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## Do state visits affect research and development after crisis in selected countries?

**Abstract.** State visits, as a diplomatic tool, are significant to facilitate economic relations via creation of favourable political and legislative conditions. The purpose of this paper is to investigate how state visits of Ukrainian Presidents affect export flows. We have analysed 74 Ukrainian trading partners in the period of 1995-2014. To control for economic, geographical, cultural and political variables, we applied a multiple regression analysis based on the gravity model of trade. Our result shows that any kind of official visits is positively associated with export flows. The output of the conducted regression analysis varies depending on methods which are used.

**Keywords:** State Visits; Export; Regression Analysis; Ukraine

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**Вплив державних візитів на експортні потоки: випадок українських Президентів**

**Анотація.** Державні візити є важливим дипломатичним інструментом для розвитку економічних відносин через створення сприятливих політичних і законодавчих умов. Метою даної роботи є дослідження впливу державних візитів президентів України на збільшення обсягів експорту. Ми проаналізували 74 українських торгових партнерів за період 1995–2014 рр. Для дослідження економічних, географічних, культурних і політичних змінних ми застосували множинний регресійний аналіз на базі гравітаційної моделі. Отриманий результат показує, що будь-яка форма зарубіжного візиту має позитивний вплив на експортні потоки. Результат регресійного аналізу варіюється залежно від методів, які використовуються.

**Ключові слова:** державні візити; експорт; регресійний аналіз; Україна.

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**Влияние государственных визитов на экспортные потоки: случай украинских Президентов**

**Аннотация.** Государственные визиты являются важным дипломатическим инструментом, содействующим развитию экономических отношений путем создания благоприятных условий в политической и законодательной сферах. Целью работы является исследование влияния государственных визитов Президентов Украины на экспорт. Мы проанализировали 74 украинских торговых партнера в период 1995–2014 гг. Для исследования экономических, географических, культурных и политических переменных мы применили множественный регрессионный анализ на базе гравитационной модели. Полученный результат показывает, что любой вид зарубежного визита имеет положительное влияние на экспортные потоки. Результат регрессионного анализа варьируется в зависимости от методов, которые используются.

**Ключевые слова:** государственные визиты; экспорт; регрессионный анализ; Украина.

**1. Introduction.** National leaders, like Heads of State and Government, perform a lot of foreign trips in order to represent their countries, establish friendly relations and develop good political and economic ties. Foreign visits of Ukrainian high representatives are not an exception. For example, Ukrainian heads of state have made about 270 visits during the last twenty years. Second Ukrainian President L. Kuchma, for instance, paid approximately 128 visits during his 2 presidential terms. In 2015, Ukrainian President P. Poroshenko made 32 foreign visits, including 24 working visits, 6 official visits and 2 state visits (one to Poland and one 7 days trip to Singapore and Australia). According to actual data, in 2016 Poroshenko has made 12 foreign visits, including two working visits to Belgium, one working and one official visit to Turkey, official visits to Azerbaijan, Bulgaria, Romania, Japan, etc. [1].

In 2015, the value of Ukrainian export flows exceeded 38.1 billion USD (195% increase of the volume of export in 1995). Import of goods and services was about 37.5 billion USD in the same period. The most significant export partners in 2015 were the Russian Federation (12.7% of total exports), Turkey (7.3%), China (6.3%), Egypt (5.5%) and Italy (5.2%). In comparison, the main export partners have not changed significantly since 1995.

The most valuable import partners were the Russian Federation (20% of total imports), Germany (10.6%), China (10.1%), Belarus (6.5%), and Poland (6.2%). In recent years, the structure of exports commodities of Ukraine has remained almost unchanged. The main export commodities were ferrous metals, crops, fats and oils, electrical machinery, mechanical machinery etc [2].

According to empirical literature, state visits of the country's leaders present quite a significant diplomatic tool to maintain and develop bilateral and international relations between particular countries. If talking about purpose of state visits, we can mention various reasons why Heads of State and Government travel abroad. A particular visit may be concentrated on political, cultural, humanitarian issues as well as economic relations. Presidents of both countries, for example, may meet to sign a bilateral trade or investment agreement in order to boost mutual trade and support national economic growth. Economic purposes of state visits may vary, including negotiations on important infrastructure projects and trade disputes [3]. In this context, it is necessary to mention a phenomenon of presidential diplomacy which can be defined as an active personal engagement of the president which exceeds his ex officio obligations [4]. It is clear that the purpose

of a state visit is not just establishment of friendship between the two countries. It is also a political act to deepen mutual trust and strategic cooperation in various fields like politics or economics.

**2. Brief Literature Review.** The link between diplomatic relations and international trade is not a new issue nowadays. A lot of experts and researchers, especially from the west, have made several studies on this problem. Considering diplomatic representation and its influence on international trade, we can distinguish two main vectors which have consolidated within scientific literature already. The first cohort of researchers is concentrated on the issue of diplomatic and non-diplomatic representations abroad, such as foreign diplomatic offices, general consulates, honorary consulates. Particular attention is given to non-diplomatic representations, for instance, trade and investment promotion agencies, foreign offices of chambers of commerce, regional trade representations, etc. For example, Lederman et al. (2006) had made a study on relationship between export promotion agencies and trade flows [5]. The researcher made a conclusion that targeted export promotion units have a positive impact on trade flows. Rose (2007) presented a prominent work on the issue of diplomatic representation and international trade [6]. He made an analysis based on 22 exporting countries and 200 importing countries during a two-year period. Rose had confirmed a positive 6-10% impact of embassies and consulates on trade flows by means of the application of the extended gravity model [6].

Also, there is a certain amount of scientific studies focused on the so-called high-level diplomacy. Here we need to mention high-level diplomatic issues like presidential diplomacy and state visits, which can stimulate not only political and cultural relations but also facilitate international trade. Taking into consideration the results obtained by Rose, Nitsch (2007) made a conclusion that not only diplomatic representation has an impact on international trade [3; 6]. According to Nitsch, presidential visits may serve as a very important diplomatic tool to stimulate trade because they create favourable political and legislative conditions for further development of economic relations [3]. Nitsch's gravity model based on the research shows that each official (state, official or working) visit of a US, German and French high representative fosters export by 8-10% depending on econometric tool that is used [3]. Another politically oriented study regarding state visits and presidential diplomacy was conducted by Ekmekci and Yildirim (2013) [7]. Using a linear regression model Ekmekci and Yildirim had investigated the political vector of Turkish foreign relations within an analysis of Turkish Prime Minister's official visits abroad [7]. Yeo and Lee (2009) conducted a single-country research on the rela-

tion of Ukrainian leaders facilitate Ukrainian export flows. To verify the stated hypothesis, we have collected the data on export flows of Ukraine and statistics on other control variables. Export statistics were obtained from the statistical database of the United Nations Conference on Trade and Development (UNCTAD) [11]. Export flows to individual countries are in thousands of dollars. The object of the research is 74 export destinations within a twenty-year period (1995-2014). Considering the collected data, we have re-arranged cross-sectional and times series data, thus it is further arranged as panel data. State visits were defined as a binary dummy variable. We consider 1, if there was at least one official visit to Ukrainian export partner and 0 if otherwise. All high-level visits, including state, official and working visits, were obtained from broad spectrum of official web-pages of Ukrainian executive bodies such as The Ministry of Foreign Affairs and the official website of Ukrainian President [12; 1]. Data on GDP and population were collected from UNCTAD statistics database [11]. Information on the area of the countries, geographical distances and other dummy variables (common colony, common language, border, island and landlocked character of the export destination) were obtained from the CEPII database [13]. Binary data on participation of the Ukrainian trade partner in common regional trade agreement with Ukraine were obtained from the official webpage of the World Trade Organisation (WTO) [14].

To verify the stated hypothesis, we have used a linear multiple regression analysis based on the gravity model of trade. The regression analysis was performed via Gretl 1.9. All computing was carried out according to instructions available online (Adkins, 2013) [15]. The gravity model was used numerous times in scientific literature and it is a robust empirical tool to meet the objectives of this paper. The basic gravity equation is as follows:

$$T_{ij} = \beta_1 Y_i + \beta_2 Y_j + \beta_3 D_{ij}, \quad (1)$$

where  $T$  is trade,  $Y$  is GDP of home and partner country,  $D$  is the geographical distance between the home country and the partner country.  $i$  represents the home country and  $j$  is the trade partner.  $\beta_1$ ,  $\beta_2$  and  $\beta_3$  represent coefficients of interest. In some literature, it is possible to find a gravity model that includes the population factor (van Bergeijk, 1994) but in our case the above-mentioned gravity equation is sufficient as it is used in majority of renowned literature on international economics [16-17].

**5. Results.** To carry out the regression analysis, we have used an extended gravity model of trade. Our econometric specification is illustrated by the following equation:

$$E_{ujt} = \alpha + \beta_1 D_{uj} + \beta_2 GDP_{ut} + \beta_3 GDP_{jt} + \beta_4 N_{ut} + \beta_5 N_{jt} + \beta_6 Area_{uj} * Area_{jt} + \beta_7 X_{ujt} + \gamma * VisitUA_{jt} + \delta_t + e_{ujt}, \quad (2)$$

tionship between state visits and exports [8]. They had investigated the annual trade flows of 54 countries and South Korean presidential visits during the 27-year period. Conclusion shows that foreign visits of South Korean leaders have a positive impact on Korean trade. The last but not least relevant research is dedicated to the effect of globalisation trends and diplomatic action on the Brazil's trade. Using particular econometric tools, Vieira (2014) shows how diplomatic actions, including official trips of the Head of State, can influence the direction of Brazilian trade flows [9].

The abovementioned studies on presidential diplomacy and international trade have a common result that denotes the positive impact of foreign trips of country leaders on international trade, especially exports. The core characteristic here is also the implementation of the extended gravity model, which enables to control for different economic, geographical, cultural and diplomatic factors including dummy variables for state visits.

**3. The purpose** of the paper is to verify the impact of presidential diplomacy defined by state visits of heads of state on exports. This paper is focused on state visits of Ukrainian presidents. We analyse 74 Ukrainian export destinations where at least one visit of Ukrainian leader took place. To control for 13 variables, we apply the gravity model of trade which is famous for its strong theoretical background and good empirical fit (Anderson & van Wincoop, 2003) [10].

**4. Data and Methodology.** As it has been mentioned above, the purpose of this paper is to test the hypothesis that state visits

where  $E$  denotes Ukrainian exports,  $D$  is the geographical distance,  $GDP$  is economic output,  $N$  represents the size of population in persons,  $Area * Area$  is common geographic area of Ukraine and its trading partner.  $X$  represents a set of dummy variables, including common language, common colony, island or landlocked character of home and foreign country, common border and participation in regional trade agreements as well.  $VisitUA$  denotes state, official and working visits of Ukrainian leaders to each of the 74 trading partners.  $u$  stands for Ukraine and  $j$  is Ukrainian trading partner.  $\delta$  denotes a set of fixed effects and  $e$  is an error term. Coefficients  $\beta$  and  $\gamma$  are the parameters of interest.

The output of the multiple regression analysis is reported in Table 1. Each column of the table illustrates two different regression methods, including ordinary least squares method and fixed effects model. If the first method is general, the fixed effects model is using between groups methodology which is more suitable for panel (longitudinal) kind of data [18]. To choose the model which is better fitted, we have performed a panel model diagnostics. According to Lukacikova and Lukacik (2008), an appropriate way to test for model choosing is the Hausman test [19]. The output of panel data diagnostics and Hausman test is reported in Table 2. Particular tests show that P-value is less than 0.05. A low P-value counts against the null hypothesis that the pooled OLS model is adequate. We reject the null hypothesis and accept an alternative hypothesis that fixed effects model is suitable.

Tab. 1: Regression analysis output

Num. of obs.	OLS			Fixed effects		
	Coeff.	St. error	P-value	Coeff.	St. error	P-value
	1448			1448		
const	109.307	17.013	***	3162.50	2544.15	
Log D	-0.971	0.049	***	-0.853	0.176	***
Log GDPu	0.404	0.093	***	-18.7197	13.322	
Log GDPj	0.161	0.026	***	-0.015	0.101	
Log Nu	-9.200	1.522	***	-279.292	227.017	
Log Nj	0.970	0.030	***	0.802	0.114	***
Log AreauAreaj	-0.194	0.023	***	-0.19	0.078	**
Common colony	0.923	0.133	***	0.069	0.565	
Common language	0.386	0.147	***	0.339	0.515	
Landlocked	0.467	0.087	***	0.590	0.301	*
Island	-0.131	0.103		-0.026	0.360	
Border	0.346	0.124	***	-0.166	0.446	
RTA	-0.546	0.129	***	-0.959	0.642	
VisitUA	0.198	0.082	**	3.393	1.049	***
R <sup>2</sup>	0.644			0.766		

Note: Dependent variable Log Export. \*, \*\* and \*\*\* denotes statistical significance on 10%, 5% and 1% confidence level respectively. All models are robust, significance F < 0.05. Source: Output of Gretl 1.9 statistical software

Tab. 2: Panel data diagnostics

Residual variance: 639.338/(1448 - 80) = 0.467352
Joint significance of differing group means: F(73,1368) = 30.1326 with p-value 1.16702e-232
Hausman test statistic: H = 43.5272 with p-value = prob(chi-square(6) > 43.5272) = 9.17247e-08

Source: Output of Gretl 1.9 statistical software

In the first column of Table 1, the regression output reports standard OLS regression method for an extended gravity specification. The second column reports a regression analysis output based on the fixed effects (between model) method. Both models are robust due to low significance F (Significance F < 0.05). In case of the pooled OLS estimates, the coefficients of basic gravity model correspond to theoretical assumptions. Export tends to rise ( $\beta$  coefficient = 0.161) with higher GDP of the trading partner and diminish ( $\beta$  coefficient = -0.971) with a bigger geographical distance. The population, the common colony, the common language, the common border and the landlocked character of the country facilitate exports. Factors like area, island and regional trade agreements have a negative impact on Ukrainian exports to its trading partners. The common colony and the common language are very significant factors for Ukraine due to its post-Soviet history and close ties with the Commonwealth of Independent States (CIS). Visits of state leaders are variable of interest. In this paper we verify the hypothesis that official visits of Ukrainian heads of state facilitate export. The regression analysis has confirmed this hypothesis. The last parameter ( $\beta$  coefficient = 0.198) shows that state, official or working visits stimulate export flows from the home country to its trading partners. The statistical error is low and the P-value indicates strong statistical significance at 5% level. On the whole, the model is robust and explains the 64% of variation in export activity.

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