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Research on the Shadow Economy and Assessment of Its Scale: On the Example of Kazakhstan

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Abstract

The manuscript aims to assess the scale of shadow economic processes within the non-observed economy, focusing on the self-employment sector, which is insufficiently reflected in national statistics. The research methodology includes an analysis of the conceptual foundations of the shadow economy, decomposition of its components, identification of factors negatively affecting the economy, development of an algorithm for sociological research, and the selection of appropriate models for evaluating the non-observed economy. The study formulates the concept of the shadow economy and shows that shadow business activity in Kazakhstan contributes to income inequality, hidden unemployment, and the exclusion of certain goods and services from official GDP statistics. Using statistical data from 2005 to 2024 and applying methods such as system and statistical analysis, modeling approaches, and the MIMIC (Multiple Indicator Multiple Cause) and DGE (Dynamic General Equilibrium) models, the study estimates the size of the shadow sector. The results reveal insufficient statistical data on shadow activities within self-employment and SMEs. The study concludes that the most reliable assessment of the shadow economy requires an integrated methodological approach, including targeted sociological research and models that account for the influence of multiple factors on informal self-employment.

Keywords: non-observed economy; shadow economy; self-employed population; scale; MIMIC and DGE models; assessment of the shadow economy

1. Introduction

Kazakhstan is the country with the largest economy among the five republics of Central Asia, accounting for approximately 60% of the region's GDP. Market reforms have progressed relatively successfully, the financial market is fairly well developed, and the region's only International Financial Centre—the Astana International Financial Centre (AIFC)—is located in Astana and operates exclusively under English law. However, certain shortcomings persist in the national economy, including restrictions on competition, the dominance of the banking sector, insufficient incentives for business development, and the unreliability of estimates of the non-observed economy within the system of national accounts. These circumstances justify the relevance of the chosen research topic.

In Kazakhstan, as in a number of post-Soviet countries, large-scale transformations are being carried out, which are characterized by reforms within the framework of the Sustainable Development Goals. The efforts of the government in this regard are yielding results. In the Global Competitiveness Ranking, Kazakhstan in 2024 ranked 39th out of

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172 countries in terms of GDP (296.74 billion USD) and 53rd in terms of GDP per capita (14,410 USD) (World Population Review, 2024). Kazakhstan's share of GDP in the total GDP volume of Central Asian countries amounts to 59%, while in terms of population, it accounts for 25% (The World Bank data, 2024). In 2024, the economy of Kazakhstan demonstrated steady growth, reaching a rate of 4.8% of GDP. Investments in fixed capital increased, and positive trends were noted in key industries. The main driver of this growth was the non-resource sector of the economy, which accounts for more than 70% of the increase. Programs on digitalization and attracting investments into the non-resource sector have been launched.

However, certain difficulties and shortcomings exist: Kazakhstan's economy depends on the export of oil, gas, metals, uranium, and other raw materials, which makes it vulnerable to fluctuations in world prices. Although breakthrough programs such as "Industrialization," "Digital Kazakhstan," and others are being implemented, the share of high-tech industries remains low. The weak development of small and medium-sized businesses (SMEs), high tax burden, and bureaucratic barriers to obtaining financing hinder the implementation of reforms. According to the organization "Transparency Kazakhstan," corruption remains a key problem that affects the investment climate (Sakenova, 2024). Regional inequality is also present. Economic activity is mainly concentrated in three large megacities (Almaty, Astana, Shymkent), while in rural regions and single-industry towns, the standard of living is much lower.

The noted difficulties indicate the presence of systemic failures in the functioning of the economy and hinder the increase in its efficiency. Most problems are explained by the presence of the shadow economy in the sphere of households, migration, self-employment of the population, and others. The share of the shadow economy in Kazakhstan, according to various estimates, ranges from 10% to 20% of GDP (Bureau of National Statistics, 2024; Neufeld, 2025a). Certainly, the shadow economy exists in almost all countries, but the difference lies in the fact that in developed countries, its share does not exceed 5–7% (Dominik, 2024; EY Economic Analysis Team, 2025; Eteris, 2025). The presence of the shadow component of the economy represents a threat to the national security of the country. Therefore, the study, assessment, and adoption of effective measures appear relevant.

A significant share of shadow turnover is made up of activities in the sphere of the self-employed population, who work in services (wholesale and retail trade, repair of cars and motorcycles, private transport), in agriculture, forestry, and fisheries, construction, and warehousing (Goudarzi & Mittone, 2023; Commonwealth of Australia, 2024; Nguyen, 2024). The number of workers, the volume of goods and services produced by them, what share of these goes to self-consumption, the incomes of these citizens, and the taxes paid by them are difficult to account for accurately. The problem lies in the fact that today the goods and services produced by the self-employed population are not fully accounted for; as a result, their incomes are not reflected in GDP, and there is no reliable accounting of tax revenues, social and pension contributions. It is difficult to predict how much the state will have to pay in benefits and pensions to the vast army of today's self-employed when they reach retirement age, since most do not have pension savings. Therefore, more accurate and simple methods of assessment are needed, which do not require special costs.

The purpose of the article is to assess the scale of shadow processes as a component of the non-observed economy (NOE) in such a sector of the informal economy, insufficiently accounted for by national statistics, as self-employment of the population. The authors set the task of proposing an acceptable methodology for accounting for shadow activity and determining its scale in the field of self-employment in Kazakhstan, in order to reduce the negative consequences for the economy.

2. Literature Review

Issues of identifying and preventing the damage of the shadow economy are considered in the works of scholars such as (Pisani & Ovando Rivarola, 2019; Clay & Phillips, 2015; Hart, 2015; Raford et al., 2015; Utting, 2015; Dallago & McGowan, 2015; Schneider & Williams, 2020; and others). A study of these authors' publications on this issue allows the conclusion that they are mainly aimed at identifying and describing the phenomenon of the shadow economy. In the works of Black et al. (2012) and Schneider and Williams (2020), problems of forming a methodological framework for assessing the shadow sector of the economy are highlighted. Various aspects of the shadow economy are also devoted to in the works of (Jahan et al., 2020; Serrano-López, 2020; and Young, 2020).

IMF working papers describe studies conducted by scholars and published to obtain comments, encourage discussions on indicators of the shadow economy, the tax burden, the degree of labor force participation, as well as the results of studying public opinion.

Polese et al. (2023) made an attempt at direct measurement of the shadow economy through a survey of company managers in Central Asia. Using the example of Kyrgyzstan, it is noted that the origins of the shadow economy are not only of an economic nature, but rather have social and cultural roots.

The study of the literature convinces the authors of the need for deeper research on the shadow economy in specific areas, for example, in the sphere of self-employment, where a significant part of the population works (in Kazakhstan, out of 9 million employed, 2.2 million are self-employed).

The study of the self-employed population's activity has been devoted to many works of Western scholars. For example, Vučeković et al. (2023) studied the well-being of the self-employed participating in the "gig economy." Schneck (2014), using survey data from 25 European countries, showed that the self-employed are more satisfied with their work than wage workers, noting creativity and autonomy in self-employment.

Dvoulety (2022) disputes the role of self-employment policy as a way out of unemployment. At the same time, it is noted that most studies find a positive impact of self-employment policy on employment status, personal income of the formerly unemployed, and increased survival rates. In the study by Herber et al. (2020), the self-employed and wage workers were stratified by gender, age, household position, personal income, region, and industry for each year 2010–2015. They found that compared to wage workers, expenses for hospital care, pharmaceutical services, and psychiatric care were lower among the self-employed.

Van Stel and Van der Zwan (2020), across 32 European countries for the period 1997–2014, note that the number of individual self-employed workers with higher education increased. In more developed European countries (Western Europe, including Scandinavia), individual self-employed workers and employer-entrepreneurs have an equally high level of education. Berggren and Olofsson (2021) emphasize the importance of entrepreneurship and self-employment for sustaining economic growth in the EU and recommend that, in the development of EU policy, social and cultural differences in countries and regions should be taken into account.

Murgia et al. (2020) note that self-employed workers do not form a homogeneous group and are diverse in terms of their activities, interests, and needs, and this requires changes in the work of trade unions and employer organizations. New associations of freelancers are developing collective actions, planning activities to make claims, and developing organizational strategies.

Bencsik and Chuluun (2021) report on the results of a survey of numerous self-employed people in the USA. It is noted that the self-employed have lower life satisfaction

compared to wage workers (health, income). Overall, the results show that self-employment is predominantly associated with negative consequences for well-being in the USA.

Akkerman et al. (2020) studied the differences in deviant behavior between temporary and permanent workers. It is noted that task cohesion and social cohesion lead to norms of tolerance for deviant behavior among group members. Furthermore, each quarter, in accordance with the "Methodology for Organizing a Household Survey to Assess Living Standards" (approved on 15 December 2015), information on household income and major expenses for the previous three months is collected, processed, and published. Furthermore, the National Statistics Bureau of the Republic also conducts analysis and monitoring based on the results of the census and sociological surveys.

Bozzon and Murgia (2022) analyze new methodologies used in European comparative labor statistics to identify forms of self-employment. It is noted how various indicators of dependency change the representation of self-employment in different sectors of the economy, influencing our understanding of the transformation of working mechanisms within employment and self-employment.

Binder and Blankenberg (2021) investigate why self-employment is positively associated with job satisfaction, even though the self-employed often earn less than their employed colleagues.

In the reviews of the International Labour Organization (2023), a detailed analysis of the global labor market, unemployment, incomes of wage workers and the self-employed by countries and regions of the world is provided. It is concluded that employment growth and a reduction in unemployment in all countries of the world will contribute to the achievement of the Sustainable Development Goals.

On the issue of the self-employed population, there are a certain number of publications by Kazakhstani authors: (Sabirova et al., 2020; Rakhmatullayeva et al., 2020; Mitrofanova & Chernova, 2022; and others). Mostly, they address problems of low incomes, unproductive employment, and imperfect taxation in this sphere. Thus, Sabirova et al. (2020) consider problems of statistical accounting of self-employed citizens; Mitrofanova and Chernova (2022) regard self-employment as a panacea for increasing the employment of the population of the country. Analyzing the incomes of the self-employed, they earn much less than wage workers, with salaries averaging 100,000 tenge per month compared to the national average of over 400,000.

Sabirova et al., in their book, conducted an extensive socio-demographic study in the southern regions of the country, but the study ended with the obtaining of "valuable information," as the authors write. Rakhmatullayeva et al. (2020) consider the potential influence of the self-employed population on the socio-economic development of Kazakhstan and evaluate existing measures of regulating self-employment in the country. Sabirova et al. (2020) note that the number of self-employed is increasing, there are both advantages and disadvantages of working for oneself, and she writes about risks in this sphere. Mitrofanova and Chernova (2022) show how self-employment influences the sustainability of regional development by improving the standard of living of the population.

It should be noted that state bodies as well as analytical agencies periodically publish information about the self-employed (https://www.gov.kz/memleket/entities/enbek, accessed on 12 April 2025). However, they mainly concern purely superficial analysis of the number, sectoral structure of self-employment, their incomes, and the tax regime. Regarding the contribution of the self-employed to GDP, their share in the NOE, including the shadow economy, there are practically no studies; mainly, facts of violations and corruption manifestations in one or another sphere are presented. Systematic studies aimed at developing a strategy to combat the causes and consequences of the shadow economy are almost not conducted. Therefore, in this article, the authors attempted to study shadow

processes in the sphere of self-employment of the population, to propose a methodology for its assessment, in order to reduce negative consequences for the economy.

This literature review will be complete if we briefly review data on the shadow economy in developing Central Asian countries similar to Kazakhstan in economic and political structure (Subachev & Melnik, 2022; Israilova & Israilov, 2023; Cholbaeva & Bozieva, 2025). A comparative analysis reveals varying levels of shadow economy prevalence: from relatively low (Kazakhstan) to high (Uzbekistan, Tajikistan). All countries analyze the causes of the shadow economy, measurement methods, and policy responses to the informal economy. This affects fiscal capacity, inflation, and monetary policy. Competition is distorted, social informality increases, and investment in well-being is lacking. Uzbekistan ranks first in Central Asia in terms of the shadow economy (MIMIC model). In 2019, estimates of the shadow economy were around 45–50% of GDP. According to 2025 data, the share of the hidden economy has decreased to approximately 33% of GDP due to the digitalization of the tax system and the expansion of non-cash payments. Work is underway to legalize the shadow economy through financial instruments, and mechanisms for formalizing the shadow sector are being introduced, including tax reforms and digitalization to increase business transparency.

The above authors provide the latest data on trends and sectoral changes in the informal economy of Kyrgyzstan and the methodological differences between national and international estimates. Although direct statistical estimates of the shadow economy's percentage of GDP are not available in open sources, studies highlight the importance of the shadow activity's impact on tax revenues and the labor market.

In Tajikistan, data on the shadow sector for 2019 are available: approximately 40.8% of GDP, according to World Bank and expert estimates. The high share of the informal sector is associated with labor migration and weak institutional control.

There is virtually no data on the shadow economy in foreign scientific literature or in Turkmenistan's national statistics due to low data transparency. However, factors such as institutional opacity and barriers to business (a high degree of government regulation, weak economic reforms, and a tax system that does not meet market standards) can be used. Thus, in all countries, the greatest variation in the shadow economy is explained by factors such as tax rates, employment levels, per capita income, and the share of imports. Additional factors include corruption, administrative barriers, and low financial literacy.

3. Materials and Methods

The article utilizes the following research methodology: (1) an analysis of global literature on the shadow economy; (2) a study of an anthology of the shadow economy in Kazakhstan, understanding its origins and operating environment. Shadow economy statistics were examined over a relatively long period, and an analysis of the spheres of existence of the shadow economy was conducted, with an emphasis on self-employment, where shadow production processes and services are most often possible.

The study employs traditional research methods, including analysis and synthesis, comparison, statistical methods, logical reasoning, systems analysis, and generalization. The research design is based on two groups of indicators. The first group includes information on the total number of self-employed persons, sectors of employment, their incomes and expenses, what share of them belong to the category of the population with incomes below the subsistence minimum, and whether they have a social package. The informational base of the study is constituted by legislative and regulatory acts (Bureau of National Statistics, 2025a). The second group of indicators relies on data from sociological surveys, in particular questionnaires, interviews with specialists, and includes data on respondents who are self-employed.

A step-by-step plan for conducting sociological research (algorithm) was drawn up: a questionnaire survey of a sufficiently representative part of the self-employed; interviews with specialists and scientists who are well aware of the problem of the shadow economy; consultations with specialists of the regional Department of Labor and Social Protection of the Population. In order to achieve a wide coverage of respondents, the authors considered it expedient to involve students, undergraduates, and doctoral students in conducting the sociological research. To achieve the objectives of the study, the following methods were employed:

The following methods were used to achieve the objectives of the study:

1. **Method of systematization**—ordering and distinguishing shadow activities within the composition of the NOE, followed by examining them in the sphere of self-employment. This refers to such techniques as classification, typology, random or deliberate sampling.
2. **Method of sociological research**. Interviews were conducted with experts, questionnaires were administered to self-employed citizens, and the authors met with employees of state structures engaged in issues of shadow business and corruption, as well as with entrepreneurs who had encountered shadow activities, in order to learn their opinions. The authors familiarized themselves with public speeches of leaders and officials on issues of corruption and the shadow economy.
3. **System analysis**. This implies setting the goals and objectives of studying the shadow economy, planning the algorithm of actions, and formulating systemic problems for society. The result was the development of a factor model for assessing the share of the shadow economy in the composition of the NOE through the activities of the self-employed population.

The general approach to the study is that the parameters of the shadow economy include hidden production, hidden incomes, and hidden from statistics expenditures on final consumption and accumulation. At the same time, shadow production is the starting point for assessing the parameters of the shadow economy, since it is production that determines incomes and expenditures (Schneider & Williams, 2020; Serrano-López, 2020; OECD, 2002). The main task of the study is a reliable assessment of the shadow economy in the sphere of self-employment of the population. Usually, the most accurate are traditional statistical methods aimed at obtaining additional information and conducting additional studies (United Nations Economic & Social Council, 2004). However, such an approach is unable to give a complete assessment of normal but hidden economic activity. It is also ineffective for assessing prohibited types of activities. Therefore, in the absence of direct information, it is replaced either by calculated estimates, determined on the basis of indirect data, or by relying on the interrelationship between indicators on the basis of formulas (Bureau of National Statistics, 2024). Many types of shadow activities have a redistributive nature; therefore, they cannot be adequately assessed. Also, when measuring the parameters of the criminal economy, expert assessments are used, which in some cases may provide more accurate results than traditional methods.

At present, Kazakhstan relies on the Measuring the Non-Observed Economy Guide by a team of world experts (OECD, 2002) and the Kazakhstan Methodology for Assessing the NOE (2019), based on the accounting-statistical approach under the UN SNA methodology. However, these methodologies do not take into account shadow activities in such large sectors as bazaars, "shuttle" and street trade, rental of housing, sale of homemade goods, repair of housing, cars and household appliances, provision of legal, tutoring, medical, and procedural services, etc. In most of these activities, taxes are not paid, since no receipt or invoice is issued. In practice, one can observe cash payments bypassing tax legislation, and in many trading outlets, there are no cash registers. These spheres can officially be

attributed to the NOE, but in our opinion, they belong to the shadow economy. The fact is that the assessment of the NOE is carried out according to the industry principle, according to the document "Classification of Types of Economic Activity" (CTEA), which was developed on the basis of the UN International Standard Industrial Classification (United Nations International Standard Industrial Classification of All Economic Activities, 2025).

The authors set the task of proposing an acceptable methodology for accounting for the shadow economy and determining its scale in the sphere of self-employment, where a huge workforce is engaged—2.2 million people (24% of workers)—in order to more fully account in the GDP for unrecorded incomes, increase tax payments, and reduce the negative consequences of unrecorded activities for the economy of Kazakhstan. Official accounting of the self-employed in the composition of the employed population in Kazakhstan was introduced in 2013. In this study, the authors relied on the Methodology for Calculating the Number of Self-Employed, Their Average Monthly Income and the Number of Unemployed (2016) in accordance with the standards of the International Labour Organization (ILO), which defines the criteria for classifying a citizen as self-employed, as well as two forms of self-employment—productive and unproductive.

In Kazakhstan, the *Methodology for Assessing the Non-Observed Economy*, approved by the order of the Chairman of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan dated 07.08.2019 No. 4, is applied. The accounting-statistical approach, based on the UN SNA methodology, is considered more developed and consistent (Revenue Irish Tax & Customs, 2024; Commonwealth of Australia, 2024; ACCA, 2025; OECD, 2002). With this approach, the definition of the shadow economy is built on the leading goal of the SNA—the most accurate accounting of all existing areas of economic activity that make a real contribution to the production of GDP.

The diversity of applied methods for assessing the shadow economy does not mean that it is possible to correctly determine its scale. As practice shows, direct methods give an underestimated assessment of the shadow economy, while other methods—indirect methods, methods of latent variables, soft modeling, and structural methods—on the contrary, give an overestimated assessment (Neufeld, 2025a; OECD, 2002). A unified methodology for quantitative assessment of the parameters of shadow economic activity cannot be applied due to the diversity of its forms of manifestation. In our opinion, the most objective assessment can be given through a specific sociological study or in an aggregated manner by taking into account the influence of various factors, when it is possible to verify the results using reliability criteria, which will be shown below. It is also advisable to study secondary sources of information (mass media, data of judicial practice), materials of the Agency of the Republic of Kazakhstan for Counteraction to Corruption, the Agency for Financial Monitoring, and the Commission on Counteracting the Shadow Economy. The authors studied the *Comprehensive Plan of Measures for Counteracting the Shadow Economy for 2023–2025* (Bureau of National Statistics, 2025a); however, it does not provide an answer on how to better assess the shadow economy.

4. Discussion and Debates Regarding the Concept of the Shadow Economy

Many terms are used: shadow, parallel, underground, informal, hidden economy, black market. This is explained by differences in the nature of shadow processes, as well as in the choice of assessment methodology. In economic practice, the concept of "shadow economy" is multifaceted and, according to researchers, encompasses any type of activity—from individual labor in the household to various forms of entrepreneurship. The most comprehensive and universal understanding is given in "Measuring the Non-Observed Economy: A Handbook," prepared by a team of experts from national and international statistical organizations (OECD, 2002). It is interpreted in almost the same

way in the Methodology for Estimating the Volume of Illegal Activity (2016) and the Methodology for Estimating the Non-Observed Economy, approved by the order of the Chairman of the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan (2019).

The shadow economy is legal economic activity that is intentionally concealed from the state for the purpose of tax evasion, administrative regulation, and non-payment of social contributions. The underground (criminal) economy is an activity prohibited by law; its key characteristics include the production or circulation of illegal goods and services, violation of criminal law, and lack of legal recognition. Corruption is the abuse of public power for personal gain; its characteristics include the use of administrative powers, bribery, or illegal remuneration. Corruption can accompany both the shadow and underground economies and is a distinct institutional phenomenon. Let us distinguish between the concepts of the shadow and underground economies and how corruption in the public sector relates to them. The shadow economy encompasses the informal sector, while the underground economy is the criminal segment operating outside the legal framework. Corruption is an institutional mechanism that can facilitate the growth of the shadow economy. In subsequent studies, "shadow economy" and "informal economy" are used interchangeably.

The shadow economy is a sector of the economy in which entrepreneurial activity is usually not officially registered, is largely not subject to taxation, and represents various informal and unofficial economic activities that remain outside official statistics and control (Schneider & Williams, 2020; Goudarzi & Mittone, 2023). It includes informal employment, "under-the-table" wages, tax evasion, turnover of illegal goods and services, informal entrepreneurship, and other unlicensed types of business.

A key distinctive property of shadow activity, according to the Kazakhstani economist (Kudaibergenova & Laruelle, 2022), is its uncontrollable nature, which lies in the inaccessibility of obtaining information through open control methods. Earlier proposed, for attributing economic phenomena to the shadow category, the criteria of illegality and deliberate evasion of official registration. To designate shadow economic processes, American professors (Dallago & McGowan, 2015) introduced the term "irregulated economy"—activities of certain economic agents not subject to laws and regular rules and/or in some way hidden from state control bodies.

Confidential and often not subject to disclosure in the open press (Commonwealth of Australia, 2024). Today, innovative development is accompanied by the replacement of the old management model, the emergence of purely market mechanisms and financial instruments of economic management, while the scope of the shadow economy is narrowing, but its scale is still large (Ginevicius et al., 2020).

The shadow economy lies outside the scope of state accounting and control, which leads to the under-collection of taxes into budgets at all levels. This phenomenon is characteristic of the economies of almost all countries. The difference is that in developed countries, its share is a maximum of 5–7% of GDP, while in Kazakhstan, it is 16.2%—see Figure 1 (Goudarzi & Mittone, 2023; Bureau of National Statistics, 2024). According to other sources, these figures are in reality much higher, as will be shown below. There are quite a few such discrepancies, both in foreign and domestic publications, as well as in expert assessments. Significant differences in the data indicate that the community of experts, scholars, and legal specialists has not yet developed a unified mechanism for determining the size of the shadow economy. Inaccurate accounting makes it impossible to build a system of economic indicators, leads to errors in drawing up plans and forecasts, and in developing the country's development strategy.

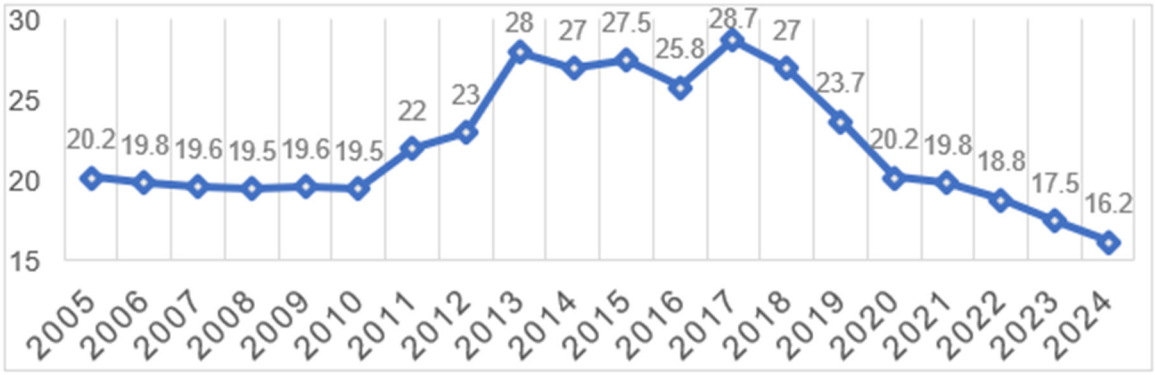


Figure 1. Dynamics of the non-observed economy in Kazakhstan, % of GDP.

5. Research Results

In the conducted study, the "shadow economy" is interpreted as economic activity that is not subject to taxation and not included in the gross domestic product. In Kazakhstan, the areas of shadow business that can be legalized include: rental housing; private transportation; household services such as repair work, tailoring of clothes, production of household items, baking of confectionery products for sale; roofing services, home construction work, plumbing repair, and others. In the illegal sector, alternative means of payment are used in addition to cash; barter transactions are also common. An analysis of the Corruption Perceptions Index (CPI) for 2025 covering 182 countries worldwide confirms that countries with a large shadow economy tend to exhibit higher levels of corruption, and this pattern also applies to Kazakhstan (The 2025 Corruption Perceptions Index).

At the same time, all countries that rank highest in the Transparency International Corruption Perceptions Index have the smallest shadow economies. Accordingly, countries with a large shadow economy tend to be more corrupt.

First, during the economic crisis, all infrastructure facilities experienced significant deterioration, the level of social benefits and wages of public sector employees remained at or below the subsistence minimum, and the technical capacity of tax collection authorities did not allow them to effectively fulfill their functions. The collected taxes were insufficient to meet the fiscal needs of the state. At the same time, alternative shadow taxation mechanisms (payments to "protectors," direct payments to officials for performing their functions, etc.) became an alternative that displaced official taxation.

Second, shadow activity has a disorganizing effect on the production process within the official economy, worsens conditions, and hinders the creation of normally functioning, "healthy" economic organizations. It leads to reduced manageability of workers, weakens their labor motivation, sometimes causes de-skilling, complicates the adoption of innovations (which often require extra effort beyond standard working norms), and ultimately may result in the disintegration of the collective and the enterprise.

Third, partly connected with criminal activity, the shadow economy generates numerous conflicts, some of which are resolved through violence.

Fourth, the shadow economy is a crucial factor in shaping business ethics and, moreover, social norms in general. The expansion and strengthening of the shadow economy can lead to the "erosion" of socio-ethical standards. People cease to distinguish what is permissible and what is impermissible in economic life, and what the criteria are for evaluating particular economic actions. For example, most organizations convert non-cash funds into cash using fictitious contracts (so-called "cashing out"). In principle, this is an illegal operation, and participants should be punished. However, cases of punishment for this operation are extremely rare.

Among the direct consequences of social polarization, which play an important role in creating a fertile environment for the shadow economy, is the stratification of society by income. Thus, the number of low-income people in Kazakhstan with incomes below the subsistence minimum (43,400 tenge—about USD 83) amounted to 4.5% in 2024, or 924 thousand people, compared to 5.2% (1.02 million people) in 2023. As can be seen, the number of low-income individuals is decreasing. However, if we take the statistics according to the International Poverty Line (PPP $5.50/day by the World Bank), in 2021, it was 10.6% (2.01 million people), and in 2022, 10.2% (2 million people) (Castaneda et al., 2024; World Bank Group, 2025). These figures reflect international poverty standards. Official figures (5.2%) reflect absolute poverty under the national methodology based on the subsistence minimum. More than 68% of the population has incomes below the median level (154 thousand tenge per month, or USD 340) (The Main Socio-Economic Indicators, 2024; Zhanakova et al., 2024).

We cite these figures because the majority of the self-employed who belong to the category of low-income citizens are involved in the shadow economy. Inequality in the distribution of total income aggravates the situation. The Lorenz curve, which reflects income distribution across quintile groups, is shown in Appendix A. As can be seen, the first four groups of the population have incomes below their share of the total population, while only the fifth group—the wealthiest—has incomes nearly twice their share of the total number of citizens.

So, what is the scale of shadow activity in Kazakhstan? The size of the non-observed or "shadow economy" is assessed using indirect methods, since it cannot be measured directly. The main approaches include:

(a) The MIMIC method (Multiple Indicators Multiple Causes) (Schneider et al., 2010; Fernandes, 2022);
(b) The DGE method (Dynamic General Equilibrium) (Ljungqvist & Sargent, 2018; Ngoc-Sang, 2024; Galindo et al., 2024);
(c) The expenditure-based gap method—comparison of official income with household expenditures;
(d) The input-output discrepancy method—comparison of data on production and use of products across sectors;
(e) Assessments by the Eurasian Development Bank and the Bureau of National Statistics of the Republic of Kazakhstan;
(f) Sample surveys of households and enterprises (Methodology for Assessing the Non-Observed Economy, 2019; On the Approval of Assessing the Volume of Illegal Activities, 2016).

According to official statistics, the dynamics of the non-observed economy (NOE) from 2005 to 2024 are presented in Figure 1.

As can be seen, until 2010 the level of the non-observed economy (NOE) was relatively low, after which it began to grow and reached its peak in 2017 (28.7%). A subsequent decline followed, and by 2024, the preliminary forecast stands at 16.2% (Bureau of National Statistics, 2025a). This trend reflects the influence of several factors: changes in taxation, the level of support for small and medium-sized businesses, fluctuations in the national currency exchange rate, changes in global energy prices, and two rounds of capital legalization, among others.

It should be noted that between 2013 and 2015, the official calculation methodology was revised: the new estimates were several percentage points higher, approaching 30%, as shown in Figure 1. IMF estimates since 2013 also exceeded 32%, which indicates differences in coverage and accounting of economic components (Commonwealth of Australia, 2024; Revenue Irish Tax & Customs, 2024; Neufeld, 2025b).

It is of particular interest to identify the share of individual industries in the total volume of the NOE. As shown in Figure 2, the largest proportions are accounted for by trade, automobile repair, healthcare, agriculture, construction, and education. This raises the question: how were these sectoral values determined? At present, there is no consensus on the approach to assessing the scale of the shadow economy; most analyses are limited to identifying individual shadow activities, while innovative approaches to determining its overall magnitude remain insufficiently developed. This indicates a gap in the research, highlighting the need for more reliable mechanisms for evaluating the shadow economy.

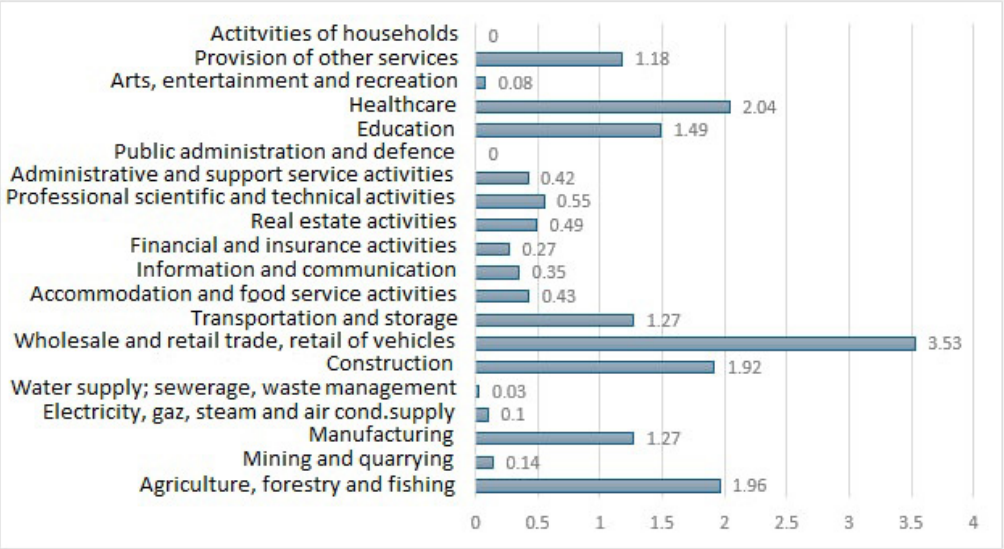


Figure 2. Share of the non-observed economy in selected industries as a percentage of Kazakhstan's GDP, 2024.

Today, there is no unified approach to assessing the scale of the shadow economy; most efforts are limited to identifying shadow processes, with insufficient innovative methods for determining its magnitude. A gap remains in the research into this problem, which highlights the need for more reliable mechanisms for evaluating the shadow economy. The issue is not about registering everyone and forcing them to pay taxes, but rather about more fully accounting for their incomes, helping them to earn enough to accumulate savings, and moving toward a model where citizens' incomes and expenditures are transparent.

Institutional factors hinder more effective efforts to combat the shadow economy. The introduction of market regulation mechanisms was obstructed by an outdated legislative and regulatory framework, as well as by state monopoly in nearly all industries. This period enriched the economic lexicon with terms such as "black cash," "envelope payments," "kickbacks," and "entry fees." The monitoring system proved ineffective, the risk assessment framework failed to function, and there was a shortage of investment in human capital. The government's main efforts were directed toward macroeconomic stabilization, support of the national currency, and the development of an adequate legislative base regulating relations in taxation, budgetary and banking systems, customs administration, and strengthening the effectiveness of control, audit, and law enforcement agencies.

One must also add the lack of public trust in state institutions: most citizens believe that double taxation exists in Kazakhstan—budget payments on one hand and additional unofficial payments for the services of public sector employees on the other. Corruption in governmental and law enforcement bodies further facilitates the use of shadow schemes.

5.1. Methods for Identifying and Assessing the Parameters of the Shadow Economy

The possibilities for assessing the scale of the shadow and criminal economy are rather limited due to the very nature of the phenomenon, which implies concealment from accounting, control, and registration. Consequently, various indirect methods are used for evaluation, the accuracy of the results of which depends on compliance with many conditions. All the methods under consideration are divided into three groups:

- Statistical methods used at the macro level.
- Methods of open verification.
- Methods used at the micro level when identifying and evaluating economic indicators and parameters of specific offenses.

The most fully developed are methods for assessing the hidden production of normal goods and services. These methods are the most accurate due to the ease of obtaining information. The greatest difficulty is the assessment of parameters of prohibited economic activities, economic, professional, organized, and political criminal activities. The assessment of these types of criminal economic activity largely relies on the results of law enforcement activities in detecting and investigating these factors.

Shadow production is the starting point for assessing the parameters of the shadow economy, since production determines income and expenditure. The most reliable and accurate is the use of traditional statistical methods aimed at collecting additional information, conducting additional research, i.e., improving the basic statistics. However, this approach is not able to give a complete assessment of normal but hidden economic activity. It is also ineffective for the assessment of prohibited types of activity.

When direct information is lacking, it is replaced with calculated data, determined on the basis of indirect information or derived from a priori speculative hypotheses. In assessing productive types of shadow economic activity, the classical balance method is effective, which consists of comparing data from different sources and calculating the necessary information.

Many types of shadow economic activity of a redistributive nature within the framework of the SNA methodology cannot be adequately assessed. A certain part can be accounted for when balancing production and consumption to reduce statistical errors.

The method of economic analysis is based on taking into account various economic indicators, which under conditions of normal economic activity are in a state of correlation and interdependence. Economic analysis makes it possible to reveal the causes of deviations from normal economic activity. There are several methods for detecting these inconsistencies: the method of conjugate comparisons, the method of special calculated indicators, the method of stereotypes, and the method of corrective indicators.

To assess the scale of the non-observed economy in the field of self-employment of the population, we used two methods:

1. The DGE model based on data on employment and labor productivity. The DGE (Dynamic General Equilibrium) method is a model for assessing the non-observed (shadow) economy, based on the construction of a dynamic stochastic general equilibrium model (Ljungqvist & Sargent, 2018; Baluta & Shults, 2020; Ngoc-Sang, 2024; Galindo et al., 2024).
2. The MIMIC (Multiple Indicators Multiple Causes) method explains the hidden, non-observed economy (Schneider et al., 2010; Fernandes, 2022).

The DGE method makes it possible to model how hidden activity affects macroeconomic variables (GDP, employment, consumption, taxes, etc.), and allows not to directly measure, but to estimate the scale of the shadow economy. The model divides the economy into the official sector and the shadow sector. Both sectors produce goods and services, but

in the shadow sector, taxation and regulation are avoided. The dynamics of the data and calculations for Kazakhstan for 2019–2023 are presented in Tables 1 and 2.

Table 1. Dynamics of Data for Assessing the Shadow Economy in the Sphere of Self-Employment of the Population of Kazakhstan (World Population Review, 2024).

Years	GDP, Thousand $	Share of the Official Shadow Economy, %	Employment Level in the Economy, Million People	Employment in the Shadow Sector, Million People	Labor Productivity in the Economy, Thousand $	Labor Productivity in the Shadow Sector, Thousand $
2019	181.67	23.0	8.781	2.019	17.9	10.7
2020	171.08	27.0	8.732	2.357	17.3	10.4
2021	197.11	25.0	8.807	2.202	19.8	11.9
2022	225.50	19.75	8.972	1.772	21.9	13.1
2023	261.84	17.58	9.082	1.597	24.9	14.9
2024	288.41	16.2	9.197	1.490	27.8	16.7

Table 2. Dynamics of the Shadow Sector in the Sphere of Self-Employment of the Population According to the DGE Model.

Years	2019	2020	2021	2022	2023	2024
Volume of shadow production, Ys (thousand USD)	21,603	24,513	26,202	23,236	23,801	24,883
Share of the shadow economy, % of GDP	11.89	14.32	13.29	10.30	9.09	8.63

Calculations based on the DGE model for the years 2019–2024 showed a steady trend towards a decrease in hidden economic activity. The share of the shadow economy due to the activity of the self-employed population slightly increased during the COVID-2019 period, and then declined, amounting to 8.63% in 2024. This is quite reasonable, given that officially the share of the shadow economy as a whole in GDP amounted to 16.2%.

The results of the calculations in Table 2 reflect a decrease in the number of informally employed, the growth of the official economy, and an increase in productivity. This decline may also be caused by other factors: digitalization of tax administration (implementation of e-Salyk, online-CCM—cash control machine); strengthening measures for the legalization of labor, especially in trade, construction, and the agricultural sector; the recovery of the economy after the pandemic and the growth of official employment.

The MIMIC method is applied to estimate the share of the non-observed economy, but based on a different structure of data than in the DGE model. MIMIC is a latent variable model that explains the hidden (non-observed) economy as a function of certain causes, for example, factors contributing to the shadow economy (in particular, the tax burden, unemployment); as well as indicators—the consequences of the shadow economy (for example, the growth of cash in circulation, a decrease in tax revenues, employment outside of statistics). According to the data in Table 3, the MIMIC values for the last 5 years were calculated (Table 4).

Table 3. Dynamics of data for the calculation of the non-observed economy according to the MIMIC model.

Years	GDP, Thousand $	Unemployment Rate, %	Tax Burden (Tax Revenues % of GDP)	Quality of Institutions	Share of Cash in the Money Supply (M0/M2)	Employment Gap (Ratio in the Formal/ Informal Sectors)
2019	181.67	4.8	17.3	37.5	13.5	75/25
2020	171.08	4.9	14.0	39.9	12.1	75/25
2021	197.11	4.9	15.9	38.8	11.4	76/24
2022	225.50	4.9	20.8	39.4	11.1	75/25
2023	261.84	4.7	20.1	40.3	11.0	76/24
2024	288.41	4.5	19.4	40.7	10.8	76/24

Table 4. Tax Revenues in the Republic of Kazakhstan for 2019–2024.

Year	Tax Revenues (% of GDP)/Source
2019	≈17.3% Bizmedia.kz + elibrary.imf.org + BES.media
2020	≈14.0% elibrary.imf.org
2021	≈15.9% elibrary.imf.org
2022	≈20.8% elibrary.imf.org + Bizmedia.kz
2023	≈20.1% elibrary.imf.org + Trading Economics
2024 (forecast)	≈19.4% elibrary.imf.org

The IMF and the World Bank often publish estimates of the non-observed economy in different countries, including Kazakhstan, and these data can be used for comparison. For the compilation of Table 3, data from the Worldwide Governance Indicators (WGI, World Bank), the Global Competitiveness Index (WEF), Freedom House: Nations in Transit—Kazakhstan, and Transparency International—Corruption Perception Index (CPI) were used. The assessment of the tax burden (as a percentage of GDP) for the years 2019–2024 was carried out on the basis of data from the IMF and World Bank/Trading Economics (Table 4).

Although in recent years the tax burden has not significantly decreased, tax regulation and administration have improved due to the adoption of the new Tax Code in 2024. The total number of payments has been reduced to nine per year (24th position in the PricewaterhouseCoopers ranking), which is comparable to Norway and Sweden (Bunn et al., 2023; Kenton, 2024).

The assessment of the quality of institutions in Kazakhstan for 2019–2024 was carried out on the basis of several international indices and approaches, since this indicator is complex and includes such components as the rule of law, independence of the judiciary, protection of property rights, anti-corruption measures, transparency, and government effectiveness (Worldwide Governance Indicators: average values of Rule of Law, Control of Corruption, Regulatory Quality, Government Effectiveness, Political Stability). A moderate improvement in institutional quality has been observed, particularly after the events of January 2022, when mass unrest occurred in the country. Subsequently, a number of reforms were initiated, the Corruption Perceptions Index improved, governance and law enforcement systems became more effective, and the concept of "Fair Kazakhstan" was adopted. However, there remain serious challenges regarding the independence of the judiciary, corruption, and transparency of decision-making by the authorities (Barrett et al., 2022; Kudaibergenova & Laruelle, 2022; Barrett, 2024; Open Dialogue Foundation, 2025).

The share of cash in the money supply (M0/M2) was calculated on the basis of monthly data from the National Bank, since no annual statistics are published on the aggregated M0/M2 ratio. It is assumed that the velocity of money circulation in the self-employed sector is higher due to the fact that goods and services are often delivered directly from the producer to the consumer, requiring less cash compared to the legal sector, where there may be numerous intermediaries. Across all regions of the country, there is a noticeable trend of increasing cashless activity, growth in the number of bank cards and transactions, which contributed to a reduction in the share of cash in the overall money supply.

Official statistics show the ratio between formal (employees) and informal (self-employed, workers without contracts) employment, which changes little each year. Thus, in the first and second quarters of 2024, out of 9.2 million employed, approximately 7.0 million were employees (76%) and 2.2 million (24%) were self-employed/informal workers. Meanwhile, according to a review by TuranTimes and Energyprom, at the beginning of 2025, approximately 36.4% of workers admitted that they were employed in the shadow sector: without contracts (16.6%), in shadow entrepreneurship (13.6%), or side jobs without regis-

tration (6.2%). At the same time, only 12.8% are considered informally employed according to the National Bureau of Statistics (Bureau of National Statistics, 2025d).

The results of the assessment of the latent shadow economy using the MIMIC model in comparison with the data of the DGE model for 2019–2024 are shown in Figure 3. As can be seen, the discrepancies in each period are approximately twofold, which is due to the indicators used for the assessment of the non-observed economy.

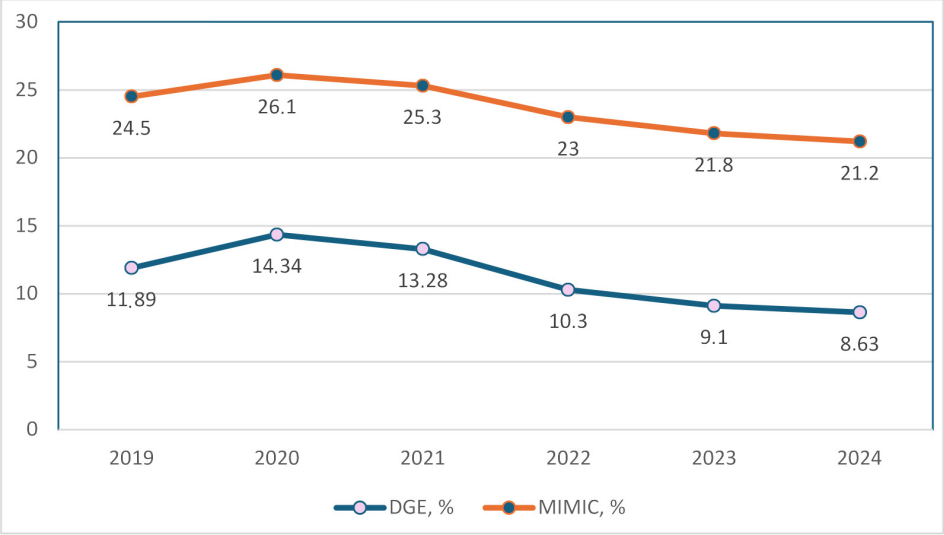


Figure 3. Assessment of the Shadow Economy of the Republic of Kazakhstan according to the DGE and MIMIC models.

Discussion of the research results. Many types of shadow economic activities that have a redistributive character within the framework of the System of National Accounts (SNA) methodology cannot be adequately measured. Certainly, a certain portion of such activities may be taken into account through the balancing of production and consumption in order to reduce statistical discrepancies. In addition, when measuring the parameters of shadow turnover, expert assessments are often used; under conditions of low-quality primary information, such assessments may provide more accurate results than traditional methods.

In the case of Kazakhstan, the DGE model, based on data on employment and labor productivity, may provide more reliable estimates of the non-observed (shadow) economy. The MIMIC method explains the hidden, non-observed economy and allows researchers to model how concealed activities influence macroeconomic variables such as GDP, employment, consumption, and tax revenues. The model divides the economy into the official sector and the shadow sector. Both sectors produce goods and services; however, in the shadow sector, taxation and regulatory requirements are avoided.

As shown in Table 2 and Figure 2, the DGE model produces significantly lower estimates, focusing primarily on the direct production side of the economy. At the same time, MIMIC estimates range between 21 and 26% and take into account institutional and macrofinancial indicators. This highlights the differences in methodological approaches: the DGE model describes the behavior of economic agents under conditions of general equilibrium and allows not only the measurement of the scale of shadow economic activity but also the assessment of its impact on the economy, which makes this method useful for developing economic policy and development strategies.

The MIMIC model allows for the consideration of hidden institutional determinants and focuses on indirect indicators such as taxation, monetary circulation, and employment, while relying on statistical correlations. The estimates obtained using the MIMIC model are higher than official assessments and reflect a broader understanding of the informal

sector. Over time, a decline in the share of the shadow economy is observed according to both approaches, which may be associated with the digitalization of fiscal administration and the legalization of business activities in the country during 2020–2024. It should also be noted that studies using the MIMIC model estimate the shadow economy in Kazakhstan at approximately 30–35% of GDP (Schneider & Medina, 2018; Yao, 2024).

5.2. Self-Employed Population: Field of Activity, Number of People, Income, Contribution to the Economy

In Kazakhstan, the self-employed are individuals who independently carry out activities for the production or sale of goods, works, and services for the purpose of generating income without state registration as an individual entrepreneur or a legal entity.

About 20% of the adult population of Kazakhstan in 2024 received income from self-employment and entrepreneurial activity (TuranTimes, Energyprom). Mainly, this is platform-based employment: service providers and customers find each other through digital platforms such as marketplaces, taxi and courier services, and applications for finding specialists. Almost all self-employed persons are represented in such sectors of the economy as trade (31%), agriculture (28%), transport (12%), and construction (8%) (Bureau of National Statistics, 2024).

A key feature of the self-employed is the absence of a formal employment contract with an employer and personal responsibility for taxes, insurance, pensions, and so on. Such employment can limit a worker's access to traditional guarantees such as medical care, pension savings, accident insurance, and also often lacks tools for improving skills and human capital.

According to Wang (2024), in the section on information about the income of the self-employed, it is noted that as part of the Unified Social Payment the tax is 4% for individuals and 6% for legal entities, but official aggregated data on the total income or revenue of the self-employed are not available in open sources (Bureau of National Statistics, 2025c; Wang, 2024). Starting in 2026, a special tax regime for the self-employed will be introduced without registering as an individual entrepreneur; reporting may become more transparent, and a universal declaration will also be introduced (Kazakhtelecom, 2026).

As of today, there are no reports on the volume of output of goods and services by the self-employed, either by industry or in absolute figures. According to the Bureau of National Statistics for the second quarter of 2024, the sectoral distribution of the self-employed looked as follows (Figure 4) (Bureau of National Statistics, 2024, 2025a). As can be seen, most of the self-employed are in trade and agriculture (in every city, there are many bazaars, and a significant share is made up of the rural population).

Usually, the Bureau of National Statistics forms the sectoral structure of employment, including the self-employed, based on: survey or administrative data; classification according to the main categories of the OKED (General Classifier of Economic Activities); and calculation of the number of people by sector. However, detailed reports on certain types of services (IT freelancing, home workshops, crafts) are not publicly available.

The results of the 2021 population census showed an extremely low level of income among the self-employed population: 81% of people had incomes below the average wage in the country (Bureau of National Statistics, 2025b). For 11% of the economically active population—1,075,000 people—the source of livelihood was "entrepreneurial income" related to self-employment. Almost a quarter of the self-employed received incomes from 50,000 to 100,000 tenge, whereas only 0.4% had incomes above 500,000 tenge. Specialists from Halyk Finance cite similar data in their report on the labor market in Kazakhstan. By global standards, the average wage in Kazakhstan is low ($673 compared to $929 in Russia and $1405 in China) (Ismailov, 2024; Kazakhstan Newsline, 2024). The incomes of the self-employed population are much more difficult to track, and they are estimated based on

surveys by the Bureau of National Statistics. At the same time, the wages of hired workers are regularly published and monitored. Therefore, in order to assess the level of income and well-being of self-employed citizens, we conducted a survey among those employed in trade and services in a large metropolis of Kazakhstan—Shymkent, at the "Samal", "Aina", "Upper Market", "Alash" bazaars, repair workshops, cafes, and hair salons (Appendix B—a questionnaire to study the opinions of Kazakhstanis on self-employment).

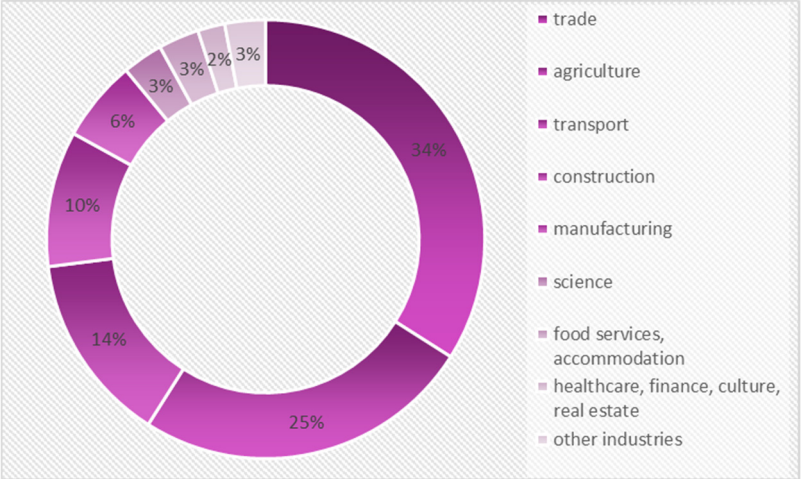


Figure 4. Structure of the self-employed population by sectors of Kazakhstan's economy.

In total, about 15,000 workers are employed at the Shymkent bazaars, which accounts for 6.4% of all workers employed in the SME sector (Kazinform, 2025). Data on the daily revenue of bazaars are not published, and no one shares regular financial statements in the media or online. For example, in the first half of 2025, the volume of retail trade in Shymkent amounted to about 539.3 billion tenge ($1.1 billion). During timekeeping surveys and inspections by authorities, underreporting of actual income was revealed; many entrepreneurs increased their declared income, began using cash registers, and started accepting payments via payment terminals (Appendix C). Overall, the decline in the number of self-employed also affects bazaars: in the city, 17 bazaars out of 36 were liquidated. According to the results of our survey, we found:

(a) Sixty percent of respondents were women, with an equal age distribution;
(b) Employment was mainly in trade, services, repair, and construction;
(c) Almost all had one day off per week, when the bazaar does not work—Monday;
(d) Fifty-five percent of the self-employed had incomes not exceeding 150,000 tenge per month, 25%—151,000–300,000, 19%—301,000–500,000, and only 0.4% had incomes above 500,000;
(e) Almost all respondents had no health insurance or pension contributions; some tried to save for their children's education, car purchase, or apartment on credit;
(f) Many wrote that if they had the opportunity, they would take a job in the civil service or in formal employment;
(g) Proposals from the self-employed included: raising the poverty threshold, subsistence minimum, minimum wage, mandating cash registers everywhere, and introducing a universal declaration.

Specialists from Halyk Finance note that the incomes of the self-employed population are much more difficult to track, as they are estimated only on the basis of surveys by the Bureau of National Statistics. At the same time, the wages of hired workers are regularly published and monitored.

It should be noted that an effective state policy in the area of self-employment has not yet been developed. Low labor productivity does not allow wages to grow significantly and stimulate consumer demand, which is why domestic production does not grow, and the declared economic growth is offset by high inflation. The private sector and SMEs have not become sources of productivity growth. Weak and inefficient companies remain in the market mainly due to state support and the "increasing role of the state" in many areas. A system of state intervention has been created, based on development plans and subsidy programs that distort the market mechanism and are financed by oil revenues. There is a clear attempt to reduce regulatory costs and simplify doing business.

Another important problem is the approaches to the self-employed population in the current state policy. In the draft "Concept for the Development of the Labor Market until 2030", it is stated that "self-employment is a kind of safety cushion for a certain part of the employed population during crisis periods, allowing people to realize their labor potential in difficult life circumstances, as well as supporting small business". The concept views the self-employed as freelancers and entrepreneurs, whereas the available data on their extremely low incomes raise questions about whether they can be considered entrepreneurs at all ("Halyk Finance").

In 2019, in the legislation, the term "self-employed" was replaced with independent workers, or individuals who independently carry out activities for the production (sale) of goods, works, and services in order to earn income without state registration of their activities. Official statistics on the self-employed population began to include both independent workers and individual entrepreneurs (IE). The Bureau of National Statistics also distinguishes between the self-employed unproductive workers (earning below the subsistence minimum) and productive workers. It is precisely the unproductive workers who form the basis of "hidden" unemployment. For reference: As of the end of 2025, the subsistence minimum amounted to 46,228 tenge per month (USD 90.3). According to the National Bank exchange rate, 1 USD equaled 512 tenge.

The problem with the classification of the self-employed may create the illusion of low unemployment in the country. Unemployment in Kazakhstan has a hidden nature and includes a large share of long-term unemployment. The number of unproductively self-employed accounts for about half of all unemployed. Part of the self-employed population with the lowest incomes can also be classified as unemployed in the country does not correspond to economic crises, which does not correspond to international experience.

6. Conclusions

The study of the literature has shown that research on the self-employed population in Kazakhstan concerns only a superficial analysis of the number, sectoral structure of self-employment, incomes, and tax regime. There is no reliable accounting or assessment of the volume of goods and services produced by the self-employed, no data on tax collection; in practice, the self-employed do not make pension contributions and have no health insurance. There are practically no systematic studies regarding the contribution of the self-employed to GDP, their share in the non-observed economy, including in the shadow economy; mostly, facts of violations and corruption manifestations in one area or another are presented.

Although the dynamics of the non-observed economy of Kazakhstan over a long period demonstrate a decline due to low taxes, support for small and medium-sized businesses, and two rounds of capital legalization, shadow business areas remain, and income stratification in society is increasing. The figures show that the bulk of the self-employed belong to the category of low-income citizens and do not make a significant contribution to GDP.

There are discrepancies in the assessment of the shadow economy due to differences in measurement methods. After the introduction of a new calculation methodology, the assessment of the shadow economy turned out to be several percentage points higher than the official one. Assessments of the shadow economy in Kazakhstan by Western experts also turned out to be higher. Official statistics provide data on the non-observed economy by sectors, while the shadow economy exists by types of activities and has many forms of manifestation. Calculations using the DGE and MIMIC models showed different levels of the shadow economy. The authors believe that the most objective assessment can only be achieved through the integrated use of various methods. In this regard, the authors consider targeted sociological research and a model of aggregated accounting for the influence of various factors on shadow self-employment of the population to be the most effective approaches.

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Appendix A

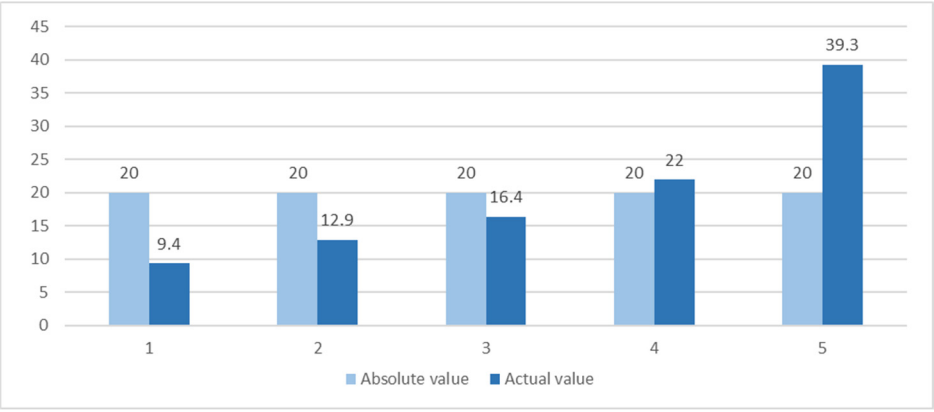


Figure A1. Distribution of income of the population of Kazakhstan by quintile groups, 2023.

Appendix B

A survey to study Kazakhstanis' opinions on self-employment.

Dear respondent! We kindly ask you to participate in a questionnaire survey examining opinions on self-employment in Kazakhstan. Your opinion will help us develop proposals for developing this area. Responses will be used in aggregate form. Please do not provide your last name. Anonymity is guaranteed. The survey is being conducted by researchers from M. Auezov South Kazakhstan University. Thank you for your cooperation!

1. Your gender:
   - ☐ Male
   - ☐ Female
2. Your age:
   - ☐ 18–40 years old
   - ☐ 41–60 years old
   - ☐ Over 61 years old
3. What industry/business sector do you work in:
   - ☐ Industry
   - ☐ Agriculture
   - ☐ Construction
   - ☐ Transportation and Communications
   - ☐ Education and Science
   - ☐ Trade and Services
   - ☐ Other Industries (Please Write) _____
4. How many days a week do you work?
   - ☐ Every day, seven days a week
   - ☐ 6 days
   - ☐ 5 days
   - ☐ Part-time (specify the schedule) _____
   - ☐ Shift work
   - ☐ Other_____
5. Please indicate your average daily income/earnings:
   - ☐ Up to 5000 tenge
   - ☐ From 6000 to 10,000 tenge
   - ☐ From 11,000 to 20,000 tenge
   - ☐ From 21,000 to 30,000 tenge
   - ☐ Over 31,000 tenge
6. Please indicate whether you have:
   - ☐ Health insurance
   - ☐ Pension contributions
   - ☐ Savings in a bank
   - ☐ Loan from a bank or microfinance organization
7. If you do not have health insurance, please explain why (please write) _____
8. Do you contribute to a pension fund? If not, why not? _____
9. How comfortable and convenient are you at your job?
   - ☐ Everything is good
   - ☐ Tolerable
   - ☐ I don't like it, it's bad
   - ☐ I don't know
10. What didn't you like about your job?
    - ☐ Pay (please write what exactly) _____
    - ☐ Working conditions (please write what exactly) _____
    - ☐ Taxes (please write what exactly) _____
    - ☐ Accounting and reporting system (please write what exactly) _____
    - ☐ Other _____

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11. Would you like to get a paid job?
    - □ If yes, what's stopping you _____
    - □ No, I'm fine with it
12. What should be done to improve the self-employment system in Kazakhstan _____

Appendix C

Statistics on retail and wholesale trade are available for the city of Shymkent and the Turkestan region. Tax revenues from Shymkent markets increased by almost one billion tenge in 2024, reaching 6.3 billion tenge. For comparison, this figure for all of 2023 was 5.37 billion tenge (Kazinform correspondent). According to current data, retail trade in Shymkent from January to June 2025 amounted to approximately 539,332 million tenge, or approximately $1.1 billion (https://www.inform.kz/ru/pochemu-likvidirovani-17-bazarov-shimkenta-1fec04?utm_source, accessed on 16 January 2025). However, these figures are averaged and not broken down by day or market.

It was previously reported that 17 bazaars were closed in Shymkent due to unauthorized trading. There were 36, and 19 bazaars remain. In total, 11,048 retail outlets have been established in Shymkent markets, employing 14,953 workers. This represents 6.4% of all SME employment. Specialists from the Department of Social Programs held explanatory meetings with 1350 entrepreneurs. As a result, they declared an additional 7 billion tenge in income, resulting in 172 million tenge in taxes. Specialists conducted:

(1) Time-based inspections: The audits revealed underreporting of actual income; following this, 22 entrepreneurs increased their declarations by almost 11 times—from 158.3 million tenge to 1.73 billion tenge.
(2) Inspection of cash registers and payment terminals: 191 sole proprietors were inspected for the use of cash registers, and 123 for the presence of POS terminals. Since 2024, Shymkent has implemented a reduced retail tax rate—instead of 4%, entrepreneurs now pay only 2%. This is intended to reduce the tax burden on businesses and bring entrepreneurs out of the shadow economy.

References

ACCA. (2025). *Emerging from the shadows. The shadow economy to 2025*. Available online: https://www.accaglobal.com/content/dam/ACCA_Global/Technical/Future/pi-shadow-economy-report.pdf (accessed on 12 April 2025).

Akkerman, A., Sluiter, R., & Jansen, G. (2020). Temporary work and deviant behavior the role of workplace cohesion. *The Sociological Quarterly*, *61*, 678–702. [CrossRef]

Baluta, V. I., & Shults, D. N. (2020). A version of a dynamic stochastic general equilibrium model for an open economy. *Mathematical Models and Computer Simulations*, *12*, 519–527. [CrossRef]

Barrett, P. (2024). *Reported social unrest index: IMF working paper No. 2024/225*. Available online: https://ssrn.com/abstract=4989563 (accessed on 12 April 2025). [CrossRef]

Barrett, P., Appendino, M., Nguyen, K., & de Leon Miranda, J. (2022). Measuring social unrest using media reports. *Journal of Development Economics*, *158*, 102924. [CrossRef]

Bencsik, P., & Chuluun, T. (2021). Comparative well-being of the self-employed and paid employees in the USA. Additional contact information. *Small Business Economics*, *56*, 355–384. [CrossRef]

Berggren, C., & Olofsson, A. (2021). A societal perspective on self-employment—Sweden as an example. *Studies in Higher Education*, *46*, 1436–1448. [CrossRef]

Binder, M., & Blankenberg, A.-K. (2021). *Self-employment and subjective well-being* (GLO Discussion Paper, No. 744, pp. 1–36). Global Labor Organization (GLO). Available online: https://hdl.handle.net/10419/228453 (accessed on 12 April 2025).

Black, J., Hashimzade, N., & Myles, G. (2012). *A dictionary of economics* (4th ed., 464p). Oxford University Press. [CrossRef]

Bozzon, R., & Murgia, A. (2022). Independent or dependent? European Labour Statistics and their (In)ability to identify forms of dependency in self-employment. *Social Indicators Research*, *160*, 199–226. [CrossRef]

Bunn, D., Bray, S., & Haddinga, J. (2023). *Insights into the tax systems of Scandinavian countries*. Tax Foundation.

Bureau of National Statistics. (2024). *Gross regional product of the Republic of Kazakhstan for 2023 with the allocation of the unobserved economy*. Available online: https://stat.gov.kz/en/news/gross-regional-product-of-the-republic-of-kazakhstan-for-2023-with-the-allocation-of-the-unobserved-/ (accessed on 12 April 2025).

Bureau of National Statistics. (2025a). *Economy. National accounts. January–March 2025*. Available online: https://stat.gov.kz/ru/ (accessed on 12 April 2025).

Bureau of National Statistics. (2025b). *Incomes and sources of livelihood of the population of the Republic of Kazakhstan*. Available online: https://stat.gov.kz/upload/medialibrary/f20/8031jq8y2yi0thvs13i8xzmdtthinm2u/Доходы%20и%20источники%20средств.pdf (accessed on 12 April 2025).

Bureau of National Statistics. (2025c). *The main indicators of income differentiation of the population of the Republic of Kazakhstan (2024)*. Available online: https://stat.gov.kz/en/industries/labor-and-income/stat-life/publications/368170/ (accessed on 12 April 2025).

Bureau of National Statistics. (2025d). *The situation on the labor market (1 quarter 2025)*. Bureau of National statistics Agency for Strategic planning and reforms of the Republic of Kazakhstan.

Castaneda, A., Diaz-Bonilla, C., Fujs, T., Lakner, C., Cong, N. M., Viveros, V., & Kofi, T. C. (2024). *March 2024 global poverty update from the World Bank: First estimates of global poverty until 2022 from survey data*. Available online: https://blogs.worldbank.org/en/opendata/march-2024-global-poverty-update-from-the-world-bank--first-esti (accessed on 12 April 2025).

Cholbaeva, S., & Bozieva, Z. (2025). The shadow economy and its impact on Kyrgyzstan's economic security. *Economy and Business: Theory and Practice*, *9*(127), 2025. (In Russian) [CrossRef]

Clay, A., & Phillips, K. M. (2015). *The misfit economy: Lessons in creativity from pirates, hackers, gangsters and other informal entrepreneurs* (256p). Simon & Schuster.

Commonwealth of Australia. (2024). *The shadow economy involves dishonest and criminal activities that take place outside the tax and regulatory systems*. Available online: https://www.ato.gov.au/about-ato/tax-avoidance/shadow-economy (accessed on 12 April 2025).

Dallago, B., & McGowan, J. (2015). *Crises in Europe in the transatlantic context: Economic and political appraisals* (222p). Routledge studies in the modern world economy. Routledge.

Dominik, H. E. (2024). *The shadow economy in industrial countries*. The IZA World of Labor project. IZA World of Labor. [CrossRef]

Dvoulety, O. (2022). Starting business out of unemployment: How do supported self-employed individuals perform? *Entrepreneurship Research Journal*, *12*(1), 1–23. Available online: https://www.researchgate.net/publication/341041562 (accessed on 12 April 2025). [CrossRef]

Eteris, E. (2025, May 21). *Shadow economy in Europe and the world*. New directions in the EU's political economy for skilled workforce. Available online: https://www.integrin.dk/2025/05/21/shadow-economy-in-europe-and-the-world/ (accessed on 21 May 2025).

EY Economic Analysis Team. (2025). *Estimates for the world and policy paths* (138p). Available online: https://www.ey.com/content/dam/ey-unified-site/ey-com/en-gl/insights/tax/documents/ey-gl-shadow-economy-report-02-2025.pdf (accessed on 12 April 2025).

Fernandes, A. (2022). *The non-observed economy in the national accounts* (Working Paper, 54p). HIVA KU Leuven. Available online: https://hiva.kuleuven.be/en/news/docs/working-paper-the-non-observed-economy-in-the.pdf (accessed on 12 April 2025).

Galindo, G. H., Montecinos, B. A., & Ortiz Sosa, M. A. (2024). *Dynamic stochastic general equilibrium models. Real business cycles models: Closed and open economy* (pp. 323–366). Springer Texts in Business and Economics. Springer. [CrossRef]

Ginevicius, R., Kliestik, T., Stasiukynas, A., & Suhajda, K. (2020). The impact of national economic development on the shadow economy. *Journal of Competitiveness*, *12*(3), 39–55. [CrossRef]

Goudarzi, M., & Mittone, L. (2023). Shrinking the shadow economy: Experimental insights into the role of financial development. *Journal of Behavioral and Experimental Economics*, *107*, 102080. [CrossRef]

Hart, K. (2015). *Economy for and against democracy (The human economy)* (264p). Bergmann Books.

Herber, G.-C., Schipper, M., Koopmanschap, M., Proper, K., Van der Lucht, F., Boshuizen, H., Polder, J., & Uiters, E. (2020). Health expenditure of employees versus self-employed individuals; A 5 year study. *Health Economics*, *29*, 1606–1619. [CrossRef] [PubMed]

International Labour Organization. (2023). *World employment and social outlook: Trends 2023*. International Labour Organization. [CrossRef]

Ismailov, V. (2024). *Kazakhstan leads central Asia in average salaries*. Available online: https://timesca.com/kazakhstan-leads-central-asia-in-average-salaries/ (accessed on 12 April 2025).

Israilova, A., & Israilov, M. (2023). Analysis of the main determinants of the shadow economy in selected central Asian countries. *Russian Law Journal*, *11*(3), 1090–1100.

Jahan, I., Pavlik, J. B., & Williams, R. B. (2020). Is the devil in the shadow? The effect of institutional quality on income. *Review of Development Economics*, *24*, 1463–1483. [CrossRef]

Kazakhstan Newsline. (2024). *Salaries differ in Kazakhstan and other countries*. Available online: https://newsline.kz/article/1168832/ (accessed on 12 April 2025).

Kazakhtelecom. (2026). *Self-employed in Kazakhstan in 2026: Who is it, what are the conditions and how to start working*. Available online: https://b2b.telecom.kz/en/news/business/samozanyatyy-v-kazahstane-v-2026-godu-kto-eto-kakie-usloviya-i-kak-nachat-rabotat (accessed on 12 April 2025).

Kazinform. (2025). *Why Shymkent markets have started paying more taxes*. Available online: https://www.inform.kz/ru/pochemu-rinki-shimkenta-stali-platit-bolshe-nalogov-efcac3 (accessed on 12 April 2025).

Kenton, W. (2024). *Nordic model: Comparing the economic system to the U.S*. Available online: https://www.investopedia.com/terms/n/nordic-model.asp?utm_source=chatgpt.com (accessed on 12 April 2025).

Kudaibergenova, D., & Laruelle, M. (2022). Making sense of the January 2022 protests in Kazakhstan: Failing legitimacy, culture of protests, and elite readjustments. *Post-Soviet Affairs*, *38*(26), 441–459. [CrossRef]

Ljungqvist, L., & Sargent, T. J. (2018). *Recursive macroeconomic theory* (4th ed., 1477p). The Massachusetts Institute of Technology Press. Available online: https://lccn.loc.gov/2018002500 (accessed on 12 April 2025).

Mitrofanova, I. V., & Chernova, O. A. (2022). Self-employment as a socio-economic phenomenon: Impact on sustainability of regional development. *Vestnik Volgogradskogo gosudarstvennogo universiteta Ekonomika*, *24*, 55–67. (In Russian) [CrossRef]

Murgia, A., Bozzon, P. R., Digennaro, P., Mathilde, M., & Mondon-Navazo, P. B. (2020). Hybrid areas of work between employment and self-employment: Emerging challenges and future research directions. *Frontiers in Sociology*, *21*, 86. [CrossRef]

Neufeld, D. (2025a). *Mapped: The size of each country's shadow economy*. Available online: https://www.visualcapitalist.com/size-of-the-shadow-economy-by-country/ (accessed on 12 April 2025).

Neufeld, D. (2025b). *Ranked: The world's biggest shadow economies. EY global shadow economy report 2025*. Available online: https://www.visualcapitalist.com/the-worlds-biggest-shadow-economies/ (accessed on 12 April 2025).

Ngoc-Sang, P. (2024). *Essays in dynamic general equilibrium and economic growth. Economics and finance* (86p). Université de Paris 1-Panthéon La Sorbonne.

Nguyen, C. (2024). Unveiling the shadow economy: Understanding its impact, causes, and policy implications. *Journal of Economics and Economic Education Research*, *25*(1), 1–3. Available online: https://www.abacademies.org/articles/unveiling-the-shadow-economy-understanding-its-impact-causes-and-policy-implications-16689.html (accessed on 12 April 2025).

OECD. (2002). *Measuring the non-observed economy: A handbook* (233p). Available online: https://www.oecd.org/content/dam/oecd/en/publications/reports/2002/05/measuring-the-non-observed-economy-a-handbook_g1ghge7e/9789264175358-en.pdf (accessed on 12 April 2025).

Open Dialogue Foundation. (2025, February 13). *48 political prisoners in Kazakhstan, political repression and total censorship instead of reforms*. Open Dialogue Foundation. Available online: https://en.odfoundation.eu/a/726864,tough-year-for-human-rights-48-political-prisoners-in-kazakhstan-political-repression-and-total-censorship-instead-of-reforms/ (accessed on 12 April 2025).

Pisani, M. J., & Ovando Rivarola, F. G. (2019). *Understanding the determinants of economic informality in Paraguay: A kaleidoscope of measures* (181p). Palgrave Macmillan. [CrossRef]

Polese, A., Moisé, G. M., Tokyzhanova, T., Aguzzi, T., Kerikmäe, T., Sagynbaeva, A., Sauka, A., & Seliverstova, O. (2023). Informality versus shadow economy: Reflecting on the first results of a manager's survey in Kyrgyzstan. *Central Asian Survey*, *42*, 149–170. [CrossRef]

Raford, N., Trabulsi, A., & Bunker, R. (2015). *Warlords, Inc.: Black markets, broken states, and the rise of the warlord entrepreneur* (256p). North Atlantic Books.

Rakhmatullayeva, D., Iliyashov, G., Maukenova, A., & Ishanov, Y. (2020). The study of the phenomenon of self-employment and its role in the national economy: The case of Kazakhstan. *E3S Web of Conferences*, *159*, 06015. [CrossRef]

Revenue Irish Tax & Customs. (2024). *Shadow economy processing. Online tax evasion reports*. Available online: https://www.revenue.ie/en/corporate/assist-us/reporting-shadow-economy-activity/index.aspx (accessed on 12 April 2025).

Sabirova, R. K., Dzhumaeva, A. K., & Utalieva, R. S. (2020). Self-employment: Theoretical foundations and problems. *Economy: Strategy and Practice*, *15*(1), 113–125. (In Kazakh) [CrossRef]

Sakenova, S. (2024). *Kazakhstan reaches progress in transparency international's 2024 Index*. Available online: https://astanatimes.com/2025/02/kazakhstan-reaches-progress-in-transparency-internationals-2024-index/ (accessed on 12 April 2025).

Schneck, S. (2014). Why the self-employed are happier: Evidence from 25 European countries. *Journal of Business Research*, *67*(6), 1043–1048. [CrossRef]

Schneider, F., Buehn, A., & Montenegro, C. E. (2010). *Shadow economies all over the world: New Estimates for 162 Countries from 1999 to 2007* (World Bank Policy Research Working Paper No. 5356). The World Bank.

Schneider, F., & Medina, L. (2018). *Shadow Economies around the World: What Did We Learn over the Last 20 Years?* (IMF Working Papers 18/17). African Department.

Schneider, F., & Williams, C. C. (2020). *The shadow economy the Institute of Economic Affairs (IEA)*. Available online: https://www.iea.org.uk/sites/default/files/publications/files/IEA%20Shadow%20Economy%20web%20rev%207.6.13.pdf (accessed on 12 April 2025).

Serrano-López, M. (2020). Violence and corruption as maximization strategies in illegal markets: The case of coca. [Violencia y corrupción como estrategias de maximización en mercados ilegales: El caso de la coca]. *Cuadernos De Economia (Colombia)*, *39*(81), 949–974. [CrossRef]

Subachev, S., & Melnik, M. (2022). The shadow economy and its impact on the country's economic security. *Journal Economy and Business*, *5–3*(87). (In Russian) [CrossRef]

The Main Socio-Economic Indicators. (2024). *The main socio-economic indicators of the Republic of Kazakhstan 1991–2023*. Available online: https://stat.gov.kz/upload/medialibrary/82e/ybwczhefqg24jqbfh0gcaterwtru6fl7/%D0%94%D0%B8%D0%BD%D0%B0%D0%BC%D0%B8%D0%BA%D0%B0%20%D0%A1%D0%AD%D0%9F%20%D0%A0%D0%9A%201991-2025%20(%D0%B0%D0%BD%D0%B3%D0%BB).xls (accessed on 12 December 2024).

The World Bank data. (2024). *GDP growth (annual %)*. World Bank national accounts data, and OECD National Accounts data files. Available online: https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG (accessed on 12 April 2025).

United Nations Economic & Social Council. (2004, February 18–20). *Measurement of the non-observed economy and production of exhaustive GDP estimates: Note/by the Secretariat*. Economic and Social Commission for Asia and the Pacific. Available online: https://digitallibrary.un.org/record/517658?v=pdf (accessed on 12 April 2025).

United Nations International Standard Industrial Classification of All Economic Activities (ISIC). (2025). *OECD, UNIDO statistics portal 2025*. Available online: https://stat.unido.org/manufacturing-news/international-standard-industrial-classification-all-economic-activities-isic (accessed on 12 April 2025).

Utting, P. (2015). *Social and solidarity economy: Beyond the fringe?* (384p). Zed Books.

Van Stel, A., & Van der Zwan, P. (2020). Analyzing the changing education distributions of solo self-employed workers and employer entrepreneurs in Europe. *Small Business Economics*, *55*, 429–445. [CrossRef]

Vučeković, M., Avlijaš, G., Marković, M. R., Radulović, D., Dragojević, A., & Marković, D. (2023). The relationship between working in the "gig" economy and perceived subjective well-being in Western Balkan countries. *Frontiers in Psychology*, *14*, 1180532. [CrossRef]

Wang, Z. (2024). *Trading economics: New theory for trading system evolution*. Springer Nature. [CrossRef]

World Bank Group. (2025). *June 2025 update to global poverty lines*. Available online: https://www.worldbank.org/en/news/factsheet/2025/06/05/june-2025-update-to-global-poverty-lines (accessed on 12 April 2025).

World Population Review. (2024). *GDP ranked by country 2024*. Available online: https://worldpopulationreview.com/countries/by-gdp (accessed on 12 April 2025).

Yao, J. (2024). *Unveiling the informal economy: An augmented factor model approach* (Working Paper No. WP/24/110). International Monetary Fund. Available online: https://books.google.rs/books?hl=sr&lr=&id=b7IMEQAAQBAJ&oi=fnd&pg=PP1&dq=Yao,+J.+(2024).+Unveiling+the+Informal+Economy:+An+Augmented+Factor+Model+Approach.+(Working+Paper+No.+WP/24/110).+&ots=4_h1wl_tvK&sig=rpwTWon9AcFV2Irjd4oudc6pc7c&redir_esc=y#v=onepage&q&f=false (accessed on 12 April 2025).

Young, G. (2020). Urban informal economies in peacebuilding: Competing perspectives and implications for theory and praxis. *Third World Quarterly*, *41*(11), 1937–1956. [CrossRef]

Zhanakova, N. N., Bodauhan, G., Nigmetova, G. Z., Mangibayeva, D. D., & Kirbasova, L. G. (2024). The current state and ways to increase the real income of the population of Kazakhstan. *Economy: Strategy and Practice*, *19*(2), 123–139. (In Russian) [CrossRef]

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