

# The Export Performance of the Regions of Uzbekistan and its Main Determinants

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## Abstract

This paper investigates causal relationships between export performance and foreign investments, innovations, region's competitiveness and openness in Uzbekistan. The aim is to show the main determinants of the export performance of regions in Uzbekistan providing sustainable economic growth. This investigation is conducted in two stages. First, we provide descriptive statistics for foreign trade in Uzbekistan and its regions. Second, we test the relationship between export performance and foreign investments, innovations, region's competitiveness and openness in Uzbekistan. We use OLS methods to test the significances of the relationships including other variables which may affect economic performance and export volumes of the regions. We use the data on regions from "The State Committee of the Republic of Uzbekistan on Statistics". In the conclusion part, we give policy implications to increase export performance of the regions.

## 1 Introduction

Export volumes' growth is one of the important economic growth drivers and main factors affecting the structural changes in developing countries (Chow, 1990). Therefore, much research has been done on crucial factors which determine the export performance of a country and a region.

Many researchers have paid attention to exchange rate policy, export incentives and relative price of export [Arslan et al, 1993], (Choudhury, 2001) at macro level. According to classical economic theory, other things being equal, exchange rate of domestic currency is the main determinant of net export's quantity in a country. Russian economists (Perunov, 2015), (Gaponenko, 2013) find that the structure of export is also important indicator to evaluate export performance of a region. Moreover, some researchers (Sapir et al, 2016) make the point that production, marketing, financial and labor force factors are very crucial for firms. However, the researchers present their findings at micro level, namely for firms only and they don't provide any evidence on the export performance of regions. International Trade Center's export potential methodology assumes that a country's capacity to supply existing products is captured through projected market shares, its capacity to diversify into new products relies on Hausmann and Hidalgo's concept of the product space [Hausmann et al, 2007] that establishes links between products through an assessment of how frequently they are found together in the export baskets of countries.

Past research on export performance and its evaluation has advanced and included many aspects of export performance, potential and export performance assessment methodology. In this paper, main determinants of export performance in the regions of Uzbekistan are analyzed with cross-sectional data. In previous researches on Uzbekistan's export performance, a particular model involving empirical results has never been presented yet. As a consequence, we don't have a concrete picture about what factors determine the export performance of the regions in Uzbekistan.

Against this background, the main goal of this research is to answer the research question: "What are the main drivers for the export performance of the regions in Uzbekistan?" More specifically, this research has two objectives:

- (1) To analyze export performance of Uzbekistan with descriptive statistics
- (2) To develop a model for export performance of the regions in Uzbekistan

The findings of this research are expected to give policy implications to increase the region's export potential in Uzbekistan by providing empirical model of export performance in the regions.

The rest of the article is structured as follows: First, the descriptions of the research methods and procedures used in the study. This is followed by the discussion of the results of our enquiry. Finally, policy implications, limitations and directions for future research are presented.

## 2 Methodology and Results

### 2.1 Data

The data has been taken from the official website and reports of The State Committee of the Republic of Uzbekistan. All available data in this paper describe macroeconomic variables during the period 2000-2016 in the regions of Uzbekistan.

### 2.2 Descriptive Statistics

In 2016, the republic's foreign trade turnover reached to USD 24309.4 million, compared to the previous year - 97.5 percent, including USD 8461.5 million (88.6 percent) with the CIS countries, USD 15847.9 million (103.1

percent) with other countries. The volume of exports was USD 12178.7 million, that of imports - USD 12130.7 million.

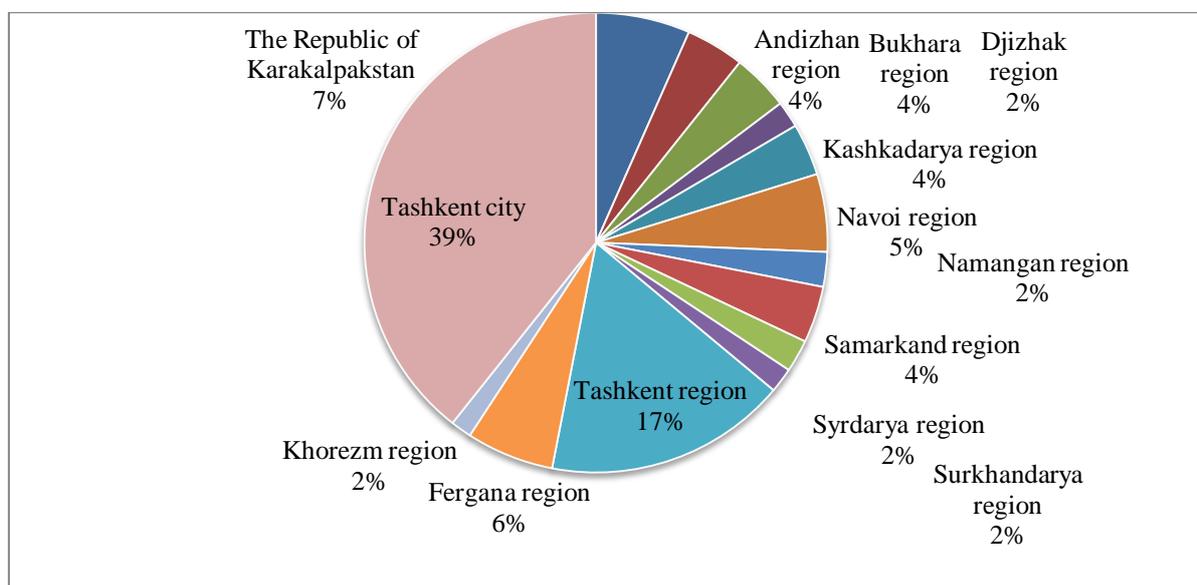
In comparison with 2000, the foreign trade turnover in 2016 increased by 3.9 times. The share in foreign trade of the CIS countries was 34.8 percent, other countries - 65.2 percent.

If the volume of exports in 2000 was USD 3264.7 million, then in 2016 it reached USD 12178.7 million, and the growth rate rose 3.7 times. In 2016 the share of the CIS countries in total exports was 36.3 percent, other countries - 63.7 percent.

In 2000, the volume of imports was USD 2947.4 million, in 2016 it increased to USD 12130.7 million, and the growth rate rose 4.1 times. In 2016, the share of the CIS countries in total imports was 33.4 percent, other countries - 66.6 percent. In 2000, the positive balance of exports and imports was USD 317.3 million, in 2016 it amounted to USD 48 million (Table 1).

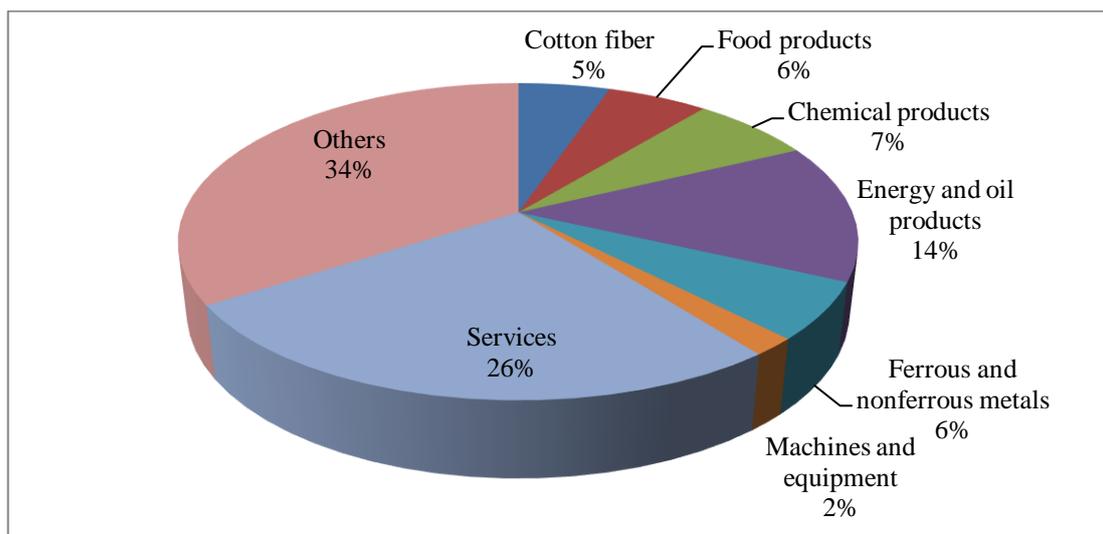
	2000	2016	2016 to 2000, in times
<b>Foreign trade turnover</b>	<b>6212,1</b>	<b>24309,4</b>	<b>3,9 t.</b>
CIS countries	2297,8	8461,5	3,7t.
other countries	3914,3	15847,9	4,0 t.
<b>Export</b>	<b>3264,7</b>	<b>12178,7</b>	<b>3,7 t.</b>
CIS countries	1172,2	4415,3	3,8 t.
other countries	2092,5	7763,4	3,7 t.
<b>Import</b>	<b>2947,4</b>	<b>12130,7</b>	<b>4,1 t.</b>
CIS countries	1125,6	4046,2	3,6 p.
other countries	1821,8	8084,5	4,4 t.
<b>Balance</b>	<b>317,3</b>	<b>48,0</b>	<b>x</b>
CIS countries	46,6	369,1	x
other countries	270,7	-321,1	x

**Table 1.** Foreign Trade Turnover of Uzbekistan in 2000-2016 (USD mln.) *Source:* The data are taken from the official website of "The State Committee of the Republic of Uzbekistan on Statistics"



**Figure 1.** The Share of Regions in total export of Uzbekistan in 2016 (in percentages). *Source:* The data are taken from the official website of "The State Committee of the Republic of Uzbekistan on Statistics"

It can be seen from Figure 1 that Tashkent city's share in total export was just under 40 %, and together with Tashkent region they constitute about 55 % of all export volume in the country. The Republic of Karakalpakstan, Fergana and Navoi regions' share in total export was 7 %, 6% and 5 % respectively. Andizhan, Bukhara, Kashkadarya and Samarkand regions' shares in total export were approximately equal, each one being 4 %. Other regions' shares were quite insignificant.



**Figure 2.** The Structure of Export of Uzbekistan in 2016 (in percentages) *Source:* The data are taken from the official website of “The State Committee of the Republic of Uzbekistan on Statistics”

Noticeable fact about Figure 2 is that main exporter sectors of Uzbekistan are service and energy production. Cotton fiber products, metal products, food products and chemical products had approximately equal share in export (ranging from 5% to 7%). Machines and equipment export's share was very small compared to other sectors (2%).

### 2.3 OLS model to estimate main determinants of export performance in Uzbekistan

There are many models to explain export performance of a country or region. According to specific features of countries and regions, researchers present various models. In this paper we present ordinary least squares model using cross-sectional data on 14 regions of Uzbekistan. The following model is found appropriate to the export performance of Uzbekistan.

$$\text{Logexpperc}_i(x) = f(\text{LogPAFI}_i, \text{Innov}_i, \text{Comp}_i, \text{Logop}_i) \quad (1)$$

Where

$\text{Logexpperc}_i$  – Natural logarithm of export per capita in  $i$ th region (Export per capita in USD.).

$\text{LogPAFDI}_i$  – Natural logarithm of average foreign investments per capita in  $i$ th region in 2012-2016 (Average foreign investments per capita in million soum.).

$\text{Innov}_i$  - **Number of organizations implementing innovations in  $i$ th region.**

$\text{Comp}_i$  - **International competitiveness index of  $i$ th region.**

$\text{Logop}_i$  – Natural logarithm of openness index of  $i$ th region.

In order to decrease variability of variables, some of them are included to the model in natural logarithm form, namely in elastic form. It is widely believed that FDI is one of the most important economic drivers of economic activity. Particularly, exporter firms benefit from FI to expand their production. So, natural logarithm of average foreign investments per capita in 2012-2016 is taken as an explanatory variable in this research. Technological development is also main factor of production. Thus, number of organizations implementing innovations is taken as a regressor. **International competitiveness index and openness index** are the indices which are used to evaluate the region's products' competitiveness compared to foreign trade partners and openness level of the region.

In order to estimate the relationship OLS method is used. The model can be expressed as a linear regression model as follows:

$$\text{Logexpperc}_i = a_0 + a_1 \text{LogPAFI}_i + a_2 \text{Innov}_i + a_3 \text{Comp}_i + a_4 \text{Logop}_i + \varepsilon_i \quad (2)$$

Where  $\varepsilon_i$  is random error term. It can be seen that from Table 2 that all regression coefficients are statistically significant at 10 % significance level. If we change significance level to 5 %,  $\text{LogPAFI}$  will be insignificant. According to the literatures related to the research, it is well proved that FI is important factor for exporter firms. However, in our case at 5 % significance level, natural logarithm of average foreign investments per capita is insignificant. This case may be due to the fact that the sample size is not quite large (14 regions). In further research, we try to estimate this regression with panel data. This can be remedy for the problem. But we think that 10 % is also desirable significance level in this case.

Source	SS	df	MS	Number of obs = 14		
Model	12.3820526	4	3.09551315	F( 4, 9) =	33.81	
Residual	.824049527	9	.091561059	Prob > F =	0.0000	
				R-squared =	0.9376	
				Adj R-squared =	0.9099	
Total	13.2061021	13	1.01585401	Root MSE =	.30259	

logexpp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
logPAFI	.1475152	.0824846	1.79	0.107	-.039078	.3341084
logop	.8728545	.2224064	3.92	0.003	.3697362	1.375973
Innov	.0064817	.0022101	2.93	0.017	.0014821	.0114814
Comp	-1.139135	.380002	-3.00	0.015	-1.998759	-.2795111
_cons	6.441785	.7395712	8.71	0.000	4.768758	8.114811

**Table 2.** OLS regression Results of the Model for Export Performance and its Determinants in Uzbekistan.

Note: The results are calculated with STATA 13.

### 3 Conclusion

Uzbekistan has been one of the fast growing countries in Asia. Export of the country is one of the main sources of the economic growth. In the regions of Uzbekistan there are large differences in export volumes. Tashkent city and Tashkent region constituted almost half of the total export. The other 12 regions' share was just under 50 %. Uzbekistan's main trade partners are CIS countries, because of historical commonalities and political and geographical relations with CIS countries.

There many factors affecting export volumes in the regions of Uzbekistan. Among them, FI, innovation, competitiveness of the products of the regions and openness of the regions are found to be main sources of export performance. According to these empirical results, we present policy implications in four directions in order to increase a region's export performance:

- (1) Attracting FI flows to the region
- (2) Supporting innovative activities and research and development projects of the local firms
- (3) Supporting the local firms' measures to increase their product's quality in order to improve the competitiveness of the products
- (4) Providing easiness of the processes in export for the local firms to improve the openness of the region.

### Appendix 1

The Regions of Uzbekistan	Export volume of regions in 2016, billion soums	Import volume of regions in 2016, billion soums	Export per capita in 2016, thousand soums	Openness index for regions	Competitiveness index	Per capita average foreign investments, mln soums	Number of enterprises and organizations producing innovative goods, works and services
The Republic of Karakalpakstan	1271,67	592,75	330,94	0,29	0,36	845,07	24
Andizhan	790,64	2485,11	853,84	0,29	-0,52	32,59	31
Bukhara	771,92	1343,87	740,34	0,19	-0,27	981,63	55
Djizhak	360,11	218,09	170,90	0,12	0,25	42,68	41
Kashkadarya	710,12	1087,16	359,32	0,12	-0,21	364,45	5
Navoi	1057,15	1023,88	1103,43	0,20	0,02	253,99	96
Namangan	473,02	959,10	368,40	0,16	-0,34	117,94	37
Samarkand	770,14	2131,84	594,84	0,21	-0,47	24,43	61
Surkhandarya	440,33	363,97	150,93	0,09	0,09	70,99	84
Syrdarya	338,72	404,97	512,24	0,18	-0,09	104,46	51
Tashkent	3277,53	4906,34	1755,97	0,40	-0,20	169,10	97
Fergana	1185,51	2765,30	788,89	0,28	-0,40	59,68	80
Khorezm	284,05	359,52	205,80	0,09	-0,12	44,27	17
City of Tashkent	7614,29	16462,53	6878,88	0,76	-0,37	429,06	214

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