

Syzdykova, Aziza; Azretbergenova, G. Ž.

Article

Analysis of the impact of SMEs' production output on Kazakhstan's economic growth using the ARDL method

Economies

Provided in Cooperation with:

MDPI – Multidisciplinary Digital Publishing Institute, Basel

Suggested Citation: Syzdykova, Aziza; Azretbergenova, G. Ž. (2025) : Analysis of the impact of SMEs' production output on Kazakhstan's economic growth using the ARDL method, *Economies*, ISSN 2227-7099, MDPI, Basel, Vol. 13, Iss. 2, pp. 1-17, <https://doi.org/10.3390/economies13020038>

This Version is available at:

<https://hdl.handle.net/10419/329318>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

Article

Analysis of the Impact of SMEs' Production Output on Kazakhstan's Economic Growth Using the ARDL Method

Aziza Syzdykova *  and Gulmira Azretbergenova

Department of Economics, Finance and Accounting, Faculty of Economics, Management and Law, Khoja Akhmet Yassawi International Kazakh-Turkish University, Turkistan 161200, Kazakhstan;
gulmira.azretbergenova@ayu.edu.kz

* Correspondence: aziza.syzdykova@ayu.edu.kz

Abstract: Small and medium-sized businesses (SMEs) are an essential subject of economic activity in any country because, without their participation, the development and formation of the very structure of the economy are almost impossible. The role of SMEs is significant since these businesses allow for an increase in the number of jobs, develop competition, and, as a result, improve the quality of goods, creating different price segments. More than 4 million people are employed in this sector in the Republic of Kazakhstan, and their share of GDP is 36.7%. The accelerated contribution of the SME sector to Kazakhstan's GDP has led to the need to conduct a study in this area. This study analyzes the impact of SME production output on Kazakhstan's economic growth by considering some macroeconomic variables using the ARDL model. The study's findings confirm that SME output positively and significantly impacts economic growth. The government of Kazakhstan has been implementing a series of policies and incentive programs to increase the contribution of the SME sector to economic growth since the years of independence. However, SMEs are not able to reach their full potential due to various restrictions that limit their expansion. This study offers some suggestions for the development of the SME sector. In order to ensure SME concentration in the economy, investment in R&D should be a priority incentive. On the other hand, we should recognize the shadow economy problem in the country.

Keywords: SME; SME output; Kazakhstan; economic growth; ARDL method



Academic Editor: Katarina Valaskova

Received: 1 December 2024

Revised: 18 January 2025

Accepted: 28 January 2025

Published: 5 February 2025

Citation: Syzdykova, A., & Azretbergenova, G. (2025). Analysis of the Impact of SMEs' Production Output on Kazakhstan's Economic Growth Using the ARDL Method. *Economies*, 13(2), 38. <https://doi.org/10.3390/economies13020038>

Copyright: © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

In today's globalizing world, SMEs are essential actors in all economies operating in production (Lukács, 2005; Keskin et al., 2010). SMEs, which have replaced large enterprises that were unable to make the fast and effective moves that have become necessary in the increasingly competitive environment of world markets due to the impact of globalization and some of which were turned off by the crises and changes experienced, have prevented a possible collapse in the sectors and a widening of the deficit in the economy (Naradda Gamage et al., 2020). At the same time, SMEs are the most numerous businesses in the economies in which they operate (Etuk et al., 2014; Zafar & Mustafa, 2017). SMEs are the building blocks of the economy with their flexible, dynamic, innovative, and durable structures and aim to provide the goods and services that are needed and in demand in society in the fastest and cheapest way with a rational perspective from scarce resources, as they are economic institutions, are effective in solving problems in economic life as well as in social life, and play an active role in eliminating development differences in the countries where they are located, ensuring employment growth, increasing the level of welfare, bringing classes closer to each other, preventing social exclusion, ensuring

social integration, spreading capital to the base, and creating an experienced and qualified workforce (Parrilli, 2007; Južnik Rotar et al., 2019; Sidek et al., 2020; Pulka & Gawuna, 2022).

Along with the proportional size of SMEs in national economies, their share in total employment, value-added, investment, taxes, exports, and credits has also reached significant dimensions. World Bank data (World Bank, 2022) have shown that SMEs represent approximately 90% of businesses and more than 50% of employment worldwide. SMEs contribute up to 40% of GDP in developing economies. This rate is 60% in India and 45% in Vietnam. The share of small and medium-sized businesses in Uzbekistan's GDP is 59.4%. In Malaysia, the share of medium-sized enterprises is 2%, but they constitute about 40% of the country's GDP. SMEs in Kazakhstan constitute 99.52% of enterprises and, provide almost 50% of employment (47.64%), and 36.7% of the total added value produced. The importance of SMEs began to come to the fore in Kazakhstan after it gained independence in 1991 and pioneered many structural and institutional changes with socio-economic components. The recent state measures to support and develop small and medium-sized businesses in the Republic of Kazakhstan aimed to increase their numbers and contribute to the country's GDP. Thus, one of the current strategic objectives of the state in the development of SMEs in Kazakhstan is to increase its contribution to the country's GDP by 50% by 2050. As a result, in recent years, a number of state programs to support SMEs have been developed and implemented in the republic, among which one of the most popular is the "Business Road Map". There has been some success in implementing such programs, as evidenced by the steady increase in small and medium-sized businesses in recent years. However, Kazakhstan's practice shows that the rapid dynamics of the number of SMEs in the region only sometimes lead to the expected performance of this sector.

Numerous studies have been conducted on SMEs in various developing, emerging, and developed nations (Manzoor et al., 2021; Sakib et al., 2022; Chaldun et al., 2024). Some studies in the literature show a solid and positive relationship between GDP growth and SME output (e.g., Beck et al., 2005; Hu, 2010; Alauddin et al., 2015; Pandya, 2012; Mujahid & Begam, 2019). SMEs have attracted significant attention from policymakers and scholars for decades; however, research examining the relationship between SMEs and economic growth in developing countries, particularly in Kazakhstan, remains limited. There is a clear need to assess the current state of the SME sector in Kazakhstan, and it is crucial to implement the necessary factors for its growth in a timely manner to mitigate potential future challenges. Thus, evaluating the impact of SMEs on economic growth and quantifying their relative effects will have important implications for the future development and management of SMEs. Therefore, the aim of this study is to examine the impact of SMEs on Kazakhstan's GDP growth and address some potential policies to ensure the concentration of this sector. This research will be a pioneering study that empirically examines the relationship between the SME sector and economic growth using secondary data from Kazakhstan.

2. Features of SMEs in the Republic of Kazakhstan

Micro, small, and medium-sized enterprises (SMEs) in the Republic of Kazakhstan are characterized by the number of employees and annual revenue criteria (Table 1).

In the Republic of Kazakhstan today, the growth in the number of SMEs is occurring in light of the consistent state policy on developing the private business sector by optimizing the tax system, reducing administrative barriers, and providing direct financial and non-financial assistance. As of 1 January 2024, the total number of SME entities registered in Kazakhstan is 2,178,951 units. Of these, 2,002,199 units are actively operating. The share of individual entrepreneurs in the total number of SME entities is 68.37%, legal entities in small businesses account for—17.99%, legal entities in medium-sized businesses account for—0.14%, and peasant or farm enterprises—account for 13.48% (Table 2). The growth

in dynamics shows that private entrepreneurship is characterized as a more widespread activity for the economically active population, characterized by a comfortable business climate in our country.

Table 1. Definition of SMEs in Kazakhstan.

Enterprise	Number of Employees	Annual Revenue (MCI *)
Micro	Not more than 15	30,000 MCI
Small	Not more than 100	300,000 MCI
Medium	101–250	3,000,000 MCI

* The state establishes the monthly calculation index annually to calculate pensions, benefits, and other social payments in Kazakhstan and apply and calculate fines, tax payments, and other payments. In 2024, the monthly calculation index is –3692 tenge.

Table 2. Number of active small and medium business entities, units.

	Total	Including			
		Legal Entities of Small Enterprises	Legal Entities of Medium Enterprises	Individual Entrepreneurs	Peasant or Farm Enterprises
Republic of Kazakhstan	2002.199	360.268	2.940	1369.043	269.948
Abay	53.269	4.874	53	37.821	10.521
Akmola	57.919	9.203	121	41.645	6.950
Aktobe	83.819	12.742	122	61.850	9.105
Almaty	134.628	13.878	148	91.789	28.813
Atyrau	65.045	9.242	127	51.607	4.069
Batys Kazakhstan	57.653	7.831	97	40.156	9.569
Zhambyl	106.779	9.312	60	67.167	30.240
Zhetisu	58.914	4.690	50	33.630	20.544
Karagandy	99.190	19.162	181	69.770	10.077
Kostanay	64.286	9.755	159	47.168	7.204
Kyzylorda	67.180	6.245	71	48.383	12.481
Mangystau	79.742	11.805	121	63.829	3.987
Pavlodar	54.578	11.983	117	36.936	5.542
Soltustik Kazakhstan	34.891	6.873	119	22.933	4.966
Turkistan	206.855	12.416	84	113.084	81.271
Ulytau	18.791	1.766	15	13.145	3.865
Shygys Kazakhstan	62.616	9.131	129	44.339	9.017
Astana city	227.386	71.559	253	153.765	1.809
Almaty city	340.132	106.543	755	229.685	3.149
Shymkent city	128.526	21.258	158	100.341	6.769

Source: Bureau of National Statistics of the Republic of Kazakhstan, <https://stat.gov.kz/ru> (accessed on 10 September 2024). Note: Astana, Almaty and Shymkent have the status of the city of republican significance, and as such do not relate to any region.

Regarding regions, the city of Almaty is the leader in the number of SMEs. The high level of SME development in Almaty, the concentration of all types of business, and its formation as a world-class financial center are because it is the former capital of Kazakhstan and has a population of about 2.5 million people. Astana is in second place in terms of registration of SME entities, while the Turkestan region is in third place. It should be noted that Almaty, Astana, and Shymkent are considered cities of republican significance. In total 75% of small and medium-sized business entities operate in the service sector, more

than half of which operate in six large regions—in Astana, Almaty, and Shymkent, and the Karaganda, Almaty, and Turkestan regions.

One of the leading indicators of the development of SMEs in Kazakhstan is their share in the country’s gross domestic product. Along with the growth in the number of SMEs, their contribution to the economy of Kazakhstan is also growing. To assess the contribution of SMEs to Kazakhstan’s GDP, we consider the following figure (Figure 1). The share of SMEs in GDP today is 36.7%, with the most significant contribution to GDP among the regions comprising Almaty (30.1%) and Astana (20.1%).

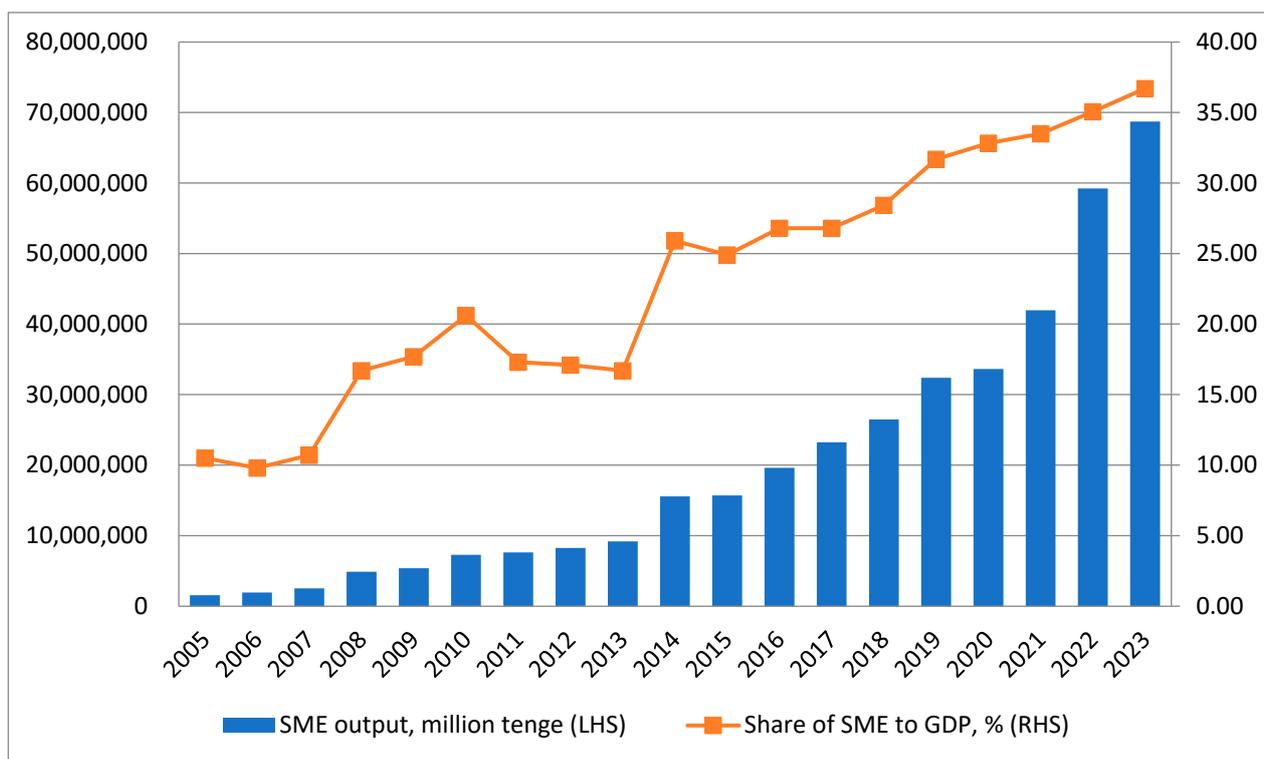


Figure 1. Trends in SME output and share of SME to GDP.

From 2005 to 2013, the output of SMEs was at a low level. Accordingly, the share of SMEs in GDP was low. Since 2014, with the increase in the number of small and medium-sized entrepreneurs in the country and their strengthening of activity, their share in GDP has been increasing. In order to ensure the continuous development of entrepreneurship at the state level in our country, the “Concept of Development of Small and Medium Business for 2030” has been adopted. The main goals in the strategic document are presented in Table 3. (Zarubina et al., 2024), criticize that the main parameters of the strategic development of SMEs are only related to the increase in the number of employees, the increase in the share of GDP, the increase in labor productivity and investment, and that the SME sector ignores the sustainable development indicators.

Figure 2 shows the contribution of SMEs to GDP by type of entity. The critical point to note here is that the share of individual entrepreneurs with the highest number of SMEs in SME production output could be more manageable. While individual entrepreneurs constitute 68.38% of the total SMEs, they constitute only 9.79% of the SME production output. The highest share in the production output of the SME sector belongs to legal entities of small enterprises (17.99%). The share of medium-sized legal entities, which have a share of 0.15% in the number of SMEs, in production output is 17.59%. In addition, in 2024, the output per employee for all SMEs in Kazakhstan amounted to KZT 15.88 million. Of these, legal entities in small businesses account for —KZT 26.6 million, legal entities

in medium-sized businesses account for —KZT 30.58 million individual entrepreneurs account for —KZT 3.72 million, and farms account for —KZT 7.82 million. As we can see, the lowest value of the indicator is observed among individual entrepreneurs, but this category accounts for more than 68% of all registered SMEs. The highest value of output is among medium-sized enterprises. Kazakhstan lags behind the average OECD indicators for labor productivity per employee in the SME sector, which is about USD 67 thousand at purchasing power parity, by about five times. Thus, today, the Kazakhstani small and medium business sector still needs to be more competitive, primarily due to the low labor productivity of individual entrepreneurs. The current situation is that the small capacity of Kazakhstan’s domestic market limits the ability of small and medium businesses to expand production scale and increase output. At the same time, the entry of Kazakhstani businesses into foreign markets needs to be improved by existing barriers and the insufficient competitiveness potential of most domestic SMEs. The weak focus on other markets is also confirmed by data from the Asian Development Bank, according to which only 5% of small and medium enterprises in Kazakhstan sell their products outside their region (Uruzbaeva, 2022).

Table 3. Key indicators of the Concept for the Development of SMEs in Kazakhstan until 2030.

Indicator	Meaning
Share of SMEs in GDP	40%
Share of medium-sized companies in GDP	20%
Employment (million people) in medium-sized enterprises	5
Growth of average real labor productivity in medium-sized enterprises (per enterprise)	50%
The share of investments in fixed capital of medium-sized enterprises in the total volume of investments in fixed capital of all business entities	15%

Source: On approval of the concept for developing small and medium entrepreneurship in the Republic of Kazakhstan until 2030 resolution of the Government of the Republic of Kazakhstan dated 27 April 2022, No. 250. Available online: <https://adilet.zan.kz/rus/docs/P2200000250> (accessed on 12 July 2024).

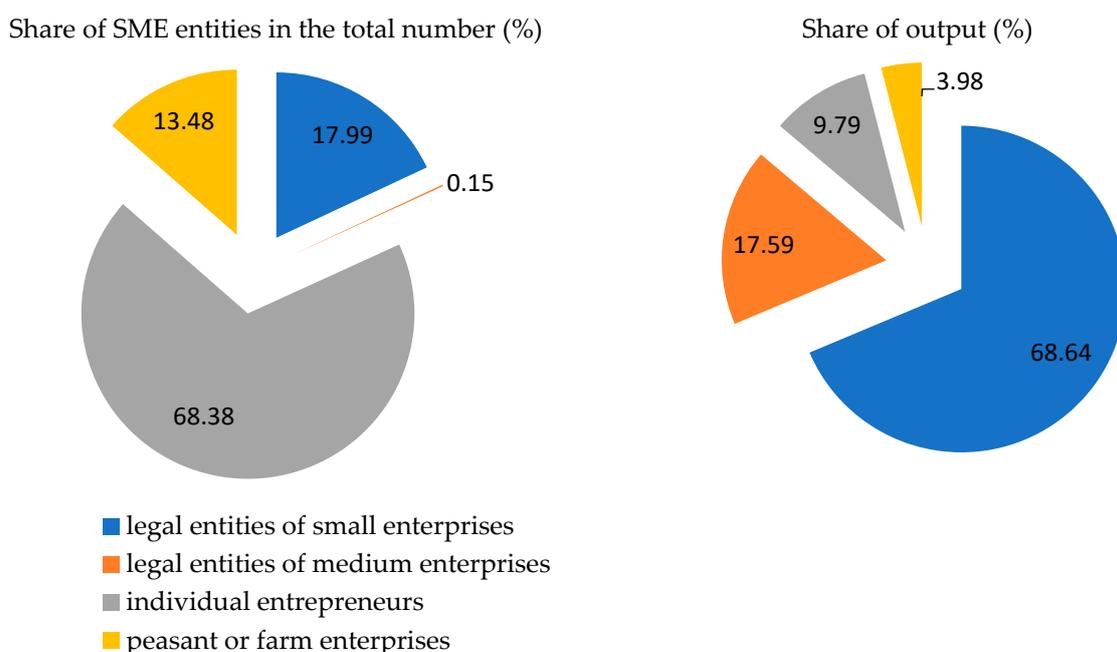


Figure 2. Share of SME to GDP Share of SME types in the number of enterprises and product outputs (%).

The SME sector provides employment for most of the population and forms the basis of the “middle class” that ensures the political and social stability of the state. Figure 3 shows the total employed population in Kazakhstan, including the number of people employed in SME entities. The total population of Kazakhstan as of 1 January 2024, was 20.2 million people, including 9.4 million people in the labor force. At the end of 2023, the number of people employed in SME entities was 4.3 million people; their share in the total employed population was 47.64%. By type of SME, the majority of those employed belong to individual entrepreneurship and legal entities in small business (42% and 41%, respectively), in other words, the self-employment rate in Kazakhstan is high.

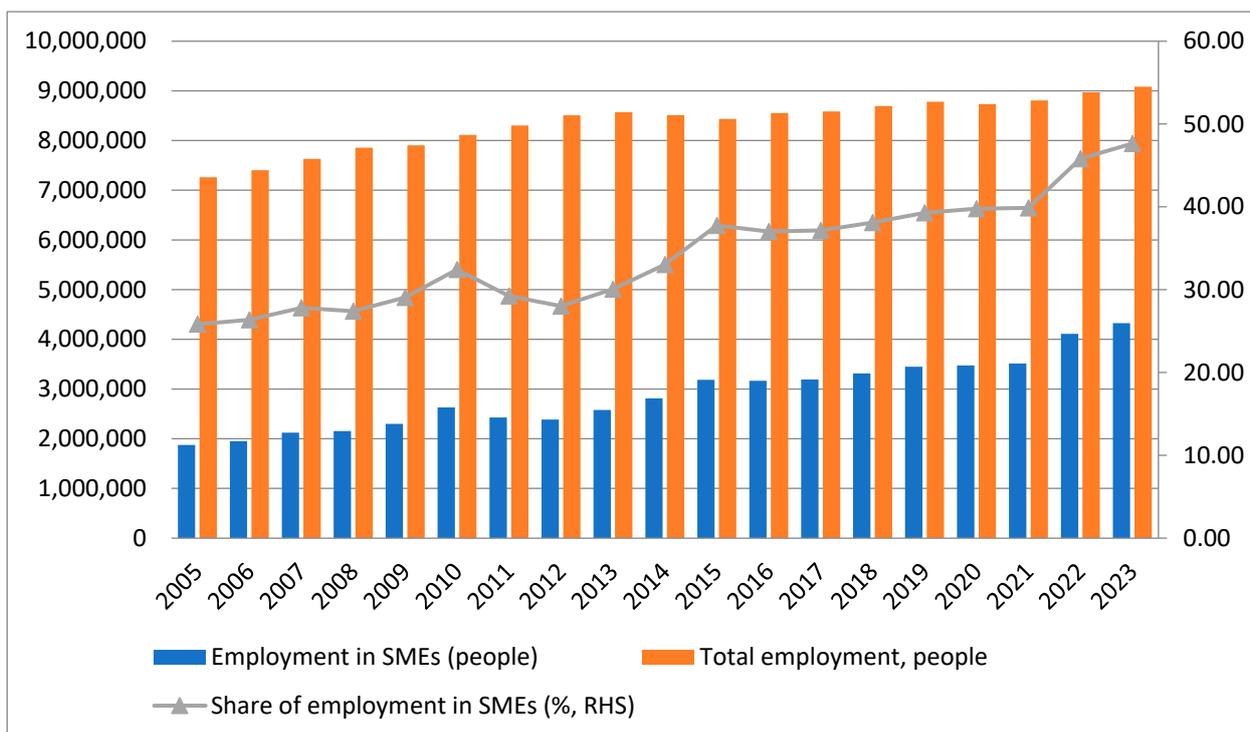


Figure 3. Contribution of SMEs to employment.

3. Literature Review

In the literature, two main theories, “the classical and the modern”, are dominant in the discussion of SMEs’ role in the inclusive development of developing nations (Tambunan, 2006). The foundational works of Hoselitz (1959), Staley and Morse (1965), and Anderson (1982), along with several other studies, are frequently categorized under the ‘classical’ theories of SME development. Classical theory views economic growth as a process driven by large enterprises and heavy industry. It argues that economic development is primarily achieved through capital accumulation and large-scale production, while the role of SMEs is considered limited due to the perceived minimal impact of small enterprises on the overall economy. Modern theory posits that SMEs play a strategic role in fostering inclusive development. It emphasizes that SMEs serve as key drivers of innovation, entrepreneurship, and the strengthening of local economies. Due to their flexible structures, SMEs can adapt rapidly to changing market conditions and play a critical role in generating local employment. In developing countries, in particular, SMEs contribute significantly to disseminating economic growth more broadly and promoting a balanced development model. According to modern theory, sustainable development can be achieved not only through large-scale investments but also by supporting small and medium-sized enterprises at the local level. Consequently, while classical theory

focuses on the role of large enterprises, modern theory highlights the importance of SMEs in driving development. This theoretical discourse in the literature provides a foundation for studies investigating the impact of SMEs on economic growth and development in developing countries.

A substantial body of scholarship suggests a positive relationship between SMEs and economic growth. [Miller \(1990\)](#) asserts that small enterprises demonstrate significantly higher employment growth rates compared to larger enterprises. The creation of new firms and the expansion of SMEs have been pivotal in generating employment, thereby serving as a fundamental driver of economic development. [Pagano and Schivardi \(2003\)](#) conducted a regression analysis on European industries using data from 1989 to 1998. Their findings highlight that an increase in the average firm size is associated with higher levels of innovativeness. Furthermore, they argue that as firm size and innovativeness continue to grow, this dynamic contributes positively to economic growth.

[Beck et al. \(2005\)](#) analyzed the relationship between the SME sector, economic growth, and poverty in a sample of 45 countries. As a result of the study, the authors found a positive relationship between SMEs and economic growth. However, they found that this relationship could have been stronger. [Dixit and Pandey \(2011\)](#) studied the causal linkages between SMEs' production output, exports, employment, and fixed investment and India's GDP, total exports, and employment (public and private). The authors confirmed a positive causal relationship between GDP and SMEs' output and a short-run relationship between SMEs-related variables and GDP growth. [Pandya \(2012\)](#) studied the importance of SMEs for economic development in both developed and developing countries and found that SMEs make a significant contribution to the economies in both groups of countries. He also emphasized that developing countries, like industrialized countries, must adopt policies to help the SME sector become the country's foundation.

According to [Karadag \(2016\)](#), SMEs are considered drivers of socio-economic development worldwide due to their significant role in GDP growth, new job creation, and entrepreneurship. [Melwani \(2018\)](#) explored the importance of individual enterprises for economic growth, revealing that shifts in the business market stimulate private and small enterprises, serving as a tool for enhancing economic development. [Sigala and Dolnicar \(2018\)](#), in their research on developing economies, suggested that entrepreneurship has become a crucial factor in the success of economic organizations. In contrast, [Dvouletý et al. \(2018\)](#) analyzed the role of entrepreneurship in economic development, with their findings indicating that higher levels of entrepreneurship, including SMEs, positively impact economic development.

[Mujahid and Begam \(2019\)](#) examined the relationship between GDP growth and SME output in Pakistan using the ARDL method and found that there is a clear and strong relationship. They also stated that a policy framework is still needed to address the sector's problems. [Manzoor et al. \(2021\)](#) examined the relationships between SMEs and economic growth in Pakistan over the period from 1990 to 2019 using the Autoregressive Distributed Lag (ARDL) cointegration approach. The study's findings indicate that, in the long run, the output of SMEs, the Human Development Index (HDI), and credit to the SME sector are the primary drivers of economic growth. In contrast, in the short run, the output of SMEs, HDI, credit to SMEs, and the annual export rate emerge as the key factors influencing economic development.

The studies of [Mrva and Stachova \(2014\)](#) and [Aykan et al. \(2013\)](#) that address regional development and support for SMEs are noteworthy. The role of SMEs in the sustainable development of regions has been examined in the studies of [Arent et al. \(2015\)](#) and [Gherghina et al. \(2020\)](#). The impact of externalities on the location of SMEs in border regions is discussed in detail in the study of ([Makkonen & Leick, 2019](#)); the factors affecting

the success and competitiveness of small businesses are discussed in detail in the study of (Chittithaworm et al., 2011). The role of SMEs in employment creation is examined in the studies of Amoah and Amoah (2018); Nasr and Rostom (2013); Južnik Rotar et al. (2019); Pulka and Gawuna (2022); and Inegbedion et al. (2024).

The problems, trends, and conditions for the development of SMEs in Kazakhstan and the analysis of their contribution to the regional economy were discussed in the studies of (Sorokin, 2015; Uruzbaeva, 2016; Lilimberg & Selezneva, 2019; Chowdhury et al., 2021; Syzdykova & Azretbergenova, 2023; Bekzhanova et al., 2023). In addition, Zarubina et al. (2024) examined the sustainable development of small enterprises, developed a mechanism based on the “enterprise-society-state” network interaction, and determined priority development areas.

As can be seen, there have been many national and international studies on SMEs. The studies specifically mention the contributions of SMEs to the economy. Studies emphasize that a decrease in unemployment and an increase in employment are the results of the development of SMEs. In addition, it is stated that SMEs, which have an essential place, especially in developing countries, should be encouraged by governments and that there should be policies aimed at SMEs. As mentioned previously, there is a lack of studies that apply econometric strategies and examine the time series properties of the data for Kazakhstan. Therefore, this study aims to contribute to filling this gap in the existing literature.

4. Methods and Description of the Variable

This study employs annual time-series data from 2000 to 2023. Due to data availability limitations, particularly in Kazakhstan (as a developing country), and especially regarding SMEs, the analyses are confined to this specific sample period. Following the work of Cravo et al. (2015), this study examines the role of SMEs in economic development. Gross domestic product (GDP) is used as a proxy for economic growth, as suggested by Amirat and Zaidi (2020). The explanatory variables include the total output of SMEs (SMEO), government expenditure (GE), domestic credit to the private sector by banks (DC), and trade openness (TO). Annual data were obtained from various sources, including the National Bank of Kazakhstan, the Ministry of Finance of Kazakhstan, and the Bureau of National Statistics.

4.1. The Model Specification

The theoretical framework of growth models presented by Solow (1956), Barro (1991), and (Mankiw, 1992) explains the effect of factors on economic growth. Today, growth theories have developed and consider structural variables and some traditional variables such as labor, capital, technology, etc. Levine and Renelt (1992) and Durlauf (2005) have added many variables for growth regression. Audretsch and Keilbach (2004), Beck et al. (2005), and Mueller (2007) consider SMEs to be one of the critical variables affecting economic growth in their studies. This study follows the methodology proposed by Cravo et al. (2015) and Mujahid and Begam (2019) to analyze the effect of SMEs on economic growth. Therefore, the description employed in this article to study SMEs and economic growth in Kazakhstan sets out the following form:

$$\text{GDP}_t = \beta_0 + \beta_1 \text{SMEO}_t + \beta_2 \text{GE}_t + \beta_3 \text{DC}_t + \beta_4 \text{TO}_t + \epsilon_t \quad (1)$$

where GDP represents gross domestic product (a proxy for measuring economic growth), SMEO is total SMEs output, GE is government expenditure, DC is domestic credit to private sectors by banks, TO is trade openness, t denotes time. The betas (β_s) measure each factor’s relative significance in explaining the underlying conduct of economic development. For

the interpretation of these coefficients as elasticity, we convert the above equation through pleasing the natural logs. Therefore, Equation (1) transforms:

$$\ln \text{GDP}_t = \beta_0 + \beta_1 \ln \text{SMEO}_t + \beta_2 \ln \text{GE}_t + \beta_3 \ln \text{DC}_t + \beta_4 \ln \text{TO}_t + \epsilon_t \quad (2)$$

The selection of regressors is primarily guided by their relevance to the Kazakhstani economy and the availability of data for the study period.

4.2. Tools of Estimation

In the analysis of the effects of these factors on economic growth, the Autoregressive Distributed Lag (ARDL) model developed by Pesaran and Shin (1995) and Pesaran et al. (2001) was selected. The reasons for choosing this method are that both short-term and long-term coefficients can be estimated simultaneously, long-term relationships between variables can be determined independently of the degree of stationarity, different lag numbers can be given to each variable in the model, and it can be applied to fewer samples (Narayan & Narayan, 2004). While all variables must be integrated to the same degree in traditional cointegration test methods, variables can be integrated of zero or first degree in the ARDL approach. However, none of the variables in the model should be integrated at two or more degrees (Pesaran et al., 2001).

The ARDL approach can be applied to smaller sample sizes and is recognized for providing unbiased long-term estimates, particularly when few variables are endogenous. Amusa et al. (2009) demonstrated that the bounds testing procedure typically yields unbiased long-term estimates and reliable t-statistics, even when some of the explanatory variables are endogenous. However, the method is not considered efficient when variables are stationary at a second difference. Given these characteristics of the ARDL bounds cointegration technique, we have adopted this econometric method to model the relationship between SMEs and economic growth in Kazakhstan. The previous literature indicates that ARDL bounds cointegration has been widely used in numerous studies (Kumar et al., 2015; Pan & Mishra, 2018; Manzoor et al., 2021).

First, the stationary properties of the time-series variables in Equation (2) are examined by conducting unit root tests. All variables are tested at both levels and first differences using the Augmented Dickey–Fuller (ADF) test and the (Phillips & Perron, 1988) unit root test. Subsequently, we investigate the presence of a long-term relationship between SMEs, economic development, and the other regressors within a univariate framework.

The model is mathematically specified as:

$$\begin{aligned} \Delta \ln \text{GDP}_t = & \alpha_0 + \sum_{i=1}^{P_0} \beta_i \Delta \ln \text{GDP}_{t-i} + \sum_{i=1}^{P_1} \delta_i \Delta \ln \text{SMEO}_{t-i} \\ & + \sum_{i=1}^{P_2} \varphi_i \Delta \ln \text{GE}_{t-i} + \sum_{i=1}^{P_3} \theta_i \ln \text{DC}_{t-i} + \sum_{i=1}^{P_4} \nu_i \Delta \ln \text{TO}_{t-i} \\ & + \lambda_0 \ln \text{GDP}_{t-1} + \lambda_1 \ln \text{SMEO}_{t-1} + \lambda_2 \ln \text{GE}_{t-1} + \lambda_3 \ln \text{DC}_{t-1} \\ & + \lambda_4 \ln \text{TO}_{t-1} + \mu_t \end{aligned} \quad (3)$$

The bounds cointegration test includes calculating Equation (3) and confining the factors of the lag level variables to zero. Hence, we check the hypothesis from Equation (3), which is stated below:

$$H_0 = \varphi_1 = \varphi_2 = \varphi_3 = \varphi_4 = \varphi_5 = 0$$

$$H_1 \neq \varphi_1 \neq \varphi_2 \neq \varphi_3 \neq \varphi_4 \neq \varphi_5 \neq 0$$

The corresponding measured F-statistic is then compared with the Pesaran et al. (2001) two asymptotic critical value limits to confirm the existence of cointegration.

The final step is the assessment of error correction model (ECM) stated as:

$$\begin{aligned} \Delta \ln \text{GDP}_t = & \alpha_0 + \sum_{i=1}^{P_0} \beta_i \Delta \ln \text{GDP}_{t-i} + \sum_{i=1}^{P_1} \delta_i \Delta \ln \text{SMEO}_{t-i} \\ & + \sum_{i=1}^{P_2} \varphi_i \Delta \ln \text{GE}_{t-i} + \sum_{i=1}^{P_3} \theta_i \ln \text{DC}_{t-i} + \sum_{i=1}^{P_4} \nu_i \Delta \ln \text{TO}_{t-i} + \lambda \text{ECM}_{t-i} \\ & + \mu_t \end{aligned} \tag{4}$$

Although the ARDL cointegration technique does not require pre-testing for unit roots, to avoid ARDL model crash in the presence of integrated stochastic trend of I (2), we are of the view that the unit root test should be carried out to identify the number of unit roots in the series under consideration (Debela, 2019). For this purpose, we have used the ADF and PP unit root techniques. ADF is based on an estimation of the following equations:

$$\Delta y_t = \dot{a} + bt + \delta y_{t-1} + \sum_{i=1}^p \beta \Delta y_{t-1} + e_t \tag{5}$$

$$\Delta y_t = \dot{a} + \delta y_{t-1} + \sum_{i=1}^p \beta \Delta y_{t-1} + e_t \tag{6}$$

where: Δ is the first difference, Y is the time series, t denotes linear time trend, α is constant, n is a number of lags on the dependent variable, and e is the error term. Equation (5) includes time trend and drift, and Equation (6) includes only drift.

5. Results

5.1. Descriptive Statistics

Descriptive statistics of the variables included in the model are given in Table 4. The results show that the lnTO variable is skewed to the right, and all other series are skewed to the left. When we compare the kurtosis coefficient with 3, it can be said that the lnDC series is sharp and the other series are flat. According to the Jarque–Bera statistic, which evaluates skewness and kurtosis simultaneously, the null hypothesis of “data has a normal distribution” is accepted at the 0.05 significance level for all series. The fact that the standard deviation of the lnSMEO variable is relatively higher than the other two variables indicates that this variable has a fluctuating course.

Table 4. Descriptive Statistics.

	lnGDP	lnSMEO	lnGE	lnDC	lnTO
Mean	17.37705	16.31863	15.81182	16.17475	4.069187
Median	17.49625	16.56073	15.86859	16.30919	4.032805
Maximum	18.59674	18.04541	17.10242	17.14532	4.403526
Minimum	15.84242	14.24992	14.48136	14.76797	3.725731
Std. Dev.	0.793293	1.124219	0.779539	0.545030	0.193061
Skewness	−0.326505	−0.278967	−0.128454	−0.659583	0.231035
Kurtosis	2.129689	2.106341	1.993360	3.833666	2.244950
Jarque–Bera	0.937226	0.878684	0.854467	1.927865	0.620357
Probability	0.625870	0.644460	0.652311	0.381390	0.733316

5.2. Unit Root Test Results

Although the ARDL method allows the analysis of relationships between variables with different stationarity levels, it requires that the variables are not I(2), that is, they are not stationary in the second degree (Narayan & Narayan, 2004). Therefore, applying unit root tests to time series and determining the variables' stationarity levels is essential. For this purpose, the Extended Dickey–Fuller (ADF) test was first applied in the study, and then the Phillips & Perron, (1988) test was performed to compare the results. In these tests, the null hypothesis indicates a unit root; the series is not stationary, and the alternative hypothesis indicates no unit root. Table 5 presents the ADF and PP unit root test results.

Table 5. ADF and PP Unit Root Test Results.

Variables	ADF		PP	
	t-Statistic	Prob.	t-Statistic	Prob.
lnGDP	−2.306721	0.1804	−2.671893	0.0980
ΔlnGDP	−3.698904	0.0145 **	−3.812974	0.0116 **
lnSMEO	−1.262711	0.6228	−1.593694	0.4652
ΔlnSMEO	−4.977671	0.0012 ***	−4.977671	0.0012 ***
lnGE	−1.276422	0.6133	−0.570719	0.8544
ΔlnGE	−4.618166	0.0026 ***	−5.588197	0.0004 ***
lnDC	0.566682	0.9839	−2.328781	0.1742
ΔlnDC	−3.962266	0.0086 ***	−4.010209	0.0078 ***
lnTO	−1.779783	0.3776	−1.750057	0.3912
ΔlnTO	−4.573424	0.0026 ***	−4.575470	0.0026 ***

Note: ** and *** indicate 5% and 1% significance levels, respectively.

According to the unit root test results applied in the study, all variables are not stationary at the level but become stationary when their differences are taken. In other words, it was determined that all series were I(1). This situation provides the necessary conditions for ARDL analysis.

5.3. ARDL Results

After determining the stationarity levels of the series, the existence of a long-term cointegration relationship between them was investigated with the ARDL bounds test. The iteration method was used to find the most appropriate ARDL model. This method used 162 different lag lengths, and the most appropriate model was selected according to the Akaike Info Criterion (AIC) value. As a result of the iteration, the ARDL (1, 2, 2, 1, 0) model was determined as the most appropriate model (Figure 4).

The cointegration relationship between variables is determined using F statistics values. The calculated F statistics are compared with the lower and upper limit critical values established by Pesaran et al. (2001). Suppose the calculated F statistics value is less than the lower critical value. In that case, it is concluded that there is no cointegration relationship between the series. If the F statistics value exceeds the upper critical value of the table, it is concluded that there is a cointegration relationship between the series. In addition, if the calculated F statistics value remains between the lower and upper critical values, i.e., falls into the instability region, no definitive comment can be made on whether cointegration exists or not. The ARDL bounds test results are given in Table 6.

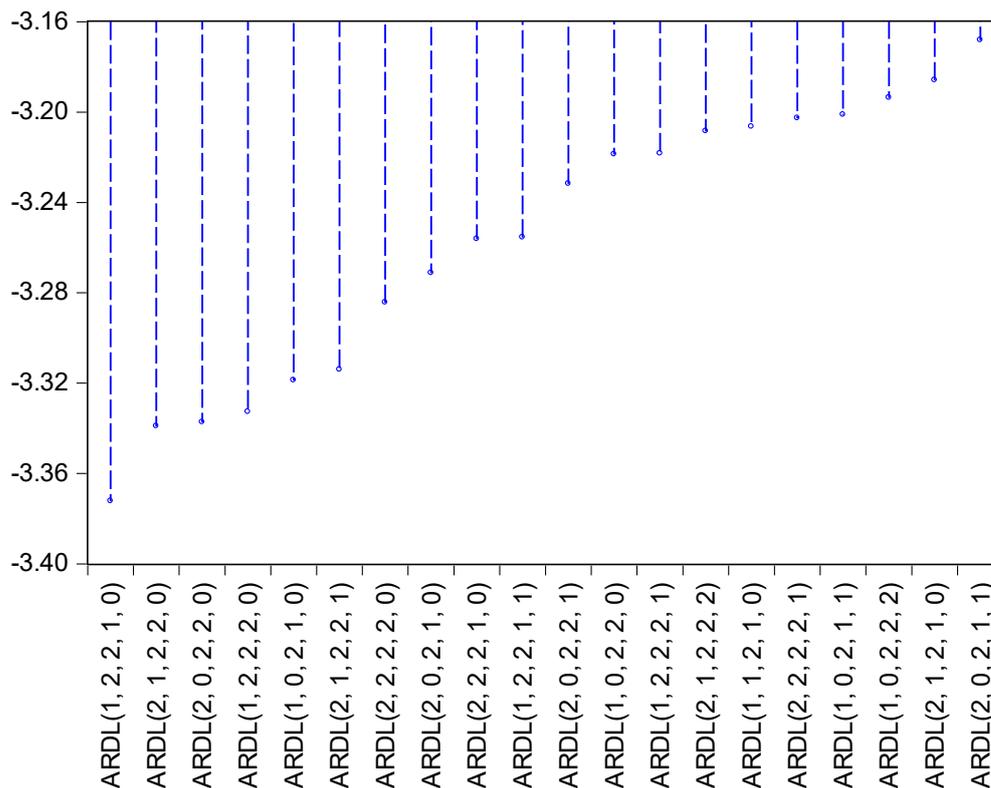


Figure 4. ARDL model selection.

Table 6. ARDL Bounds Test Results.

Test Statistic	Value	k	5% Critical Value	
			I0 Bound	I1 Bound
F-statistic	4.303702	4	2.86	4.01

According to the results in Table 6, it is seen that the calculated F-statistic value (4.303702) is greater than the upper limit value (4.01) at a 1% significance level established by Pesaran et al. (2001). Therefore, the H_0 hypothesis is rejected, and it is concluded that there is a cointegration relationship between the variables. There is a long-term relationship between the variables GDP, SME output, government expenditure, domestic credit to private sectors by banks, and trade openness. The long-term relationships between the variables were examined after determining the cointegration relationship between the variables. The estimated long-term coefficients are presented in Table 7.

Table 7. ARDL Long-Term Forecast Results.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
lnSMEO	0.0993	0.0075	3.5011	0.0010
lnGE	−0.1207	0.0708	−1.6872	0.1023
lnDC	0.0704	0.0039	9.0920	0.0000
lnTO	0.3987	0.1649	2.3876	0.0020
C	7.8453	0.5828	12.3605	0.0000

According to Table 7, the SME output variable (lnSMEO) positively affects lnGDP at the level of 1% in the long run. While the lnTO and lnDC variables positively affect lnGDP at the level of 99% confidence, the lnGE variable negatively affects lnGDP in the long run.

However, this relationship is statistically insignificant. A 1% increase in the SME output variable increased economic growth by 0.1%. A 1% increase in public expenditures decreased economic growth by 0.04%. Among the variables used, the trade openness variable affected economic growth the most. Table 8 shows the short-term ARDL estimation results.

Table 8. Definition of SME in Kazakhstan ARDL Short-Term Forecast Results.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(lnSMEO)	−0.8006	0.1562	−4.8473	0.0000
D(lnSMEO(−1))	0.6830	0.1804	3.9579	0.0004
D(lnGE)	0.9013	0.1899	4.5780	0.0000
D(lnGE(−1))	−0.7647	0.1873	−4.1201	0.0006
D(lnDC)	0.0260	0.0013	10.3079	0.0000
CointEq(−1)	−0.2754	0.0360	−7.6810	0.0000
Stability Test: Ramsey Reset Test				
F-statistic: 2.737880		Probability: 0.1065		
Heteroscedasticity Test: Breusch–Pagan–Godfrey Test				
F-statistic: 1.121100		Probability: 0.3725		
Autocorrelation Test: Breusch–Godfrey LM Test				
F-statistic: 0.887129		Probability: 0.4206		
Normal Distribution Test				
Skewness: 0.310818				
Kurtosis: 2.593196				
Jarque–Bera: 1.149835				
Probability: 0.562751				
CUSUM: Stable				
CUSUMQ: Stable				
R ² : 0.8013				
Adjusted R ² : 0.7757				
F-statistic: 4326.027(0000)				
Durbin–Watson: 2.036730				

All short-term coefficients in Table 8 are significant at the 1% level. The error correction term CointEq(−1) coefficient has a value of −0.2754. The fact that this value is statistically significant and negative is additional evidence of the long-term relationship between GDP, SME output, government expenditure, domestic credit to private sectors by banks, and trade openness. In addition, the estimated value of −0.2754 means that 27% of the deviations due to shocks in the short term are corrected after one period. Table 8 continues with the suitability tests of the analysis. According to the Ramsey–Reset test result, the model has the correct setup since the probability value is greater than 5%. The Breush–Godfrey heteroscedasticity test and Breush–Pagan–Godfrey autocorrelation tests were performed to test the existence of heteroscedasticity and autocorrelation problems in the model, and since the probability was greater than 5% in both tests, no heteroscedasticity and autocorrelation problems were encountered. The power of the selected variables to explain the dependent variable is 80%. The F statistic value is 4326.026 and shows that the model is significant at a 99% confidence level. The Jarque–Bera normality test was used to check whether the errors were normally distributed, and since the probability value of the test result was greater than 5%, the errors in this model have a normal distribution.

6. Discussion

SMEs are widely recognized as a crucial component in driving a country's economic development (Batrancea, 2022). While the majority of SMEs operate as small-scale, subsistence firms, only a limited number evolve into medium-sized enterprises, and an even smaller fraction possess the potential to grow into large-scale enterprises. This progression largely depends on the vision and capabilities of the entrepreneurs and founders behind these businesses.

The theoretical framework of this study is grounded in modern economic theories concerning SMEs. These enterprises play a pivotal role in economic systems and significantly contribute to national economic development (Surya et al., 2021). SMEs are often considered more resilient to competitive pressures compared to large-scale enterprises, and their growth serves as a driving force of economic progress. Recent research highlights that SMEs occupy a substantial share of production infrastructure in market economies, including goods and services, as reflected in their contributions to GDP.

This study employs the ARDL model to analyze the relationship between SME production output and economic growth in Kazakhstan. The findings reveal a positive and statistically significant long-term relationship between SME output, trade openness, domestic credit provided by banks to the private sector, and GDP growth. Conversely, public expenditures exhibit a negative but statistically insignificant relationship with GDP growth. The analysis underscores that the SME sector has a positive and significant impact on Kazakhstan's economic development.

Despite their importance, SMEs in Kazakhstan face numerous challenges that hinder their ability to realize their full potential (Uruzbaeva, 2022). While the government offers various forms of support to promote entrepreneurship and provides financing opportunities to facilitate low-cost loans for SMEs, these measures have not been sufficiently effective in enhancing productivity or addressing the structural barriers impeding the sector's growth.

The inefficiency of government support is not the sole issue. The lack of a robust scientific foundation for decision-making in the regulation of SMEs also hampers progress. For instance, the state program for developing mass entrepreneurship, which has been implemented for several years, still lacks a comprehensive theoretical interpretation in both the domestic and international literature. Moreover, statistical shortcomings further complicate efforts to accurately assess the contribution of SMEs to the national economy.

A significant proportion of small enterprises operate within the informal economy, making direct statistical measurement of their output infeasible. According to the Kazakhstan Bureau of Statistics, the shadow economy accounted for 19.75% of GDP in 2023. Indirect methods based on expert estimates are used to gauge the size of this sector, yet the statistical agency provides limited information about the extent to which indirect estimates are applied to "small legal entities". Additionally, subjective factors can introduce considerable bias into these assessments.

7. Conclusions

The future of the world is in economics, production, fair distribution, planned work, the pursuit of innovation, and the development of knowledge. The critical point among these is economic development. SMEs are strategically important in the development of the economy. This paper examines the role of SMEs in Kazakhstan's economic growth. Drawing on previous studies, several economic variables were selected to achieve the primary objective of the research. The findings of this study have practical implications for policymakers and government in Kazakhstan. The key findings reveal that SME output has a positive and significant impact on the country's economic growth. This research expands the existing literature on SMEs and enhances understanding by highlighting their

contribution to the country's economic progress. Given the economic and social challenges faced by developing nations such as Kazakhstan, the lack of employment opportunities for the local population remains a critical issue. In addition to promoting bilateral trade with other countries, fostering the SME sector can help increase employment and stimulate economic growth. The findings of this study underscore the importance of SMEs in driving economic development in developing countries like Kazakhstan.

Finally, it is important to acknowledge several limitations in this study, which may inform future research directions. First, this study utilizes secondary data; however, future studies could consider using primary data for analysis. Second, the current study is limited to Kazakhstan, a developing country. Future research should aim to explore the role of SMEs in economic development in other developing and emerging countries to further validate and expand upon the findings.

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

Funding: This research was funded by the Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan (Grant No. AP19680610).

Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors on request.

Conflicts of Interest: The authors declare no conflicts of interest.

References

- Alauddin, M., Rahman, M. Z., & Rahman, M. (2015). Investigating the performance of SME sector in Bangladesh: An evaluative study. *International Journal of Small Business and Entrepreneurship Research*, 3(6), 14–28.
- Amirat, A., & Zaidi, M. (2020). Estimating GDP growth in Saudi Arabia under the government's vision 2030: A knowledge-based economy approach. *Journal of the Knowledge Economy*, 11(3), 1145–1170. [CrossRef]
- Amoah, S. K., & Amoah, A. K. (2018). The role of small and medium enterprises (SMEs) to employment in Ghana. *International Journal of Business and Economics Research*, 7(5), 151–157. [CrossRef]
- Amusa, H., Amusa, K., & Mabugu, R. (2009). Aggregate demand for electricity in South Africa: An analysis using the bounds testing approach to cointegration. *Energy Policy*, 37(10), 4167–4175. [CrossRef]
- Anderson, D. (1982). Small industry in developing countries: A discussion of issues. *World Development*, 10(11), 913–948. [CrossRef]
- Arent, A., Bojar, M., Diniz, F., & Duarte, N. (2015). The role of SMEs in sustainable regional development and local business integration: The case of Lublin region (Poland). *Regional Science Inquiry*, VII(2), 23–34.
- Audretsch, D., & Keilbach, M. (2004). Entrepreneurship capital and economic performance. *Regional Studies*, 38(8), 949–959. [CrossRef]
- Aykan, E., Aksoylu, S., & Sönmez, E. (2013). Effects of support programs on corporate strategies of small and medium-sized enterprises. *Procedia-Social and Behavioral Sciences*, 99, 938–946. [CrossRef]
- Barro, R. J. (1991). Economic growth in a cross section of countries. *The Quarterly Journal of Economics*, 106(2), 407–443. [CrossRef]
- Batrancea, L. M. (2022). Determinants of economic growth across the European Union: A panel data analysis on small and medium enterprises. *Sustainability*, 14(8), 4797. [CrossRef]
- Beck, T., Demircuc-Kunt, A., & Levine, R. (2005). SMEs, growth, and poverty: Cross-country evidence. *Journal of Economic Growth*, 10, 199–229. [CrossRef]
- Bekzhanova, T., Aliyev, M., Tussibayeva, G., Altynbekov, M., & Akhmetova, A. (2023). The development of small and medium-sized businesses and its impact on the trend of unemployment in Kazakhstan. *Australasian Accounting, Business and Finance Journal*, 17(4), 73–99. [CrossRef]
- Chaldun, E. R., Yudoko, G., & Prasetyo, E. A. (2024). Developing a theoretical framework of export-oriented small enterprises: A multiple case study in an emerging country. *Sustainability*, 16(24), 11132. [CrossRef]
- Chittithaworn, C., Islam, A., Keawchana, T., & Yusuf, D. H. M. (2011). Factors affecting business success of Small and Medium Enterprises (SMEs) in Thailand. *Asian Social Science*, 7(5), 180–190.

- Chowdhury, D., Al-Alawi, A. N., Syzdykova, A., & Abubakirova, A. (2021). Attractiveness and difficulties of SMEs in Kazakhstan economy. *Review of Applied Socio-Economic Research*, 21(1), 89–98.
- Cravo, T. A., Becker, B., & Gourlay, A. (2015). Regional growth and SMEs in Brazil: A spatial panel approach. *Regional Studies*, 49(12), 1995–2016. [CrossRef]
- Debela, G. (2019). *The effect of real exchange rate on the trade balance of ethiopia: Does marshall lerner condition holds? evidence from (VECM) analysis*. Available online: <https://etd.aau.edu.et/server/api/core/bitstreams/c73b13bf-3aed-42b1-9153-2a7e5834a9c6/content> (accessed on 15 October 2024).
- Dixit, A., & Pandey, A. K. (2011). SMEs and Economic Growth in India: Cointegration Analysis. *IUP Journal of Financial Economics*, 9(2), 41.
- Durlauf, S. N. (2005). *Growth econometrics. Handbook of economic growth* (Chapter 8). Elsevier.
- Dvouletý, O., Gordievskaya, A., & Procházka, D. A. (2018). Investigating the relationship between entrepreneurship and regional development: Case of developing countries. *Journal of Global Entrepreneurship Research*, 8, 1–9. [CrossRef]
- Etuk, R. U., Etuk, G. R., & Michael, B. (2014). Small and medium scale enterprises (SMEs) and Nigeria's economic development. *Small*, 11, 35. [CrossRef]
- Gherghina, S. C., Botezatu, M. A., Hosszu, A., & Simionescu, L. N. (2020). Small and Medium-Sized Enterprises (SMEs): The Engine of Economic Growth through Investments and Innovation. *Sustainability*, 12(1), 347. [CrossRef]
- Hoselitz, B. F. (1959). Small industry in underdeveloped countries. *The Journal of Economic History*, 19(4), 600–618. [CrossRef]
- Hu, M. W. (2010). SMEs and economic growth: Entrepreneurship or employment. *ICIC Express Letters*, 4(6), 2275–2280.
- Inegbedion, H. E., Thikan, P. R., David, J. O., Ajani, J. O., & Peter, F. O. (2024). Small and medium enterprise (SME) competitiveness and employment creation: The mediating role of SME growth. *Humanities and Social Sciences Communications*, 11(1), 1–10. [CrossRef]
- Južnik Rotar, L., Kontošić Pamić, R., & Bojnec, Š. (2019). Contributions of small and medium enterprises to employment in the European Union countries. *Economic Research-Ekonomska Istraživanja*, 32(1), 3296–3308.
- Karadag, H. (2016). The role of SMEs and entrepreneurship on economic growth in emerging economies within the post-crisis era: An analysis from Turkey. *Journal of Small Business and Entrepreneurship Development*, 4(1), 22–31. [CrossRef]
- Keskin, H., Sentürk, C., Sungur, O., & Kiris, H. M. (2010, June 8–9). *The importance of SMEs in developing economies*. 2nd International Symposium on Sustainable Development, Sarajevo, Bosnia and Herzegovina. Available online: <https://core.ac.uk/download/pdf/153446896.pdf> (accessed on 1 October 2024).
- Kumar, R. R., Stauvermann, P. J., Loganathan, N., & Kumar, R. D. (2015). Exploring the role of energy, trade and financial development in explaining economic growth in South Africa: A revisit. *Renewable and Sustainable Energy Reviews*, 52, 1300–1311. [CrossRef]
- Levine, R., & Renelt, D. (1992). A sensitivity analysis of cross-country growth regressions. *The American Economic Review*, 82, 942–963.
- Lilimberg, S., & Selezneva, T. (2019). Analysis of trends and patterns of development of small and medium-sized businesses in the Kostanay region of the Republic of Kazakhstan. *Regionalistika [Regionalistics]*, 6(2), 64–74. (In Russian) [CrossRef]
- Lukács, E. (2005). The economic role of SMEs in world economy, especially in Europe. *European Integration Studies*, 4(1), 3–12.
- Makkonen, T., & Leick, B. (2019). Locational challenges and opportunities for SMEs in border regions. *European Planning Studies*, 28, 2078–2098. [CrossRef]
- Mankiw, N. G. (1992). Commentary: The search for growth. In *Proceedings-economic policy symposium-Jackson Hole, Federal Reserve Bank of Kansas City* (pp. 87–92). Citeseer.
- Manzoor, F., Wei, L., & Siraj, M. (2021). Small and medium-sized enterprises and economic growth in Pakistan: An ARDL bounds cointegration approach. *Heliyon*, 7(2), e06340. [CrossRef]
- Melwani, R. (2018). Entrepreneurship development and economic development: A literature analysis. *Aweshkar*, 24(1), 124–149.
- Miller, J. P. (1990). *Survival and growth of independent firms and corporate affiliates in metro and nonmetro America*; United States Department of Agriculture, Economic Research Service.
- Mrva, M., & Stachova, P. (2014). Regional development and support of SMEs—how university project can help. *Procedia-Social and Behavioral Sciences*, 110, 617–626. [CrossRef]
- Mueller, P. (2007). Entrepreneurship in the region: Breeding ground for nascent entrepreneurs? *Small Business Economics*, 27, 41–58. [CrossRef]
- Mujahid, N., & Begam, A. (2019). SMEs output and GDP growth: A dynamic perspective. *Journal of Asian Business Strategy*, 9(1), 53–65. [CrossRef]
- Naradda Gamage, S. K., Ekanayake, E. M. S., Abeyrathne, G. A. K. N. J., Prasanna, R. P. I. R., Jayasundara, J. M. S. B., & Rajapakshe, P. S. K. (2020). A review of global challenges and survival strategies of small and medium enterprises (SMEs). *Economics*, 8(4), 79. [CrossRef]
- Narayan, S., & Narayan, P. K. (2004). Determinants of demand for Fiji's exports: An empirical investigation. *The Developing Economies*, 42(1), 95–112. [CrossRef]
- Nasr, S., & Rostom, A. M. 2013 October 1. *SME contributions to employment, job creation, and growth in the Arab world*. Job Creation, and Growth in the Arab World.
- Pagano, P., & Schivardi, F. (2003). Firm size distribution and growth. *Scandinavian Journal of Economics*, 105(2), 255–274. [CrossRef]

- Pan, L., & Mishra, V. (2018). Stock market development and economic growth: Empirical evidence from China. *Economic Modelling*, *68*, 661–673. [CrossRef]
- Pandya, V. M. (2012, September 6–7). *Comparative analysis of development of SMEs in developed and developing countries*. The 2012 International Conference on Business and Management (pp. 1–20), Phuket, Thailand.
- Parrilli, M. D. (2007). Inclusion versus fragmentation: Different responses to liberalisation in European and Latin American small and medium enterprises. In *SME cluster development: A dynamic view of survival clusters in developing countries* (pp. 30–53). Palgrave Macmillan UK.
- Pesaran, M. H., & Shin, Y. (1995). *An autoregressive distributed lag modelling approach to cointegration analysis* (Vol. 9514, pp. 371–413). Department of Applied Economics, University of Cambridge.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, *16*(3), 289–326. [CrossRef]
- Phillips, P. C. B., & Perron, P. (1988). Testing for a Unit Root in Time Series Regression. *Biometrika*, *75*(2), 335–346. [CrossRef]
- Pulka, B. M., & Gawuna, M. S. (2022). Contributions of SMEs to employment, gross domestic product, economic growth and development. *Jalingo Journal of Social and Management Sciences*, *4*(1), 1–18.
- Sakib, M. N., Rabbani, M. R., Hawaldar, I. T., Jabber, M. A., Hossain, J., & Sahabuddin, M. (2022). Entrepreneurial competencies and SMEs' performance in a developing economy. *Sustainability*, *14*(20), 13643. [CrossRef]
- Sidek, S., Rosli, M. M., Hasbolah, H., & Khadri, N. A. M. (2020). An overview on criteria of Small and Medium Enterprises (SMEs) across the economies: A random selection of countries. *Journal of Critical Reviews*, *7*(4), 1312–1321.
- Sigala, M., & Dolnicar, S. (2018). Entrepreneurship opportunities. In S. Dolnicar (Ed.), *Peer-to-peer accommodation networks: Pushing the boundaries* (pp. 77–86). Goodfellow Publishers.
- Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, *70*(1), 65–94. [CrossRef]
- Sorokin, A. (2015). Study of the dependence of regional budget from the small business development in the Republic of Kazakhstan. *Naukovedenie*, *7*(2). Available online: <https://cyberleninka.ru/article/n/issledovanie-zavisimosti-dohodov-regionalnyh-byudzhetov-respubliki-kazahstan-ot-razvitiya-malogo-biznesa/viewer> (accessed on 27 October 2024). (In Russian)
- Staley, E., & Morse, R. (1965). *Modern small industry for developing countries*. McGraw-Hill Inc.
- Surya, B., Menne, F., Sabhan, H., Suriani, S., Abubakar, H., & Idris, M. (2021). Economic growth, increasing productivity of SMEs, and open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(1), 20. [CrossRef]
- Syzdykova, A., & Azretbergenova, G. (2023). Assessment of the contribution of small and medium enterprises in the economy of Turkestan region. *Memlekettik Audit-State Audit*, *61*(4), 158–169. (In Kazakh)
- Tambunan, T. H. (2006). *Development of small & medium enterprises in Indonesia from the Asia-Pacific perspective*. LPFE-USAKTI, LPFE.
- Uruzbaeva, N. (2016). Problems and Ways of Improving the Business Climate in the Regions. *Ekonomika Regiona [Economy of region]*, *12*(1), 150–161. (In Russian)
- Uruzbaeva, N. (2022). Assessment of the Contribution of Small and Medium-Sized Enterprises to the Output of the Cities of Republican Significance in Kazakhstan. *Ekonomika Regiona [Economy of Region]*, *18*(3), 867–881. (In Russian)
- World Bank. (2022). *Small and Medium Enterprises (SMEs) finance*. Washington, D.C. World Bank. Available online: <https://www.worldbank.org/en/topic/smefinance> (accessed on 15 October 2024).
- Zafar, A., & Mustafa, S. (2017). SMEs and its role in economic and socio-economic development of Pakistan. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *6*(4). Available online: <https://ssrn.com/abstract=3085425> (accessed on 17 October 2024). [CrossRef] [PubMed]
- Zarubina, V., Zarubin, M., Yessenkulova, Z., Gumarova, T., Daubayeva, A., Meimankulova, Z., & Kurmangalieva, A. (2024). Sustainable Development of Small Business in Kazakhstan. *Economics*, *12*(9), 247. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.