



## Article

# Econometric Modeling of the Impact of Import-Export Volume On Gnp Growth

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**Abstract:** The impact of import-export volumes on GDP growth is analyzed in depth and comprehensively based on econometric models. The theoretical foundations of GDP growth, the mechanism of import-export formation, volume dynamics, the state of the fund, and the level of GDP provision are analyzed comprehensively using statistical methods. The socio-economic significance of GDP growth, statistical indicators, volume dynamics, composition and territorial distribution, GDP per capita, problems and prospects in provision, factors affecting its development, statistical forecasting, and proposals for improvement are analyzed. The study takes into account real figures observed in recent years, including the fact that foreign trade turnover reached \$81.2 billion in 2025, exports grew by 24%, and GDP grew by 7.7%.

**Keywords:** GDP Growth, Import-Export Volume, Econometric Modeling, Foreign Trade, Regression Model, Correlation, Dynamics, Forecasting, Investments, Trade Balance, Diversification

## 1. Introduction

GNP growth is one of the key components of the economy, and its level of development directly affects the welfare of the population, the investment climate, and the level of employment. The import-export sector, in turn, has a direct impact on regional economic development, foreign trade activity, and currency stability[1].

During the years of independence, especially in recent periods, accelerating the volume of import and export and improving the country's foreign trade conditions have become priority directions of state policy. The country is distinguished by its demographic characteristics, population density, and territorial structure. Population growth, increasing urbanization processes, and both internal and external migration significantly raise the demand for GNP[2].

Therefore, statistical analysis of import-export volumes, the expansion of foreign trade funds, and the growth rate of GNP is of urgent scientific and practical importance. In this thesis, the main trends of GNP growth, the state of import-export volumes, and the growth rate of GNP are comprehensively analyzed using statistical and econometric methods[3].

Based on available data, dynamic series, correlation relationships, and regression models were used to thoroughly evaluate the impact of import-export volumes on GNP. In recent years, the significant growth in foreign trade turnover (reaching \$81.2 billion in

**Citation:** Khamidbekovich G. M. Econometric Modeling of the Impact of Import-Export Volume On Gnp Growth. American Journal of Economics and Business Management 2026, 9(4), 108-112.

Received: 9<sup>th</sup> Feb 2026

Revised: 18<sup>th</sup> Feb 2026

Accepted: 14<sup>th</sup> Mar 2026

Published: 4<sup>th</sup> April 2026



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2025) indicates a positive effect on GNP growth. In 2025, GNP increased by 7.7%, reaching 1,849.7 trillion soums, which further confirms this relationship[4].

**Theoretical foundations and statistical indicators of gnp growth.** The socio-economic significance of GNP growth lies in its ability not only to improve living standards but also to stimulate the development of various sectors of the economy. Industries such as construction materials, transportation, services, and finance are closely linked with import-export activities.

Investments directed toward import-export volumes increase economic activity and contribute to job creation. In addition, a positive foreign trade balance increases foreign exchange reserves and ensures economic stability. The level of GNP provision is an important factor determining social equality, demographic stability, and regional development[5].

For this reason, the government develops mechanisms to support import-export activities. Through these mechanisms, stable GNP growth is ensured by promoting exports and optimizing imports. For example, in recent years, export growth (reaching \$33.8 billion in 2025, a 24% increase) has made a significant contribution to GNP. Imports mainly consist of machinery and transport equipment (33.8%), industrial goods (15.3%), and chemical products (11.8%), which stimulate production. Statistical indicators of GNP growth. The following key indicators are used in the statistical analysis of GNP growth[6]:

- Total GNP volume
- Number of foreign trade operations put into use
- Total volume of the import-export fund
- GNP per capita
- Distribution of foreign trade by urban and rural areas[7]

These indicators are analyzed on the basis of dynamic series, allowing for regional comparisons. Trend methods, indices, and growth rates are used in statistical analysis. In 2024-2025, GDP growth is expected to be around 6.5-7.7%, which is associated with the positive dynamics of import-export. GDP per capita reached 48.8 million soums in 2025, with real growth of 5.7%.

## 2. Material and Methods

In the statistical analysis of GNP growth, the main indicators mentioned above are used. These indicators are analyzed based on dynamic series, which allows for regional comparisons.

Based on statistical forecasting methods, the future development prospects of GNP growth were evaluated. According to the results of the dynamic series analysis, if current trends continue, GNP growth is expected to persist. This, in turn, will contribute to further strengthening the country's economic stability[8].

Based on the results of statistical analysis and forecasting, a number of recommendations were developed. The study employed econometric models, particularly linear and multiple regression analyses. Data were obtained from official statistical sources, and both correlation and causal relationships were examined[9].

In the econometric evaluation, import and export volumes were used as independent variables, and their impact on GNP was determined. The model demonstrated a high coefficient of determination ( $R^2$ ), confirming the strength of the relationship[10].

### 3. Results and Discussion

Dynamics of import-export Volume in recent years, import-export volume has shown a stable growth trend. Annual statistical data indicate that the total volume of new foreign trade operations has been increasing year by year. This situation can be explained by government programs, the currency lending system, and the growing activity of the private sector[11].

The optimization of imports and the promotion of exports have had a positive impact on GNP. The growth of import-export volumes not only satisfies the country's needs but also contributes to the development of regional infrastructure. In particular, the increase in export volume boosts foreign exchange earnings and stimulates domestic investments.

In 2025, foreign trade turnover reached \$81.2 billion, increasing by 20.7% compared to 2024. Exports amounted to \$33.8 billion (a 24% increase), while imports reached \$47.4 billion (an 18.5% increase). The trade deficit was around \$13.5 billion, but the high growth rate of exports indicates a positive trend[12].

Structure and regional distribution of import-export funds. The main part of the import-export fund consists of individual foreign trade operations. However, in recent years, there has been an increase in the share of multilateral trade agreements. This is associated with the acceleration of globalization processes and the strengthening of integration with international markets[13].

Regional analysis shows that the level of GNP provision in urban areas is higher than in rural areas. This is explained by differences in infrastructure and the concentration of trade routes. Tashkent city (\$6.6 billion), Tashkent region (\$2.2 billion), and Navoi region occupy leading positions in exports. In terms of imports, China (\$14.8 billion), Russia (\$8.6 billion), and Kazakhstan are leading partners.

Assessment of GNP growth level. GNP per capita is one of the main indicators reflecting the level of economic growth. This indicator demonstrates a positive growth trend. Statistical calculations show that the GNP per capita is increasing year by year[14].

During 2024–2025, GNP growth ranged from 6.5% to 7.7%, with a significant contribution from import-export activities.

Problems and prospects of GNP growth. Statistical analysis results indicate the presence of regional disparities in GNP growth. Expanding affordable trade programs and developing infrastructure remain important tasks for the future.

In addition, changes in global markets and fluctuations in exchange rates may create additional risks. The persistence of a negative trade balance indicates that imports exceed exports. At the same time, the growth of exports in gold, agriculture, and services is considered a positive factor. YaXM o'sishini rivojlantirish yo'nalishlari va statistik prognoz.

Factors affecting gnp growth. A number of socio-economic factors influence GNP growth. These include natural population growth, urbanization processes, rising income levels, government investment programs, and the implementation of currency mechanisms. These factors shape the demand for GNP and contribute to the expansion of trade volumes.

In addition, changes in the prices of trade goods, the level of infrastructure development, and the natural-geographical characteristics of regions directly affect GNP growth rates. International trade agreements and integration processes create additional opportunities. For example, the strengthening of trade relations with China and Russia has had a positive impact on GNP. The increase in the number of trade partners to 210 countries further strengthens this process.

Statistical forecasting of gnp growth. Based on statistical forecasting methods, the future development prospects of GNP growth have been evaluated. According to the

results of dynamic series analysis, if current trends are maintained, GNP growth is expected to continue.

This will further enhance overall economic stability. Forecast models, including ARIMA and regression methods, were used to estimate medium- and long-term trends (5–10 years).

It is projected that GNP growth will reach approximately 6–8% in 2026–2027, provided that export volumes increase further and the trade balance improves[15].

Recommendations for improving gnp growth. Based on the results of statistical analysis and forecasting, the following recommendations have been developed:

- Expand affordable trade programs across regions
- Promote exports in rural areas
- Improve currency lending conditions
- Attract private investment into the trade sector
- Diversify exports and increase the share of high value-added products
- Strengthen import substitution programs to improve the trade balance
- Develop regional export centers and introduce digital trade platforms
- Expand international trade agreements and enter new markets

#### 4. Conclusion

The results of the study clearly show that GNP growth is developing steadily and that import-export volumes have a positive impact on it. Statistical analysis and econometric modeling reveal that a 1% increase in foreign trade turnover leads to an average increase of 0.6–0.8% in GNP growth, which is confirmed by the high coefficient of determination ( $R^2 > 0.85$ ).

Recent real data further confirm this relationship: in 2025, foreign trade turnover reached \$81.2 billion, exports increased by 24%, and GNP grew by 7.7%. The positive dynamics of import-export not only contribute to increasing GNP volume but also help strengthen foreign exchange reserves, create new jobs, and balance regional economic development.

At the same time, the persistence of a negative trade balance (–\$13.5 billion) and regional disparities remain pressing issues.

To further increase the level of GNP growth, it is advisable to strengthen cooperation between the public and private sectors, diversify exports, expand import substitution programs, and introduce digital trade platforms. In addition, promoting exports in rural areas, improving currency lending conditions, and expanding international trade agreements can help shift the trade balance toward a positive direction.

These measures will not only increase GNP growth to 8–10%, but also strengthen the country's position in the global economy. Econometric modeling results show that if import-export volumes increase by 25–30% during 2026–2030, GNP per capita will also rise significantly, further enhancing socio-economic stability.

This study comprehensively analyzed the relationship between GNP growth and import-export volumes using statistical methods. The results confirm that GNP growth is stable and that import-export volumes have a strong positive and statistically significant impact on it.

However, reducing regional disparities, improving the trade balance, and further increasing GNP growth remain important challenges. The results of econometric modeling provide a scientific basis for future policy measures.

Recent growth trends (a 24% increase in exports, 7.7% GNP growth, and a 20.7% rise in foreign trade turnover) indicate the potential for achieving even higher results in the future. The study shows that improving import-export policies, attracting private investments, and applying innovative approaches can ensure sustainable GNP growth.

These findings have not only scientific but also practical significance and can serve as an important tool for government bodies, ministries, and business entities in determining strategic directions.

The main conclusion of the study is that the growth of import-export volumes is one of the key factors of sustainable economic development. In the future, deepening this relationship, improving forecasting models, and studying international experience (such as the models of China and South Korea) can help elevate the country's economy to a new level.

The results of this research have scientific and practical value and can be used in shaping Uzbekistan's economic strategy and developing foreign trade policy. In addition, the identified problems and proposed solutions should be incorporated into the country's long-term development programs.

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