

## Empirical Linkages Between Macroeconomic Stability and Democracy

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The main goal of the paper is analysing the democracy impact on macroeconomic stability in Ukraine. In the paper the authors analysed the main approach to develop the economic and mathematical models, and factors which emphasises the correlation between macroeconomic stability and democracy. The authors highlighted that using of different methods to estimate level of democracy, which mostly relate from the theoretical approach to define the democracy and explanatory indicators which couldn't explain the character, features and power of corresponding correlation. In the apparent, the empirical measures were proposed to make from the political regime which formed country's political system point of view to achieve macroeconomic stability: monetary and fiscal system, openness economy. Accordingly, the main dependence indicators are growth rate of money supply, the fiscal balance to GDP, the trade openness as a sum of export and import to GDP. Besides, the authors used the dates of international rating as the explanatory indicators of country's democracy. In the paper the authors' theoretical hypothesis are approved by the findings.

*Keywords:* democracy, macroeconomic policies, index, ordinary least squares, two-stage last squares.

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**Introduction.** Traditionally the competitiveness is a base requirement to functioning and achieving prosperities in the modern world. The last ten years, the globalisation has already changed the character and form of competitive struggle between countries. Country's competitive position has already begun to depend not only from the tradition factors (geopolitics, countries boundaries, nature resources, economy structure, external politic, political ambitions), but also from the modern factors: immaterial resources, innovations, adapt to the external changes, solving of the global problems, economic and political stability, research and technological development, economic and political liberalisation, participation in the international division of labor, membership in international organisations. That is why the most countries the competitiveness increasing is the main strategic goal. Thus, in Ukraine, the goal to put in list of 40 best countries by the Global Competitiveness Index (GCI) is the main strategic task under the implementation of the Sustainable Development Strategy "Ukraine-2030". Noticed, that GCI is published by the World Economic Forum (WEF) in Annual report of Global Competitiveness [1].

The results of analysing showed, that WEF defined competitiveness as "the set of institutions, policies and factors that determine the level of productivity of a country" [1].

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Accordingly, the main measure of the countries' competitiveness is GCI which consist from the 12 components: Institutions, Infrastructure, Macroeconomic environment, Health and primary education, Higher education and training, Goods market efficiency, Labour market efficiency, Financial market development, Technological readiness, Market size, Business sophistication, R&D Innovation.

According to the obtained results, Ukraine has already lost 12 grades in the rating from 2000 and occupied 81<sup>st</sup> place in 2016. Noticed, that level is in twice higher than indicated in the Sustainable Development Strategy "Ukraine-2030" [2]. In the rating the main "neighbourhoods" for Ukraine became the following countries: Bhutan, Trinidad and Tobago, Guatemala. The results of comparison analysing EU countries and Ukraine showed, that Ukrainian competitiveness is on 45 grades less than in Poland (36 place) and 19 in Romania (62 place). The main factor which restrict the growing of competitiveness rating was macroeconomic stability. Thus, comparison with rating 2013–2014 Ukraine lost 14 grades and occupied 121<sup>st</sup> place in 2017–2018 (Figure 1).

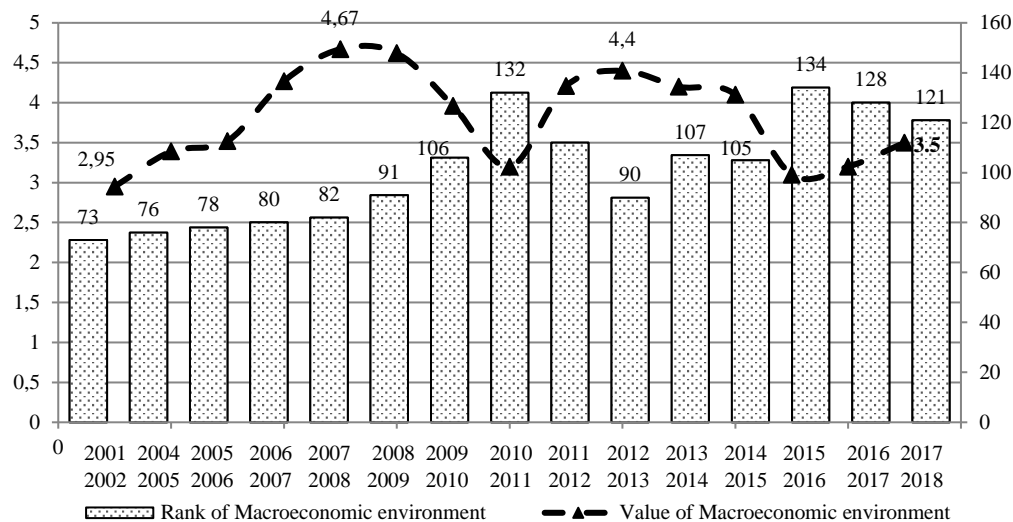


Figure 1. Dynamic of the rank and value Ukrainian macroeconomic environment subindex [Source: based on [1]]

That is why the researching and analysing the main factors of negative impact on dynamic the above-mentioned component and implementation the Ukrainian government policy which oriented on the EU vector of developing has already become actual.

**Analysing of the main results.** Along with the main components of achieving the macroeconomic stability – monetary and fiscal politics, the democracy is the most significant explanatory indicators for changing it level [3].

This problem has already been investigated by the huge numbers of the foreign and Ukrainian scientists, despite this the using of the different economic and mathematical models and factors which explained the correlation between macroeconomic stability and democracy level couldn't give the exactly answer about character and impact features of that relation [4]. The findings of Ahmed Mushfiq Mobarak [5] allowed to make conclusion that democracy,

among the different alternative forms of political system, gave opportunity to countries achieved more stable macroeconomic indicators.

Along with the 3 societal divisions the democracy institutions are the huge, statistical significant determinants of long term impact on the country's macroeconomic stability [6]. Shanker Satyanath and Arvind Subramanian highlighted that "a one standard deviation increase in democracy reduces inflation nearly fourfold" [6].

Diametrically vies verse conclusions about democracy influence on the inflation as a measure of macroeconomic stability was showed in the paper [7] during the analysing 140 countries with different level of disparity 1960–1999.

Besides, Mark J. Gasiorowski [8] indicated that in the underdeveloped countries democracy provoked the increasing of the inflation and reducing of economic growth temp.

**The main purpose of the paper** – analysing of the democracy impact on the Ukrainian macroeconomic stability.

**Results.** With purpose to analyse the democracy level, requirements to save and improve it, the scientists use different approaches among the methods for assessing its level, which are dependent on theoretical ideas about the essence of the concept and explanatory indicators [3]. In particular, empirical results of the democracy level and their comparison in different countries are made by the American human rights organisation Freedom House [9], the centre of "The Economist Intelligence Unit" of the British magazine "Economist" [10], World Bank experts [11] and others.

Thus "Freedom House" conducts the systematically rating of freedom in the world which based on two types of assessments: Political Rights and Civil Liberties.

It should be noticed that the level of freedom don't directly connect with democracy, but traditionally it is analysed as a form of freedom. The authors of research highlighted, that "freedom is the best form for society in the liberal democratic society" [9]. That is why they investigate the democracy level which indicate the level of personal freedom, nor government freedom. The evaluation process of integrated freedom based on the calculation the average assessments of political rights and freedom, which consist from 27 quizzes, including two questions about Discretionary Political Right and 145 indicators. The sum of the grade in each from two evaluation approaches, which consists from the features and characteristics of political rights: Electoral Process – legitimate president election, formation of national legislative authorities and others Government management making the electoral fairness, elections system and electoral justice; Political Pluralism and Participation – freedom for organising the political party, opportunities and role of opposition, eliminating of pressure group (military regime, foreign countries, religious hierarchy, oligarchs) due to the political election, participation of minorities (cultural, ethnics, religions and etc.; Functioning of the Government – free and legitimate elections of the representatives to the national government, level of corruption, government openness and civil societies: a) Freedom of Expression and Belief – free mass media and others form of cultural self-expression, freedom creed, academic freedom, open and free thoughts sharing in the privet sector; b) associative and organisational rights – opportunities for public discussions, NGO activity, trade union activity and theirs equivalent; c) Rule of Law – independence of juridical system, protection of defendants' rights, including presumption innocence, civil control under the police, safety from the political terror and equally attitude to the different strata of society; d) Personal Autonomy and Individual Rights – freedom of moving, free choice of domicile, rights to own property and economic activity; freedom of employment and education, social freedom (including gender equality, free choice of marriage partners and size of family). It should be underlined, that the

lack of economic discriminations will proportion transform to the assessment of the freedom/democracy level and to form their scale from 1 point (the most free) to 7 (less free). Accordingly all countries could be divided by the following groups: Totally Free – from 1.0 to 2.5; 3.0–5.5 – Partly Free, 5.5–7.0 – Not Free [9].

Besides, since 2003 “Freedom House” has been calculating the level of freedom/democracy among the 29 post soviet countries from the Middle Asia and Central Europe. For this purpose “Freedom House” is analysing the democracy reforms in that regions and dividing countries by the group using the following indicators: National Democratic Governance, Electoral Process, Civil Society, Independent Media, Local Democratic Governance, Judicial Framework and Independence, Corruption [10]. The method to calculate the integrated indicators is the same as in previous.

Countries has Consolidated Democracies when integrated index in the diapason from 1 to 2.99, 3.00–3.99 Semi-Consolidated Democracies, 4.00–4.99 Transitional or Hybrid Regimes, 5.00–5.99 Semi-Consolidated Authoritarian Regimes, 6.00–7.00 Consolidated Authoritarian Regimes.

The main advantages of two above mentioned rating are wide geographical diapason of researching countries and huge time period of systematically analysing of the integrated indicator of democracy level which based on the practically unchanged evaluation methodology. It will allow to investigate the panels dates of each countries which better estimate the effects which couldn't be noticed under the simple analysing of one countries. In addition, the database of calculation, methods and approaches are presented on the official organisations website. From the other side, the main disadvantages of the integrated freedom/democracy index are using only experts' assessments which leads to the subjective character of the obtained results.

The research centre “The Economist Intelligence Unit” developed the Index of Democracy for the journal “The Economist”. In the basic of this index calculation is the wide definition of democracy than used by the “Freedom House”. According to Laza Kekic, director, country forecasting services of Economist Intelligence, the understanding of democracy need take to account the following indicators: authorities functioning or participating of the civil society, because freedom is only one of the main part of democracy [11]. Thus, the scientists proposed to calculate the Democracy Index using five indicators: electoral process and pluralism – show the conditions of the providing the competitive, free, legislative elections; 2) the functioning of government – evaluation of government, independence its activities from the external pressure (military, security services, religious and others groups) and corruption, confidence of civil society an access to government; 3) political participation – election activities of the civil society, society' participating in the and minorities in the political process, legal demonstrations and others discussions; 4) democratic political culture – civil society activities, which showed the understanding of democracy in the framework of the concrete system; 5) civil liberties – protection of the main human rights for the freedom of thoughts and speech, religion, free using of mass media, creation of the profession trade union, free juridical system [11]. Thus, in this case the authors of the Democracy Index attend the indicators which empathised the respectable to the other human rights, active implementing the principle of equality, involvement the wide circle of civil society to the election process and politics, and etc.

Democracy index is estimated by the experts who answers for 60 questions which grouped by rather above-mentioned group and transfer to the scale from 0 to 10. The final value of Democracy Index is the average of all 5 indicators' groups. Accordingly to this index, all

countries are classified: 8–10 points – country with Full democracies; 6–7.9 points – Flawed democracies; 4–5.9 points – Hybrid regimes, less 4 points – Authoritarian regimes. It should be underlined, that such calculation must be cyclical, for that time this index is calculated twice (in 2006 and 2008). In spite of using the experts methods to calculate Index of Democracy, the main advantage is taking to account the paradigm approach to estimate the level of political cultural [12].

According to the “Voice and accountability” calculation of democracy index based on the indicators which explained the opportunities of the civil society to take part in the government election, freedom вираження поглядів, freedom of mass media [13]. “Voice and accountability” democracy index is estimated in the diapason from -2.5 (weak) to 2.5 (strength) governance performance.

Noticed, from the Ukrainian independence the transformation process form the monopoly government to the communistic party and central management to the democracy and market economy can be characterised by the different temps and and tendency (Figure 2).

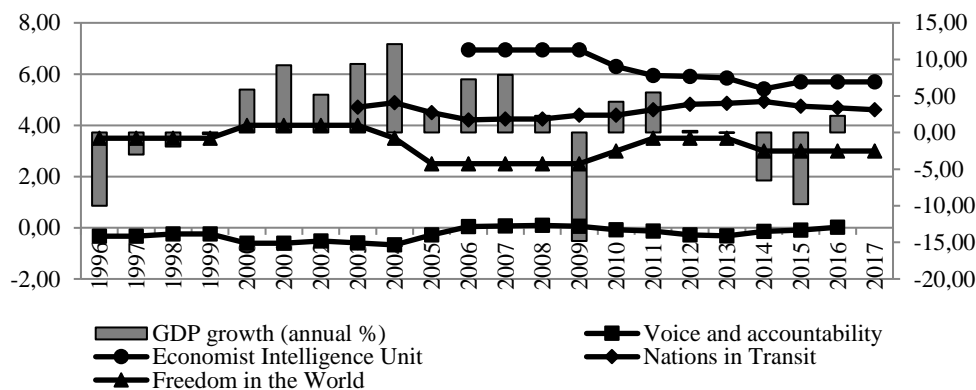


Figure 2. The dynamic of the Democracy Index (which calculated by the different methods and economic growth in Ukraine (1996–2017))  
 [Source: the authors’ own calculations based on [9, 10, 13, 16]]

The results of analysing showed that the highest level of democracy will be achieved during 2004–2008. The three from the four above mentioned indicators showed that in 2006 the level of democracy achieved the maximum (“The Economist Intelligence Unit” – 6.94, “Freedom in the World” – 2.5, “Nations in Transit”). The director of Ukrainian centre of direct democracy Igor Kurus highlighted, that the main factor of that achieving is lack of desire in the president Yushenko V. A. (2005–2010) usurp government an provide more open and democracy politic [14]. Despite this achievement the countries status was classified by the “Freedom House” rating as a country with transformation or hybrid democracy, by “The Economist Intelligence Unit” – imperfectly democracy. It should be noticed, that according to the Report of WEF about GCI, Ukraine also demonstrated the positive dynamic in the increasing the level of the macroeconomic stability from the 2.95 points (2001–2002) to 4.95 (2007–2008) which showed in the Figure 1. However, the next democracy transformation reforms from hybrid regime provoke the decreasing of democracy level. Thus, in 2018

according to the “Nations in Transit” rating Ukraine lost 0.43 grades compare with 2006 and achieve level – 4.64 grades [10]. As expert from “Freedom House” Yulia Yesmukhanova indicated that the finally results of that achieving become that “While Ukraine’s government has made significant improvements in overhauling the country’s local governance, it has failed to meet the public’s expectations in the fight against pervasive corruption”. Thus, according to the national results of annual monitoring quizzes in 2016, only 1 % of the respondents were totally satisfied by the tendency of the democracy development in our country an 11.5 % – more satisfied, at the same time 65.7 % – totally not satisfied, moreover, 59.4 % – surged that I wouldn’t possible to achieve the stable economic development without democracy implementation [15].

Agreed with Abdoul Mijiyawa [17] that macroeconomic stability could be achieved by country through the implementation of the corresponding monetary and credit, fiscal politics, openness economy. In this case, the democracy impact, as a political regime which formed the direction of the above mentioned politics, could be estimated by the formulas (1–3) [17]:

$$Mon_{it} = c + \alpha DEM_{it} + V_t + \omega_{it} \quad (1)$$

$$SB_{it} = c + \beta DEM_{it} + V_t + \theta_{it} \quad (2)$$

$$Ouv_{it} = c + \gamma DEM_{it} + V_t + \varphi_{it} \quad (3)$$

де  $Mon_{it}$  – the logarithm of the growth rate of money supply (estimation of the monetary policy) [18];  $SB_{it}$  – the fiscal balance to GDP (estimation of the fiscal policy) [18];  $Ouv_{it}$  – the trade openness [18];  $DEM_{it}$  – democracy level in t period (which calculated by the “The Economist Intelligence Unit” [16], “Nations in Transit” [10], “Voice and accountability” [13] ratings);  $V_t$  – corresponds to the temporal fixed effects,  $\omega_{it}$ ,  $\theta_{it}$ ,  $\varphi_{it}$  – the error term, and  $c$ ,  $\alpha$ ,  $\beta$ ,  $\gamma$  – constant.

The coefficient of the Democracy Index will be positive for equation (1) if the process to many control become more difficult during the increasing of the democracy level, the negative coefficients  $\beta$ ,  $\gamma$  in the equation (2)–(3) connect with difficulty during the developing effective fiscal policy and implementing the liberalisation of trade [17]. The parameters of the main explanatory factors of the equation (1–3) and their statistical characteristics were showed in the Table 1.

Table 1

Descriptive Statistics of Variables during 1991–2017 years

Variables	Observations	Mean	Standard deviation	Minimum	Maximum	
$Mon_{it}$	24	1.537916	0.5683662	0.5913193	3.257475	
$SB_{it}$	21	-0.6358517	5.329927	-9.010958	10.64839	
$Ouv_{it}$	26	93.91317	19.08556	45.97089	119.8583	
DEM	The Economist Intelligence Unit	10	6.038	0.5262615	5.42	6.94
	Nations in Transit	15	4.589333	0.2446708	4.21	4.93
	Voice and accountability	21	-0.2461905	0.2442228	-0.67	0.09

The assessment of the effect of the introduction of democracy in Ukraine on the policy of macroeconomic stability during 1991–2016 is reflected in Table. 2. The results of estimation the democracy effect on the macroeconomic stability policies were presented in the Table 2.

Table 2  
Effects of democracy on macroeconomic stability policies

	<i>Mon<sub>it</sub></i>		<i>SB<sub>it</sub></i>		<i>Ouv<sub>it</sub></i>	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
<i>DEM</i> The Economist Intelligence Unit	0.7625111 (0.001)*	0.7625111 (0.004)*	- 0.0404843 (0.807)	- 0.0404843 (0.834)	- 0.0477343 (0.370)	- 0.0477343 (0.539)
Constant c	0.8085197 (0.000)*	0.8085197 (0.000)*	0.2615858 (0.034)	0.2615858 (0.038)	0.75461 (0.000)*	0.75461 (0.000)*
Prob > F	0.0007	0.0037	0.8070	0.8345	0.3697	0.5386
R-squared	0.7231	0.7231	0.0067	0.0067	0.0563	0.0563
<i>DEM</i> Nations in Transit	0.5750593 (0.016)**	0.5750593 (0.045)**	- 0.1225296 (0.601)	- 0.1225296 (0.595)	-0.098126 (0.189)	-0.098126 (0.201)
Constant c	1.035837 (0.000)*	1.035837 (0.000)*	0.4304235 (0.028)*	0.4304235 (0.007)*	0.7985747 (0.000)*	0.7985747 (0.000)*
Prob > F	0.0162	0.0445	0.6009	0.5954	0.1894	0.2007
R-squared	0.3185	0.3185	0.0242	0.0242	0.1325	0.1325
<i>DEM</i> Voice and accountability	0.3883878 (0.065)***	0.3883878 (0.099)***	- 0.5274939 (0.002)*	- 0.5274939 (0.000)*	- 0.1861028 (0.008)*	- 0.1861028 (0.025)**
Constant c	1.601438 (0.000)*	1.601438 (0.000)*	0.7259961 (0.000)*	0.7259961 (0.000)*	0.849511 (0.000)*	0.849511 (0.000)*
Prob > F	0.0648	0.0992	0.0002	0.0024	0.0075	0.0253
R-squared	0.1438	0.1438	0.3927	0.3927	0.2367	0.2367

Note: the asterisks \*, \*\* and \*\*\* represent the significance at 1 %, 5 % and 10 % levels respectively.

Using two methods ordinary least squares (OLS) and two-stage last squares (2SLS) the authors estimated the impact of the independence indicators of democracy level on the implementation process of the monetary and credit policy, fiscal policy and openness economy in Ukraine (1991–2016). The obtained results showed the same vector activity of the index independence of the method, however, the different statistical significance. Thus, the dataset in the Table 2 approved, that using of the method which proposed by experts from the World Bank “Voice and accountability” showed the statistical significance results on the level 1 % for *Ouv<sub>it</sub>*, *SB<sub>it</sub>* and 10 % for *Mon<sub>it</sub>* Using the OLS method showed that determination coefficient fluctuated from 14.38 to 39.27 %. At the same time, using the other democracy indicators by the “Nations in Transit” and “The Economist Intelligence Unit” ratings, the obtained results were statistical significance only on the 1 % level for *Mon<sub>it</sub>* with determination 31.85 % and 72.31 % corresponds. Thus, democracy has the differential influence on macroeconomic stability policy, which approved the above mentioned theoretical hypothesis.

**Conclusions and perspectives for further research.** The analysing results one of the main vector to implement the Sustainable Development Strategy “Ukraine-2020” – becoming the 40 best countries by the GCI, showed the negative tendency of its growing. Thus, Ukraine has already lost 12 grades in 2016 compare with 2000 and occupied the 81 place.

The authors approved that the main incentive factors to improve the GCI was macroeconomic stability. It should be noticed, that among the main indicators of achieving the macroeconomic stability, it is necessary taking to account the democracy development in the country which corresponds with the chosen EU vector of Ukrainian growth.

The theoretical part of investigation showed different approaches to build the economic and mathematical models and factors which emphasised the correlation between macroeconomic stability and democracy. Unnoticed, that different results could be explained by the different theoretical understanding the essential meaning of democracy and its explanatory indicators.

Using of two methods ordinary least squares (OLS) and two-stage least squares (2SLS) with purpose to estimate impact of the explanatory indicators of the democracy showed the same activity directions of democracy index independence from the chosen method “Freedom House”, “The Economist Intelligence Unit” [10], experts of the World Bank), however, with different statistical significance.

The constants corresponds to the main indicators growth rate of money supply, the fiscal balance to GDP, the trade openness, which characterised the implementation of politics for achieving the macroeconomic stability showed that: 1) democracy provokes the increasing of money supply, as  $a$  is the positive and statistical significance on the level 1–10 %; 2) the negative coefficient with  $\beta$  and  $\gamma$  in the equation (2)–(3) indicate on the decreasing of the openness economy and on the difficulties with implementation of the effective fiscal policy in Ukraine during 1991–2016 years. As a consequence it provokes the improvement of fiscal balance and decrease the trade openness in Ukraine. Thus, implementation of democracy reform could be become the main factors of positive impact on macroeconomic stability.

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**Эмпирические связи между макроэкономической  
стабильностью и демократией**

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Основная цель статьи – изучение влияния демократии на уровень макроэкономической стабильности Украины. В работе проанализированы подходы различных авторов к построению экономико-математических моделей и факторов описывающие взаимозависимость уровня макроэкономической стабильности и демократии. Отмечено, что использование различных подходов к оценке демократии, которые в большей степени зависят от теоретических представлений о сущности понятия и пояснительных показателей, не дают четкого ответа о характере и силе соответствующей взаимозависимости. Предложенное эмпирическое исследование проводить исходя из понимания демократии как политического режима, который формирует соответствующие направление политики государства по достижению

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**Емпіричні зв'язки між макроекономічною стабільністю та демократією**

макроекономічної стабільності: денежно-кредитної, фінансової та відкритості економіки. Соотвественно, основними залежними змінними виступають: денежно-кредитна та фінансова системи, відкритість економіки. Соотвественно, основними показателями залежності є темпи росту грошової маси, баланс ВВП, відкритість торгівлі, як сума експорту та імпорту в ВВП, а в якості пояснювальної змінної рівня демократії використовуються дані міжнародних рейтингів. Емпіричні результати підтверджують висунуті в роботі теоретичні гіпотези.

*Ключеві слова:* демократія, макроекономічна політика, індекс, звичайні найменші квадрати, двохетапні останні квадрати.

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**Емпіричні зв'язки між макроекономічною  
стабільністю та демократією**

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Основна мета дослідження полягає в вивченні впливу демократії на рівень макроекономічної стабільності України. В роботі проаналізовані підходи різних авторів до побудови економіко-математичних моделей та факторів які описують взаємозалежність рівня макроекономічної стабільності від демократії. Зазначено, що використання різних підходів до оцінки демократії, які в більшій мірі залежать від теоретичних уявлень про сутність поняття і пояснювальних показників не дають чіткої відповіді щодо характеру та сили відповідної взаємозалежності. Запропоновано емпіричне досліджування проводити виходячи з розуміння демократії, як політичного режиму котрий формує відповідний напрямок політик держави з досягнення макроекономічної стабільності: грошово-кредитної, фінансової та відкритості економіки. Відповідно основними залежними змінними виступають грошово-кредитної та фінансової системи, економіки відкритості. Відповідно, основними показниками залежності є темпи зростання грошової маси, бюджетний баланс ВВП, відкритість торгівлі як сума експорту та імпорту у ВВП, а у якості пояснювальної змінної рівня демократії використовуються дані міжнародних рейтингів. Емпіричні результати підтверджують наведені в роботі теоретичні гіпотези.

*Ключові слова:* демократія, макроекономічна політика, індекс, звичайні найменші квадрати, двоетапні останні квадрати.

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