Analysis of impact of the lightweight steel construction sector development on the economic efficiency in Azerbaijan (methodology)

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Abstract.
Lightweight construction system growth has increased in the last decade, and it has spread in many countries in the developed and developing countries, included the countries adjacent to Azerbaijan, whether in Russia or Turkey. However, this construction technology is still in a limited range in Azerbaijan in some agricultural sector as green houses. This article discusses in the methodology, which can be measured by the addition of this type of construction in economic efficiency in Azerbaijan. This article shows also how to examine the impact of this type of building on the GDP in Azerbaijan, through the share of the sector's share within the construction sector share of Azerbaijan. On the other hand, the article indulges methodology measuring the impact of the development of a lightweight construction of steel in residential, commercial and industrial applications on Azerbaijan's economic development.

Keywords:
lightweight steel
Azerbaijan
GDP
Economic development
Introduction:

Building technology around the world develops to meet the accelerated demand in the global construction market, whether in the developed or developing country. This growing demand requires new construction techniques that provide rapid building capacity to not enroll in engineering and technical specifications and other hand meeting modern development requirements. In this context, the Government of Azerbaijan is also heading to modern construction technologies based on clean technology and rapid construction methods. How the effect of the use of lightweight construction applications can be studied on economic efficiency from several aspects, most notably the impact of growth and development of this sector on the GDP for Azerbaijan and also through impacts on economic development in Azerbaijan on several levels, for example, the level of project, the level of companies and the level of the construction sector.

The research should provide a detailed analysis of the impacts that will provide a lightweight construction sector on the construction sector in Azerbaijan, including the prospects for the growth of the construction industry in Azerbaijan, as well as the impact of market support for GDP in Azerbaijan. By analyzing the development of the construction market with lightweight steel in Azerbaijan and the growth rate of this market by assuming its expansion in Azerbaijan, as in neighboring areas such as Turkey and Russia, the contribution of this type of construction can be analyzed in the annual construction sector share of GDP.

1-studey levels

In general, to assess the impact of the development of lightweight steel construction systems on several levels, including the level of the project, the level of construction companies, the level of economic efficiency of the construction sector and the state's economy.

The research studies other variables in construction as well, such as production time, construction time, production rate, construction cost and waste materials.

Within the scope of the impact of the growth of the lightweight steel construction sector on the level of construction projects, a comparative study with traditional
Building systems show the impact of the use of lightweight steel construction on the cost of construction projects, the speed of completion and the quality of business activities in them.

The research also deals with the current construction applications that use lightweight steel in Azerbaijan and
analyzes the supply and demand for each type of these applications. The study also reviews the production rate of lightweight steel in Azerbaijan and the rate of consumption of raw materials in construction.

The research analyzes the supply chains of the construction market with lightweight steel, from the availability or import of raw materials, the availability or import of manufacturing and production equipment, through production to implementation.

2-Growth expectation of Azerbaijan’s lightweight steel construction market

By examining the current state of the lightweight steel construction market and its growth rate and comparing it with regional and global markets, growth scenarios can be expected based on the hypotheses of government support and internal and external investment in this sector.

The study offers significantly expect the construction market in Azerbaijan by available data, by sector - commercial, industrial and residential, 2022-2030, based on historical data (2018-2021), growth rate and the work of hypotheses expand this sector to benefit from the provincial
countries Prior to that, an analysis and evaluation of the construction sector in the lightweight steel can be done in the current situation and its current applications in Azerbaijan.

**Current market of Light weight steel construction in Azerbaijan**

Lightweight steel building materials hold the potential for quick, accurate building construction and new market opportunities for Azerbaijan.

Professionals in the industry – from building and construction contractors and sub-contractors to designers, power tool manufacturers, architects and engineers – are in a challenging time of economic constraint and change for the construction, steel and building sectors locally.

Light weight steel construction is using in limit application such as greenhouses in Azerbaijan, while this method of building has been used in the United States, Europe and Australia for decades, it was only relatively recently introduced to our shores. The speed of construction, accuracy, excellent thermal properties, logistical cost advantages and design flexibility are all factors which have made LSFB the building method of choice for a growing number of construction projects.

**The current situation of the construction sector in Azerbaijan:**

According to government estimates, the country's economy is expected to expand 3.9% in 2022, in the first place in the non-oil sector, is expected to expand 4.9%. The oil sector is expected to grow only 1.8%. This includes Azn2.2 billion ($1.3 billion) to rebuild cities, villages and rehabilitation, Azn2.9 billion ($1.7 billion) to build and reconstruction of social projects and infrastructure, AZN942 million ($55 - According to the Government Statistical Commission of the Republic of Azerbaijan, the value of the construction industry has recorded 5.6% in the first quarter of 2022. In addition, the construction industry is expected to increase annual growth In addition, the Government plans to strengthen its non-oil sectors through foreign direct investment by increasing the share of non-oil direct foreign investment. The current situation of the construction sector in Azerbaijan:
3-Impact on Azerbaijan GDP

- The impact can be measured by the entry of the steel construction sector to the Azerbaijani market through the following factors:

  a-Direct returns expected from the construction of steel construction: in order to study the impact of building with lightweight steel on economic efficiency, the study of sensitivity to scenarios of development of construction with lightweight steel in several applications to clarify the volume of consumption of raw materials, production rates, motives for private investment, government support, import and export rates in construction and forecast the growth rate of GDP in light of these scenarios.

  The research sets several hypotheses for the development of lightweight steel construction. These hypotheses depend on the production rate and the type of application used, whether in residential buildings or in commercial or industrial buildings. Each hypothesis is studied and its impact on economic efficiency in the construction sector in Azerbaijan. Then, in light of that, the research presents the most effective proposals for the development of lightweight steel building systems and their most feasible applications.

  b-Government support for this sector: The government continues its plan to diversify the country's economy and reduce its dependence on oil and gas exports, which currently account for 95% of the total value of exports and therefore growth in the construction industry in the medium and long term is likely to be driven by developments in non-oil sectors.

  The Government committed invested valued at $2.9 billion in the first five months of 2022. Of these projects, $168.8 million was spent on residential house construction, while $ AZN3.5 billion ($2.1 billion) was spent directly on construction and installation work.

  In addition, the government aims to increase the use of smart systems and modern construction technology such as rapid construction systems, factory construction and prefabricated houses over the coming years. Lightweight steel construction is one of the latest systems that has proven to be effective in many countries of the world because of its unique features.
in terms of time, cost, volume of damaged materials and accuracy of manufacturing with modern technological systems. All these reasons enhance the possibility of government support for lightweight steel construction projects as they conform to the principles of government support to support smart and fast building types and achieve sustainable development requirements.

**c- Exports and imports teams:** By expectation the export and import differentials that local manufacturing of lightweight steel buildings can achieve can calculate the impact of this on the construction sector as a whole. As lightweight steel construction consumes you the least amount of raw materials, the difference to be imported from construction materials can be calculated in the event of the expansion of construction use with lightweight steel.

**d-Internal and external investment:** Azerbaijan's construction industry is projected to grow to 6.1%. The Government therefore planned to harness the use of private capital in the development of new industries through enhanced cooperation between the State and the private sector. Moreover, such systems provide engineering specifications, technical, administrative, financial, and Investments and the private sector will attract both internal and external because they achieve rapid construction and a rapidly growing global demand market.

In addition, the Government's plan seeks to strengthen its non-oil sectors by increasing foreign direct investment (foreign investment) in infrastructure and industrial sectors over the maximum to medium terms.

On the other hand, the Azerbaijani Government's strategy seeks to expand projects that meet the conditions for sustainable development and clean construction. This enhances the opportunities for government support for such systems, which conform to the green building conditions for the possibility of reconstructing construction elements and achieving minimal waste, as well as the possibility of recycling materials by more than 95%.

**Lightweight steel construction sector impact on Azerbaijani construction sector**

The impact of each of these factors can be measured in
the construction sector and the overall estimate and ratio of addition to the construction's share of gross domestic product (GDP).

According to the State Statistical Commission of the Republic of Azerbaijan, the construction sector constitutes an average share of 4.9% of domestic product (see figure 1) and the average annual growth is expected to increase by 4.3%.

construction sector share in Azerbaijan GDP

After measuring the total share of the construction sector added to it in lightweight steel construction, the new proportion represented by the construction sector in Azerbaijan's GNP can be calculated.

According to the World Bank's official data, Azerbaijan's gross domestic product (GDP) at the end of 2022 stands at US $54.62 billion, equivalent to 0.04% of the world economy, as
shown in figure 2. Thus, the effects of the development and growth of the construction sector with lightweight steel to the Azerbaijani economy can be seen.

**Conclusions:**

In conclusion, the results of the research will study the effects that support for the growth of lightweight steel construction in residential, commercial and industrial applications will add to the economic development in Azerbaijan by studying the current market in Azerbaijan and its growth rate and the reflection of the expansion of the use of this technology from construction to the construction sector, which in turn will affect the GDP of Azerbaijan in general.

In addition to studying the effects that simple steel construction will provide at the level of projects and at the level of construction companies from several financial, managerial and technical aspects.

The research will depend on several research methods, the most important of which is the descriptive analysis of the development and impact of the growth of the lightweight steel construction sector in the neighboring countries of Azerbaijan. The study of the current situation of this market in recent years and accordingly it is possible to work on hypotheses for its growth and expansion and how it will affect the economic efficiency in Azerbaijan.
On the other hand, he made a comparative study with other building systems used in Azerbaijan to analyze the advantages that it will add to economic development in Azerbaijan at the level of projects and companies in terms of returns, time and requirements of sustainable development.

References:


