

The correlation between taxes on import and other macroeconomic indicators

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Annotatsiya

This article analyzes the factors affecting import duties and duties from 2011 to 2023 in Uzbekistan according to the World Bank. The factors are the import tax (% of tax revenues), corruption index, inflation rate, unemployment, import of goods, import of financial services, import of transport services and tourism services, and others. The author used the methods of econometric analysis.

Kalit so'zlar | import tax, corruption index, inflation, unemployment, import of financial services.

INTRODUCTION

The experience of the countries of the world shows that the implementation of foreign trade operations in the country's economy is the main link of ensuring economic development.

When carrying out foreign trade operations, tax relations become important. Because almost all countries have tax incentives for export, as well as incentives for certain goods and services for import. It is necessary to monitor their rational and fair use. Therefore, in this article, we will analyze the taxes and duties paid on imports, which are considered part of foreign trade.

RESULTS AND ANALYSIS

In this article, we will look at which factors affect the taxes and duties paid on imported goods and services. In Table 1, we analyzed the data for 2011-2023. It contains the following variables: the share of import taxes and duties in tax revenue, the share of import of financial services in import of services, the share of import of transport service and travel service in import of total services, VAT, corruption index, unemployment, inflation rate, the quality of trade and transport-related infrastructure and the efficiency of the customs clearance process.

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Import tax	10	4.867	.693	3.653	5.907
Import of	11	3.017	1.192	.96	4.53

Financia~s					
Transport services	11	48.067	3.801	41.837	54.482
Travel services	11	41.143	7.192	25.295	51.554
VAT	11	18.182	2.523	15	20
Corruption index	9	155.222	8.786	140	168
Unemployment	11	5.635	.81	4.9	7.161
Inflation rate	11	12.24	2.818	8.131	17.524
Quality of trade	4	2.319	.244	2.011	2.57
Efficiency of CCP	4	2.117	.23	1.8	2.319

The table above shows how many years of data were collected for each variable, what was the average, standard deviation, the minimum and maximum value of each indicator during this period. For example, if we take the indicator of the share of taxes and duties paid on imports in tax revenue, 10 years-time data were analyzed, the average was equal to 4.867, the standard deviation was 0.693, the minimum and maximum values, can be seen to be 3.653 and 5.907 respectively.

Figure 1 below shows that there is an inverse relationship between taxes and duties paid on imports (share of tax revenue), which we have taken as a dependent variable, and inflation, which is an independent variable. That is, as inflation increased, import payments decreased.

By substituting any other independent variable for inflation, we can find the relationship between import taxes and others.

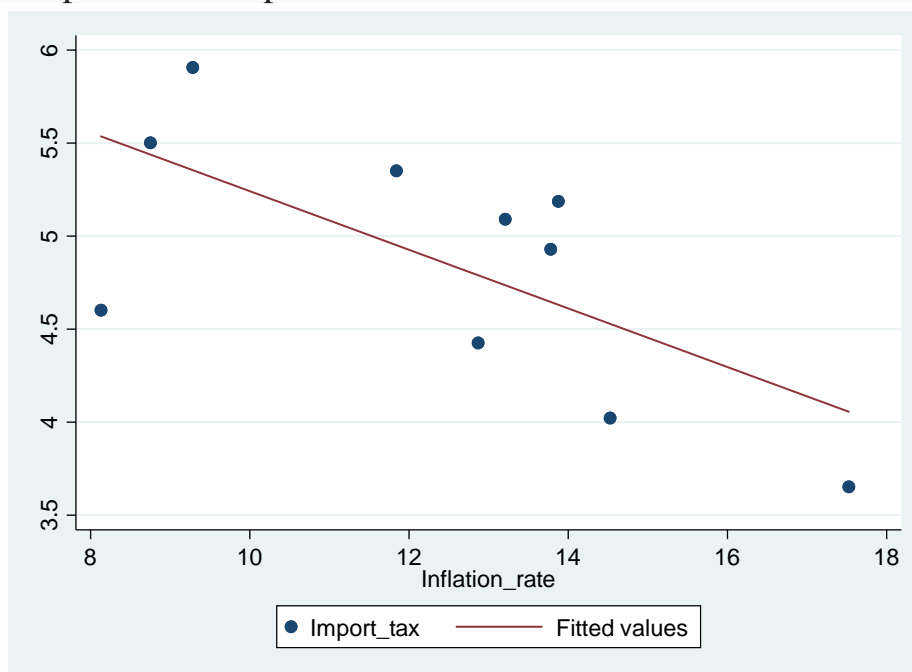


Figure 1. Fitted values of import tax and inflation rate

Table 2 shows how each variable is related to another variable. For example, while the unemployment rate represents 10%, 1% and 21.5 % of our dependent variable, the share of imported financial services in service imports, and VAT accordingly. Based on this, we can analyze other variables.

Table 2. Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) lnImport_tax	1.000					
(2) lnImport_ofFin~e	-0.369 (0.293)	1.000				
(3) VAT	-0.345 (0.329)	-0.217 (0.521)	1.000			
(4) Unemployment	-0.539 (0.108)	0.726 (0.011)	-0.406 (0.215)	1.000		
(5) Inflation_rate	-0.675 (0.032)	-0.029 (0.933)	0.290 (0.388)	0.178 (0.600)	1.000	
(6) Corruption_index	0.468 (0.242)	-0.708 (0.033)	0.024 (0.951)	-0.871 (0.002)	-0.021 (0.957)	1.000

Table 3. Spearman's rank correlation coefficients

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) lnImport_tax	1.000					
(2) lnImport_ofFin~e	-0.595	1.000				
(3) VAT	-0.394	0.169	1.000			
(4) Unemployment	-0.778	0.778	0.283	1.000		
(5) Inflation_rate	-0.690	0.429	0.169	0.611	1.000	
(6) Corruption_index	0.347	-0.455	-0.283	-0.741	0.012	1.000
Spearman rho = 0.012						

Table 3 shows the Spearman correlation coefficient and it is equal to 0.012, and because it is less than 0.05, it shows that our hypothesis that the variables are not related to each other is incorrect.

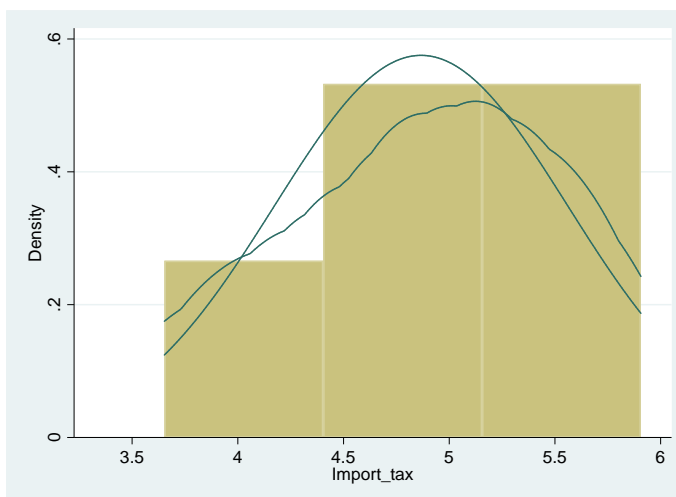


Figure 2. The density of import tax and duties

Figure 2 shows how much tax and duties paid on imports make up the tax revenue, and we can see that the indicators are close to each other. Therefore, when we draw the graph, we can know that it is not much different from the ideal graph and that the scores are evenly distributed.

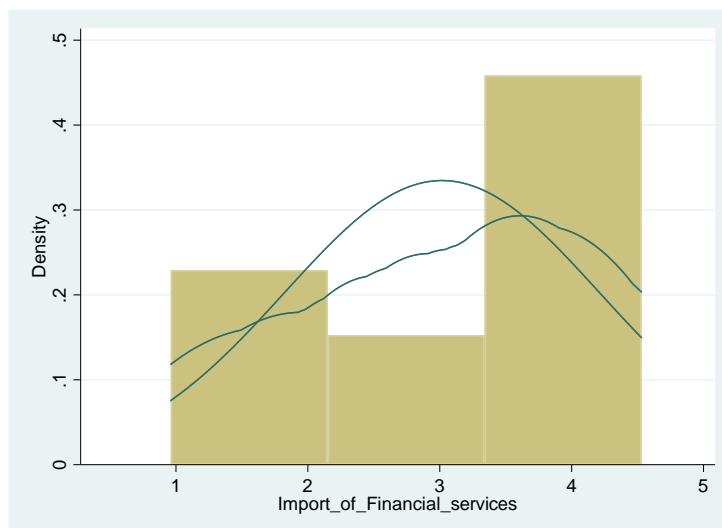


Figure 3. The density of Import of Financial services

It can be seen from this picture that indicators are not scattered in the statistics of financial services, and its ideal graph is very close to the actual graph.

Table 4 below shows the results of the Shapiro-Wilk test. According to this test, if its value is higher than 0.05, the data is normally distributed. If it is below 0.05, the data is considered significantly away from the normal distribution. It can be seen from the table that all indicators except unemployment are normally distributed.

Table 4. Shapiro-Wilk W test

Variable	Obs	W	V	z	Prob>z
Import_tax	10	0.977	0.350	-1.634	0.949
Import_of_~s	11	0.938	1.002	0.003	0.499
Transport_~	11	0.980	0.326	-1.818	0.966

Travel_ser~s	11	0.938	1.005	0.009	0.496
VAT	11	0.947	0.862	-0.260	0.603
Unemploy	11	0.819	2.937	2.131	0.017
Inflation_~e	11	0.959	0.661	-0.712	0.762
Quality_of~e	4	0.971	0.331	-1.034	0.849
Efficiency~P	4	0.914	0.987	-0.016	0.506
Corruption~x	9	0.965	0.511	-1.040	0.851

Endogenous variables

Observed: lnImport_tax

Exogenous variables

Observed: VAT Corruption_index Unemployment Inflation_rate

lnImport_ofFinancial_services

Fitting target model:

Iteration 0: log likelihood = -41.077528

Iteration 1: log likelihood = -41.077528

Structural equation model Number of obs = 8

Estimation method = ml

Log likelihood = -41.077528

Table 5. Regression (SEM-OIM model)

	Coef.	Std.Err.	z	P>z	[95%Co nf. Interval]
Structural lnImport_tax					
VAT	0.099	0.070	1.420	0.157	-0.038 0.237
Corruption_ index	0.066	0.037	1.780	0.075	-0.007 0.138
Unemploy ment	0.903	0.561	1.610	0.108	-0.197 2.002
Inflation_ rate	-0.108	0.048	-2.260	0.024	-0.201 -0.014
lnImport_of Financial_ services	-0.584	0.381	-1.530	0.125	-1.331 0.162

_cons	-	9.228	-1.480	0.138	-	
	13.695				31.782	4.393
var(e.lnImport_t ax)	0.006		0.003	0.002		0.015

LR test of model vs. saturated: $\chi^2(0) = 0.00, \text{Prob} > \chi^2$

Table 5 provides information on the regression equation of our study. According to it, the corruption index, inflation, and unemployment are statistically significant in our model, because their p value is less than 0.1. In this case, in the t-test, our hypothesis H0 is that all of our independent variables together do not affect the dependent variable. This hypothesis was rejected precisely for the corruption indicator, unemployment and inflation, as p values were less than 0.1. So, the variables listed above affect our dependent variable. And the regression equation is

$$\text{Reg (Import tax)} = -13.7 + 0.07 * \text{Corruption index} - 0.11 * \text{Inflation rate} + 0.9 * \text{Unemployment}$$

This means if the corruption index rises by 1 unit, import tax will decrease 13.63 percent. Like this, one unit increase in inflation cause to drop by 14.87 percent in the dependent variable. Besides, if the unemployment rises by one unit, import tax will fall to 12.8 percent.

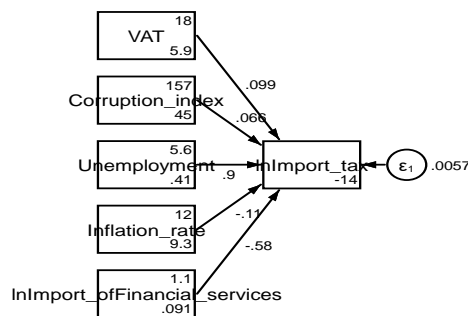


Figure 9. The relationship among variables in SEM-model

Equation-level goodness
of fit
Variance

fitted	predicted	residual	R-squared	mc	mc2
0.024	0.018	0.006	0.765	0.874	0.765
0.765					

mc = correlation between depvar and its prediction
mc2 = mc^2 is the Bentler-Raykov squared multiple correlation coefficient

Table 6. The value of R

In this table R square is calculated. The meaning of this indicator shows how much of the total independent variables in the model represents the dependent variable.

In our study, it is 76.5%, which is a very good result.

DISCUSSION

Several of foreign and local scientists have expressed their opinions and comments about foreign trade, especially about the role of import and export in the economy. In particular, Adam Smith, in his theory of absolute advantage, focused on the production and export of the most optimal goods for countries with free trade [1].

In addition, Adam Smith in his book "An Inquiry into the Nature and Causes of the Prosperity of Nations" (1776) shows that countries should strive for the free development of international trade, because both the exporting country and the importing country can gain from foreign trade [2].

Prokushev E.F. expressed the following opinion: "foreign economic activity is a process of implementation, foreign economic relations and international, economic, trade, political relations, commodity exchange, includes various forms of economic assistance, scientific and technical cooperation, specialization, production, service and joint entrepreneurship [3].

But at the same time, recognizing the contributions of the above-mentioned scientists to this field, it should be said that the factors influencing the taxes paid on imports have not been studied.

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