ANALYSIS OF THE FACTORS INFLUENCING THE ELASTICITY OF CUSTOMS PAYMENTS

Muqimov Asrorjon Rasulovich

Independent researcher of Customs Institute of Customs Committee,

Tashkent, Uzbekistan

Email: asrorjon.mukimov.0505@gmail.com

Abstract. In the study, the elasticity of customs payments is examined as an important indicator reflecting the responsiveness of fiscal revenues to changes in economic and institutional conditions. The purpose of the paper is to identify and analyze the key factors influencing the elasticity of customs payments in the context of modern economic development and trade liberalization. The research employs a comprehensive methodological framework that includes econometric modeling, correlation–regression analysis, and comparative analysis based on time-series and cross-sectional data. Particular attention is paid to macroeconomic factors such as gross domestic product growth, import volume dynamics, exchange rate fluctuations, and inflation, as well as institutional and policy-related factors including customs tariff rates, non-tariff regulation measures, administrative efficiency of customs authorities, and the level of digitalization in customs administration. The study also considers external factors such as global trade conditions and changes in international commodity prices. The results demonstrate that the elasticity of customs payments is significantly affected not only by traditional economic variables but also by the quality of customs administration and regulatory stability. The findings contribute to a deeper understanding of the mechanisms of customs revenue formation and provide practical implications for improving customs and fiscal policy aimed at ensuring sustainable public revenue growth and enhancing the effectiveness of foreign trade regulation.

Key words: customs payments, state budget, import volume, taxable import, non-taxable import, correlation analysis, regression analysis.

1.Introduction

Every country employs various mechanisms to regulate foreign economic activity, taking into account the processes of comprehensively strengthening its economy and integrating into the global economic system, and continuously improves these mechanisms. In this process, customs duties hold particular significance among the instruments applied by the state.

Customs duties contribute to the stable development of the national economy, ensure the proper regulation of foreign trade turnover, safeguard economic security, and fulfill the state's fiscal functions.

As noted above, improving the analysis of customs duties and effectively utilizing the factors that influence them has become one of the urgent issues today.

In particular, the fact that customs duties account for 22.7 percent of state budget revenues indicates the growing importance of this area in the present day.

2.Literature Review

A number of scholars have expressed their views on the essence and nature of customs duties. According to D.A. Slepov and Ye.V. Chuykov, customs duties constitute a source calculated by customs authorities and replenishing the revenue part of the federal budget [1].

O.Yu. Bakayev defines customs duties as mandatory payments collected by customs authorities in accordance with established procedures, which are levied when goods are transported across the customs border of the Customs Union and which perform the function of tax and non-tax budget revenues [2]."

V.Yu. Zhukoves defines customs duties as the totality of all payments that an individual is required to make to customs authorities when goods are transported across the Customs Union border [3]. R. Chobanu, in his research, interprets customs duties as funds collected by the state when import, export, or transit goods cross the border [4]. N. K. Yuldashev, V. I. Nabokov, K. V. Nekrasov, and B. O. Tursunov, in their study, emphasize that the innovative and export potential of the agro-industrial complex plays a crucial role in strengthening national economic sustainability and expanding foreign trade opportunities, which indirectly affects the formation and elasticity of customs payments through export growth and diversification [10]. B. Tursunov, analyzing financial security in small business under the conditions of a digital economy, notes that digital transformation and institutional reforms significantly influence fiscal revenues, including customs payments, by improving transparency, reducing transaction costs, and increasing compliance in foreign trade operations [11].

3.Research Methodology

In the course of this study, methods such as scientific observation, tables and graphs, correlation analysis, regression analysis, statistical grouping, and comparison were employed.

4.Analysis and Results

According to the analyses, the amount of customs duties transferred to the state budget has been increasing year by year. An analysis of data over the past ten years shows that customs duties transferred to the state budget increased by 10.7 times during 2015–2024 (Figure 1).
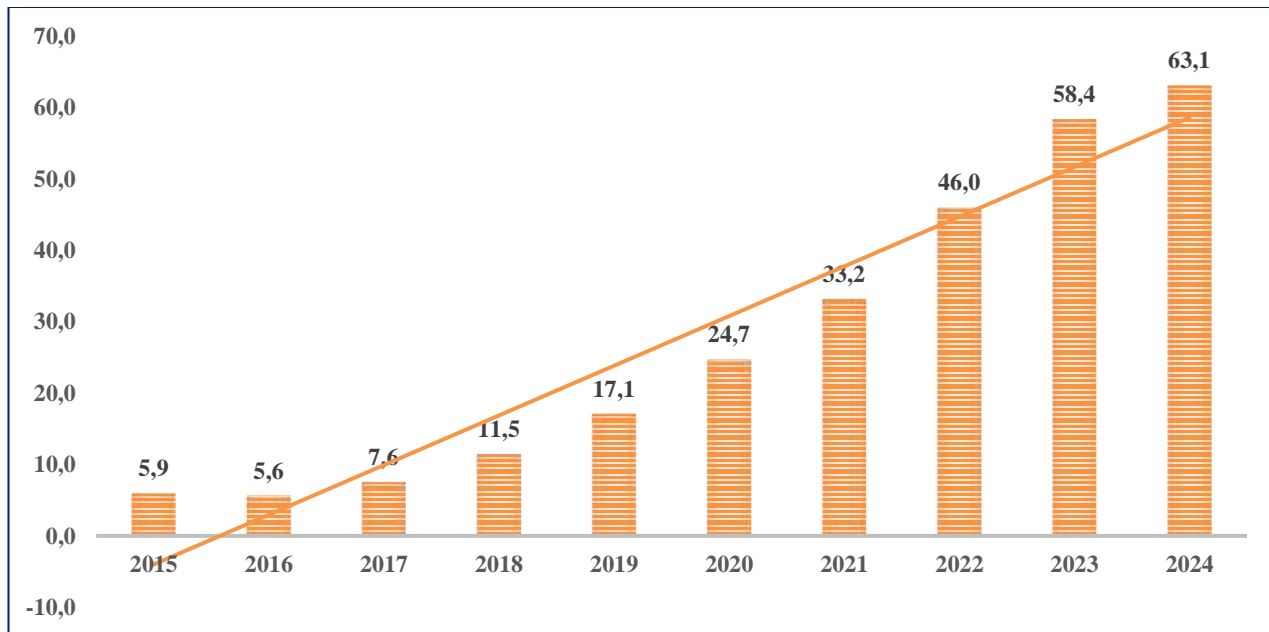

Figure 1. Amount of customs duties transferred to the state budget in 2015–2024 (trillion UZS)

Source: Prepared by the author based on data from the Customs Committee.

The growth of customs revenues has been influenced by several key factors, including the increase in the volume of imported goods, the improvement in determining the customs value of commodities, changes in customs duty rates, fluctuations in the exchange rate of freely convertible currencies, the effective use of automated information systems in the customs sector, and the continuous enhancement of the regulatory and legal framework governing customs administration [7].

Typically, the factors influencing the collectability of customs duties are conditionally classified into two groups: exogenous factors, which are not dependent on customs authorities, and endogenous factors, which are directly dependent on them. Exogenous factors exert the greatest influence on the collectability of customs payments, whereas endogenous factors represent those variables managed by customs authorities and serve to ensure the completeness of revenue collection [5].

One of the most significant determinants affecting the collectability of customs duties is the increase in the volume of imports. The structure of imports, in turn, is divided into taxable imports and non-taxable imports, and in customs practice, their relative share within total imports has a substantial impact on the amount of customs revenues collected.

Taking these aspects into consideration, the relationship between taxable import volumes and collected customs duties is examined using correlation and regression analysis methods. As an initial step, a monthly table containing data on taxable import volumes and collected customs duties for 2024 based on the records of the customs authorities of the Republic of Uzbekistan is constructed (Table 1).

Table 1

Monthly Distribution of Taxable Import Volumes and Collected Customs payments in Uzbekistan for 2024

Month	Taxable Import Volume, million USD	Collected Customs payments, billion UZS
January	2 223,7	4 129,1
February	2 464,0	4 797,5
March	2 377,7	5 130,1
April	2 390,5	5 071,4
May	2 728,5	5 354,0
June	2 366,5	4 909,9
July	2 745,5	5 015,2
August	2 683,8	5 243,4
September	2 535,4	5 310,4
October	2 856,6	5 479,0
November	2 751,5	5 574,9
December	3 299,3	7 016,6

Source: Calculated by the author based on data from the Customs Committee.

Let the factor variable be denoted as x — the volume of taxable imports in million USD, and the outcome variable as y — the amount of collected customs payments in billion UZS.

Based on these data, the correlation coefficient rrr is calculated using the following formulas:

$$r_{(x,y)} = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i - \bar{x})^2} \cdot \sqrt{\sum_{i=1}^{n}(y_i - \bar{y})^2}}$$

Based on the correlation coefficient formula presented above, we will determine the correlation coefficient for the indicators given in Table 1. For this purpose, the following Table 2 is constructed.

Table 2

Monthly Distribution of Taxable Import Volumes and Collected Customs payments in Uzbekistan for 2024 for Correlation Calculation

Month	Taxable Import Volume, million USD (x)	Collected Customs payments, billion UZS (y)	$x_i - \bar{x}$	$y_i - \bar{y}$	$(x_i - \bar{x})^2$	$(y_i - \bar{y})^2$	$(x_i - \bar{x})(y_i -$
January	2 223,7	4 129,1	- 394,9	- 1 123,5	155 906,5	1 262 250,4	443 613,6
February	2 464,0	4 797,5	- 154,6	- 455,1	23 885,7	207 151,7	70 341,8
March	2 377,7	5 130,1	- 240,9	- 122,5	58 032,8	15 018,3	29 522,1
April	2 390,5	5 071,4	- 228,1	- 181,3	52 020,5	32 854,9	41 341,6
May	2 728,5	5 354,0	1 09,9	1 01,4	12 073,6	10 284,2	11 143,0
June	2 366,5	4 909,9	- 252,1	- 342,8	63 544,3	117 490,7	86 405,3
July	2 745,5	5 015,2	1 26,9	- 237,4	16 101,1	56 372,6	-30 127,4
August	2 683,8	5 243,4	6 5,2	- 9,2	4 253,6	84,6	-600,0
Se	2	5	-	5	6	3 340,9	-4

ptember	535,4	310,4	83,2	7,8	915,6		806,7
October	2 856,6	5 479,0	2 38,0	2 26,4	56 663,0	51 252,8	53 890,1
November	2 751,5	5 574,9	1 32,9	3 22,3	17 657,1	103 845,6	42 820,7
December	3 299,3	7 016,6	6 80,7	1 764,0	463 366,1	3 111 663,7	1 200 766,2
Total($\sum$)	$\sum$=31 423,1	$\sum$=63 031,6			$\sum$=93 0 420,0	$\sum$=4 97 1 610,3	$\sum$=1 9 44310,3
Arithmetic mean	$\overline{X}$ =2 618,6	$\overline{Y}$ =5 252,6			S_x =278,5	S_y =643,7	

Source: Calculated by the author based on data from the Customs Committee.

As a result of the calculations, it was found that the correlation coefficient (rrr) equals 0.9. Furthermore, the obtained results indicate a positive correlation between the volume of taxable imports and the collected customs duties. It is important to emphasize that, according to the Cheddock scale, this correlation is considered very strong.

When examining correlation, the second objective is to determine the extent to which one variable changes in response to the change in another variable.

Now, based on regression analysis, we will determine how much the collected customs duties change depending on the variation in the volume of taxable imports. This will be done by calculating through the regression equation: y=a0+a1x

where a0 is the intercept (constant term) and a1 is the regression coefficient. The coefficient a1 preceding the x-variable in the regression equation is of great importance for economic analysis. It is called the regression coefficient and reflects the effectiveness of the factor: it indicates how much, on average, the outcome variable y increases (or decreases) when the factor variable xxx increases by one unit.

$$n\, a_0 + a_1 \sum x = \sum y$$

$$a_0 \sum x + a_1 \sum x^2 = \sum yx$$

Based on the formulas presented above, we determine the regression equation and its coefficients for the indicators given in Table 1. For this purpose, the following table (Table 3) is constructed.

The calculations revealed that the intercept a0=−219.471 and the regression coefficient a1=2.090.

Table 3

Monthly Distribution of Taxable Import Volumes and Collected Customs payments in Uzbekistan for 2024 Transformed into Regression Equation

Month	Taxable Import Volume, million USD (x)	Collected Customs payments, billion UZS (y)	x*y	x^2	$Y_x = a_0 + a_1 x$
January	2 223,7	4 129,1	9 182 111,5	4 945 019,6	4 427,5
February	2 464,0	4 797,5	11 821 207,3	6 071 493,1	4 929,7
March	2 377,7	5 130,1	12 197 739,9	5 653 409,7	4 749,2
April	2 390,5	5 071,4	12 123 160,7	5 714 538,1	4 776,0
May	2 728,5	5 354,0	14 608 337,5	7 444 548,5	5 482,2
June	2 366,5	4 909,9	11 619 232,8	5 600 369,6	4 725,9
July	2 745,5	5 015,2	13 769 131,3	7 537 660,4	5 517,8
August	2 683,8	5 243,4	14 072 369,9	7 202 836,1	5 388,9
September	2 535,4	5 310,4	13 464 223,5	6 428 405,3	5 078,8
October	2 856,6	5 479,0	15 651 532,9	8 160 335,0	5 750,1

November	2 751,5	5 574,9	15 339 115,1	7 570 587,2	5 530,3
December	3 299,3	7 016,6	23 149 934,4	10 885 380,5	6 675,1
Total(∑)	31 423,1	63 031,6	166 998 096,8	83 214 583,1	63 031,6

Source: Calculated by the author based on data from the Customs Committee.

Thus, the coefficient a1 defines the relationship between the dependent variable Y and the independent variable X. It answers the question of how much the dependent variable changes when the independent variable increases by one unit.

According to the results obtained, an increase of 1.0 million USD in taxable import volume leads to an increase of 2.090 billion UZS in collected customs duties.

5.Conclusions

The conducted analysis confirms the hypothesis that an increase in the volume of taxable imports leads to a rise in customs duty revenues.

Based on the performed analyses, the following recommendations are proposed to ensure effective utilization of factors influencing customs revenues:

increase the share of taxable imports within the overall import structure, as supported by correlation and regression analysis results;

expand foreign trade relations through accession to international organizations under economic integration frameworks;

conduct multifactor and econometric analyses of factors affecting customs duties to develop short- and long-term forecasts of customs revenue indicators.

In conclusion, continuous and systematic analysis of the factors influencing customs duties, combined with the timely implementation of appropriate measures, significantly contributes to increasing customs revenue for the state budget and enables more accurate forecasting of revenue indicators.

References:

1. Slepova D.A., Chuykova Ye.V. Tamojennыe plateji, ischislyayemыe tamojennыmi predstavitelyami kak istochnik formirovaniya doxodov federalnogo byudjeta Rossiyskoy Federatsii. Ekonomika i upravleniye: novыe vыzovы i perspektivы. 2016;(11):192–196.

2. Bakayeva O.Yu. Pravovoye regulirovaniye finansovoy deyatelnosti RF. Saratov.2005 s28.

3. Jukovec V.Yu. Tamojennoe ppavo v voppocax i otvetax.M.2005.c 98.

4. Ciobanu, R. (2015). The National Institutional System with Competence in Administering Customs Duties. Bulletin of the Transilvania University of Braşov, Series VII: Social Sciences and Law, (2), 181-188.

5. Adiljonovich, S. O. (2025). O'ZBEKISTONDA BOJXONA TO'LOVLARI TUSHUMINING SAMARADORLIGIGA TA'SIR ETUVCHI OMILLAR TAHLILI. Scientific Journal of Actuarial Finance and Accounting, 5(03), 249-256.

6. Пардаев, Т., Сарманов, О., & Камалов, С. (2022). ГЛОБАЛЛАШУВ ШАРОИТИДА МИЛЛИЙ БОЖ ТАРИФИ ТИЗИМИНИ ХАЛҚАРО ТАЛАБЛАРГА УНИФИКАЦИЯЛАШ. Economics and Innovative Technologies, 10(6), 425-433.

7. Nosirovich, T. P., Rixsibayevich, A. S., & Adiljonovich, S. O. (2021). Prospects for increasing the effectiveness of the application of privileges and preferences from customs duties. ACADEMICIA: An International Multidisciplinary Research Journal, 11(7), 69-76.

8. Customs Code of the Republic of Uzbekistan.

9. Турсунов, Б. О. (2017). Управление производственными запасами в текстильных предприятиях. Научная мысль, 1(3), 117-125.

10. Yuldashev, N. K., Nabokov, V. I., Nekrasov, K. V., & Tursunov, B. O. (2021). Innovative and export potential of the agro-industrial complex of Uzbekistan. In E3S Web of Conferences (Vol. 282, p. 06004). EDP Sciences.

11. Tursunov, B. (2022, December). Financial security in small business in period of digital economy: In case of Uzbekistan. In Proceedings of the 6th International Conference on Future Networks & Distributed Systems (pp. 491-498).