

Zh. Mekebayeva¹, N. Mekebay², A. Yelshibayeva^{3*}, Ye. Kylbayev⁴

^{1,3}Narxoz University Almaty, Kazakhstan;

²Satbayev University, Almaty, Kazakhstan;

⁴Academy of Public Administration under the President of the Republic of Kazakhstan, Astana, Kazakhstan

¹mzhan_80@mail.ru, ²n.mekebay@satbayev.university, ³aigul.elshibaeva@narxoz.kz, ⁴y.kylbayev@apa.kz

¹<https://orcid.org/0000-0002-2368-8499>, ²<https://orcid.org/0000-0002-3124-2630>,

³<https://orcid.org/0000-0001-7681-0331>, ⁴<https://orcid.org/0000-0001-7673-0067>

Assessment of trends in the development of housing construction in the Republic of Kazakhstan

Abstract

Object: to identify and evaluate the main trends in the development of housing construction in the Republic of Kazakhstan. The article considers the development of the construction industry in modern economic and investment conditions. The growth trend in the field of construction organizations, the concept of achieving competitive advantages of construction firms were shown.

Methods: based on specific statistical data, the main trends in this area were identified, correlation-regression analysis was carried out, and conclusions were drawn based on the results of the study. After drawing the trend line, forecasts were made for the following years. The accuracy of the forecast was checked.

Findings: based on the identified trends, factors contributing to the sustainable development of housing were identified, their analysis and forecast were carried out. The development of housing construction in the Republic of Kazakhstan is mathematically justified and evaluated. The dynamics of the identified factors made it possible to systematize research and identify factors that have a positive impact on the sustainable development of housing construction. The volume of construction works, the index of physical volume, and the number of construction organizations are increasing.

Conclusions: an analysis of the contribution of the construction sector to the economy of Kazakhstan in gross domestic product was carried out. The trend of development of the volume of construction works was evaluated. Factors affecting the volume of construction work were also selected. The trend of increasing the volume of housing commissioned in the Republic of Kazakhstan has been identified. The determination of the place of the construction industry in the economy and its role in public production was determined by the impact of the final results of its functioning on the economic and social development of the region.

Keywords: construction, investment, valuation, statistical analysis, development trend, trend, forecast.

Introduction

Housing is one of the primary needs of a person. In this regard, the analysis of the state of housing construction of the Republic of Kazakhstan and the determination of development directions is relevant in the study of the structure of the economy of the Republic of Kazakhstan. The construction sector in Kazakhstan remains one of the most important sectors of the economy and one of the most attractive for investment.

Countless studies by foreign and our authors prove the relevance and historical inexhaustibility of the housing problem. Housing construction is now one of the fastest growing segments of the real estate market. The main need for every person is the availability of their own housing, which is responsible for all current conditions — quality, comfort, accessibility and environmental friendliness. The main housing programs of the Republic of Kazakhstan are aimed at creating an affordable housing market and developing housing construction in the country.

Housing affordability is a complex multifaceted indicator, which not only reflects the progress of market reforms in the housing sector, their social orientation, but is also associated with the general process of socio-economic processes in society, their profitability, provides for the activity of the population in the housing market, its expectations, the degree of trust in state and commercial institutions (The Government of the Republic of Kazakhstan, 2012).

According to the Statistics Committee of the Republic of Kazakhstan, the total area of housing stock in Kazakhstan in 2019 amounted to 347.4 million square meters. About 65% of residential complexes were commissioned.

* Corresponding author's e-mail: aigul.elshibaeva@narxoz.kz

Literature Review

To emphasize the importance of the works of Babichev K. N., Musayeva M. A., Bekmurzaev I. D., Oreshkov A. A., Khlestunova E. S., Ivanova O. E., Kidanov V. N., Medvedev S. P., Besonov V. E., Sinyakov E. V., Yudakova T. V., Vasiliev Yu. S., Omarova Yu. A. in the study of mechanisms and tools for implementing housing policy it will be. O. V. Dolgushina considered effective methods of implementing housing policy (Dolgushina, 2007). The contribution of O. E. Sidorina to the study of the importance of administrative and legal support of housing policy is significant (Sidorina, 2014). Dolaeva Z. N. & Bidjieva F. K. in their work, as the main issues of housing policy, the development of housing stock obsolescence, wear and tear of engineering communications and intensive failure of the housing stock, the volume of new housing construction insufficient investment resources and, as a result, low level of investment activity, lack of local programs and specific mechanisms for updating communications (Dolaeva, 2014).

In the Article Kudryavtseva V. A. provided that the analysis of the current state of the housing stock allows us to identify the specifics of the construction industry, depending on the factors of development of the country's construction market, the main development trends and problems in the market (Kudryavtseva, 2017).

Tsopa N. V. concludes that the main economic factor influencing the development of housing construction is the low consumer demand for housing construction projects, while the main financial factor hindering the development of the industry is the high tax burden, the main restraining social factor is the lack of qualified personnel (Tsopa N. V., 2018).

Sustainable productivity growth requires constant improvement of the economy (Porter, 1990). Investment in housing only it is possible that they will not be built in brick and mortar, so that the population the foundation for the future of health and well-being (Mary Shaw, 2003). An increase in the income of the population leads to an increase in the expenses of the population, as a result of which the welfare of the population increases (Temirbekova, 2022). That is, improving the welfare of the population will lead to an increase in demand for housing.

To assess the effectiveness of housing policy it is necessary to analyze the real estate market. According to Tarasevich, in general. It is necessary to define policies and specific directions in order to: real investment decision by researching the real estate market it is important to substantiate and determine the effectiveness of housing policy in the region (Tarasevich, 2000).

The competitiveness of the construction industry in the domestic market depends primarily on their quality (Mekebayeva, 2017). Since the main source of financing for housing construction is private construction organizations, an increase in construction volumes can occur only when the attractiveness of the real estate market increases. It is necessary to develop mechanisms to stimulate construction, since the sector should not dwell only on the commercial interest of private developers.

Methods

Statistical data for the study of the construction industry of the Republic of Kazakhstan for the period 2003-2020 (stat.gov.kz). Based on the selected factors, a correlation matrix was constructed, as well as a forecast of the volume of construction work performed based on the results of regression analysis was made. The accuracy of the forecast was checked using the trend equation.



Figure 1. Dynamics of the volume of completed construction works, million tenge

Note – compiled by the authors

Figure 1 shows the dynamics of the volume of construction works performed in the country for 2003-2020. In 2005, the volume of completed construction works amounted to 1069 million tenge, and in 2010, the volume of construction works increased by 1.8 times and amounted to 1943 million tenge it was tenge. Every 5 years, the volume of construction works increased by 1.5—2 times, and in 2020, the volume of completed construction works amounted to 4934 million tenge.

One of the reasons for the increase in the volume of construction works is the high level of demand due to the economic and social situation of the population (Mekebayeva, 2018).

Based on statistical data in the Republic of Kazakhstan for the period from 2003 to 2020, the following factors were taken to estimate the volume of housing construction works. Where Y is the volume of construction work (million tenge), X1 — employed population (people), X2 — supply of electricity, gas, steam, hot water and air conditioning (million tenge), X3 — the total marriage rate (per 1000 people), X4 — the average monthly income of the population (tenge), X5 — the number of construction organizations (units), X6 — investments in housing construction (thousand tenge), X7 — the dollar rate (tenge).

The correlation matrix is constructed. Correlation coefficient of the relationship between the main factor and the influencing factors determines the density (Fig. 2).

	Y	X1	X2	X3	X4	X5	X6	X7
Y	1							
X1	0,94	1,00						
X2	0,96	0,89	1,00					
X3	0,29	0,52	0,24	1,00				
X4	0,99	0,95	0,97	0,29	1,00			
X5	0,76	0,87	0,68	0,73	0,73	1,00		
X6	0,95	0,87	0,93	0,10	0,96	0,58	1,00	
X7	0,86	0,71	0,87	-0,14	0,87	0,40	0,92	1,00

Figure 2. Correlation matrix

Note – compiled by the authors based on statistical data

When determining the correlation coefficient, the specified Y— with the volume of construction work, (milliontenge) X1 — employed population (people), X2 — supply of electricity, gas, steam, hot water and air conditioning (milliontenge), X4 — the average monthly income of the population (tenge), X5 — the number of construction organizations (units), X6 — investments in housing construction (thousand tenge), X7-the dollar exchange rate (tenge) has a correlation coefficient of more than 0.7, which indicates a close relationship. But only between the three influencing factors (X5, X6, and X7) there is no multicollinearity relationship. Based on correlation analysis, factors X5, X6, and X7 were included in the model.

Results

A regression analysis of the volume of housing construction works in the Republic of Kazakhstan for the period 2003-2020 was carried out. According to the results of regression analysis, the multiple correlation coefficient is $R=0.98$, which indicates a close relationship between the volume of housing construction work and the selected factors. The coefficient of determination is equal to $R^2=0.97$. Thus, the variation in the volume of construction works is 97 percent, i.e. X5 — the number of construction organizations, X6 — investments in housing construction, and X7 depends on changes in the dollar exchange rate.

Multiple regression: $Y=-1862720+436,05x_5+0,0009x_6+3314,7x_7$ the multiple regression equation was constructed using the step regression method.

The significance of the parameters of the regression equation was checked using the Student's criterion. Since $t=2.1$ is equal, $t_{a}=-3.5>2.1$, $t_{b1}=6.7>2.1$, $t_{b2}=3.37>2.1$, $t_{b3}=2.4>2.1$, the model parameters are adequate, and according to Fischer's criterion, the significance of the regression equation $F=187.8>F_{tab}=4.41$ is determined.

The average approximation error is equal to $A=8.8\%$, the model is adequate. The equation can be used to make predictions. By drawing a trend line, the forecast value of the number of construction organizations for the coming 2021-2023 was determined (Fig.3).

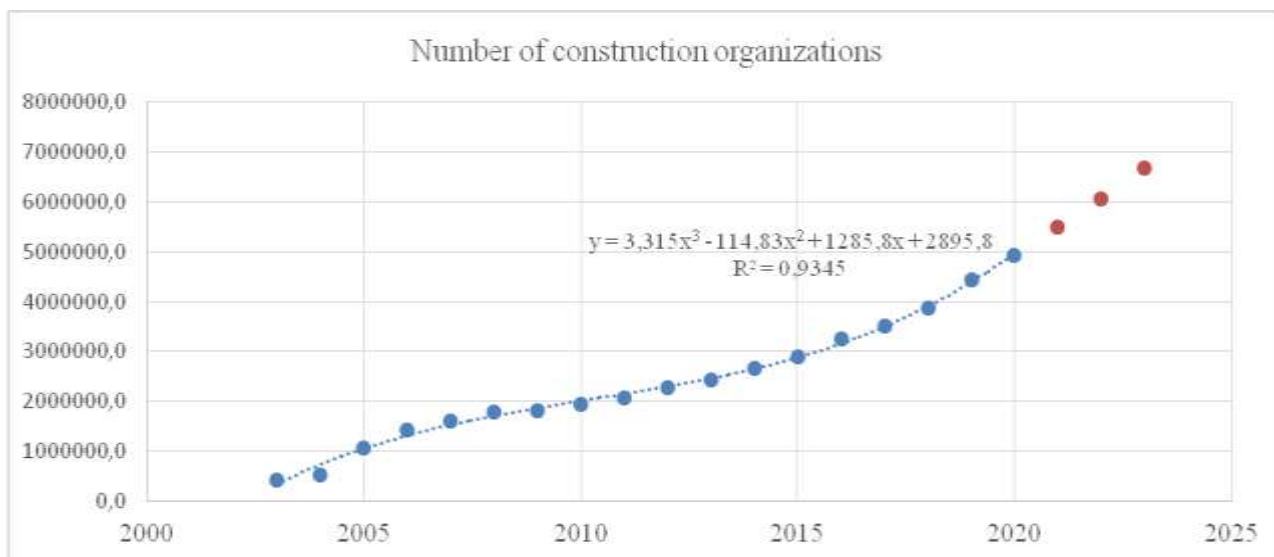


Figure 3. Number of construction organizations

Note – the image was compiled by the author

By drawing the trend line, the forecast value of the number of construction organizations for the following years for 2021-2023 was determined. The forecast was calculated by the formula $Y=3.315x^3-114.83x^2+1285.8x+2895.8$. In 2021, the number of construction houses was 8609. It is expected that in 2022 the number of construction organizations will be equal to 9199 and in 2023 — to the number of 9957 organizations.

Investments in housing construction in 2015 amounted to 739 987 365 billion tenge, and in 2020-1 989 280 578 trillion tenge, that is, in 2020, investments in housing construction increased by 2.7% compared to 2015.

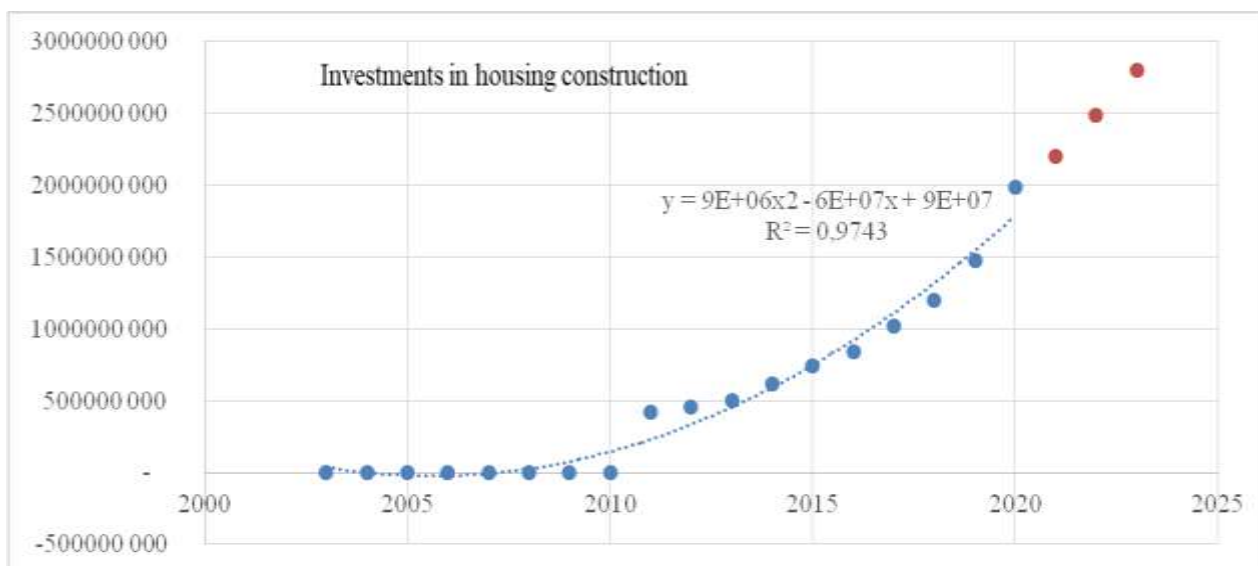


Figure 4. Forecast of the volume of investments in housing construction

Note – the image was compiled by the author

Figure 4 shows the volume of investment in housing construction with the equation trend $Y=9E+06x^2-6E+07x+9E+07$ the forecast value for the next 2021, 2022, 2023 is 2.12 trillion tenge, 2.49 trillion tenge, 2.79 trillion tenge.

The forecast values of the number of construction organizations with investments in housing construction, calculated using trend equations, and the future values of the dollar exchange rate 460 tenge, 465 tenge, 470 tenge, and the forecast for the volume of construction works was made using the regression model.

These figures will amount to 5 496930.4 million in 2021. KZT 6046022.32 million tenge in 2022, and in 2023 6685462.57 million tenge.

In conclusion, the share of the construction sector is up to 6.2%-6.5% of Kazakhstan's GDP, the construction sector provides about 700 thousand jobs.

The index of physical volume of construction works according to the results of 2018 reached 104.6%, in 2019 — 113.2%, in 2020 — 111.6%.

The annual volume of construction works for 2018—2020 is 3 863 995 million tenge from KZT 4 934 069 million tenge. The volume and number of construction works show positive dynamics, especially the volume of work on the construction of buildings dominates.

Discussions

The main task of the state is to ensure a high quality of life of Kazakhstanis and continue the state program for the development of Housing and communal services “Nurlyzher” for 2020-2025, the unified housing policy of the state, which has been implemented since 2005. Statistics show that housing construction is developing along with improving access to mortgage lending, urbanization and increasing incomes of the population. In all regions of the country, there is an increase in investment in housing construction (Fig. 5).

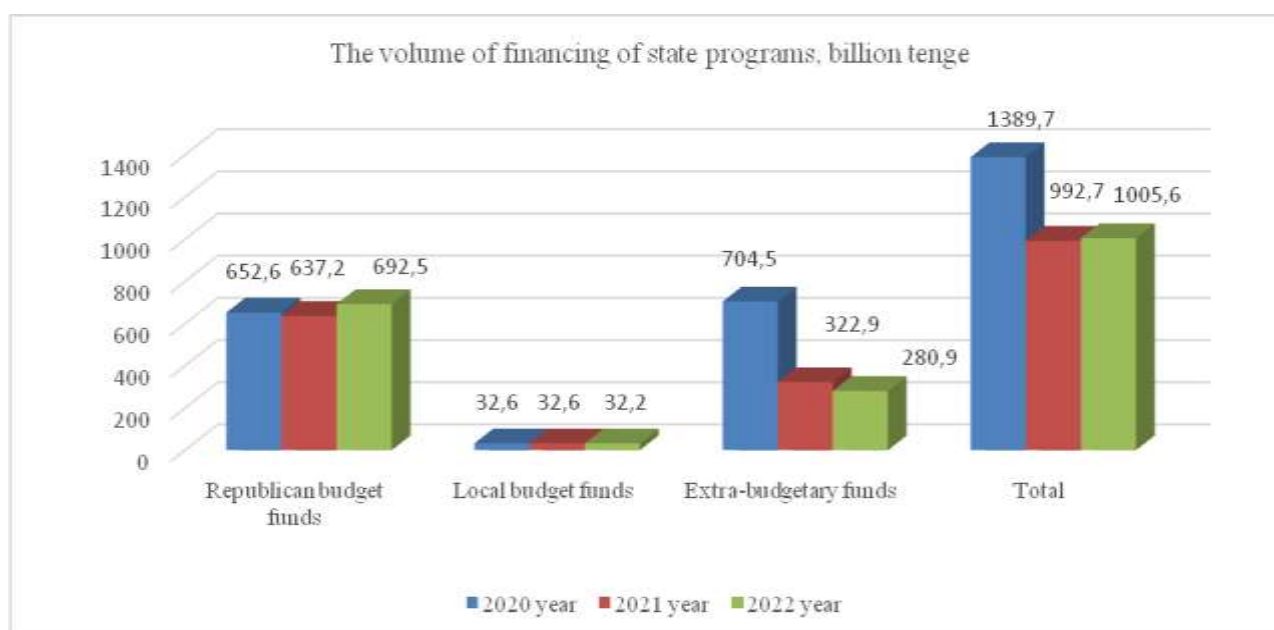


Figure 5. The amount of financing of the state program, billion tenge.

Note – the figure was compiled by the author

Currently, the demand for housing is growing in the country. Providing the population with housing is one of the main indicators of the living conditions of the population at both the global and micro levels. Given the demographic changes taking place under the influence of natural growth, this becomes one of the urgent problems, the solution of which should soon be found. It is noted that of great importance in improving the social situation and providing housing for the population is a great consideration of programs by the state.

In recent years, several problems have been identified that hinder the formation of the affordable housing market. The conducted research made it possible to identify the main reasons that hinder the availability of housing in the country. Weaknesses in housing provision:

- limited access of the population to purchase housing due to low income;
- increase in prices for secondary housing;
- monopoly overpayment of housing under construction;
- high return on investment in real estate;
- low ratio between the level of monetary income and the cost of housing;
- inefficient mortgage lending systems;
- additional offers that are missing in the housing market;

- an increase in the number of waiting lists for housing;
- lack of programs for various social groups;
- low degree of production of domestic construction products and industry;
- improvement of architectural and construction activities.
- underdevelopment of the rental market.

Despite all the problems, real estate, including residential complexes, today brings significant income. It is necessary to strengthen the law on licensing the activities of professional participants, specialists in the property market. Unified concepts and terms, objects of the real estate market, its professional participants, standards of their activities, as well as the framework of state regulation of the real estate market should be defined (Zhumanazarova & Ryspekova, 2015).

In recent years, the Covid-19 epidemic has also affected the housing policies of countries around the world. Several scientists who have studied the relationship between housing policy and the Covid-19 epidemic are Dallas Rogers, Emma Power, and Justin Kadi. The Covid-19 epidemic has caused medical, economic and political problems in countries around the world. As a result of the epidemic, the development of the construction industry also slowed down somewhat.

Conclusions

With a slight slowdown in the development of the construction industry in the country, since 2021, citizens of Kazakhstan have been given the right to improve housing conditions, pay for treatment, and use part of their pension savings for transfer to investment management by private management companies. Often obtained for the purpose of improving housing conditions. This also had a positive impact on the state of housing provision for the population. But housing prices have risen slightly in the country.

The growth of the economy of Kazakhstan, as well as the desire of a significant part of the population to improve their housing conditions, caused a wide transformation of housing construction in the Republic. Therefore, housing construction is recognized as one of the priorities of the development strategy of Kazakhstan until 2030. Taking into account the fact that providing the population with housing in the countries of the world is an important task, we hope that in the future the Republic of Kazakhstan will fully provide its population with housing.

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Ж. Мекебаева, Н. Мекебай, А. Елшибаева, Е. Қылбаев

Қазақстан Республикасының тұрғын үй құрылысының даму үрдістерін бағалау

Аңдатпа

Мақсаты: Қазақстан Республикасындағы тұрғын үй құрылысының дамуының негізгі үрдістерін анықтау және бағалау. Мақалада қазіргі экономикалық және инвестициялық жағдайларда құрылыс саласын дамыту қарастырылған. Құрылыс ұйымдары саласындағы тенденцияның өсуі, құрылыс фирмаларының бәсекелестік артықшылықтарына қол жеткізу тұжырымдамасы көрсетілді.

Әдісі: Осы саладағы нақты статистикалық мәліметтер негізінде негізгі тенденциялар анықталды, корреляциялық-регрессиялық талдау жасалынып, зерттеу нәтижелеріне қорытынды жасалды. Тренд сызығын сызу арқылы алдағы жылдарға болжам жасалынған. Болжам дәлдігі тексерілді.

Қорытынды: Анықталған үрдістер негізінде, тұрғын үйдің тұрақты дамуына әсер ететін факторлар анықталып, оларға талдау және болжам жасалынды. Қазақстан Республикасындағы тұрғын үй құрылысының дамуы математикалық-статистикалық тұрғыда негізделді және бағаланды. Анықталған факторлардың динамикасы зерттеу жүргізуді жүйелеуге мүмкіндік берді және тұрғын үй құрылысының тұрақты дамуына оң әсер беретін факторлар анықталды. Құрылыс жұмыстарының көлемі, нақты көлем индексі, құрылыс ұйымдарының саны артуда.

Тұжырымдама: Қазақстан экономикасының жалпы ішкі өніміндегі құрылыс секторының үлесіне талдау жасалды. Құрылыс жұмыстары көлемінің даму тенденциясы бағаланады. Сонымен қатар, құрылыс жұмыстарының көлеміне әсер ететін факторлар таңдалды. Қазақстан Республикасында тұрғын үйлерді пайдалануға беру көлемінің өсу үрдісі анықталды. Құрылыс саласының экономикадағы орнын және оның қоғамдық өндірістегі ролін анықтау оның жұмысының соңғы нәтижелерінің аймақтың экономикалық және әлеуметтік дамуына әсерімен айқындалды.

Кілт сөздер: құрылыс, инвестиция, бағалау, статистикалық талдау, даму үрдісі, тренд, болжам.

Ж.А. Мекебаева, Н.А. Мекебай, А.З. Елшибаева, Е. Қылбаев

Оценка процессов развития жилья в Республике Казахстан

Аннотация

Цель: Выявление и оценка основных тенденций жилищного строительства в Республике Казахстан. В статье рассмотрено развитие строительной отрасли в современных экономических и инвестиционных условиях, показаны концепция повышения тенденций в сфере строительных компаний, достижение конкурентных преимуществ строительных компаний.

Методы: На основе точных статистических данных в этой области были выявлены основные тенденции, проведен корреляционно-регрессионный анализ и обобщены результаты исследования. Прогноз на ближайшие годы был сделан путем проведения линии тренда. Точность прогноза проверена.

Результаты: На основе выявленных тенденций были выявлены, проанализированы и спрогнозированы факторы, влияющие на устойчивое развитие жилищного строительства. Развитие жилищного строительства в

Республике Казахстан математически и статистически обосновано и оценено. Динамика выявленных факторов позволила систематизировать исследование и выявить факторы, оказывающие положительное влияние на устойчивое развитие жилищного строительства. Объем строительных работ, индекс физического объема, количество строительных организаций растут.

Выводы: Проведен анализ доли строительного сектора в ВВП экономики Казахстана. Оценена тенденция развития объемов строительных работ. Кроме того, были выбраны факторы, влияющие на объем строительных работ. Выявлена тенденция увеличения объема ввода жилья в Республике Казахстан. Выявление места строительной отрасли в экономике и ее роли в общественном производстве определялось влиянием конечных результатов ее работы на экономическое и социальное развитие региона.

Ключевые слова: строительство, инвестиции, оценка, статистический анализ, тенденции развития, прогнозы.

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