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THE DETERMINANTS OF INTERNATIONAL TOURISM (IN THE EXAMPLE OF CIS COUNTRIES)

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Abstract. In recent years the development of international tourism became a priority in many countries including former Soviet republics. In this regard, authorities need to know how international tourism demand is constructed and what factors affect the tourists' spending. We estimated the impact of various factors on international tourism receipts in some former Soviet countries. As a result of our empirical analysis, we found out that government efficiency, capital investments, trade, and GDP per capita mattered significantly.

Keywords: capital investment, international tourism receipt, fixed effect model, trade, CIS, determinant.

Introduction.

International tourism has grown at an unprecedented pace thanks to globalization. In 2018 export earnings from tourism grew to 1.7 trillion USD. As well as growth in international tourist arrivals and receipts outpaced economic growth in both emerging and advanced economies(World economic forum, 2019). Up to the end of 2019, the tourism industry performed stable growth worldwide. Due to the outbreak of coronavirus, the industry is supposed to contract by at least 20% in 2020(World Tourism Organization, 2020).

In the face of coronavirus pandemic, the international travel and tourism industry came across unprecedented difficulties. In spite of this, many countries are expected to recover from the crisis by 2021 (World Tourism Organization, 2020).However, the process of recovery may last longer if appropriate macroeconomic policy measures are not taken in time. Therefore, it is vital to investigate the determinants of international tourism receipts, to be aware of the hidden characteristics of underlying factors.

Being one of the strongest factors, capital investment on travel and tourism is an important part of tourism development. Investments are crucial in the construction of main tourism infrastructure: hotels, café, restaurants, tourist transportation network, and many others.The sphere of tourism is considered attractive by many financial organizations. As the executive vice president of the private sector branch of the World Bank Group MotomichiIkawasaid-" While tourism accounts for less than 1 percent, or $269 million, of our cumulative guarantees portfolio, we believe this sector offers our developing member countries tremendous growth potential(Multilateral Investment Guarantee Agency, 2009)".

To estimate the impact of various factors on the tourism receipts, it is crucial to aggregate relevant statistical information. We picked up former Soviet countries, such as the Russian Federation, Ukraine, Belarus, Armenia, Azerbaijan, Moldova, Kazakhstan, Kyrgyz Republic, Uzbekistan, and Tajikistan. Historically, in thesecountries the government playeda central role in the economy. The development of tourism sphere is also highly dependent on government's approach and budget funds. Therefore, the government's efficiency can be a good proxy variable of its impact on the prosperity of international tourism. The efficient management of responsible governing bodies can boost up tourism revenue by adjusting

supply to highly fluctuating tourism demand. Hence, we included the variable of government efficiency estimate to our model.

In recent years, CIS(Commonwealth of Independent States)countries and Ukraine have shown significant progress in international tourism. For example, from December 1999 to January 2020 the average annual growth in international tourism receipts accounted for on average 21% (Table 1). However, the coronavirus's negative impact is already being felt in some countries.For example, the number of international tourists coming to Uzbekistan went down by 15% in February 2020 relative to December 2019 (State Committee for the development of tourism of Uzbekistan,2020).

Country	Period	The average annual growth rate in international tourism receipt
Russian Federation	2000-2018	11%
Ukraine	2000-2018	14%
Uzbekistan	2000-2018	25%
Kazakhstan	2000-2018	12%
Kyrgyz Republic	2000-2018	26%
Tajikistan	2000-2018	49%
Belarus	2000-2018	11%
Moldova	2000-2018	14%
Armenia	2000-2018	21%
Azerbaijan	2000-2018	27%
Average	**2000-2018**	**21%**

Table 1. Average annual growth of international tourism receipts.Source: data.worldbank.org

According to table 1, the highest growth rate belongs to Tajikistan. The high growth rate of CIS countries may be attributed to deep integration. However, further empirical research should be carried out to verify this assumption.

Literature review. The study carried out by Zhou et al (2017) confirms the positive and significant influence of investments on tourism revenue. Also, according to Solow's growth model in the short run, investments increase the rate of growth of national income(Solow, 1956), but in the long run, its impact is negligible. Regarding trade's possible impact on tourism, K.Keum (2008) implemented panel data analysis with the gravity model in the example of South Korea. Furthermore, Linneman(1988), Deardof(1984), and Chow (1999) investigated whether international trade follows Linder's hypothesis, which also can be applied to explain international tourism flows. Ivanov S. and Webster C. (2006) showed that economic growth in the representation of GDP per capita significantly is influenced by tourism development in Cyprus, Greece and Spain.

Among economists from CIS countries,Ten S. analyzed the impact of investments on the development of the tourism sphere in Russia (Ten S., 2013).Onegina V., Megits N.,Antonschenkova V., andBoblovskyi O. (2020) also researched capital investments, and their impact on the Ukrainian agricultural sector using comparative and regression

analysis.Musinova R. (2020) suggested that creativitysignificantly affects behavioral patterns of tourists' spending.Ayubov I., (2020) and Djalalova S., (2020) investigated the trends in the flow of capital investments in small tourism enterprises.Janzakov B. (2020) proposed that if the special environment for tourism innovations is created, stable market demand for touristic services can be reached and stable competitiveness is ensured.

However, all the above-mentioned research did not focus on international tourism receipts directly. Moreover, the article comprises former Soviet countries that have great perspectives for future tourism development. We aim to learn about the factors that determine international tourism spending.

Hypothesis

Our goal is to verify the following hypothesis:

H_0- International tourism receipts are significantly relatedto the government's efficiency, corruption control, unemployment rate, trade, and GDP per capita.

H_1- International tourism receipts do not dependent upon the government's efficiency, corruption control, unemployment rate, trade, and GDP per capita.

Data and methodology

We used fixed-effect model to estimate the impact of explanatory variables on the dependent variable. Fixed-effect model estimators' are always unbiased and consistent (Gujarati D., Porter D., 2009, p.606). Besides in our data, we don't have time-invariant variables, which could cause trouble in estimation. So, for the above-mentioned reasons, we selected a fixed effect for data analysis.

Dependent variable

The international tourism receipts in current US dollars are used as a dependent variable. International tourism receipts/spending is expenditure by international inbound visitors, including payments to national carriers for international transport. These receipts include any other prepayment made for goods or services received in the destination country.(World Bank, 2019)The panel data used in the research include the World bank data for 10 CIS (Commonwealth of independent states) countries excluding Turkmenistan, which did not present data for the dependent variable at all.

Independent variables

We decided to select the following variables: capital investments on travel and tourism, unemployment rate, government effectiveness estimate, control of corruption estimate, the share of trade in GDP, and GDP per capita. Below descriptive statistics for all variables are presented (Table 2).

VARIABLES	Description	mean	Standard deviation	min	max
linttrec	Log international tourism receipts	20.00	1.83	14.99	23.72
cpinvtt	Log capital investment in travel and tourism	-1.72	1.73	-4.60	2.09
Unemployment	Total unemployment rate in %	8.44	3.39	3.41	19.00
Trade	Trade(% of GDP)	90.91	30.71	29.74	175.35
Govest	Government effectiveness(normalized)	-0.62	0.32	-1.23	0.07
wgicorrcont	Control of corruption estimate	-0.93	0.25	-1.41	-0.19
GDPpercapita	GDP per capita	3437.72	3483.70	138.43	16007.09

Table 2.Descriptive statistics. Source: Developed by author using data.worldbank.org

To verify whether there is a strong correlation among variables, we illustrated the correlation matrix in table 3. It is clear that,in general,the correlation among variables is not high, so we can assume that there is no serious multicollinearity problem (Gujarati D., Porter D., 2009).

	GDPpercapita	*CapitalinvestmentinTraveland*	*Unemployment*	*Govest*	*Trade*	*wgicorrcont*	*cpinvtt*	*linttrec*
GDPpercapita	1							
CapitalinvestmentinTraveland	0,71	1						
Unemployment	-0,38	-0,24	1					
Govest	0,47	0,34	0,005	1				
Trade	-0,36	-0,43	0,1	-0,4	1			
wgicorrcont	0,22	-0,03	0,07	0,47	0,18	1		
cpinvtt	0,75	0,78	-0,31	0,32	-0,34	0,04	1	
linttrec	0,71	0,63	-0,32	0,57	-0,36	0,24	0,84	1

Table 3. Correlation matrix.Developed by author data.worldbank.org

Finally, we decided to estimate the following econometric model:

$$Y_i = \propto + \beta CINV_i + \gamma Govest_i + \vartheta Trade_i + \omega GDP_{per\ cap} + \varepsilon$$

whereY_i is the log of international tourism receipt to country i, $CINV_i$represents log of capital investments,$Govest_i$ is government effectiveness index,$Trade_i$– share of trade in GDP, $GDPcap_i$ –GDP per capita,$\propto -$ intercept, $\beta, \gamma, \vartheta, \omega -$ corresponding coefficients, and εrepresents error term. We used EVIEWS 10, MS EXCEL, and STATA 15 to get our estimations.

Results

To obtain the results we tried fixed-effect model, because each country has statistically distinct features for the development of international tourism, and some variables are correlated with each other(Table 3). Below we present the results of the fixed-effect model (Table 4).

DependentVariable: LINTTREC
Method: PanelLeastSquares
Sample: 2000 2018
Periodsincluded: 19
Cross-sectionsincluded: 10
Totalpanel (unbalanced) observations: 185

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23.30663	0.431622	53.99782	0.0000
CPINVTT	1.186516	0.078127	15.18703	0.0000
GOVEST	0.907684	0.241952	3.751503	0.0002
TRADE	-0.008160	0.002355	-3.465156	0.0007
UNEMPLOYMENT	-0.005981	0.021010	-0.284675	0.7762
CONTROLOFCORRUPTIONES	0.012298	0.341582	0.036004	0.9713
GDPPERCAPITA	5.90E-05	2.05E-05	2.885487	0.0044
	EffectsSpecification			
Cross-section fixed (dummy variables)				
R-squared	0.924445	Meandependentvar		20.11605
Adjusted R-squared	0.917739	S.D. dependentvar		1.720585
S.E. ofregression	0.493484	Akaikeinfocriterion		1.507862
Sumsquaredresid	41.15592	Schwarzcriterion		1.786379
Loglikelihood	-123.4772	Hannan-Quinncriter.		1.620738
F-statistic	137.8525	Durbin-Watsonstat		0.606318
Prob(F-statistic)	0.000000			

Table 4 . Fixed effect model.Developed by author using data.worldbank.org.

According to table 4, capital investments, government efficiency estimate, and trade have a significant impact on international tourism receipts. However, the unemployment rate and corruption control don't appear to be statistically significant in a 95% confidence level, as we can see from the high *p*-value.

Also, in order to observe whether explanatory variables are correlated with the error term, we illustrated the distribution of residual, actual, and fitted data in Figure 1. As we can see the residual plot does not appear to be synchronized with actual data. That means the error term is not strongly correlated with explanatory variables, hence the parameter estimates are not biased and inconsistent (Gujarati D., Porter D., 2009, p. 612).

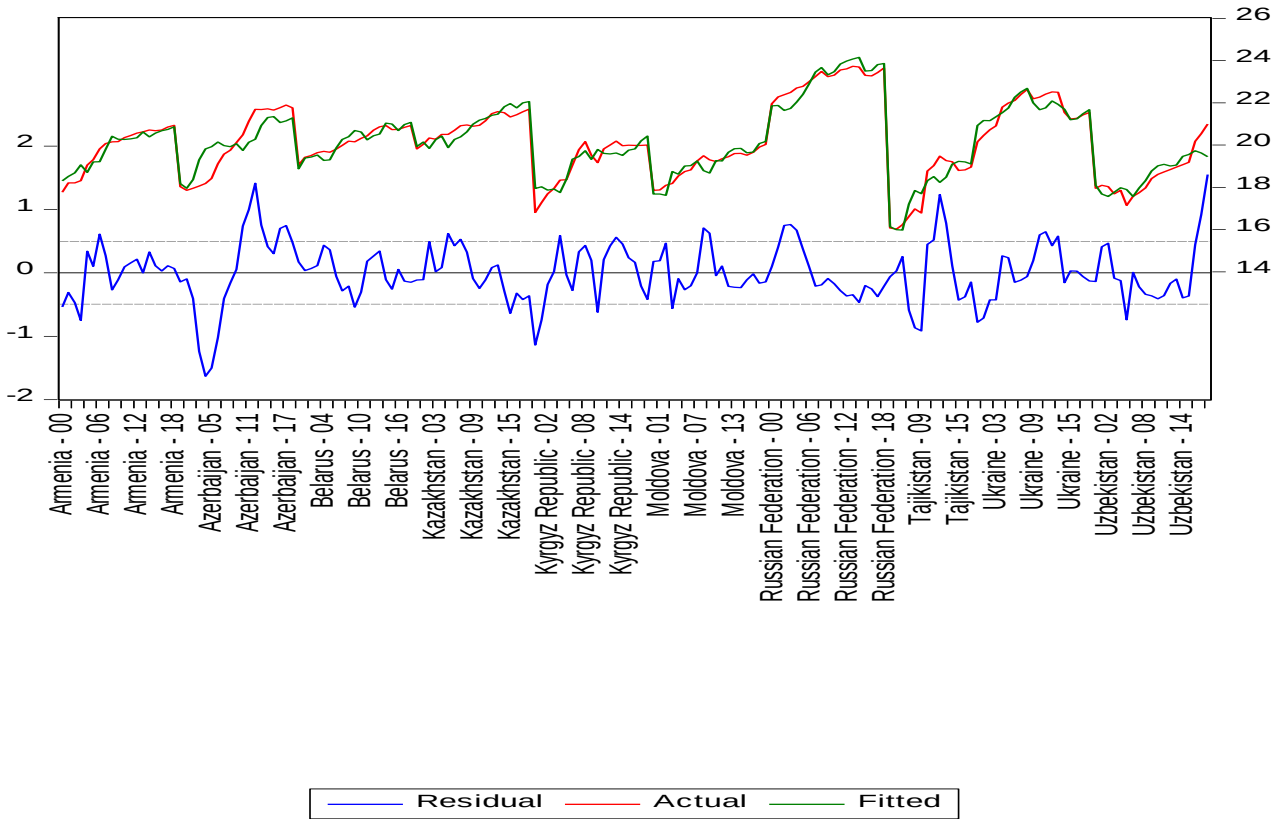

Figure 1. Residual, actual,and fitted data distribution.Developed by author using data.worldbank.org.

The interpretation of the results of the fixed-effect model is as follows:

Holding other factors other factor fixed, one percentage point increase in capital investments leads toa 1.18% point increment in international tourism receipts.(Wooldridge, p.75) This is natural because capital investments usually directed to develop infrastructure, which is one of the fundamental factors that attract international tourists. One standard deviation rise in the government estimate index is accompanied by a 90% point growth in the dependent variable. This one more time confirms the huge role governments play in the economy of CIS countries. Interestingly, trade's impact on international tourism spending seems to be negative. Namely, if the share of trade in GDP goes up by 1% point, the dependent variable decreases by 0.8% point. Actually, trade is expected to boost up international tourism. This may be due to measurement error or specification error.Therefore, further empirical research should be carried out to verify how trade impacts the international tourism receipts in CIS countries in the longer period. As expected GDP per capita income significantly affects the dependent variable. One thousand dollar increase in GDP per capita leads to a 6% point increment in international tourism receipts.The adjusted R square is equal to 0.91, which means the model explains a 91% change in the dependent variable. However, the Durbin Watson statistic is lower than 1 indicating the presence of positive serial correlation. This result may be due to the lack of some explanatory variables (Gujarati D., Porter D., 2009, p.436).

We also decided to inspect the dynamics of international tourism receipts of all chosen countries, which is given below.

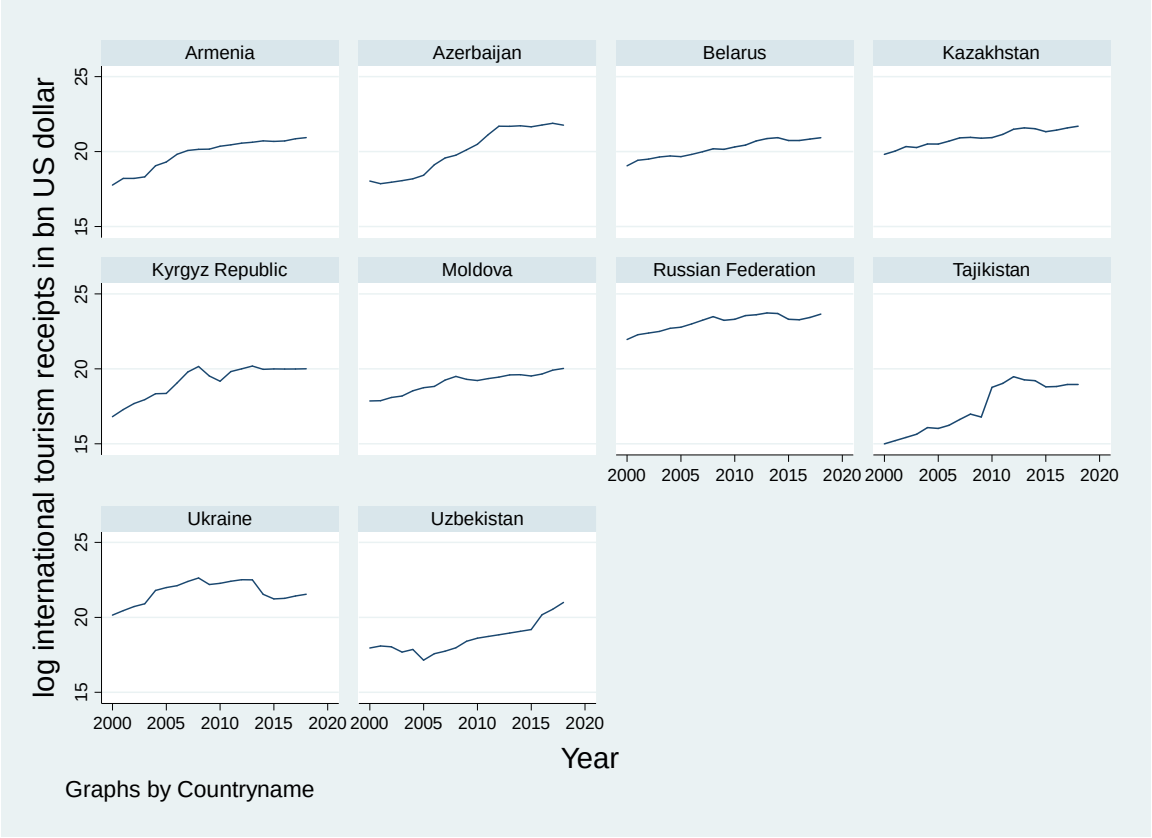

Figure 2. Dynamics of International tourism receipts in CIS countries. Developed by authordata.worldbank.org

According to Figure2in countries such as Tajikistan, Kyrgyz Republic, Uzbekistan, Armenia, Azerbaijan, and Moldova international tourism receipts performed steeper rise. In Russia, Belarus, and Kazakhstan the trend line went up at a slower pace. In Ukraine, itsignificantly went down after 2014 then recovered and continued to rise. The sudden decline in 2014 was probably because of political events leading to war.However, further research should be carried out to justify this assumption.

Conclusion.

In brief, the results of the empirical analysis show that international tourism receipts aredependent on government efficiency, capital investments, GDP, and trade in CIS countries. Interestingly, corruption control did not have a significant impact on the dependent variable, in spite of this our hypothesis cannot be rejected, because government efficiency appears to bea strong determinant in the growth of the dependent variable. This can be explained by the high share of the state enterprises in the economies of CIS countries. Another fact that comes out from empirical analysis is the negative impact of trade on the international tourism receipts. Further empirical analysis should be implemented to verify whether trade actually affects negatively or it is due to measurement or specification error. All in all, in order to boost upinternational tourism receipts governments of CIS countries, should pay attention to improve their work efficiency by the digitalization of all their bodies, attract more capital investments into the sphere, and stimulate the supply side competition in the labor market, thereby increase wages of their people triggering a rise in GDP per capita.

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