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MACROECONOMIC STABILITY OF THE COUNTRY: THE NEXUS OF INSTITUTIONAL AND BEHAVIOURAL DIMENSIONS

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ABSTRACT. The ongoing globalisation, recessions, and fluctuations in world development require the acceptance of timely government interventions and decisions to save the country's macroeconomic stability. The literature analysis has confirmed a gap in research on assessing and comparing macroeconomic stability at different levels of development, especially in terms of studies that consider the behavioural (culture and trust) dimensions and the quality of institutions. This paper aimed to empirically assess how the achievement of macroeconomic stability depends on the quality of institutions, increasing society's trust, and cultural diversity. This study investigated post-communist economies among EU countries and Ukraine (as the candidate for EU) over 2005-2020. Pearson correlation, OLS and FGLS, robustness test output, GEE, and stochastic frontier model were applied to achieve the paper's aims. The findings confirmed that countries with high-quality of institutions had a higher value of macroeconomic stability. In addition, social trust positively affected the relationship between the quality of institutions and macroeconomic stability. At the same time, various national cultural dimensions had different effects on macroeconomic stability. The four indicators of Hofstede Insights (power distance, masculinity, uncertainty avoidance, and indulgence) had a statistically significant impact on macroeconomic stability

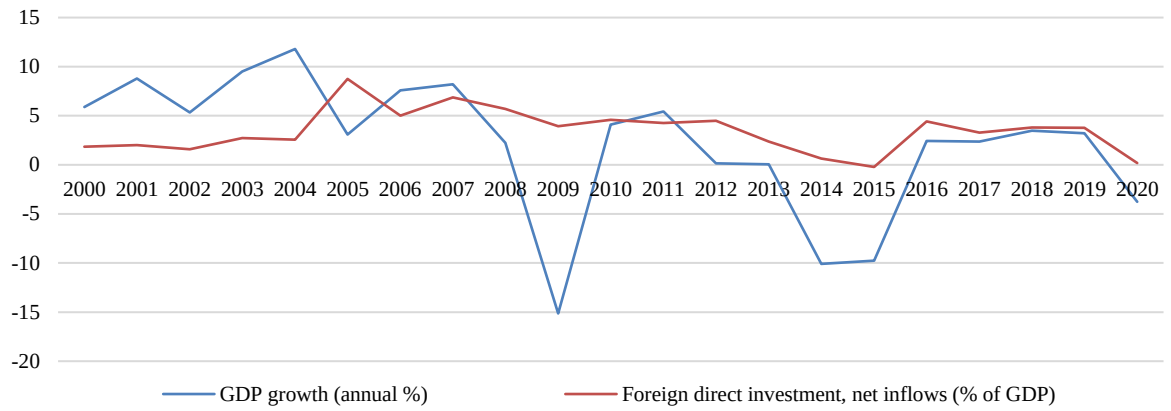
JEL Classification: B22, E02, E6

Keywords: government, stable development, economic growth, trust level, cultural diversity

Introduction

Over the last decades, the concept of macroeconomic stability has significantly changed. This concept started gaining popularity in 1980 due to the stabilisation policy implemented in countries that suffered from debt crises. It should be noted that the International Monetary Fund and the World Bank provided such policy within the framework of the proposed structural program. Their definition of macroeconomic stability was quite narrow, which was criticised by scientists as it focused on assessing low inflation, price stability, and low fiscal and current account deficits. In addition, that approach did not consider important variables (mainly real variables, including unemployment) and analysed the limit values of changes (Clarida et al., 2000; Ocampo, 2008). Countries with stable economic growth have more options when it comes to attracting new resources (Kharazishvili et al., 2020; Dzwigol, 2021; Samoliuk et al., 2022); they must react to the market changes quickly and provide appropriate management mechanisms for relevant determinants to achieve macroeconomic stability. On the one hand, macroeconomic stability boosts the improvements in the quality of life. On the other hand, macroeconomic stability depends on different factors. Comparative analysis of the theoretical framework for assessment of macroeconomic stability confirmed that core determinants to achieving stable development could be divided into three groups. The first group focuses on the quality of institutions (Assane & Grammy, 2003; Butkiewicz & Yanikkaya, 2006; Rodrik et al., 2004; Vijayaraghavan & Ward, 2001; Rodrik et al., 2004; Fodjou et al., 2021). The second underlines the importance of psychological factors, particularly the level of trust in governments (Dearmon & Grier, 2009); Kwon, 2019; Yuan & Wang, 2019; Knack & Zak, 2003; Bjørnskov C., 2012; Mauk M., 2021; Wang Z., 2005; Roth F., 2022; Lyulyov et al., 2018). The third group focuses on the important role that culture plays in achieving economic growth and macroeconomic stability across countries. It should be noted that the government's policies to promote economic growth should be adapted to the prevailing culture to be effective (Minkov & Blagoev, 2009; Tabellini, 2010; Disli et al., 2016; Michau, 2013; Grosso & Smith, 2012; Gorodnichenko & Roland, 2017).

Considering the Copenhagen criteria, the main requirements for the convergence of EU countries are macroeconomic stability (Dudley, 2020; Kharazishvili et al., 2021; Akimov et al., 2020; Shpak et al., 2021b; Roshchyk et al., 2022). Thus, countries which correspond to convergence criteria could join the EU. The Ukrainian government, similarly to former communist economies Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia, has already declared a goal of EU integration. It should be noted that the dynamic of Ukrainian macroeconomics indicators for 2000-2020 showed the systematic and structural crisis of economic functioning (Graph 1). The internal core triggers of that tendencies were: restriction of economic growth and declining the core macroeconomics indicators (macroeconomic imbalances by the core indicators); industrial production collapse; declining of economic activity, primarily investment activity; the deterioration of the population (households) welfare and the increasing unemployment; increasing debt pressure, primarily in the public sector; increasing shadowing of economic.



Graph 1. Dynamics of Ukrainian macroeconomic indicators for 2000-2020
Source*: developed by the authors based on World Data Bank*

However, the annual report of the EU confirmed the non-compliance of certain countries with the specified criteria. The findings showed that a stable macroeconomic environment could boost the country's economic growth and competitiveness (Kreishan et al., 2023; AL-Mutairi et al., 2023). The results of the analysis of the theoretical framework confirmed the gap in research issues on the assessment and comparison of macroeconomic stability at a different level of development considering the behavioural (cultural and Trust) dimensions and quality of institutions. This research filled this research gap. The main contribution of this study was to present the empirical justification for achieving macroeconomic stability due to the providing quality of institutions, increasing social Trust and considering cultural diversity. Besides, the paper aimed to compare the macroeconomic stability of former communist economies and other EU countries.

The paper contains the part as follows: literature review – the analysis of the scientific background on the relationship among macroeconomic stability, quality of institutions and behavioural dimensions (cultural diversity and Trust); methods and methodologies – explanation of the research methods to check the research hypothesis on linking among macroeconomic stability, quality of institutions and behavioural dimensions; results – explanations of core findings on testing hypothesis; conclusions and discussions – explanations of recommendations considering the results of checking the research hypothesis.

1. Literature review

1.1. Macroeconomic stability: assessment approaches

Ahangari et al. (2014) analysed the macroeconomic stability impact on investments in Iran. They used the macroeconomic imbalance index, which is based on four dimensions: inflation rate; the ratio of government deficit to GDP; the ratio of external debt to GDP; exchange rate. Besides, the imbalances were defined as the accumulation of fluctuations (deficit and surplus) and changes in indicators as the consequence of macroeconomic management. The imbalance was increasing or declining the resulted indicators around the values, which reflected the changes tendency of the process. However, the core disadvantages of the approach mentioned above to estimate macroeconomic imbalance were: dependence of the chosen equation on the tendency of changes in the values of the components of the index; incomparability of the range of indicator changes; consideration of only the amplitude of the

fluctuations without taking into account optimal tendency of changes; lack of interpretation of the macroeconomic instability index.

Tiutiunyk et al. (2020) and Levchenko et al. (2019) justified including the innovation dimensions under the assessment of macroeconomic stability. The other group of scientists confirmed that financial indicators (which reveal the financial stability of the countries) should be included in the assessment of macroeconomic stability (Tkachenko et al., 2019; Shpak et al., 2021a).

Sancak & Jaramillo (2007) analysed the macroeconomic imbalance based on the following indicators: inflation, budget deficit, exchange rate volatility, and losses of international reserves. They applied logarithmization to avoid the incomparability of the indicators. However, the macroeconomic imbalance index could not be calculated for countries with a negative trend in the growth of the gold and foreign exchange reserve. The scientists from the University of Malta used the International Monetary Fund (IMF) and World Bank statistical databases to calculate and compare the macroeconomic imbalance index between countries based on a common scale. All indicators were normalised. Besides, the index of macroeconomic imbalance was calculated as the arithmetic means of the normalised indicators: ratio of state deficit to GDP; sums of the unemployment rate and the inflation rate; the ratio of external debt to GDP.

Contrary to the previous investigations, the method of the University of Malta fully corresponded to the following requirements: the indicators chosen on the common scale and accessibility to the data for indicators' calculation. The indicators were selected concerning the identity of the calculation method and the availability of obtaining information on indicators of the components of the macroeconomic index for all the studied countries. Furthermore, this method allowed the comparison of the macroeconomic stability among the countries.

In the studies (Iqbal & Nawaz, 2010; Martinez-Vazquez & McNab, 2006) Misery index was used to measure macroeconomic stability. The Misery index was the sum of unemployment and inflation. Professor Kolodko G. (director of the Institute of Finance in Warsaw) applied the «Macroeconomic stabilisation Pentagon» (MSP) to estimate macroeconomic stability. That model allowed considering the external and internal disbalances in the economic growth of the countries (Kolodko G., 1993). Macroeconomic stabilisation Pentagon was built on the calculation of five dimensions of macroeconomic stability:

- GDP growth which expressed the development in the real economy. Besides, Kolodko G. (1993) underlined that achieving and supporting economic stability was impossible under stable stagnation and crisis tendencies.
- The unemployment rate expressed the utilisation of human capital capacity. The value of this indicator should be as low as possible.
- Inflation rate. Inflation should not limit productivity increasing and impact on redistribution of wealth or income on a socially unacceptable scale.
- State budget balance to GDP. The state budget should be balanced and indicate the excess income over expenses. From the fiscal deficit point of view, the surplus (which exists before stabilisation) should be at a level that guaranty the supporting the internal debt in the framework, which could be financed noninflationary way. It was necessary to systemise the requirements imposed on EU countries under the planned monetary union. It is generally accepted that the budget balance should guarantee a reduction of the total public debt to less than 60% of GDP within ten years. At the same time, Kolodko G. (1993) proposed evaluating the budget balance ratio to GDP.
- Balance of current turnover to GDP. The current account balance should provide the full and effective external debt service. At the same time, it should develop the options for gradual reduction and liquidation of the debt over the chosen time (for example, 10

or 25 years) (Kolodko, 1993). The MSP model focused on the assessment of achievements of five targets of macroeconomic stability: 1) stable economic growth, which was measured by the speed of GDP growth; 2) increasing employment level and declining unemployment; 3) increasing internal balance due to declining inflation rate; 4) balances state budget which allowed take the financing of internal debt without inflation effects; 5) the balance of the current account should be maintained at a level that would be allowed the external debt to be reduced.

1.2. Macroeconomic stability and quality of institutions

The link between macroeconomic stability and institutions' quality could be defined from several points of view. On one side, the studies (Assane & Grammy, 2003; Butkiewicz & Yanikkaya, 2006; Rodrik et al., 2004; Vijayaraghavan & Ward, 2001) confirmed the unidirectional relationship in the chain "institutions' quality-macroeconomic stability-economic growth". Considering it, the institutions' quality triggered macroeconomic stability and economic growth. This assumption is based on the fact that well-developed institutions allow effectively divide the recourses and capital to create added value for all stakeholders. In the long run, achieving macroeconomic stability could not be realised without high-quality institutions. The paper (Rodrik et al., 2004) confirmed the hypothesis that the quality of institutions significantly impacts a country's growth instead of globalisation and geographical location. The study used the rule of law and property right as the core indicators to measure the quality of institutions. Omoke et al. (2021) proved that increasing institutions' quality allowed declining the negative long-run impact of imports on economic growth.

The study (Fodjou et al., 2021) analysed the Sub-Saharan African countries to confirm that high-quality institutions allowed quickly sunk external shocks and recovered macroeconomic stability. Fodjou et al. (2021) concluded that government stability was the significant determinant of macroeconomic stability. Arvin et al. (2021) obtained similar findings. The study (Arvin et al., 2021) analysed low-income and low-middle countries from 2005-2019 years. The research findings concluded that good institutions with effective fiscal policy allow macroeconomic stability and economic growth in the long term.

Ulubasoglu & Doucouliagos (2004) confirmed the hypothesis that political and economic freedom impacted the economic growth of 119 countries. They defined economic freedom's significant direct and indirect impacts on economic growth. The findings showed that economic freedom positively influenced productivity, capital, labour and human resources.

Ahmed & Trabelsi (2022) applied a durable model to prove that democracy influenced the stable economic growth of developing countries. Based on the findings, they concluded that democracy was the core dimension of countries' resilience, including in shock time.

On another side, the studies (Schwab K., 2019; Nair et al., 2021; Vysochyna et al., 2021) confirmed that economic growth and macroeconomic stability were the basis for the high quality of institutions. It was based on the following assumptions: economic growth allowed allocating of additional financial resources to attract the best technologies and knowledge to improve the quality of institutions. Schwab K. (2019) confirmed that high-income countries had well-developed institutions.

Besides, Acemoglu et al. (2005) confirmed the casualty relationship between macroeconomics imbalance and the quality of institutions. On one side, Acemoglu et al. (2005) highlighted that macroeconomic imbalance was caused by weak institutions rather than economic issues in the countries. On the other side, the countries which provided worse macroeconomic policy had weak institutions, involving political vulnerability, corruption, and the lowest guarantee for investors' property rights. It should be noted that Vijayaraghavan &

Ward (2001) also proved that property rights were the crucial indicator of the quality of institutions. They analysed the relationship between the institution's infrastructure and the economic growth rate of 43 countries from 1975-1990. Besides, they concluded that government should provide effective incentives and regulatory policies. Thus, considering those mentioned above, the following hypothesis was checked:

Hypothesis 1: Macroeconomic stability is affected by the quality of institutions.

1.3. Macroeconomic stability and behavioural dimensions

The results of the analysis showed that Trust was one of the important channels through which cultural diversity affected competitiveness and macroeconomic stability. Besides, a high trust level could be associated with the following country's achievements: high level of income, innovation, labour productivity, provision of public goods, and efficiency of state institutions, which play an important role in determining macroeconomic stability. Thus, analysing the countries' economic growth, Dearmon J. and Grier K. (2009), Kwon O. Y. (2019), Yuan Z. and Wang L. (2019) underlined that along with labour, capital and technology, Trust played a significant role in the macroeconomic production function. Knack S. and Zak P. J. (2003) focused on the model of government support. It assumed that increasing Trust in government led to economic growth. The developed models allowed us to empirically confirm that freedom and education stimulate economic growth through strengthening the rule of law, reducing inequality, and promoting interpersonal understanding. Bjornskov C. (2012) also concluded the direct link between Trust and economic growth. Bjornskov C. (2012) applied the 3SLS approach to 85 countries. The empirical results allowed concluding that Trust impacted education and the rule of law, consequently increasing the rate of economic growth. Keefer & Scartascini (2022) highlighted that Trust was the basis for collaboration between private and government sectors. Besides, the high level of untrust in the country led to declining the effectiveness of the democratic decisions in the country.

Furthermore, increasing Trust allowed declining the corruption, improved the quality of institutions and provided effective infrastructure reforms. Kondo & Papanikolaou (2021) developed the macroeconomic model, confirming that increasing Trust led to innovation and investment growth. Consequently, it provided the achievement of macroeconomic stability. The scientists analysed Trust as the behavioural impulse which impacted economic stability. Mauk M. (2021) underlined that political Trust was the core driver of the country's stability. Mauk M. (2021) analysed Indonesia, Japan, Mongolia, South Korea, and Taiwan to check the link between political Trust and economic growth of the countries. Thus, the findings confirmed that Trust depends on economic stability in the country and government support.

However, Wang Z. (2005) indicated that the negative effect of increasing government public support is short-term economic growth. Nevertheless, in the long term, economic growth led to values changes and Trust's strengthening. Roth F. (2022) confirmed the vice versa conclusion and proved that Trust harmed economic growth. Roth F. (2022) applied the fixed effect model and used the panel data of 41 countries (EU, OECD, and developing countries) from 1980-2004. Graeff P. and Svendsen G. T. (2013) also concluded that social Trust did not influence the economic growth of EU countries. At the same time, the Trust could stimulate an indirect increase in well-being due to declining corruption.

Hypothesis 2: Macroeconomic stability is affected differently according to Trust.

Hypothesis 3: Trust positively moderates the relationship between the quality of institutions and macroeconomic stability.

In modern scientific studies, two basic concepts, Hofstede's dimensional concept of culture and Inglehart's dynamic concept of culture applied to explain the features of economic,

ecological, financial and social countries' development (Disli et al., 2016). Hofstede's concept is mostly used in studies which focus on international management. However, Inglehart's – in sociology and political science. It should be noted that cultural values determine the behaviour of the groups of society and individuals. Besides, cultural values formed the institutional and social capacity of the country and became the crucial determinants to achieving the targets of the country's development (Churchill & Smyth, 2020; Kumar et al., 2019; Churchill et al., 2019). Cultural dimensions Hofstede considered under the analysis of the cultural impact on foreign direct investment (Kandogan, 2016; Kristjánsdóttir et al., 2017), foreign trade (Markusen, 2013), economic growth (Horvat et al., 2021; Geng & Tan, 2021), unemployment (Michau, 2013; Grosso & Smith, 2012). Tang L. and Koveos P. E. (2008) empirically confirmed that culture was the core driver of a country's economic development. Thus, three (individualism, power distance, and long-term orientation) among five of Hofstede's indicators had a statistically significant relationship with GDP per capita. Based on data from World Value Surveys, Tabellini G. (2010) defined what types of cultural features had the most significant impact on indicators of the economic developments for countries from European regions. The findings showed that indicators of individual values and beliefs and confidence in individual self-determination had a statistically significant and positive impact on economic growth. It is based on the assumption that the two first indicators formed the component "social capital" of the long-run economic growth of the country. Gorodnichenko Y. and Roland G. (2017) checked the hypothesis that cultural determinants (individualism/collectivism) affected the country's innovation and economic development. That hypothesis is based on the assumption that countries with dominant individualism could be correlated with the quality of institutions, human capital, and the speed of technology diffusion, which influence economic performance.

The empirical results confirmed the close relationship between cultural attributes and the economic indicators of the country's development. Thach N. (2021) estimated if the culture could explain the differences in the GDP per capita growth rate for South and Southeast Asian countries. The findings concluded that cultural values played the core role in forming models of nations' development. It is related to the positive impact of masculinity, long-term orientation, and indulgence versus restraint indices. Besides, despite the study (Gorodnichenko & Roland, 2017), Thach N. (2021) highlighted the negative impact of individualism on real GDP per capita.

Evan T. and Holy V. (2022) used data from 116 countries and applied linear regression models to analyse the impact of heterogeneous culture and cultural diversity on the quality of institutions. The authors used the six public administration efficiency indicators defined by Kaufmann et al. (2011) as the dependent variable. The findings indicated that cultural diversity had a multidirectional impact on governance quality. Thus, among six indicators of Hofstede's cultural dimensions, only two positively affected governance: Orientation and Indulgence.

Based on the assumptions that institutions play a core role in the explanation of macroeconomic stability, the hypothesis on the indirect impact of culture on macroeconomic stability through the institutions could be put forward.

Hypothesis 4: Macroeconomic stability is affected differently according to different national cultural dimensions.

2. Methodological approach

2.1. Index selection and data sources

Based on the findings in papers (Martínez-Vázquez & McNab, 2006; Iqbal & Nawaz, 2010; Roszko-Wójtowicz & Grzelak, 2020; Kotlinski, 2020; Misztal et al., 2021), the study

applied two approaches for assessment of macroeconomic stability. The first approach involved using the Misery Index (MI). In this context, macroeconomic stability was determined by examining unemployment and inflation, both of which hinder economic development and impact the current economic state. Unemployment was considered as an indicator of the country's production capacity, shedding light on the degree of economic development and stages of competitiveness. The second indicator focused on measuring the inflation rate, providing insights into the level of internal balance. Equation (1) was utilized to calculate the Misery Index (MI).

$$\mathrm{MI} = \mathrm{U}n + HICP \quad (1)$$

where MI – Misery Index; Un – unemployment rate (%); HICP – inflation rate expressed using the Harmonised Indices of Consumer Prices (HICP) (%).

The second approach, employing the concept of the Macroeconomic Stabilization Pentagon, facilitated the comparison of different countries and the evaluation of their success in achieving key stabilization policy goals. In this context, the study utilized Equation (2) to calculate the synthetic indicator of macroeconomic stability (MSP).

$$MSP_i = [(GDP \times Un) + (Un \times HICP) + (HICP \times SB) + (SB \times CA) + (CA \times GDP)] \times k \quad (2)$$

where GDP – GDP growth rate (%); Un – unemployment rate (%); HICP – inflation rate (%); SB – fiscal balance as a percentage of GDP; CA – current account balance as a percentage of GDP; k = 1/2 sin 72 (°) = 0.475.

The synthetic indicator of macroeconomic stability (MSP) should not exceed 1, each triangle's area is 0.200 (5 × 0.200 = 1), and the maximum length of the triangle side is 0.6485. Consequently, GDP, Un, HICP, SB, and CA were normalized based on the following criterion: moving away from the center of the Pentagon signifies a better development value for the selected variables. The scale for each variable increased or decreased depending on the direction of change, with positive changes considered beneficial for the economy: GDP as a stimulant, Un as an inhibitor, HICP as an inhibitor, SB as a stimulant, and CA as a stimulant.

Based on the research by Acemoglu et al. (2005), the study employed the World Data Bank's method to evaluate institutional quality, utilizing various indicators: Voice and Accountability (WGIViA), Political Stability and Absence of Violence/Terrorism (WGIPS), Government Effectiveness (WGIGE), Rule of Law (WGIRL), Control of Corruption (WGICC), and Regulatory Quality (WGIRQ).

The study utilized principal components analysis to estimate an integrated index of institutional quality. This method helped elucidate the dispersion and correlation of input parameters and involved several stages:

1. In the initial stage, the optimal number of principal components was determined based on the scree plot, identifying those explaining the majority of the variation.
2. The second stage involved calculating the arithmetic mean of the absolute eigenvalues of indicators from each selected principal component.
3. At the third stage, the eigenvalues of the indicators were ranked, assigning a rank to each (with the lowest rank given to the indicator with the lowest eigenvalue).
4. In the fourth stage, weights of the partial indicators were calculated using the Fishburne formula.
5. The fifth stage comprised developing the integrated index WGI using additive convolution.

$$\text{WGI}_i = \alpha_1 WGI_{ViA} + \alpha_2 WGI_{PS} + \alpha_3 WGI_{GE} + \alpha_4 WGI_{RL} + \alpha_5 WGI_{CC} + \alpha_6 WGI_{RQ} \quad (3)$$

where α_1 ... α_6 – weigh factors.

The study utilized data from the European Values Survey (EVS) to assess Trust, following the established paradigm in the research (Dearmon & Grier, 2009; Graeff & Svendsen, 2013). The fourth and fifth waves were selected to account for the time lag in changes related to Trust (the fourth wave spanned the years 2005-2010, and the fifth wave covered the years 2017-2021). The primary question for evaluating Trust was a165 EVS, which inquired, "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?". Responses to this question were recoded: "Most people can be trusted" was assigned a value of 1, while "Can't be too careful" and "Don't know" were assigned a value of 0.

The study employed indicators developed by Hofstede Insights to estimate social values in the country. These included PDI (power distance - the degree of society's perception of inequality in the distribution of authorities), IDV (individualism - the dominant model of joint-separate management and thinking in the country), MAS (masculinity - the prevalent model of achieving results in society), UAI (uncertainty avoidance - the degree of society's perception of uncertainty and ambiguity in situations and their reactions), LTO (long-term orientation - the predominant time horizon model of goal-setting in society), and IVR (indulgence). The variables and explanations are presented in Table 1.

Table 1. Explanations of the selected variables for analysis under the investigation

Symbol	Meaning	Sources
	Variables for assessment of Macroeconomic stability	
GDP	Gross Domestic Product per capita	World Data Bank (2022)
U	Unemployment rate	
P	The inflation rate is expressed using the HICP.	
SB	Fiscal balance as a percentage of GDP	
CA	Current account balance as a percentage of GDP	
	Variables for assessment of the quality of institutions	
WGI_{CC}	Control of Corruption	World Data Bank (2022)
WGI_{GE}	Government Effectiveness	
WGI_{PS}	Political Stability and Absence of Violence/Terrorism	
WGI_{RQ}	Regulatory Quality	
WGI_{RL}	Rule of Law	
WGI_{ViA}	Voice and Accountability	
	Variables for assessment of Trust	
Trust	Level of social Trust	EVS (2021), Haerpfer et al. (2021)
	Variables for assessment of cultural diversity	
PDI	Power distance	Geert Hofstede, Hofstede Insights
IDV	Individualism	
MAS	Masculinity	
UAI	Uncertainty avoidance	
LTO	Long term orientation	
IVR	Indulgence	
	Control Variables	
TO	Economic openness	World Data Bank (2022)
KOF	Economic globalisation	KOF Globalisation Index (2022); Gygli et al. (2019); Dreher A. (2006)

Source: *own data*

2.2. Research methods

The study utilized the Pearson correlation coefficient (equation 4) to examine the strength and direction of the linear relationship between macroeconomic stability and the quality of institutions (Benesty et al., 2009; Akoglu, 2018). This approach was employed to assess the first hypothesis.

$$r_{xy} = \frac{\sum_{i=1}^{n}(x_i-\bar{x})(y_i-\bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i-\bar{x})^2}\sqrt{\sum_{i=1}^{n}(y_i-\bar{y})^2}}, r_{xy} \in [-1;1] \quad (4)$$

where r_{xy} – Pearson correlation coefficient; $x_i, y_i, \bar{x}, \bar{y}$ – real and average values of the macroeconomic stability and the quality of institutions.

To evaluate the connections between macroeconomic stability and institutional quality, the study employed the following econometric model:

$$MS_{i,t} = \beta_0 + \beta_1 MS_{i,t-1} + \beta_2 \mathrm{WGI}_{i,t} + \beta_3 \mathrm{X}_{i,t} + e_{i,t} \quad (5)$$

where $MS_{i,t}$ – the value of the macroeconomic stability of i county in t time, which is estimated by MI and MSP; $\mathrm{WGI}_{i,t}$ – integrated index of the quality of institutions of i county in t time; $\mathrm{X}_{i,t}$ – is a vector of control variables; $\beta_0 \ldots \beta_3$ – searching parameters of the model; $e_{i,t}$ denotes the i-th residual.

The study incorporated economic openness (TO) and economic globalization (KOF) as control variables in model (5). Research by Gozgor G. (2018) and de Mendonca & Nascimento (2020) suggested that economic openness, symbolizing the freedom of capital movement, could alleviate issues of temporal inconsistency in a country's monetary policy. This feature helped prevent the inflation bias associated with discretionary monetary policies. Moreover, a country's integration into the globalization process facilitated the development of new trends in the flow of money, capital, and labor, thereby transforming monetary policy and influencing the attainment of macroeconomic stability.

Incorporating the variable Trust into model (5) enabled the assessment of the impact of trust on macroeconomic stability. Trust was represented by the percentage of people in the country who expressed confidence in others:

Main Effect Models:

$$MS_{i,t} = \gamma_0 + \gamma_1 MS_{i,t-1} + \gamma_2 \mathrm{WGI}_{i,t} + e_{i,t} \quad (6)$$

where $Trust_{,t}$ – Trust, which was calculated by applying weight variables in the times series of EVS indicator; $\gamma_0 \ldots \gamma_2$ – searching parameters; $e_{i,t}$ denotes the i-th residual.

In model 6, the quality of institutions had both a direct impact and an indirect impact through Trust on macroeconomic stability. Both effects, whether direct or indirect, collectively influenced macroeconomic stability. In this instance, the study introduced the interaction term between Trust and a WGI into the model to evaluate Trust's impact on WGI:

Moderating Effect models:

$$MS_{i,t} = \gamma_0 + \gamma_1 MS_{i,t-1} + \gamma_2 \mathrm{WGI}_{i,t} + \gamma_3 Trust_{i,t} + \gamma_4 Trust_{i,t} * \mathrm{WGI}_{i,t} + e_{i,t} \quad (7)$$

where $\gamma_0 \ldots \gamma_4$ – searching parameters; $e_{i,t}$ denotes the i-th residual

All annual macroeconomic indicators from dataset MI, MSP and WGI, were consistent with the data of EVS waves by averaging over the years for which each wave of EVS was conducted. Thus, the data of the fourth wave was average for 2005-2010 years, and the data of the fifth wave was average for 2017-2020.

The analysis showed that one of the disadvantages of the theory Hofstede Insights to estimate the social values in the country was the assumption that culture was homogeneous in each country. Thus, the study applied the stochastic frontier analysis framework to estimate the impact of culture (inputs) on macroeconomic stability (outputs). This method allowed eliminating of homogeneous issues. Thus, the following model was applied to explain the Hofstede cultural indices:

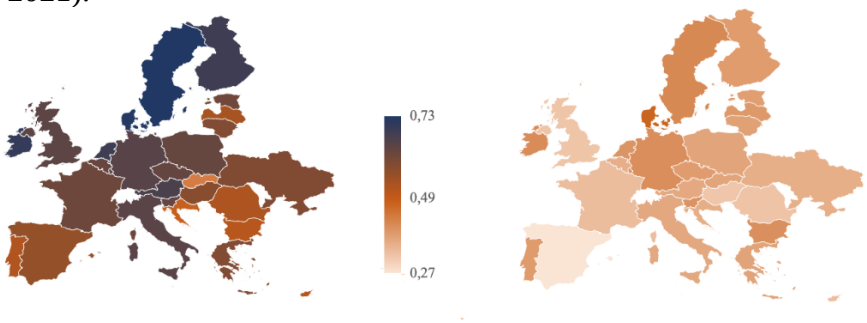
$$MS_{i,tj} = \delta_j + \theta_{j1} PDI_{i,t} + \theta_{j2} \mathrm{I}DV_{i,t} + \theta_{j3} MAS_{i,t} + \theta_{j4} UAI_{i,t} + \theta_{j5} LTO_{i,t} + \theta_{j6} IVR_{i,t} + \omega_j WGI_{i,t} - U_{ij} + V_{i,tj} \quad (8)$$

where δ_j – const; θ_{j1} – searching parameters for the input variables; ω_j– searching parameters for the control variables; U_{ij} – non-negative random variables capturing technical inefficiency; $V_{i,tj}$ – random variables representing the error term.

3. Results

3.1. Assessment of macroeconomic stability

Considering the methodology at the first stage, the study estimated the macroeconomic stability of two countries' groups for 2005 and 2020: (1) – former communist economies; (2) – other EU countries. The findings (Graph 2) allowed concluding that, in general, among all analysed countries, the macroeconomic stability declined in 2020 compared to 2005. The dark colour in Figure 2 meant a stronger value of macroeconomic stability, bright – low valuer. Thus, the highest value of macroeconomic stability in 2005 was 0.73 and 0.47 in 2020. At the same time, the low value of macroeconomic stability was 0.43 (in 2005) and 0.27 (in 2020). Such decline could be caused by the few waves of recession around the world: financial recession in 2008; economic recession in 2020, which provoked by COVID-19 (Tiutiunyk et al., 2019; Wyrwa et al., 2021).



(a) (b)

Graph 2. The visualisation map of the findings of macroeconomic stability assessment using MSP

Note: (a) – macroeconomic stability in 2005; (b) – macroeconomic stability in 2020; dark colour – the higher value of macroeconomic stability, bright – the lower value of macroeconomic stability.

Source: *own data*

Among the former communist economies (Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, and Ukraine), the average value of MSP was 0.549, and for other EU countries – 0.601. However, the range of MSP changes for the former communist economies was from 0.319 to 0.750. It should be noted that Denmark and Sweden had the highest value at both times. Furthermore, the minimum value was in the Slovak Republic (0.43) in 2005 and Spain (0.27) in 2020. At the same time, in 2020, Sweden and the United Kingdom had the biggest decline by 0.31 and 0.32 relevant.

Furthermore, the lowest decrease was in the Slovak Republic (by 0.06). The BREXIT process could provoke a decline in the United Kingdom (Kordos, M., 2019). It should be noted that among all analysed countries, the highest value of standard deviation was in the Netherlands (0.121), Ireland (0.147), Greece (0.122), Malta (0.114), and Spain (0.111). Finland (0.106). It confirmed the high variation and heterogeneity of the statistical aggregate of data specifically for the group of countries that do not include the former communist economies. The core reason for such variation was a change in indicator, which (corresponded to the Pentagon concept) revealed the internal factors that impacted macroeconomic stability (MSP_1). That indicator was calculated as the sum of the area of the triangle, which characterised the real sphere of economy, stagflation, budget and inflation. Besides, in the Netherlands, the average value of changes in that indicator was 0.03.

Furthermore, the indicator, which showed the impact of external factors (MSP_2) and developed the second part of the Pentagon, was -0.01. At the same time, this tendency was similar in all selected countries:

- in former communist economies (Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia and Ukraine), the indicator MSP_1 was changed from 0.1 to 0.5, and MSP_2 – from 0 to 0.3;
- for other EU countries, MSP_1 changed from 0.1 to 0.5, and MSP_2 – from 0.06 to 0.4.

The empirical results confirmed the close inverse correlation relationship between MI and MSP_1. Note that MI had higher variation than MSP for former communist economies. Thus, Standard Deviation (Std. Dev) was 6.0795 for other EU countries –4.2648 (Table 2).

Table 2. Descriptive statistic and output of correlation analysis for MSP_1, MSP_2, MI

Variable	Mean	Std. Dev.	Min	Max	Correlations		
					MSP_1	**MSP_2**	**MI**
former communist economies							
MSP_1	0.35902	0.073067	0.099341	0.502674	1		
MSP_2	0.19099	0.055866	0	0.3	0.0525	1	
MI	11.97438	6.079514	4.36	57.84	-0.6998	0.1473	1
other EU countries							
MSP_1	0.376191	0.070563	0.131983	0.490681	1		
MSP_2	0.224302	0.062932	0.06	0.35	0.5803	1	
MI	10.1743	4.264825	4.32	27.5	-0.6649	-0.0426	1

Note: St. Dev. – standard deviation; Mean – the average value among analysed indicators; Min – the minimum value among analysed indicators; Max – the maximum value among analysed indicators; MI – Misery Index; MSP1 – internal factors impacted on macroeconomic stability; MSP2 – external factors impacted on macroeconomic stability; former communist economies – Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia and Ukraine.

Source: *own data*

3.2. Assessment of quality of institutions

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Table 3) confirmed that KMO was 0.9256. Besides, all MSA values of WGI overcome the threshold of 0.5. Thus, MSA for WGI_{RL} had the lowest value (0.8869) compared to other values. KMO was higher than 0.5, which allowed concluding that the results of PCA were reliable to interpret.

Table 3. Kaiser-Meyer-Olkin measure of sampling adequacy

Variable	WGI_{CC}	WGI_{GE}	WGI_{PS}	WGI_{RQ}	WGI_{RL}	WGI_{ViA}	Overall
KMO	0.9138	0.9247	0.9363	0.9550	0.8869	0.9476	0.9256

Source: *own data*

The results of PCA (Table 4) allowed concluding that exist one indicator with Eigenvalue 5.2160 explained 86.93% of the total variance of WGI. Considering the Kaiser criterion (i.e., eigenvalue >1), that factor was enough to explain the entire variance of the variables. Besides, all values of uniqueness were very low. It indicated that indicators well reproduce the variance of the variables. Thus, WGIPS had the highest value of uniqueness (0.4669), which suggests a commonality of 0,5331 (1-0.4669). It exceeded the threshold value of 0.50.

Table 4. The results of Principal components (eigenvectors) outputs for WGI

Factor analysis LR test: independent vs. saturated: chi2(15) = 4803.57; Prob>chi2 = 0.0000					**Factor loadings and unique variances**		
Factor	**Eigen.**	**Diff.**	**Prop.**	**Cumul.**	**Variable**	**Factor1**	**Uniqueness**
Factor1	5.21601	4.68868	0.8693	0.8693	WGI_{CC}	0.9637	0.0713
Factor2	0.52733	0.41944	0.0879	0.9572	WGI_{GE}	0.9689	0.0612
Factor3	0.1079	0.03559	0.018	0.9752	WGI_{PS}	0.7301	0.4669
Factor4	0.07231	0.02598	0.0121	0.9873	WGI_{RQ}	0.9545	0.0889
Factor5	0.04633	0.01621	0.0077	0.995	WGI_{RL}	0.9824	0.0349
Factor6	0.03012	-	0.005	1	WGI_{ViA}	0.9691	0.0608

Note: Eigen. – eigenvalue; Diff. – difference; Prop. – proportion; Cumul. – cumulative
Source: *own data*

The findings of the calculation of six variables of WGI are shown in Table 5. The results allowed concluding that the following indicators had the highest correlation with the principal component: Rule of Law (WGI_{RL}), Voice and Accountability (WGI_{ViA}), Government Effectiveness (WGI_{GE}) and Control of Corruption (WGI_{CC}).

Table 5. The finding of Principal components (eigenvectors) outputs for WGI

Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6
WGI_{CC}	0.4219	-0.2439	0.2879	0.1231	0.7825	0.2284
WGI_{GE}	0.4242	-0.1465	0.4131	0.4065	-0.5894	0.3394
WGI_{PS}	0.3197	0.94	0.0642	0.0524	0.085	0.0127
WGI_{RQ}	0.4180	-0.0961	-0.8582	0.2239	-0.0244	0.1701
WGI_{RL}	0.4302	-0.1387	0.0729	0.0819	-0.057	-0.8834
WGI_{ViA}	0.4243	-0.0839	0.0236	-0.8718	-0.1709	0.152

Source: *own data*

Considering the findings in Table 4, equation (3) could be written as the first component in the form of a linear combination of variables:

$$\text{WGI}_i = 0.4243WGI_{ViA} + 0.3197WGI_{PS} + 0.4242WGI_{GE} + 0.4302WGI_{RL} + 0.4219WGI_{CC} + 0.4180WGI_{RQ} \quad (8)$$

In the next step, the study analysed the time trends of WGI changes. The relevant findings are shown in Table 6.

Table 6. Time trends of WGI changes for selected countries

Country	Mean	St.Dev.	Min	Max	Country	Mean	St. Dev.	Min	Max
	former communist economies					other EU countries			
Bulgaria	0.456	0.126	0.266	0.629	Austria	3.905	0.090	3.684	4.025
Croatia	0.993	0.086	0.837	1.102	Belgium	3.197	0.161	2.952	3.458
Czech Republic	2.250	0.089	2.072	2.403	Cyprus	2.420	0.343	1.681	2.918
Estonia	2.799	0.228	2.417	3.211	Denmark	4.384	0.191	4.099	4.686
Hungary	1.608	0.429	1.078	2.330	Finland	4.497	0.101	4.350	4.650
Latvia	1.808	0.200	1.518	2.125	France	2.956	0.191	2.640	3.205
Lithuania	2.022	0.271	1.688	2.387	Germany	3.680	0.103	3.492	3.890
Poland	1.737	0.296	1.206	2.138	Greece	1.005	0.474	0.389	1.826
Romania	0.415	0.192	0.007	0.686	Ireland	3.628	0.193	3.306	3.905
Slovakia	1.751	0.143	1.519	1.989	Italy	1.370	0.119	1.225	1.657
Slovenia	2.306	0.116	2.139	2.528	Luxembourg	4.172	0.086	3.997	4.323
Ukraine	-1.449	0.270	-1.905	-1.030	Malta	2.714	0.283	2.061	3.102
					Netherlands	4.112	0.075	4.013	4.263
					Portugal	2.501	0.163	2.253	2.898
					Spain	2.200	0.190	1.955	2.776
					Sweden	4.265	0.121	4.073	4.500
					United Kingdom	3.551	0.152	3.242	3.801

Total				
	Mean	St. Dev.	Min	Max
(1)	1.391	1.123	-1.905	3.211
(2)	3.209	1.038	0.389	4.686

Note: (1) – former communist economies; (2) – other EU countries; St. Dev. – standard deviation; Mean – the average value among analysed indicators; Min – the minimum value among analysed indicators; Max – the maximum value among analysed indicators.
Source: *own data*

3.3. Relationship between macroeconomic stability and WGI

The findings of correlation analysis (Table 7) showed that the quality of institutions could provoke macroeconomic stability.

Table 7. The results of Pearson correlation result

Indicator	former communist economies				other EU countries			
	MSP		MI		MSP		MI	
	Coef.	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*
WGI	*0.2919*	*0.000*	*-0.4791*	*0.000*	*0.2466*	*0.000*	*0.0114*	*0.8512*

Note: WGI – index of quality of institution; Coef. – coefficient of Pearson correlation.

Thus, for former communist economies, the coefficient of Pearson correlation was statistical significance and positive for MSP (0.2919) and negative for MI (-0.4791). At the same time, for the other EU countries coefficient of Pearson correlation is statistical significance and positive for MSP (0.2466)

The finding of the Ordinary Least Square (OLS) method for panel data and Feasible Generalized Least Squares (FGLS) with country weights showed in Tables 8-9. Contrary to

OLS, the FGLS allowed eliminating the effect of data cross-dependence, which is often in panel data (Sarafidis & Wansbeek, 2012).

Table 8. The OLS and FGLS estimation (2005–2020), dependent variable: MSP

Regressors	OLS						FGLS					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coef.	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*
former communist economies												
MS_{t-1}	0.014	0.840	0.012	0.859	0.015	0.828	0.013	0.854	0.006	0.925	0.013	0.851
WGI	0.024	0.000	0.024	0.001	0.029	0.002	0.025	0.000	0.020	0.045	0.026	0.014
const	0.508	0.000	0.474	0.000	0.800	0.076	0.508	0.000	0.252	0.145	0.553	0.264
TO	–	–	0.008	0.791	–	–	–	–	0.056	0.130	–	–
KOF	–	–	–	–	-0.069	0.515	–	–	–	–	-0.011	0.926
Adj. R^2	0.075		0.0708		0.0726		0,140		0,129		0,140	
other EU countries												
MS_{t-1}	-0.081	0.168	-0.075	0.201	-0.076	0.195	-0.062	0.254	-0.057	0.287	-0.057	0.282
WGI	0.021	0.000	0.024	0.001	0.019	0.045	0.024	0.044	0.015	0.244	0.002	0.875
const	0.559	0.000	0.456	0.000	-0.223	0.669	0.561	0.000	0.300	0.013	-1.617	0.039
TO	–	–	0.024	0.071	–	–	–	–	0.062	0.014	–	–
KOF	–	–	–	–	0.184	0.133	–	–	–	–	0.511	0.005
Adj. R^2	0.0605		0.0684		0.0649		0,201		0,153		0,184	

Note: Coef. – the coefficients of the searching parameters; WGI – index of quality of institution; TO – trade openness; KOF – economic globalisation; const – constant of the model (β_0); Adj. R^2 – adjusted R^2; model 1, model 4 – findings for models without control variables; model 2, model 5 – findings for models which include a control variable TO; model 3, model 6 – findings for models which include control variable KOF.
Source: *own data*

If the dependence regressor were MSP, in the case of former communist economies, increasing WGI by one standard deviation would lead to the growth of MSP by 0.024 in the OLS model and 0.025 for the FGLS model. If the control variables TO and KOF were added to the model (models 2 and 3 for OLS; models 5 and 6 for FGLS), the WGI impact on MSP would not change the direction and statistical significance. However, it changed the absolute value of MSP.

Thus, by adding the control variable TO, increasing WGI by one standard deviation leads to an increase in MSP by 0.024 in the OLS method (model 2 in Table 8) and by 0.020 in the FGLS method (Model 5 in Table 8). Adding control variable KOF – by 0.029 in the OLS method (model 3 in Table 8) and by 0.026 in the FGLS method (Model 6 in Table 8).

In general, for former communist economies, the increase of WGI promotes faster MSP growth than for other EU countries. Besides, the findings of equation (5), considering control variables (economic openness and economic globalisation), showed the β coefficients of TO and KOF, which were statistically significant and positive only for other EU countries (Table 8). The results confirmed the assumption that economic openness and globalisation could be conducive to declining the ineffectiveness of the policy to ensure macroeconomic stability.

For other EU countries, increasing WGI by one standard deviation led to MSP growth of 0.021 in the OLS model and 0.024 in the FGLS model. Adding control variable TO – by 0.024 in the OLS method (model 2 in Table 8) and by 0.015 in the FGLS method (Model 5 in Table 8). Adding control variable KOF – by 0.019 in the OLS method (model 3 in Table 8). However,

in the FGLS model with KOF, the impact of WGI on MSP was positive but not statistically significant.

The findings (Table 9) with the dependence regressor MI showed that the WGI impact was statistically significant. However, the mutually inverse character was justified by the specifics of calculating the MI indicator. Thus, in the case of former communist economies, increasing WGI by one standard deviation led to MI declining by 2.611 in the OLS method and 3.093 in the FGLS method. Similarity to the results mentioned above, if TO and KOF (models 2 and 3 in OLS; models 4 and 5 in FGLS) were included in the research model, the direction and statistically significance of WGI impact on MI would not change:

- with adding TO – decreasing by 3.746 in OLS (model 2, Table 9) and by 3.734 in FGLS (model 5, Table 8);
- with adding KOF – decreasing by 3.747 in OLS (model 3, Table 9) and by 2.542 in FGLS (model 6, Table 9).

At the same time, for other EU countries, WGI impact on MI was statistically significant and negative only for FGLS. On average, the increase of WGI by one standard deviation led to MI declining by -2.486.

Table 9. The OLS and FGLS estimation (2005–2020), dependent variable: MI

Regressors	OLS						FGLS					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coef.	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*
former communist economies												
MS_{t-1}	0.013	0.842	0.043	0.468	0.050	0.435	0.033	0.559	0.039	0.484	0.086	0.037
WGI	-2.611	0.000	-3.746	0.000	-3.747	0.000	-3.093	0.000	-3.734	0.000	-2.542	0.000
const	15.479	0.000	-24.984	0.001	-55.005	0.041	15.897	0.000	-18.149	0.075	154.561	0.000
TO	–	–	8.727	0.000	–	–	–	–	7.300	0.001	–	–
KOF	–	–	–	–	16.599	0.009	–	–	–	–	-34.912	0.000
Adj. R^2	0.2238		0.3332		0.2476		0.470		0.532		0.486	
other EU countries												
MS_{t-1}	0.072	0.238	0.073	0.235	0.070	0.251	0.106	0.013	0.095	0.022	0.086	0.037
WGI	0.058	0.816	0.011	0.967	0.394	0.254	-2.414	0.000	-2.501	0.000	-2.542	0.000
const	9.254	0.000	8.132	0.001	36.389	0.059	1.348	0.566	23.437	0.001	154.561	0.000
TO	–	–	0.274	0.586	–	–	–	–	-4.814	0.000	–	–
KOF	–	–	–	–	-6.415	0.158	–	–	–	–	-34.912	0.000
Adj. R^2	0.2319		0.2382		0.2376		0.497		0.526		0.513	

Note: Coef. – the coefficients of the searching parameters; WGI – index of quality of institution; TO – trade openness; KOF – economic globalisation; const – constant of the model (β_0); Adj. R^2 – adjusted R^2; model 1, model 4 – findings for models without control variables; model 2, model 5 – findings for models which include a control variable TO; model 3, model 6 – findings for models which include control variable KOF.
Source: *own data*

3.4. Robustness analysis

Similarly to papers (Asongu et al., 2018; de Mendonca & Nascimento, 2020), the study applied two-stage GMM to provide the robustness analysis. This approach allowed considering the endogeneity and omitted variable bias. Besides, it allowed obtaining more accurate values when the number of panels exceeded the number of time units (years), particularly in the case of other EU countries.

All regressions S-GMM for MSP and MI accepted the null hypothesis in J-test Sargan; therefore, the overidentifying restrictions are valid. Besides, serial autocorrelation tests (AR(1) and AR(2)) rejected the hypothesis of existing serial autocorrelation (AR(2) tests with p-values > 0.10). It should be noted that, in general, applying S-GMM did not change the statistical significance and direction of WGI impact on macroeconomic stability (Table 10).

Table 10. The empirical results of the robustness test output

Regressors	MSP						MI					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coef.	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*
former communist economies												
MS_{t-1}	0.014	0.777	0.012	0.803	0.015	0.762	0.013	0.743	0.043	0.260	0.049	0.229
WGI	0.024	0.000	0.024	0.000	0.029	0.000	-2.611	0.000	-3.736	0.000	-3.689	0.000
const	0.508	0.000	0.474	0.000	0.780	0.015	15.479	0.000	-24.623	0.000	-51.363	0.002
TO	–	–	0.008	0.709	–	–	–	–	8.649	0.000	–	–
KOF	–	–	–	–	-0.065	0.396	–	–	–	–	15.741	0.000
AR (1)	-4.32	0.000	-4.79	0.000	-3.63	0.000	-2.23	0.026	-2.15	0.031	-2.13	0.033
AR (2)	0.63	0.528	0.71	0.48	0.71	0.476	-1.37	0.169	-1.42	0.155	-1.34	0.180
J-Statistic	340.71	0.000	342.35	0.000	342.15	0.000	478.78	0.000	430.75	0.000	460.31	0.000
other EU countries												
MS_{t-1}	-0.081	0.039	-0.075	0.055	-0.076	0.052	0.072	0.000	0.073	0.000	0.070	0.000
WGI	0.028	0.000	0.024	0.000	0.018	0.003	-0.058	0.045	0.013	0.871	-0.412	0.000
const	0.559	0.000	0.456	0.000	-0.234	0.502	9.254	0.000	8.179	0.000	37.869	0.000
TO	–	–	0.024	0.007	–	–	–	–	-0.263	0.085	–	–
KOF	–	–	–	–	0.187	0.022	–	–	–	–	-6.765	0.000
AR (1)	-8.65	0	-4.23	0	-8.62	0	-1.16	0.036	-1.13	0.038	-1.75	0.080
AR (2)	0.87	0.476	0.92	0.359	0.54	0.586	0.62	0.533	0.64	0.524	0.35	0.723
J-Statistic	567.75	0.000	569.99	0.000	570.44	0.000	2363.79	0.000	2566.33	0.000	2475.95	0.000

Note: Coef. – the coefficients of the searching parameters; WGI – index of quality of institution; TO – trade openness; KOF – economic globalisation; const – constant of the model (β_0); model 1, model 4 – findings for models without control variables; model 2, model 5 – findings for models which include a control variable TO; model 3, model 6 – findings for models which include control variable KOF.
Source: *own data*

3.5. Relationship between macroeconomic stability and trust

The study applied generalised estimating equations (GEE) approach to analyse the Trust impact on macroeconomic stability. The findings (Table 11) confirmed the statistically significant impact of Trust on macroeconomic stability for all panel data. At the same time, compared to other EU countries, in the case of former communist economies, the increase of Trust to a greater extent is conducive to the growth of macroeconomic stability. Thus, if Trust increased by one standard deviation, MSP would grow by 0.369 (Model 1), and MI would decline by 0.173 (Model 4). In general, on average, if Trust increased by one standard deviation, MSP would grow by 0.018 (Model 2 and Model 5), and MI would decline by 0.3205 (Model 3 and Model 6). Besides, the findings in Table 10 indicated that social Trust positively affected the relationship between the quality of institutions and macroeconomic stability (γ =0.026, p<0,05 (Model 3); γ =-2.093, p<0,05 (Model 6)).

Table 11. Trust panel regression: generalised estimating equations (GEE) approach

Regressors	MSP						MI					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coef.	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*
former communist economies												
MS_{t-1}	0.464	0.008	0.431	0.003	0.357	0.038	0.147	0.446	0.087	0.624	0.044	0.793
$Trust$	0.369	0.011	0.265	0.025	0.106	0.056	-0.173	0.022	-0.071	0.062	-0.570	0.038
WGI	–	–	0.018	0.002	0.053	0.049	–	–	-0.192	0.003	-0.346	0.014
$Trust *$ WGI	–	–	–	–	0.026	0.037	–	–	–	–	-2.093	0.048
const	0.205	0.05	0.223	0.011	0.303	0.025	1.819	0.004	2.373	0.000	3.412	0.000
other EU countries												
MS_{t-1}	-0.117	0.389	-0.059	0.622	-0.037	0.755	-0.294	0.119	-0.347	0.064	-0.302	0.086
$Trust$	0.166	0.060	0.054	0.036	0.042	0.072	-0.052	0.075	-0.432	0.045	-1.048	0.014
WGI	–	–	0.058	0.010	0.156	0.047	–	–	-0.237	0.020	-0.024	0.879
$Trust *$ WGI	–	–	–	–	0.022	0.093	–	–	–	–	-0.053	0.089
const	0.601	0.000	0.472	0.000	0.736	0.001	2.999	0.000	4.261	0.000	4.750	0.000

Note: Coef. – the coefficients of the searching parameters; WGI – index of quality of institution; Trust – level of social trust; $Trust *$ WGI – moderating effect between Trust and quality of institution; const – constant of the model; Adj. R2 – adjusted R2; model 1, model 4 – findings for models which include Independent variable; model 2, model 5 – findings for models which include control variable WGI; model 3, model 6 – findings for models which include moderating effect.
Source: *own data*

3.6. Relationship between macroeconomic stability and culture

The findings of estimated coefficients with standard errors of the stochastic frontier model confirmed the statistical significance of the model and its chosen specification (Table 12). Thus, the sum of the residual variances (σ_s^2) and the sum of the residual variances (γ) was statistically significant at a 1% level for all model specifications. Besides, the value of γ was relatively low, which indicated that most of the estimated residual variance is due to the first equation's residuals.

Table 12. Estimated coefficients with standard errors of the stochastic frontier model

Variables	MSP		MI		MSP		MI	
	Coef.	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*	*Coef.*	*p-value*
	former communist economies				**other EU countries**			
PDI	-0.091	0.086	0.010	0.003	-0.045	0.032	0.004	0.574
IDV	-0.019	0.599	0.003	0.530	-0.061	0.159	0.005	0.531
MAS	0.002	0.868	-0.003	0.065	0.012	0.343	-0.001	0.857
UAI	-0.269	0.001	0.017	0.001	-0.038	0.278	0.002	0.773
LTO	0.067	0.211	0.003	0.410	0.058	0.044	-0.010	0.070
IVR	0.082	0.001	-0.026	0.000	0.060	0.056	-0.006	0.231
WGI	0.081	0.000	-0.514	0.000	0.007	0.048	0.085	0.212
const	-1.049	0.212	4.088	0.000	0.799	0.000	2.870	0.000
σ_s^2	-5.279	0.000	-2.048	0.003	-4.728	0.000	-1.478	0.001
γ	0.196	0.000	0.326	0.098	0.248	0.000	0.307	0.000

Note: Coef. – the coefficients of the searching parameters; σ_s^2 – residual variances; γ – – residual variances; const – constant of the model; PDI – power distance; IDV – individualism; MAS – masculinity; UAI – uncertainty avoidance; LTO – long-term orientation; IVR – indulgence; WGI – the quality of institutions.
Source: *own data*

For former communist economies, both models had a similar statistically significant impact of Hofstede Insights on macroeconomic stability. It confirmed the reliability of the approach. All indicators of Hofstede Insights had a statistically significant impact on MSP (growth) and MI (declining). In the MSP model of assessment, among six indicators, Hofstede Insights, one indicator IVR had a positive and statistically significant impact on MSP. However, PDI and UAI negatively and statistically significantly impacted MSP. In the MI model of assessment, among six indicators, Hofstede Insights four indicators, PDI, MAS, UAI and IVR, had a statistically significant impact on MI. However, compared to the MSP model of assessment, those indicators had the opposite effect on MI: positive and statistically significant – PDI and UAI; negative and statistically significant MAS and IVR. Besides, in this case, model, the quality of institutions also had a positive and statistically significant impact on macroeconomic stability for both models.

The empirical results for other EU countries confirmed that macroeconomic stability increased in countries that developed the democratic relationship between the governments and the society, and the dominant ones were: the individualism model (statistically significant impact of IVR for MSP and MI models of assessment); long term orientation model (statistically significant impact of LTO for MSP model); the power distance model was low (statistically significant impact of PDI for MSP model). Compared to former communist economies MAS and UAI for other EU countries had a similar but not statistically significant direction of influence on MSP and MI.

Conclusion

The results of the assessment of macroeconomic stability showed that the group with other EU countries had a higher value of macroeconomic stability than the group with former communist economies (Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, and Ukraine). Besides, the findings confirmed that the macroeconomic stability significantly declined during the financial recessions and COVID-19. Besides, in all countries, the macroeconomic stability in 2020 was lower compared to the 2015 year. It should be noted that the experience of Denmark and Sweden should become the orienteer in macroeconomic policy for all countries. The experts from the EU commission (Alert mechanism report, 2021) highlighted that Denmark entered the COVID-19 crisis with stable macroeconomic stability. However, in 2020 considering the Macroeconomic imbalances procedure (Alert mechanism report, 2021), Sweden had macroeconomic imbalances. At the same time, considering the Alert mechanism report (2021), Denmark would have macroeconomic imbalances if the private debt exceeded the threshold value. A similar situation could be in Finland and Luxembourg. Besides, the experts forecasted that the government debt could be more than 60% of GDP in Austria and Slovenia, which required careful controlling and monitoring.

The empirical results showed that Rule of Law, Voice and Accountability, Government Effectiveness and Control of Corruption had the most significant impact on the integrated index of quality of institutions. It should be noted that the study (Meon & Weill, 2005; Buterin et al., 2017) also highlighted that rule of law and control of corruption had the most significant impact on countries' macroeconomic performance. At the same time (Khushnood et al., 2020) showed that the impact of corruption and the rule of law were not significant.

In addition, the finding confirmed the hypothesis that the quality of institutions could provoke the growth or decline of macroeconomic stability. Thus, the findings mentioned above indicated that countries with high-quality of institutions had a higher value of macroeconomic stability (*Hypothesis 1*). That is notably the case in: other EU countries – Denmark, Finland,

and Sweden; former communist economies – Estonia, Slovenia and the Czech Republic. Similar conclusions were obtained by (Rodrik et al., 2004; Arvin et al., 2021). However, Angelopoulos & Philippopoulos (2008) and Bergh & Karlsson (2010) underlined that the quality of institutions should be increased without enlarging the size of the government. The countries with a low level of macroeconomic stability should start the transformation process and implement the Good Governance concept, which is dominated by other EU countries. Considering (Khouya & Benabdelhadi, 2020), the concept of Good Governance focuses on strengthening the collaboration among society, business, and government.

Besides, the core principle of Good was the increasing role of society in the development of democracy country. It could be achieved through the increasing Trust of the society in the government and authorities. Besides, the findings confirmed the hypothesis that Trust affected macroeconomic stability (*Hypothesis 2*). The empirical results concluded that social Trust positively affected the relationship between the quality of institutions and macroeconomic stability (*Hypothesis 3*). In addition, the study confirmed the following hypothesis that macroeconomic stability was affected differently according to national cultural dimensions (*Hypothesis 4)*. It was identified that Power Distance and Uncertainty avoidance significantly negatively impacted macroeconomic stability. However, individualism, long-term orientation and indulgence positively affected macroeconomic stability. Thus, macroeconomic stability grew in the countries with a democratic relationship between the governments and the society. That is notably the case in other EU countries.

Thus, the countries group of former communist economies should conduct institutional changes to provide the transparency of public governance at all levels (national and local) and to decline bureaucracy by guaranteeing the rule of law for all stakeholders (government, business, investors, and society) and decline corruption. Thus, providing the transparency of public governance and bureaucracy decline could be provided through digitalisation. Thus, Estonia is one of the leaders in the digitalisation of governance services. Besides, Ukraine (the lowest quality of institutions) has already digitalised the governance service. The digital platform Diia was developed by the Ministry of Digital Transformation (Diia, 2019). This platform has been penetrating Ukrainian society since 2019. However, the first results showed the positive effect of Diia in declining bureaucracy and increasing transparency.

The findings highlighted a few political consequences and ways for future investigations. Thus, the further analysis of the policies of governments to ensure macroeconomic stability allows determining which countries' governance can be relatively successfully improved and/or which countries' governments are more effective in reforming national institutions, for example, in the case of an unfavourable cultural environment. Besides, the consideration of variable spatial structure allows taking into account the specific development of each country separately and the dependencies between countries.

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