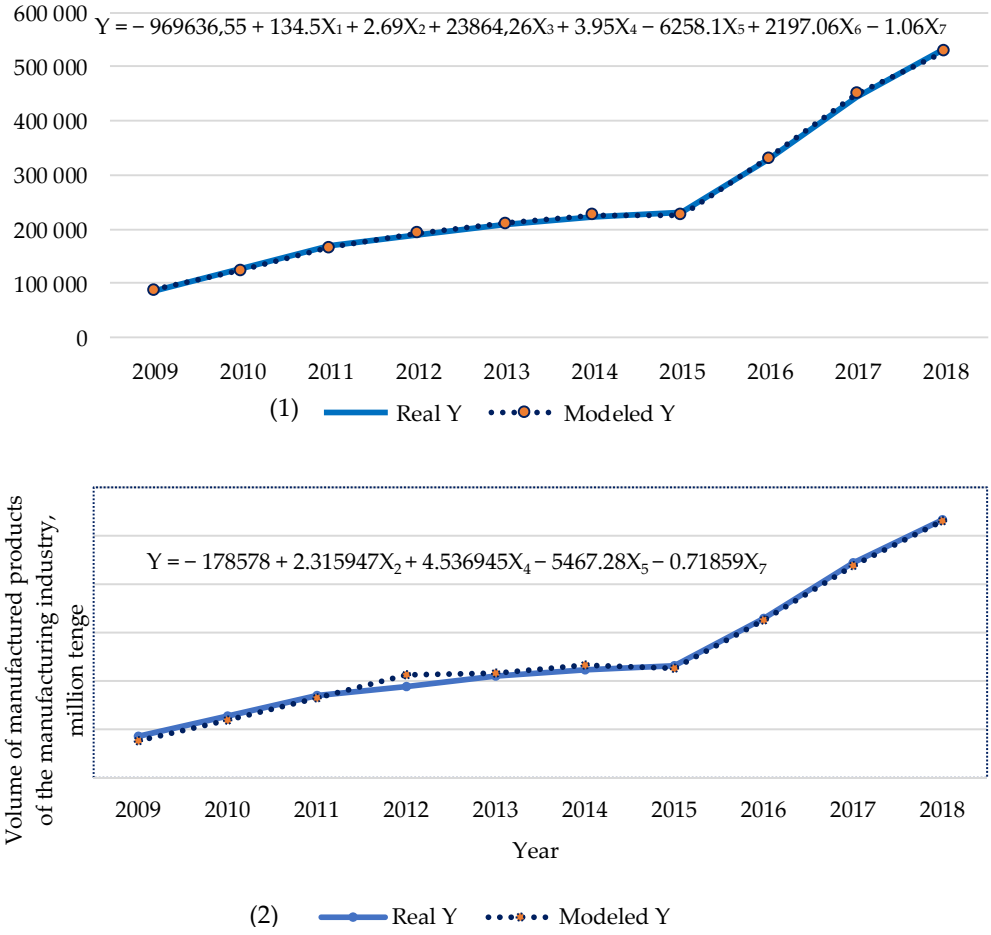


**Figure 4.** Dynamics of real (observed) and simulated (predicted) production volume in the manufacturing industry, million tenge. (1) Predicted Y on the basis of 7 independent variables; (2) predicted Y on the basis of 4 independent variables. **Source:** Authors' calculations.

The comparison between the actual and simulated volumes of production of the manufacturing industry supports the validity of the constructed model (Figure 4).

As depicted in Figure 4, the curve representing the simulated volume of production in the manufacturing industry of the Akmola region closely aligns with the original data dynamics.

Step 3. To forecast factor characteristics, we employed the method of smoothing moving averages by five points, which is calculated using the following formula:

$$\widetilde{x}_{n+1} = (-x_{n-4} + x_{n-2} + 2x_{n-1} + 3x_n)/5 \quad (3)$$

The values of factor characteristics calculated using this formula are presented in Table 8 (for comparison, we added the results obtained via the Statsoft Statistica 14.0.1 software). As Table 8 shows, the method of smoothing moving averages gives figures that are more discreet.

**Table 8.** Predictive values of regression factor features.

| Year | $X_1$ | $X_2$ | $X_3$ | $X_4$ | $X_5$ | $X_6$ | $X_7$ |
|---|---|---|---|---|---|---|---|
| Manual method of smoothing moving averages by five points | | | | | | | |
| 2019 | 601.80 | 30,208.02 | 31.94 | 164,998.80 | 18.24 | 30.02 | 38,868.60 |
| 2020 | 599.48 | 33,060.19 | 32.26 | 175,326.48 | 18.18 | 29.27 | 44,413.16 |
| 2021 | 597.21 | 36,171.10 | 32.31 | 179,332.21 | 18.71 | 29.27 | 46,426.54 |
| 2022 | 596.48 | 34,889.82 | 32.42 | 182,057.28 | 19.17 | 29.08 | 47,158.91 |
| 2023 | 597.87 | 35,935.85 | 32.45 | 182,088.55 | 19.06 | 29.11 | 46,322.39 |
| 2024 | 596.39 | 36,710.06 | 32.51 | 184,942.72 | 19.19 | 28.95 | 48,168.58 |
| 2025 | 596.38 | 36,766.30 | 32.52 | 185,147.21 | 19.34 | 28.97 | 47,979.26 |
| 2026 | 596.52 | 36,696.75 | 32.55 | 185,616.68 | 19.35 | 28.93 | 48,034.16 |
| 2027 | 596.44 | 37,088.62 | 32.55 | 186,005.98 | 19.35 | 28.92 | 48,214.13 |
| 2028 | 596.18 | 37,097.96 | 32.57 | 186,461.99 | 19.41 | 28.90 | 48,473.51 |
| 2029 | 596.31 | 37,091.57 | 32.57 | 186,414.38 | 19.41 | 28.90 | 48,342.88 |
| 2030 | 596.27 | 37,158.59 | 32.57 | 186,605.18 | 19.41 | 28.89 | 48,442.11 |
| Non-seasonal exponential smoothing. Linear trend (using Statistica 14.0.1 software). | | | | | | | |
| 2019 | 592.23 | 30,613.75 | 31.37 | 171,205.39 | 18.91 | 33.17 | 43,760.30 |
| 2020 | 608.00 | 33,673.18 | 31.47 | 182,349.12 | 20.67 | 33.85 | 46,666.92 |
| 2021 | 623.78 | 36,732.62 | 31.57 | 193,492.86 | 22.43 | 34.54 | 49,573.54 |
| 2022 | 639.55 | 39,792.06 | 31.67 | 204,636.60 | 24.20 | 35.22 | 52,480.16 |
| 2023 | 655.33 | 42,851.49 | 31.77 | 215,780.33 | 25.96 | 35.90 | 55,386.78 |
| 2024 | 671.10 | 45,910.93 | 31.87 | 226,924.07 | 27.72 | 36.58 | 58,293.39 |
| 2025 | 686.88 | 48,970.36 | 31.97 | 238,067.80 | 29.48 | 37.27 | 61,200.01 |
| 2026 | 702.65 | 52,029.80 | 32.07 | 249,211.54 | 31.24 | 37.95 | 64,106.63 |
| 2027 | 718.43 | 55,089.24 | 32.17 | 260,355.27 | 33.00 | 38.63 | 67,013.25 |
| 2028 | 734.21 | 58,148.67 | 32.27 | 271,499.01 | 34.76 | 39.31 | 69,919.87 |
| 2029 | 749.98 | 61,208.11 | 32.37 | 282,642.74 | 36.52 | 40.00 | 72,826.49 |
| 2030 | 765.76 | 64,267.54 | 32.47 | 293,786.48 | 38.28 | 40.68 | 75,733.11 |

Source: Authors' calculations.

Step 4. To determine the predictive values of the resulting characteristic Y in the three scenarios, confidence intervals were calculated for each scenario based on the sign of the change in the money supply. The scenarios included a pessimistic change of ±3%, a realistic change of ±6%, and an optimistic change of ±9%. The estimation of the parameters for the confidence interval regression equation is presented in Table 9. These intervals provide a range of values for each parameter that accounts for the specified change in the money supply, allowing for a more comprehensive assessment of the potential outcomes in each scenario.

**Table 9.** Estimation of confidence interval parameters for pessimistic, optimistic, and realistic forecast scenarios.

| Index | Bottom 3.0% | Upper 3.0% | Bottom 6.0% | Upper 6.0% | Bottom 9.0% | Upper 9.0% |
|---|---|---|---|---|---|---|
| Y-intersection | −940,547.4528 | −998,725.6457 | −911,458.3563 | −1,027,814.7422 | −882,369.2598 | −1,056,903.8387 |
| Variable $X_1$ | 130.4623 | 138.5321 | 126.4274 | 142.5670 | 122.3925 | 146.6020 |
| Variable $X_2$ | 2.6077 | 2.7690 | 2.5271 | 2.8497 | 2.4464 | 2.9303 |
| Variable $X_3$ | 23,148.3312 | 24,580.1868 | 22,432.4034 | 25,296.1145 | 21,716.4757 | 26,012.0423 |
| Variable $X_4$ | 3.8359 | 4.0732 | 3.7173 | 4.1918 | 3.5987 | 4.3105 |
| Variable $X_5$ | −6070.3567 | −6445.8427 | −5882.6137 | −6633.5857 | −5694.8707 | −6821.3287 |
| Variable $X_6$ | 2131.1477 | 2262.9713 | 2065.2359 | 2328.8830 | 1999.3241 | 2394.7948 |
| Variable $X_7$ | −1.0322 | −1.0960 | −1.0003 | −1.1280 | −0.9683 | −1.1599 |

Source: Authors' calculations.

Step 5. To calculate the value of Y considering the identified confidence intervals, we need to consider the upper and lower bounds of the confidence intervals for the regression coefficients and substitute them into the multiple regression equation (Table 10). Using the upper and lower bounds of the confidence intervals for the regression coefficients, we can calculate the upper and lower bounds of Y. Once we have these values, we can calculate the value of Y for each set of upper and lower bounds of the confidence intervals.

**Table 10.** Boundary values of Y, taking into account the identified confidence intervals.

| Year | Y | Y,^−9% | Y,^−6% | Y,^−3% | Y,^ | Y,^+3% | Y,^+6% | Y,^+9% |
|---|---|---|---|---|---|---|---|---|
| 2009 | 85,618.00 | 80,374.67 | 83,024.38 | 85,674.10 | 88,323.81 | 90,973.53 | 93,623.24 | 96,272.96 |
| 2010 | 127,489.00 | 112,598.53 | 116,310.57 | 120,022.61 | 123,734.65 | 127,446.68 | 131,158.72 | 134,870.76 |
| 2011 | 169,740.00 | 150,627.41 | 155,593.15 | 160,558.89 | 165,524.63 | 170,490.37 | 175,456.11 | 180,421.85 |
| 2012 | 188,255.00 | 174,981.97 | 180,750.60 | 186,519.24 | 192,287.88 | 198,056.51 | 203,825.15 | 209,593.79 |
| 2013 | 210,163.00 | 192,526.16 | 198,873.18 | 205,220.20 | 211,567.21 | 217,914.23 | 224,261.25 | 230,608.26 |
| 2014 | 223,104.00 | 205,384.19 | 212,155.10 | 218,926.00 | 225,696.91 | 232,467.82 | 239,238.73 | 246,009.63 |
| 2015 | 231,415.00 | 205,628.78 | 212,407.76 | 219,186.73 | 225,965.70 | 232,744.67 | 239,523.64 | 246,302.61 |
| 2016 | 329,309.00 | 301,896.42 | 311,849.05 | 321,801.68 | 331,754.31 | 341,706.94 | 351,659.57 | 361,612.19 |
| 2017 | 444,042.00 | 409,211.35 | 422,701.83 | 436,192.31 | 449,682.80 | 463,173.28 | 476,663.77 | 490,154.25 |
| 2018 | 533,069.00 | 480,176.16 | 496,006.14 | 511,836.12 | 527,666.11 | 543,496.09 | 559,326.07 | 575,156.06 |
| 2019 | 518,699.20 | 471,092.68 | 486,623.21 | 502,153.74 | 517,684.26 | 533,214.79 | 548,745.32 | 564,275.85 |
| 2020 | 566,972.52 | 515,442.58 | 532,435.20 | 549,427.81 | 566,420.42 | 583,413.03 | 600,405.65 | 617,398.26 |
| 2021 | 588,415.19 | 533,358.57 | 550,941.82 | 568,525.07 | 586,108.32 | 603,691.57 | 621,274.82 | 638,858.07 |
| 2022 | 594,769.56 | 538,568.44 | 556,323.45 | 574,078.45 | 591,833.45 | 609,588.46 | 627,343.46 | 645,098.46 |
| 2023 | 599,008.52 | 543,537.78 | 561,456.61 | 579,375.43 | 597,294.26 | 615,213.09 | 633,131.92 | 651,050.75 |
| 2024 | 611,256.13 | 554,003.22 | 572,267.06 | 590,530.91 | 608,794.75 | 627,058.59 | 645,322.43 | 663,586.28 |
| 2025 | 611,916.50 | 554,442.22 | 572,720.53 | 590,998.85 | 609,277.16 | 627,555.48 | 645,833.79 | 664,112.10 |
| 2026 | 613,771.02 | 556,302.46 | 574,642.10 | 592,981.74 | 611,321.38 | 629,661.03 | 648,000.67 | 666,340.31 |
| 2027 | 616,326.52 | 558,645.32 | 577,062.20 | 595,479.08 | 613,895.95 | 632,312.83 | 650,729.71 | 669,146.59 |
| 2028 | 617,885.92 | 559,889.06 | 578,346.94 | 596,804.83 | 615,262.71 | 633,720.59 | 652,178.47 | 670,636.35 |
| 2029 | 617,765.14 | 559,851.41 | 578,308.05 | 596,764.69 | 615,221.33 | 633,677.97 | 652,134.61 | 670,591.25 |
| 2030 | 618,695.45 | 560,707.09 | 579,191.94 | 597,676.79 | 616,161.64 | 634,646.49 | 653,131.34 | 671,616.19 |

Source: Authors' calculations.

To calculate the limits of the predicted values of Y in three scenarios for 2019–2030, we used the upper and lower bounds of the confidence intervals for each regression coefficient in the multiple regression equation. This allowed us to account for the uncertainty in the coefficients and obtain a range of possible values for Y. We substituted the upper and lower bounds of the confidence intervals for each coefficient into the equation to obtain the upper and lower bounds of the predicted values of Y. For each scenario (pessimistic, optimistic, and realistic), we calculated the upper and lower bounds of Y using the corresponding upper and lower bounds of the regression coefficients. This process provides us with a range of predicted values for Y under different scenarios, accounting for the uncertainty in the regression model.

Step 6. To obtain the point forecast Y using the regression equation, we substituted the values of the regressors $x_1^0$, $x_2^0$, $x_3^0$, ... $x_m^0$ into the multiple linear regression equation. The point forecast Y (Ypf) was calculated as follows:

$$\hat{y}_{\text{ТП}} = b_0 + b_1 x_1^0 + b_2 x_2^0 + b_m x_m^0 \quad (4)$$

After obtaining the point forecast Ypf, we can use it to calculate the predictive values of the scenarios using the "What-If" analysis feature in Microsoft Excel. This involves setting up a scenario based on changes in certain parameters and observing the resulting changes in the forecasted value of Y:

Main menu → Data → Analysis "What-If" → Selection parameter → Install in cells: [data in trusted channels] → Value: 75 = 52 + 52 + 52→ By changing value to estimates: [a control parameter, such as changes in the money supply] → OK.

Executing the above sequence of commands allowed us to calculate the point forecast values of Y in three scenarios. The resulting values are presented in Table 11.

**Table 11.** Predictive values of scenarios of production growth in the manufacturing industry using the example of the Akmola region of the Republic of Kazakhstan.

| Changing Dependencies | Pessimistic Scenario (−9%) | | Optimistic Scenario (+9%) | | Realistic Scenario | |
|---|---|---|---|---|---|---|
| **Year 2024** | **Y′** | **Demanded X** | **Y′** | **Demanded X** | **Y′** | **Demanded X** |
| Y~$X_1$ | 554,003.22 | 189.01 | 663,586.28 | 1003.77 | 608,794.75 | 596.39 |
| Y~$X_2$ | | 16,329.03 | | 57,091.08 | | 36,710.06 |
| Y~$X_3$ | | 30.22 | | 34.81 | | 32.51 |
| Y~$X_4$ | | 171,087.46 | | 198,797.98 | | 184,942.72 |
| Y~$X_5$ | | 27.95 | | 10.44 | | 19.19 |
| Y~$X_6$ | | 4.01 | | 53.88 | | 28.95 |
| Y~$X_7$ | | 99,659.02 | | −3321.86 | | 48,168.58 |

Source: Authors' calculations.

We will use the model to calculate changes in the volume of manufactured products indicator to simulate situations where one parameter (independent variable) can be adjusted while keeping the other values constant. For example, in 2024, we need to manufacture products worth at least KZT 554 billion, and the number of enterprises can be changed. As a result of using decision analysis, we obtained the required number—189 enterprises. On the contrary, with the most optimistic forecast of KZT 609 billion, a minimum of 1004 operating enterprises were needed. Note that for the last indicator—the number of investments—it was not possible to calculate the required volume in the case of an optimistic scenario, since the result was a negative number. This means that the problem of production growth cannot be solved solely by investing in fixed assets; other parameters must be taken into account.

Step 7. Based on the data in Tables 8 and 9, a forecast model of production growth in the manufacturing industry was compiled in pessimistic, optimistic, and realistic scenarios (Figures 5–7, where the volume of manufactured products of the manufacturing industry is indicated on the *y*-axis).

The three-scenario model provides a tool for evaluating the potential impact of various measures at the regional level on production growth in the manufacturing industry. It allows stakeholders to assess the range of possible outcomes based on different levels of economic variables, such as changes in the money supply.

The pessimistic scenario of the forecast model predicts a change in the volume of money supply of ±3%. In this case, the forecast volume of production in the manufacturing industry of the Akmola region will be in the range of KZT 510,912.05 million, up to KZT 597,094.40 million in 2024.

Thus, according to a realistic forecast model, the production volume of the manufacturing industry in the Akmola region in 2024 may reach KZT 608,794.45 million.

According to the optimistic forecast model, the volume of production in the manufacturing industry, using the example of the Akmola region of the Republic of Kazakhstan, will be in the range of KZT 611,971.57 million to KZT 715,200.98 million in 2024, depending on the change in the country's money supply of ±9%. In essence, the developed three-scenario model is a ready-made tool for evaluating the results of potential measures at the regional level regarding their impact on the growth of production in the manufacturing industry.

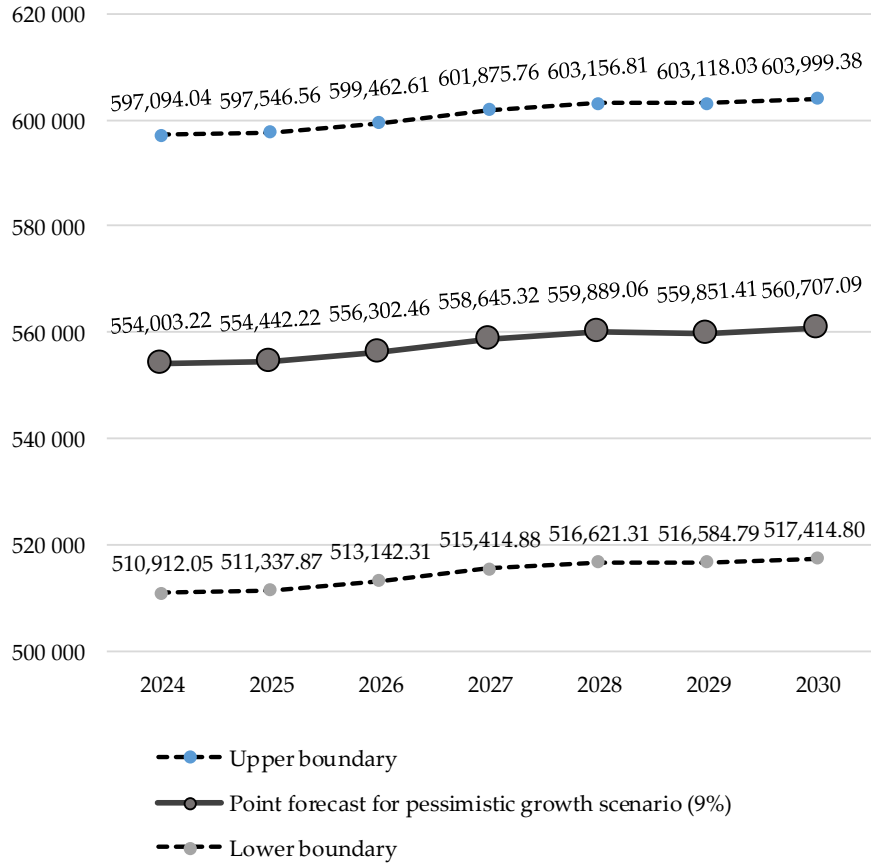


**Figure 5.** Pessimistic scenario of the forecast model with a determination of the range of possible changes in the point forecast, million tenge. **Source:** Authors' calculations.

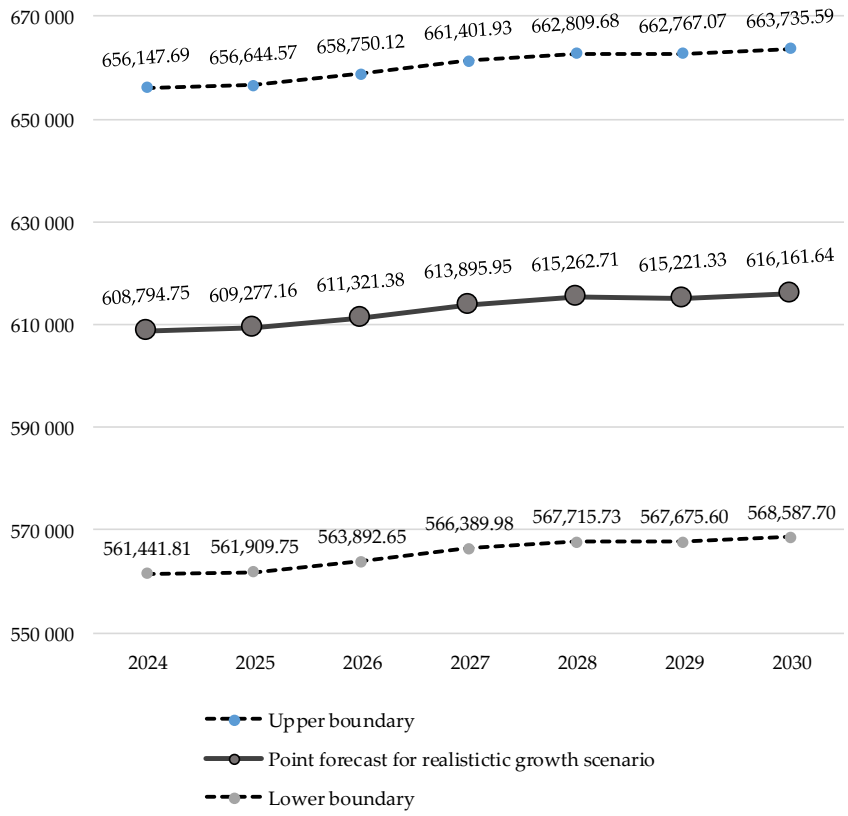


**Figure 6.** Realistic scenario of the forecast model with determination of the range of possible changes in the point forecast, million tenge. **Source:** Authors' calculations.

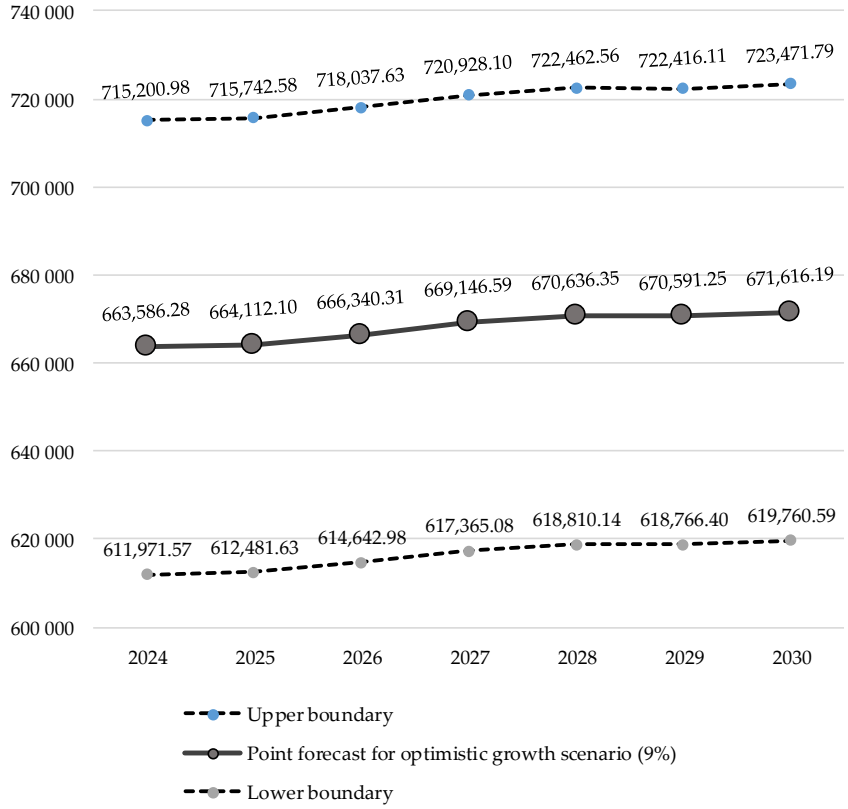


**Figure 7.** Optimistic scenario of the forecast model with determination of the range of possible changes in the point forecast, million tenge. **Source:** Authors' calculations.

## 5. Discussion

A comprehensive review of policy formation to stimulate the development of SMEs in the Republic of Kazakhstan highlights two main problems that must be addressed for the advancement of entrepreneurship in the manufacturing industry. The first group pertains to issues with product sales, while the second involves administrative barriers encountered when accessing state support measures. Regarding product sales problems, the primary issue relates to the low competitiveness of domestic products compared to foreign ones, stemming from lower product quality and relatively higher costs.

A more prevalent issue is the lack of competitiveness of products concerning both price and quality compared to similar foreign products. The elevated production costs primarily stem from several factors, including the expensive nature of acquiring external sources of financing, the high expenses associated with raw materials and components procured from abroad, and steep tariffs for product transportation. The principal challenge regarding low product quality can be attributed to the technological backwardness prevalent in the majority of production facilities. This is characterized by a high level of wear and tear of fixed assets, a lack of innovation, and a failure to incorporate new technologies.

According to the suggested solution tree for addressing the challenges of entrepreneurship development in the manufacturing industry (Figure 8), two primary blocks of proposals are presented.

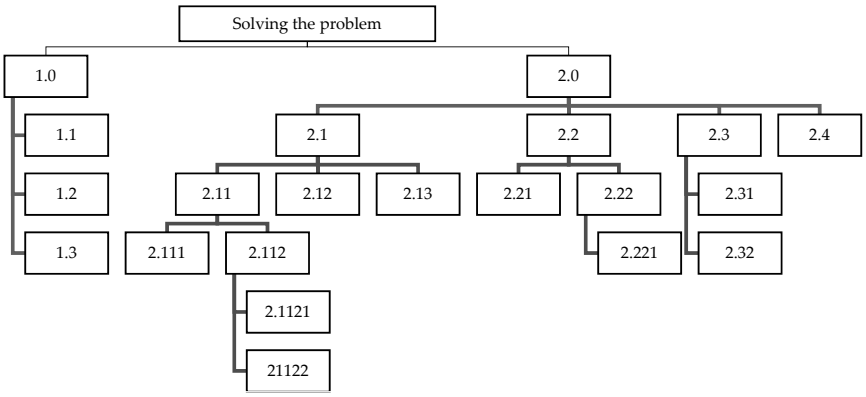


**Figure 8.** Tree of solutions to problems of development of entrepreneurship in the manufacturing industry, where: 1.0—review of state support programs for manufacturing enterprises; 1.1—introduction of changes to reduce application review terms and maximum simplification of procedures, including filling out reports; 1.2—development at the state level of a detailed regulation of the application selection procedure and at the local level to ensure free access to it; 1.3—obligation of operators to allocate one representative at local levels; 2.0—solving the problems of selling products on the domestic and foreign markets; 2.1—increasing the competitiveness of domestic products in terms of price; 2.11—reducing the cost of attracting external funding sources; 2.111—wider coverage of partial subsidization of interest on second-level bank loans received by manufacturing enterprises; 2.112—search for other sources of funding; 2.1121—stimulation of large investors through exemption from tax obligations for 3–5 years; 2.1122—creation of conditions for the development of venture financing; 2.12—reduction in the cost of raw materials and components purchased from abroad by exempting them from customs duties; 2.13—reduction in tariffs for the transportation of products by improving transport infrastructure; 2.2—increasing the competitiveness of domestic products in terms of quality; 2.21—increasing the technological level of production by gradually strengthening the depreciation policy at the level of production, stimulating technological renewal by tax exemptions in cases of large investments in technological equipment; 2.22—improvement of the qualifications of specialists of manufacturing enterprises; 2.221—development of programs that allow manufacturing enterprises to send their employees to training, which involves subsidizing part of the cost of training; 2.3—increasing the export capabilities of domestic enterprises; 2.31—removal of legal restrictions on exports by conducting appropriate examinations and making changes; 2.32—additional measures to support export activities; and 2.4—creation of conditions for the development of transport, logistics, and trade infrastructure.

The first block entails implementing measures to enhance the effectiveness of state support initiatives by reducing application processing times, establishing clear service provision procedures, and ensuring the availability of state support operator representatives in each region.

The second set of challenges pertains to promoting domestic products in both domestic and foreign markets and comprises four subcategories: enhancing the competitiveness of manufacturing industry products in terms of price and quality; fostering conditions for their export; and advancing transport, logistics, and trade infrastructure within the country.

Enhancing the competitiveness of manufacturing industry products hinges on pricing, making cost reduction a top priority. Addressing this challenge involves ensuring that manufacturers have access to the most affordable sources of loan funds. The cost of loans from second-tier banks necessitates a broader utilization of state subsidization mechanisms. Additionally, for riskier projects in the manufacturing industry, the development of venture financing may be advisable, contingent upon robust legislative support, which is currently lacking. Moreover, for large manufacturing enterprises with projects requiring substantial investment, state intervention can facilitate attracting investors through incentive mechanisms like tax breaks or holidays.

Equally vital to reducing production costs is minimizing the expenses associated with foreign raw materials and components procured by enterprises. This could be achieved by exempting them from customs duties. However, a more complex challenge lies in cutting transportation costs, which necessitates enhancing and expanding transport infrastructure, a task requiring substantial investments.

The shortage of highly skilled personnel in the manufacturing sector significantly impedes its development. Currently, many manufacturing enterprises struggle to afford competitive specialists and instead settle for existing personnel who often lack the requisite level of expertise. Insufficient efforts are being made to enhance the qualifications of employees. Therefore, it is imperative to devise a mechanism that incentivizes manufacturing companies to invest in the development of human capital. It would be prudent to incorporate this mechanism into existing state support programs for entrepreneurship, with implementation facilitated by local centers. Indeed, relying solely on state-funded programs for improving the qualifications of specialists in the manufacturing industry may have limitations in terms of effectiveness. It is crucial to motivate enterprises themselves to invest in enhancing the competencies of their employees. While the state can provide partial subsidies for such initiatives, this approach would encourage enterprises to prioritize training courses that align closely with their activities and to select specialists who will benefit the most from advanced training.

Studies show that the integration of various econometric tools and scenario development methods enriches the existing studies on SME stimulation mechanisms. Our findings support the theory that state support through financial and infrastructural incentives plays a crucial role in fostering SME growth and innovation.

This assessment encapsulates the current economic and legal landscape regarding the stimulation of entrepreneurial activity. It is clear that Kazakhstan lacks a comprehensive system of benefits and interconnected economic incentives that could enhance resource efficiency. Further development of specific legislation and its practical application is necessary to address these shortcomings and foster a more conducive environment for entrepreneurship in the country.

The use of scenario development methods to create pessimistic, realistic, and optimistic scenarios for production growth is particularly valuable for policymakers and stakeholders. It enables them to anticipate potential outcomes under different economic conditions and plan accordingly. This methodological innovation can be applied to similar studies in other contexts, enhancing the generalizability and applicability of our research findings.

## 6. Conclusions

Stimulating innovative activities is indeed crucial for the development of entrepreneurship in the manufacturing industry. Without the continuous modernization of goods and production processes, it is challenging for industries to remain competitive in today's rapidly evolving market. By studying theoretical research and foreign experiences in this area, effective systems of stimulation and support for SMEs can be identified, providing valuable insights for fostering innovation and growth in the manufacturing sector.

The findings of this study have several practical implications for SMEs, policymakers, and stakeholders in the manufacturing industry of Kazakhstan. This study reveals that the Republic of Kazakhstan has experienced significant growth in industrial production, particularly in sectors such as metallurgical products, furniture, and food products. However, there is also an observed trend of increasing specialization within industries, without substantial changes in the overall GDP structure of the manufacturing industry. This lack of diversification could be concerning, as both state policy and market dynamics prioritize the diversification of production as a key goal. The analysis highlights significant challenges stemming from the state administrative apparatus. Additionally, the lack of highly qualified personnel emerges as a critical obstacle to the manufacturing industry's development. To address this, a proposal suggests developing a mechanism to incentivize manufacturing companies to invest in human capital development, which could be integrated into existing state support programs for entrepreneurship. However, it is crucial that the state's role extends beyond mere fund allocation. The partial subsidization of such projects would encourage enterprises to prioritize training courses relevant to their activities and select specialists for advanced training more effectively.

Ensuring the stability of the region's manufacturing industries requires the development and integration of financial and credit institutions into socio-economic life. This entails deepening and expanding the capabilities of state bodies and creating opportunities for the natural development of infrastructure based on banks and insurance companies. In this context, the state would act as a guarantor of honesty, transparency, and legality in processes, thereby fostering an environment conducive to sustainable development.

Based on correlation and multiple regression analyses using the least squares method, as well as the stepwise removal of multicollinearity, a three-scenario model of production growth in the manufacturing industry was developed. This model identifies statistically significant parameters, such as the costs of implementing technological innovations, average wages, innovative activity of enterprises, and investments in fixed capital in the manufacturing industry of the region. Scenario models were constructed considering changes in the volume of the country's money supply. Point forecast values and the ranges of their deviations were determined for each of the developed forecast models. These simulated solutions enable the exploration of various scenarios of changes in the production volume of the manufacturing industry by manipulating the input data of the identified factors.

The scientific contribution of the conducted research lies in its comprehensive approach to monitoring and analyzing existing economic mechanisms for stimulating business entities within a regional and sectoral context. The research addresses the economic rationale for the introduction of relevant incentive mechanisms and seeks to determine the most optimal incentive mechanisms for SMEs in the manufacturing industry. Despite the significant contributions of this study, several limitations should be acknowledged. The focus on the manufacturing industry in Kazakhstan somewhat limits the generalizability of our findings to other sectors and regions. Future research could expand the scope to include other industries and countries to validate and refine the proposed stimulation mechanisms. Additionally, this study's reliance on econometric tools and statistical methods may not fully capture the qualitative aspects of SME development, such as the entrepreneurial spirit and cultural factors. Future research could incorporate qualitative methods to provide a more holistic understanding of the factors influencing SME growth. However, the potential external shocks such as global economic crises or geopolitical tensions should be studied to develop more resilient models for state stimulation of SMEs

that can adapt to changing economic conditions. Further research is needed to delve deeper into these topics and refine the understanding of effective incentive mechanisms for SMEs in manufacturing.

**Author Contributions:** Conceptualization, D.K., M.P. and A.B.; methodology, D.K., M.P. and O.S.; software, M.P. and M.M.; validation, D.K. and M.M.; formal analysis, D.K., O.S. and A.B.; investigation, M.P., A.B. and M.M.; resources, M.P. and O.S.; data curation, D.K., O.S. and A.B.; writing—original draft preparation, D.K. and M.P.; writing—review and editing, D.K., O.S., A.B. and M.P.; visualization, D.K.; supervision, M.P. and A.B.; project administration, M.P.; funding acquisition, M.P. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** All data used in the present study are publicly available.

**Conflicts of Interest:** The authors declare that this research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## References

Acs, Zoltan J., Bo Carlsson, and Charlie Karlsson, eds. 1999. *Entrepreneurship, Small and Medium-Sized Enterprises and the Macroeconomy*. Cambridge: Cambridge University Press.

Agency for Strategic Planning and Reforms of the Republic of Kazakhstan Bureau of National Statistics. 2020. Indicators of Small Businesses and Microcredit Organizations 2014–2020. Available online: http://old.stat.gov.kz/faces/wcnav_externalId/homeNumbersSMEnterprises?_afrLoop=5880758817941159#@?_afrLoop=5880758817941159&_adf.ctrl-state=69ynk4bln_140 (accessed on 25 December 2023).

Akhmedyarov, Yerbol, and Dulat Issabayev. 2023. The Kazakhstan dairy enterprises' problem analysis and the ways for innovations. International Scientific Conference on Environmental Sustainability in Natural Resources Management (ISCES 2023), 20 October 2023. Batumi, Georgia. *IOP Conference Series: Earth and Environmental Science* 1269: 012037.

Albaz, Abdulaziz, Marco Dondi, Tarek Rida, and Jörg Schubert. 2020. *Unlocking Growth in Small and Medium-Size Enterprises*. New York: McKinsey & Company.

Aldaba, Rafaelita M. 2010. SMEs in the Philippine manufacturing industry and globalization: Meeting the development challenges. *Philippine Review of Economics* 46: 125–88.

Amoah, John, Jaroslav Belas, Raymond Dziwornu, and Khurram Ajaz Khan. 2022. Enhancing SME contribution to economic development: A perspective from an emerging economy. *Journal of International Studies* 15: 63–76. [CrossRef]

Andarova, Roza, Zhibek Khussainova, Dina Bektleyeva, Zamzagul Zhanybayeva, and Zhanibek Zhartay. 2016. Eurasian economic union: Potential, limiting factors, perspectives. *International Journal of Economic Perspectives* 10: 13–23.

Andrieu, Guillaume, Raffaele Staglianò, and Peter Van Der Zwan. 2018. Bank debt and trade credit for SMEs in Europe: Firm-, industry-, and country-level determinants. *Small Business Economics* 51: 245–64. [CrossRef]

Baah, Charles, Douglas Opoku-Agyeman, Innocent Senyo Kwasi Acquah, Yaw Agyabeng-Mensah, Ebenezer Afum, Daniel Faibil, and Farid Abdel Moro Abdoulaye. 2021. Examining the correlations between stakeholder pressures, green production practices, firm reputation, environmental and financial performance: Evidence from manufacturing SMEs. *Sustainable Production and Consumption* 27: 100–14. [CrossRef]

Baitursunov, A. A. 2018. Institutional foundations of the system for stimulating small and medium-sized businesses in the Republic of Kazakhstan Modernization. *Innovation Development* 3: 475–90.

Bommer, Michael, and David Jalajas. 2002. The innovation work environment of high–tech SMEs in the USA and Canada. *R&D Management* 32: 379–86.

Brodny, Jarosław, and Magdalena Tutak. 2022. Digitalization of small and medium-sized enterprises and economic growth: Evidence for the EU-27 countries. *Journal of Open Innovation: Technology, Market, and Complexity* 8: 67. [CrossRef]

Cantillon, Richard. 2015. *Essay on the Nature of Trade in General*. Edited by Antoin E. Murphy. Carmel: Liberty Fund. Available online: https://oll.libertyfund.org/titles/essay-on-the-nature-of-trade-in-general-lf-ed (accessed on 13 November 2023).

Chabbouh, Hajer, and Younès Boujelbene. 2023. Open innovation, dynamic organizational capacities and innovation performance in SMEs: Empirical evidence in the Tunisian manufacturing industry. *The International Journal of Entrepreneurship and Innovation* 24: 178–90. [CrossRef]

Cunningham, Li Xue. 2011. SMEs as motor of growth: A review of China's SMEs development in thirty years (1978–2008). *Human Systems Management* 30: 39–54. [CrossRef]

Dyvik, Einar H. 2023. Estimated Number of Small and Medium Sized Enterprises (SMEs) Worldwide from 2000 to 2021. *Statista*. Available online: https://www.statista.com/statistics/1261592/global-smes (accessed on 25 December 2023).

Evans, Nina, and Rachelle Bosua. 2017. Exploring innovation in regional manufacturing SMEs. *Small Enterprise Research* 24: 149–66. [CrossRef]
Games, Donard, Tedi Hidayat, Jingga Fhardilha, Yudi Fernando, and Dessy Kurnia Sari. 2022. The impact of trust, knowledge sharing, and affective commitment on SME innovation performance. *Journal of Governance and Integrity* 5: 267–74. [CrossRef]
Gherghina, Ștefan Cristian, Mihai Alexandru Botezatu, Alexandra Hosszu, and Liliana Nicoleta Simionescu. 2020. Small and medium-sized enterprises (SMEs): The engine of economic growth through investments and innovation. *Sustainability* 12: 347. [CrossRef]
Guzmán, G. M., M. D. M. Serna, G. C. L. Torres, and R. G. Ramirez. 2012. Competitiveness in manufacturing SMEs: A perspective of Mexico. *International Journal of Arts and Commerce* 1: 60–75.
Hilgenfeldt, Nikolaus. 2023. 21 Most Important Small Business Statistics in 2023. MYOS. Available online: https://www.myos.com/en-blog/small-business-statistics (accessed on 25 December 2023).
Idrisov, M. M. 2015. Industrial-innovative development program of the Republic of Kazakhstan for 2015–2019. *Economy, Entrepreneurship and Law* 5: 253–72. Available online: http://journals.creativeconomy.ru/index.php/epp/article/view/2111/ (accessed on 17 April 2024).
Ismatullayevich, Soliyev Ibodulloxon, and Mullabayev Baxtiyarjon Bulturbayevich. 2021. Development of small business and private entrepreneurship in the economy of the republic of Uzbekistan. *Academicia Globe* 2: 419–25.
Jarmuševiča, Viktorija, Dzintra Iliško, Jeļena Badjanova, Valdis Jukšs, and Mariana Petrova. 2019. SMART governance of implementing the strategy of corporate societal responsibility for a sustainable regional development. *International Multidisciplinary Scientific GeoConference Surveying Geology and Mining Ecology Management, SGEM* 19: 645–52. [CrossRef]
Kharub, Manjeet, Rahul S. Mor, and Sudhir Rana. 2022. Mediating role of manufacturing strategy in the competitive strategy and firm performance: Evidence from SMEs. *Benchmarking: An International Journal* 29: 3275–301. [CrossRef]
Khudova, L. N. 2011. Possibilities of light industry in the Republic of Kazakhstan in the conditions of modernization of production. In *Innovative Technologies for the Production of Goods, Improving the Quality and Safety of Light Industry Products: Materials of the International*. Scientific-Practical Conference. Almaty: Almaty Technological University, pp. 6–10.
Kurmanov, Nurlan, Mariana Petrova, and Shakhizada Suleimenova. 2019. Development of a Scientific and Innovative Sphere in Earth Resources Mining Sector of Kazakhstan. Paper presented at the IVth International Innovative Mining Symposium E3S Web of Conferences, Kemerovo, Russia, October 14–16, vol. 105, pp. 1–7. [CrossRef]
Laforet, Sylvie. 2009. Effects of size, market and strategic orientation on innovation in non-high-tech manufacturing SMEs. *European Journal of Marketing* 43: 188–212. [CrossRef]
Lee, Neil, Hiba Sameen, and Marc Cowling. 2015. Access to finance for innovative SMEs since the financial crisis. *Research Policy* 44: 370–80. [CrossRef]
Liu, Yang, Azer Dilanchiev, Kaifei Xu, and Aytan Merdan Hajiyeva. 2022. Financing SMEs and business development as new post COVID-19 economic recovery determinants. *Economic Analysis and Policy* 76: 554–67. [CrossRef]
Melo, Isotilia Costa, Geandra Alves Queiroz, Paulo Nocera Alves Junior, Thales Botelho de Sousa, Wilfredo F Yushimito, and Jorge Pereira. 2023. Sustainable digital transformation in small and medium enterprises (SMEs): A review on performance. *Heliyon* 9: e13908. [CrossRef] [PubMed] [PubMed Central]
Moraes, Marcela Barbosa de, Eveline Galvan, Erivaldo Alves Ribeiro, Eudes da Silva Vieira, Zilma Cardoso Barros Soares, and Leonardo Santos da Cruz. 2020. Matrix of Strategic Entrepreneurship Process in Small and Medium Enterprises of the Brazilian and Canadian Aeronautical Industry. *International Journal of Advanced Engineering Research and Science* 7: 35–45. [CrossRef]
Ndubisi, Nelson Oly, Xin Amy Zhai, and Kee-hung Lai. 2021. Small and medium manufacturing enterprises and Asia's sustainable economic development. *International Journal of Production Economics* 233: 107971. [CrossRef]
Obradović, Tena, Božidar Vlačić, and Marina Dabić. 2021. Open innovation in the manufacturing industry: A review and research agenda. *Technovation* 102: 102221. [CrossRef]
OECD. 2022. Financing SMEs and Entrepreneurs. Available online: https://www.oecd-ilibrary.org/industry-and-services/financing-smes-and-entrepreneurs-2022_e9073a0f-en (accessed on 25 December 2023).
O'Neill, Aaron. 2023. Kazakhstan: Share of Economic Sectors in the Gross Domestic Product (GDP) from 2012 to 2022. *Statista*. Available online: https://www.statista.com/statistics/436156/share-of-economic-sectors-in-the-gdp-in-kazakhstan (accessed on 25 December 2023).
Parida, Vinit, Mats Westerberg, and Johan Frishammar. 2012. Inbound open innovation activities in high-tech SMEs: The impact on innovation performance. *Journal of Small Business Management* 50: 283–309. [CrossRef]
Philbin, Simon, Radhakrishnan Viswanathan, and Arnesh Telukdarie. 2022. Understanding how digital transformation can enable SMEs to achieve sustainable development: A systematic literature review. *Small Business International Review* 6: 25. [CrossRef]
Popova, P., M. Petrova, V. Popov, K. Marinova, and O. Sushchenko. 2023. Potential of the digital ecosystem for the sustainable development of the tourist destination. *IOP Conference Series: Earth and Environmental Science* 1126: 012021. [CrossRef]
Qader, Aleem Ahmad, Jingwei Zhang, Sheikh Farhan Ashraf, Nausheen Syed, Khaoula Omhand, and Mehrab Nazir. 2022. Capabilities and opportunities: Linking knowledge management practices of textile-based SMEs on sustainable entrepreneurship and organizational performance in China. *Sustainability* 14: 2219. [CrossRef]
Radicic, Dragana, Geoffrey Pugh, and David Douglas. 2020. Promoting cooperation in innovation ecosystems: Evidence from European traditional manufacturing SMEs. *Small Business Economics* 54: 257–83. [CrossRef]

Ramazanov, Sultan, and Mariana Petrova. 2020. Development management and forecasting in a green innovative economy based on the integral dynamics model in the conditions of «Industry—4.0». Access to science, business, innovation in digital economy. *ACCESS Journal: Access to Science, Business, Innovation in Digital Economy* 1: 9–30. [CrossRef]

Raymond, Louis, Josée St-Pierre, Sylvestre Uwizeyemungu, and Thang Le Dinh. 2014. Internationalization capabilities of SMEs: A comparative study of the manufacturing and industrial service sectors. *Journal of International Entrepreneurship* 12: 230–53. [CrossRef]

Ren, Qiuzhen, and Johan Albrecht. 2023. Toward circular economy: The impact of policy instruments on circular economy innovation for European small medium enterprises. *Ecological Economics* 207: 107761. [CrossRef]

Say, Jean Baptiste. 1803. *Traité d'Économie Politique ou Simple Exposition de la Manière dont se Forment, se Distribuent, et se Consomment les Richesses [Treatise on Political Economy or Simple Exposition of the Way in Which Riches are Formed, Distributed, and Consumed]*. Paris: Tome I & II, vols. 1 and 2.

Schaefer, Jones, Ismael Cristofer Baierle, Miguel Afonso Sellitto, Julio Siluk, João Carlos Furtado, and Elpidio Nara. 2021. Competitiveness Scale as a Basis for Brazilian Small and Medium-Sized Enterprises. *Engineering Management Journal* 33: 255–71. [CrossRef]

Shalbayeva, Sholpan, Taner Ismailov, Milen Mitkov, Olga Zamlynska, Valentyna Khachatrian, and Viktoriia Stratiichuk. 2024. ESG rating of capital's effect on firms' financing sources: A case study of Asian companies. *ACCESS Journal: Access to Science, Business, Innovation in Digital Economy* 5: 102–24. [CrossRef] [PubMed]

Storey, David J. 2003. Entrepreneurship, small and medium sized enterprises and public policies. In *Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction*. New York: Springer.

Surya, Batara, Firman Menne, Hernita Sabhan, Seri Suriani, Herminawaty Abubakar, and Muhammad Idris. 2021. Economic growth, increasing productivity of SMEs, and open innovation. *Journal of Open Innovation: Technology, Market, and Complexity* 7: 20. [CrossRef]

Sushchenko, Olena, Kateryna Kasenkova, and Serhii Sushchenko. 2022. Innovative Marketing Technologies in the Development of the Tourism Specialized Types. *Business Management* 3: 5–16.

Taiwo, Muritala A., Awolaja M. Ayodeji, and Bako A. Yusuf. 2012. Impact of small and medium enterprises on economic growth and development. *American Journal of Business and Management* 1: 18–22. [CrossRef]

*The State of Small Business: A Report of the President Transmitted to the Congress*; 1994. Washington, DC: United States Government Printing Office, p. 407.

The World Bank. 2020. Doing Business Archive. Available online: https://archive.doingbusiness.org/en/data/exploreeconomies/kazakhstan (accessed on 25 December 2023).

Toleuuly, Almas, Bauyrzhan Yessengeldin, Zhibek Khussainova, A. Yessengeldina, A. Zhanseitov, and Sholpan Jumabaeva. 2020. Features of e-commerce risk management in modern conditions. *Academy of Strategic Management Journal* 19: 1–6.

Wasiuzzaman, Shaista, Nabila Nurdin, Aznur Hajar Abdullah, and Gowrie Vinayan. 2020. Creditworthiness and access to finance: A study of SMEs in the Malaysian manufacturing industry. *Management Research Review* 43: 293–310. [CrossRef]

Wellalage, Nirosha Hewa, and Viviana Fernandez. 2019. Innovation and SME finance: Evidence from developing countries. *International Review of Financial Analysis* 66: 101370. [CrossRef]

Yacob, Peter, Lai Soon Wong, and Saw Chin Khor. 2019. An empirical investigation of green initiatives and environmental sustainability for manufacturing SMEs. *Journal of Manufacturing Technology Management* 30: 2–25. [CrossRef]

Zhou, Luisa. 2023. Small Business Statistics: The Ultimate List in 2023. *Entrepreneurship*. Available online: https://www.luisazhou.com/blog/small-business-statistics (accessed on 25 December 2023).