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Influence of individual characteristics of president on the GDP growth

During the presidential elections in Ukraine 2010 voters have given preference to ideological and external characteristics of presidential nominees, but not to their abilities to manage. We propose to use new methodology for the estimation of presidential nominees from economic point for organization of pre-election campaigns and for better orientation of the electorate.

Keywords: GDP (Gross Domestic Production), individual characteristics of president, primary economic elements.

Introduction

Presidential elections in Ukraine, which were held in January of 2010, have caused many disputes among the statesmen, economists, politicians and scientists. Voters want to be sure that their choice is correct. Huge political advertising did not give possibility to become consolidated in adequacyof their proper choice. It is very difficult to distinguish difference among pre-election PR-claims of nominees as to their real ability to manage the country. Therefore it is necessary to model organizational-economical activity of presidential nominees basing on investigations of experience of presidential activity in the other countries with analogical political system.

Motivation

Inability of Ukrainian politicians and economists to protect country from world financial and economical crisis effectively damaged considerably economy of Ukraine. Because of the presidential elections the opinions of citizens about ability of new president to take out country from the economical decline were divided into two groups. Citizens that belong to the first group think that strong president will be able to stop discord among the deputies in the parliament and to make the well-defined decisions that will improve well-being of the people. Citizens that belong to the second group are dissuaded from the opinion that any Ukrainian politician can change something to better. As to our opinion, the person, who has received the real state power, undoubtedly can change the set order of the things; however the direction and the degree of such changes will depend upon the proper characteristics of this person. In our article we have decided to investigate the relationship between "parameters" of the president and economic growth of the country.

Primary economic elements

The role and functions of presidents essentially differ in each country. As you know republics are divided into three groups: presidential, parliamentary and mixed. Ina presidential republic a president is the real head of state and he concentrates huge power in his own hands, and sometimes he does not differ from dictator. In parliamentary republic the power belongs to a prime-minister and a parliament, the presence of president in such republic is not necessary; however some parliamentary republics have presidents, who execute ceremonial inessential functions. In the mixed republics power is divided between a prime-minister and a president; however the president can influence on politic of the country substantially. In our research we have included only presidents with real authorities, who actually had possibility to influence on GDP growth, therefore we'll speak about presidents of presidential and mixed republics. Database which we have used in our research maintains values of GDP for period 1960–2006. We have decided to include in analysis countries which are commensurable with Ukraine by population or total area. So we have taken such countries as Algeria, Argentina, Byelorussia, Bolivia, Bulgaria, Cameroon, Chile, Colombia, France, Gabon, Guinea, Democratic Republic of Congo, South Korea, Madagascar, Mauritania, Mozambique, Paraguay, Philippines, Russian Federation, Senegal, South Africa, Sudan, Tanzania, Uganda, Ukraine, Uruguay, Kyrgyz Republic, Moldova, Romania, Uzbekistan. Since we investigate the influence of president on economic growth, the independent variable has next form: temp of GDP growth during governing of president – ratio of GDP value of the penultimate year of the presidency to GDP value of the year of inauguration. We did not account GDP value of the last year of presidency because this year is bound with changing of president and it is impossible to determine exactly the contribution of former ruler in GDP in this year. GDP value of the year of inauguration is the "inheritance" which president receives from his predecessor. Thus comparing GDP value of penultimate year of presidency with GDP value of the year of inauguration we calculate the contribution of concrete ruler in GDP growth.

The most available information about the president is his age. So we have decided to investigate how the age of president influences on the GDP growth. A younger man is more energetic, more active, and more efficient than an older man. This is conditioned by features of human organism. But from other side an older person has more life experience. We have assumed that U-shape relationship existing between the age of president and GDP growth: at the first stage with increasing of age of leader, GDP growth will decrease, this stage is conditioned by process of human aging, but than after some critical value with increasing of the age of president, the GDP growth will also

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increase, this stage is conditioned by accumulated life experience and wisdom and also by relative deceleration of aging.

The next variable that was included in our analysis is military service of president. Clear hierarchy and clear system of administration existing in military structures, system of military administration undoubtedly is one of the most effective systems of management – higher-up military man gives an order and junior military man executes this order unreservedly. Officer is the main element of military system of management. We have assumed that president who served in military structure as an officer will manage country more effectively and hence he will increase GDP growth. As proxy of military service of president we have used dummy variable, weequal to 1 if president served in military structure as an officer and equal to 0 otherwise.

We also have used duration of presidency (we don't account the last year and year of inauguration) as a control variable. Obviously that positive linear relationship exists between duration of presidency and GDP growth during presidency, and this relationship is very robust. To partially weaken influence of this variable on GDP growth we use logarithmic form of this relationship. The following table describes incorporated variables.

Table 1 – Incorporated variables

Variable	Description	Source
GDP growth	Ratio of GDP (GDP constant 2002 US$) value of the penultimate year of the presidency to GDP value of the year of inauguration	WDI 2008
Age	Age of president in the moment of entering in office (years)	Wikipedia
Military	Dummy variable, that equal 1 if president served in military structure as an officer and equal 0 otherwise (1; 0)	Wikipedia
Duration	Logarithm of duration of presidency without last year and year of inauguration (logarithm of years)	Wikipedia

Analysis

With data which are presented in Table 2 we have estimated regression (at 1% significance level). Estimated coefficients (OLS method) and basic statistics are presented in the Table 3.

Table 2 – Data for analysis

Country	President	Age	Military	Duration	GDP growth
1	2	3	4	5	6
Algeria	Mohamed Ahmed Ben Bella	44.8	1	1	1.06
	Houari Boumédienne	32.8	1	12	2.06
	Chadli Bendjedid	49.9	1	12	1.31
	Ali Hussain Kafi	63.7	0	1	0.98
	Liamine Zéroual	52.6	1	4	1.15
	Abdelaziz Bouteflika	62.2	0	6	1.34
Gabon	Léon M'ba	59.0	0	5	1.35
	Albert-Bernard Bongo	31.9	1	38	3.91
Guinea	Lansana Conté	49.8	1	21	2.30
Cameroon	Ahmadou Ahidjo	35.4	0	21	2.70
	Paul Biya	49.8	0	23	1.57
Congo Dem. Rep.	Joseph Kasavubu	50.0	0	4	1.14
	Joseph-Désiré Mobutu	35.1	1	31	4.04
	Laurent-Désiré Kabila	57.5	0	3	1.09
	Joseph Kabila	29.6	1	4	1.27
Mauritania	Moktar Ould Daddah	36.0	0	17	2.40
	Mohamed Khouna Ould Haidalla	39.5	1	3	1.05
	Maaouya Ould Sid'Ahmed Taya	43.5	1	20	1.78
Madagascar	Philibert Tsiranana	46.6	0	12	1.40
	Gabriel Ramanantsoa	66.5	1	2	0.99
	Didier Ratsiraka	38.6	1	17	1.07
	Albert Zafy	66.0	0	2	1.02
	Didier Ratsiraka	60.3	1	4	1.21
Mozambique	Joaquim Chissano	47.1	1	18	3.14
Paraguay	Alfredo Stroessner	41.8	1	34	4.30
	Andrés Rodríguez	65.7	1	3	1.09
	Juan Carlos Wasmosy	54.7	0	4	1.13
	Luis Ángel González Macchi	51.3	0	3	0.99
	Nicanor Duarte	46.9	0	2	1.11
Senegal	Léopold Sédar Senghor	53.9	0	19	1.48
	Abdou Diouf	45.4	0	18	1.78
	Abdoulaye Wade	73.9	0	5	1.29

Table 2 continuation

1	2	3	4	5	6
Sudan	Ibrahim Abboud	58.1	1	3	1.04
	Ismail al-Azhari	64.1	0	3	1.00
	Gaafar Nimeiry	39.4	1	15	1.66
	Ahmad al-Mirghani	44.8	0	2	1.14
	Omar al-Bashir	45.5	1	16	2.52
Tanzania	Benjamin Mkapa	57.1	0	9	1.57
Uganda	Milton Obote	55.0	0	4	1.05
	Yoweri Kaguta Museveni	41.5	1	19	3.40
South Africa	Charles Robberts Swart	66.5	0	5	1.40
	Jacobus Johannes Fouché	69.8	0	6	1.30
	Nicolaas Johannes Diederichs	71.8	0	2	1.02
	Marais Viljoen	63.6	0	4	1.10
	Pieter Willem Botha	68.7	0	4	1.05
	Frederik Willem de Klerk	53.5	0	4	0.98
	Nelson Rolihlahla Mandela	75.9	0	4	1.11
	Thabo Mvuyelwa Mbeki	57.0	0	6	1.32
Bolivia	Víctor Paz Estenssoro	52.9	0	3	1.15
	René Barrientos	47.2	1	2	0.94
	Hugo Banzer	45.3	1	6	1.38
	Hernán Siles Zuazo	68.6	0	2	0.96
	Víctor Paz Estenssoro	77.9	0	3	1.03
	Jaime Paz Zamora	50.3	0	3	1.12
	Gonzalo Sánchez de Lozada	63.1	0	3	1.14
	Hugo Banzer	71.3	1	3	1.08
	Carlos Mesa	50.2	0	1	1.04
Colombia	Alberto Lleras Camargo	52.0	0	1	1.05
	Guillermo León Valencia	53.3	0	3	1.13
	Carlos Lleras Restrepo	58.4	0	3	1.18
	Misael Pastrana Borrero	46.8	0	3	1.22
	Alfonso López Michelsen	61.2	0	3	1.12
	Julio César Turbay	62.2	0	3	1.12
	Belisario Betancur	59.6	0	3	1.08
	Virgilio Barco	65.0	0	3	1.13
	César Gaviria	43.4	0	3	1.10
	Ernesto Samper	44.1	0	3	1.11
	Andrés Pastrana	44.0	0	3	1.00
	Álvaro Uribe Vélez	50.2	0	3	1.22
Uruguay	Jorge Pacheco Areco	47.1	0	4	1.10
	Juan María Bordaberry	43.7	0	3	1.09
	Aparicio Méndez	72.1	0	4	1.20
	Gregorio Conrado Álvarez	54.8	1	3	0.80
	Julio María Sanguinetti	49.2	0	4	1.21
	Luis Alberto Lacalle	48.7	0	4	1.23
	Julio María Sanguinetti	59.2	0	4	1.13
	Jorge Batlle Ibáñez	72.4	0	4	0.98
Philippines	Diosdado Macapagal	51.3	0	3	1.16
	Ferdinand Marcos	48.3	1	20	2.09
	Corazon Aquino	53.1	0	5	1.21
	Fidel V. Ramos	64.3	1	5	1.24
	Joseph Estrada	61.2	0	2	1.10
	Gloria Macapagal-Arroyo	53.8	0	4	1.29

Table 2 continuation

1	2	3	4	5	6
Russian Federation	Boris Nikolayevich Yeltsin	60.5	0	7	0.61
	Vladimir Vladimirovich Putin	47.9	1	5	1.44
Bulgaria	Zhelyu Zhelev	55.5	0	6	0.79
	Petar Stoyanov	44.7	0	4	1.17
Ukraine	Leonid Makarovych Kravchuk	57.9	0	2	0.77
	Leonid Danylovych Kuchma	56.0	0	10	1.12
Byelorussia	Alexander Grigoryevich Lukashenko	39.9	1	11	1.92
France	Charles de Gaulle	68.2	1	8	1.52
	Georges Pompidou	58.0	0	4	1.22
	Valéry Giscard d'Estaing	48.7	0	6	1.17
	François Mitterrand	64.9	0	13	1.33
	Jacques Chirac	62.8	0	10	1.26
Argentina	Arturo Frondizi	49.6	0	1	1.05
	Arturo Umberto Illia	63.2	0	2	1.22

Country	President	Age	Military	Duration	GDP
	Juan Carlos Onganía	52.3	1	3	1.19
	Alejandro Agustín Lanusse	52.6	1	1	1.02
	Isabel Perón	43.4	0	1	1.00
	Jorge Rafael Videla	50.6	1	3	1.13
	Raúl Alfonsín	56.8	0	5	1.02
	Carlos Menem	59.1	0	9	1.59
	Fernando de la Rúa	62.3	0	1	0.99
	Néstor Kirchner	53.3	0	2	1.29
South Korea	Yun Bo-seon	63.0	0	1	1.05
	Park Chung-hee	46.2	1	15	3.57
	Chun Doo-hwan	49.7	1	7	1.79
	Roh Tae-woo	55.3	1	4	1.35
	Kim Young-sam	65.2	0	4	1.33
	Kim Dae-jung	74.2	0	4	1.32
	Roh Moo-hyun	56.6	0	2	1.15
Chili	Jorge Alessandri	62.5	0	3	1.16
	Eduardo Frei Montalva	53.9	0	5	1.23
	Salvador Allende	62.4	0	2	1.08
	Augusto Pinochet	58.6	1	15	1.76
	Patricio Aylwin	71.3	0	3	1.30
	Eduardo Frei Ruiz-Tagle	51.7	0	5	1.30
	Ricardo Lagos	62.1	0	5	1.23
Romania	Ion Iliescu	59.8	0	6	0.85
	Emil Constantinescu	57.1	0	3	0.88
	Ion Iliescu	70.8	0	3	1.17
Moldova	Mircea Snegur	50.7	0	6	0.38
	Petru Lucinschi	57.0	0	3	0.92
	Vladimir Voronin	59.9	0	4	1.38
Uzbekistan	Islom Abdug'aniyevich Karimov	52.6	0	15	1.37
Kyrgyzstan	Askar Akayevich Akayev	46.0	0	15	0.82

Note: we have included in analysis some cases when term of president starts before 1960 (in 1958 or 1959) or ends after 2006 (in 2007, 2008 or is not ended). In first case we suppose that year of inauguration is 1960, we calculate the GDP growth as ratio of GDP value of the penultimate year of the presidency to GDP value of the 1960, duration as number of penultimate year of presidency minus 1960 and minus 1, calculation of age does not change. In second case we suppose that penultimate year of the presidency is 2006, we calculate the GDP growth as ratio of GDP value of the 2006 to GDP value of the year of inauguration, duration as 2006 minus number of year of inauguration and minus 1, calculation of age does not change. We do it to account such significant presidents as Charles de Gaulle, Alexander Grigoryevich Lukashenko, Vladimir Vladimirovich Putin and others.

Table 3 – Estimated coefficients and basic statistics

	Coefficients	Standard error	t-statistic	P-value
Constant	3.757555	0.956590	3.928074	0.000142
Age	-0.104662	0.033825	-3.094247	0.002447
Age^2	0.000854	0.000303	2.819992	0.005607
Military	0.246662	0.092412	2.669167	0.008639
Duration	0.399192	0.050797	7.858602	0.000000
R^2	0.57			
Observations	127			

High values of such indexes as R^2, significance of variables, t-statistics and low values of standard errors point to good quality of our model. Interesting assumption about existence of U-shape relationship between the age of president and GDP growth was confirmed. The estimated critical age of president is 61.3 years old. It means that from economical point of view this age is the most unsuccessful for the nominee who enters the presidential office. Our hypothesis about existence of linear positive relationship between military service of president and GDP growth was also confirmed. The coefficient near variable Military means that president which served in military structure as an officer will increase GDP growth on additional 24.66% relatively to president without officer rank. As we assumed duration of presidency significantly positively influences on GDP growth during presidency. Next graphs illustrate the individual influences of the age of president and duration of presidency on GDP growth.
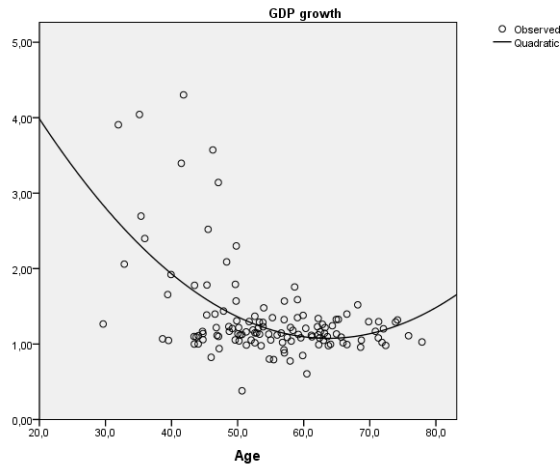
Note: $R^2 = 0.289$

Fig. 1. Influences of the age of president on GDP growth
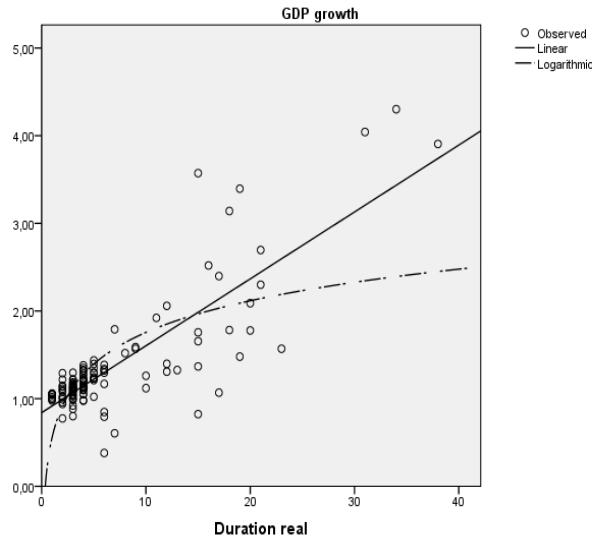
Note: R^2 for linear $= 0.682$, R^2 for logarithmic $= 0.468$

Fig. 2. Influences of the duration of presidency on GDP growth

Based on received model we have decided to evaluate main nominees for president of Ukraine from economical point of view. We want to predict the one, who of the following nominees: Viktor Yanukovych, Yulia Tymoshenko, Arseniy Yatsenyuk, Volodymyr Lytvyn, Petro Symonenko, Serhiy Tihipko, Oleksandr Moroz will exert the most positive influence on GDP growth of Ukraine. The next table contains information about the nominees.

Table 4 – Information about the main nominees

Nominee	Age	Military	Duration
Viktor Yanukovych	59.6	0	Ln(4)
Yulia Tymoshenko	49.2	0	Ln(4)
Arseniy Yatsenyuk	35.7	0	Ln(4)
Volodymyr Lytvyn	53.8	0	Ln(4)
Petro Symonenko	57.5	0	Ln(4)
Serhiy Tihipko	50.0	0	Ln(4)
Oleksandr Moroz	65.9	0	Ln(4)

Note: age is calculated on the moment of start of presidential elections – 17 January of 2010; we predict the GDP growth for the one term of presidency, i.e. 4 years – 5 years minus year on inauguration and last year of presidency.

The equation for prediction of GDP growth is the following:

$$Growth = 3{,}757555 - 0{,}104662 \cdot Age + 0{,}000854 \cdot Age^2 + 0{,}246662 \cdot Military + 0{,}399192 \cdot Duration$$

So we have received next results (Table 5).

Our model shows that Arseniy Yatsenyuk is the best nominee from economical point of view, and the worst are Viktor Yanukovych, Oleksandr Moroz, Petro Symonenko, Volodymyr Lytvyn, Yulia Tymoshenko and Serhiy Tihipko are in the middle of our ranking.

Table 5 – Predicted values of GDP growth

Nominee	Predicted value of GDP growth
Viktor Yanukovych	1.11
Yulia Tymoshenko	1.23
Arseniy Yatsenyuk	1.66
Volodymyr Lytvyn	1.15
Petro Symonenko	1.12
Serhiy Tihipko	1.21
Oleksandr Moroz	1.12

Policy recommendations and directions for future research

In this work the influence of individual characteristics of president on the GDP growth is studied. We have included data about 127 presidents of 30 European, Asian, South American, African presidential and mixed republics, which are commensurable with Ukraine by population or total area in our analysis. Our data cover the period from 1960 to 2006, but for some countries data are available for shorter period. Hence GDP growth during presidency is the dependent variable, and data set consists of 127 observations.

As explanatory variables we have used the age of president in the moment of entering the office, military service of president and duration of presidency (as a control variable). The main finding of our study is that U-shape relationship exists between age of president and GDP growth in the countries that are like on Ukraine by geographical parameters. The estimated critical age for presidency is 61, 3 years. In addition we found that president which served in military structure as an officer will increase GDP growth on additional 24,66% relatively to president without officer rank. Also we have confirmed that duration of presidency significantly positively influences on GDP growth during presidency.

Politicians and electors should account that younger presidential nominee will have more chances to ensure high economical growth. So our article shows that it is advantageously to lower age barrier (35 years) for presidential nominees. Also it is possibly necessary to increase term of presidency. It will decrease expenditures on elections and will increase economical stability. In spite of that officer rank of president positively influences on GDP growth politicians and electors should apprehend possible dictatorship.

Directions for future research. We plan to investigate the influence of presidents-women on GDP growth. Also it will be interesting to change dependent variable, for example use population growth instead GDP growth.

Conclusions

The first steps of the president V.Yanukovich sharply have shown much more interest to Ukraine, than all actions of previous president. It was found, that it is possible to predict the efficiency of future political activity of the presidential nominees.

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О.С. Тєлєтов, М.В. Брюханов, С.О. Загорулько
Вплив індивідуальних характеристик президента на зростання ВВП

На президентських виборах 2010 р. в Україні виборці віддали перевагу ідеологічним та зовнішнім характеристикам кандидатів в президенти, а не їх здібностям керувати. Ми пропонуємо використовувати для організації передвиборних кампаній та кращої орієнтації електорату нову методологію оцінки кандидатів в президенти з позиції їх впливу на економіку.

Ключові слова: ВВП (валовий внутрішній продукт), індивідуальні характеристики президента, основні економічні елементи.

А.С. Телетов, М.В. Брюханов, С.А. Загорулько
Влияние индивидуальных характеристик президента на рост ВВП

На президентских выборах 2010 года в Украине избиратели отдали предпочтение идеологическим и внешним характеристикам кандидатов в президенты, а не их способностям управлять. Мы предлагаем использовать для организации предвыборных кампаний и лучшей ориентации электората новую методологию оценки кандидатов в президенты с позиции их влияния на экономику.