

ENSURING ECONOMIC SECURITY: COMPARISON OF EU MEMBER STATES AND UKRAINE

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Abstract. The *purpose* of this paper is to conduct a comprehensive study of economic security in the EU Member States and Ukraine, to identify differences and to propose targeted policy interventions based on these differences. *Methodology.* The study uses a quantitative strategy that assigns numerical ratings to countries based on their performance against predefined thresholds for various economic security indicators. These indicators include industrial security, demographic security, energy security, foreign trade security, investment and innovation security, macroeconomic security, food security, social security and financial security. The study uses data from a variety of sources and applies a ranking system to reflect the level of economic security in each category. *Results.* The analysis revealed significant differences in the levels of economic security between EU Member States and Ukraine. The main findings include differences in agricultural efficiency, healthcare system efficiency, renewable energy consumption, trade balance, research and development expenditure, and socio-economic factors. For example, countries such as Belgium and Ireland have high yields, while Cyprus and Romania have much lower yields. Life expectancy and the quality of healthcare also vary: Spain and Sweden lead the way, while Bulgaria and Ukraine lag behind. *Practical implications.* The findings suggest the need for targeted policies and technological advances to improve economic security. For the younger generation, marketing strategies based on brand equity and exclusivity can continue even during economic downturns. For the older generation, strategies that focus on value for money or lower prices may be more effective. Understanding these metrics can help businesses align their strategies with national economic priorities and identify potential areas for investment and growth. *Value / Originality.* This study contributes to the existing literature by providing a detailed comparative analysis of economic security in the EU Member States and Ukraine, filling a gap in the understanding of the multifaceted aspects of economic security in these regions.

Keywords: comparative analysis, economic sustainability, economic security, economic threats, gender security, security indicators, EU Member States, Ukraine.

JEL Classification: F52, O52, O57

1. Introduction

The concept of economic security has been at the centre of policy discourse and academic research. This article examines the multifaceted dimensions of economic security by comparing EU Member States and Ukraine, drawing on the contributions of various scholars, such as L. Jankovska et al. (2018), who emphasise the need for strong economic foundations, and V. Ivanova (2022), who focuses on healthcare as a critical component of economic security. The interest in this issue stems from the dynamic nature of economic security. Ukraine's integration into European economic structures, as highlighted by Ivanova et al. (2022), further reinforces the need to understand these differences and similarities.

This research hypothesises that there are significant discrepancies in the levels of economic security in EU Member States and Ukraine, influenced by different policy frameworks and structural differences. The aim of this paper is to provide a comprehensive analysis of economic security in EU Member States and Ukraine and to propose targeted policy interventions based on the identified discrepancies.

The object of the study is the overall economic landscape of the EU and Ukraine, and the subject is selected economic security indicators. The research methodology includes a quantitative analysis of various indicators, which are classified and evaluated using a rating system that reflects the degree of economic security in each category.

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For academics, this study contributes to the existing literature by providing a detailed comparative analysis, complementing the work of I. Gryshova et al. (2020) and M. Kyzym et al. (2018). In terms of policymaking, it provides a basis for tailored strategies to address specific economic security challenges. For the business community, understanding these metrics can guide strategic alignment with national economic priorities and identify potential areas for investment and growth.

2. Literature Review

The discourse on economic security, particularly within EU Member States and Ukraine, encompasses a wide range of perspectives and analytical frameworks. For example, V. Bobyl, A. Loskutova, and M. Dron (2023) examine Ukraine's external economic security, identifying risks such as military aggression and dollarisation, while advocating structural reforms to strengthen external economic activity. Similarly, I. Mishchuk (2023) proposes a conceptual model for creating economic security, stressing the need for an integrated approach that aligns business parameters with environmental changes.

A study of the role of Islamic finance in economic security is shown in A. Batorshyna et al. (2021), which highlights the effectiveness of seminars and conferences in increasing Islamic finance assets, potentially improving financial risk management in non-Muslim countries. Meanwhile, V. Tokar et al. (2021) highlight the importance of legal measures in promoting gender equality for economic growth and security, proposing amendments to integrate gender considerations into economic security assessments. V. Khakimova (2023) provides a detailed analysis of the EU-Ukraine partnership under the Common Foreign and Security Policy, emphasising the EU's support for Ukraine's sovereignty and proposing to strengthen cooperation in the areas of energy security and democratic reforms. S. Sadyhov (2022) argues for reducing the EU's dependence on Russian energy supplies in order to strengthen energy security and align with the objectives of the European Green Deal. V. Ivanova (2022) and N. Ivanova et al. (2022) focus on Ukraine's external economic activity, highlighting its integration into the European economic sphere and identifying key indicators to measure economic security. The papers by I. Gryshova et al. (2020) and M. Kyzym et al. (2018) emphasise the importance of identifying threats to national economic security and propose an improved methodological assessment toolkit with a focus on economic improvements and the effectiveness of government regulation.

Similarly, L. Jankovska et al. (2018) and A. Stavytskyi (2019) emphasise the need for a strong legal and economic framework for Ukraine's economic security,

and A. Stavytskyi uses a panel gravity model to analyse levels of economic security in Europe. In addition, A. Kubaienko (2018) and S. Kozlovskiy et al. (2019) discuss Ukraine's integration into the European space and emphasise the importance of centralised state supervision and strategic planning for national security. Rosén G., Meunier S. (2023) as well as Steinberg F., Wolff G. (2024) offer a contemporary perspective on economic security, addressing global challenges such as the COVID-19 pandemic and climate change. They advocate for the EU to move towards resilience and strategic autonomy in trade and investment policy, and emphasise the need for data-driven approaches to identify vulnerabilities.

Although these studies make a significant contribution to the understanding of economic security, there is still a gap in a comprehensive comparison of its dimensions in the EU Member States and Ukraine.

3. Research Methodology

The research methodology uses a quantitative analysis of various indicators selected to offer a comprehensive perspective in different dimensions (Table 1).

By comparing each country's performance with these thresholds for each indicator, the study attempts to identify differences and similarities in the levels of economic security. Each country has been assigned a numerical rank, which indicates the level of economic security for individual indicators: 5 – optimal level, 4 – satisfactory condition, 3 – unsatisfactory condition, 2 – dangerous condition, 1 – critical condition and 0 – condition worse than critical.

4. Results and Discussion

Indicators related to industrial security, such as the yield of major cereals (1.1; 2022; Malta – 2017), vary considerably between countries. For example, Belgium and Ireland demonstrate extremely high yields (86.0 and 87.0 centners per hectare, respectively), which is indicative of efficient agricultural practices. In contrast, countries such as Cyprus and Romania have much lower yields (24.9 and 36.3 centners per hectare, respectively), indicating potential for agricultural improvement.

Demographic security indicators, including life expectancy (2.1; 2021), mortality rate (2.2; 2021), age distribution (2.3; 2022) and dependency ratio (2.4; 2022), provide valuable insights into the sustainability of the workforce and the well-being of society. Life expectancy at birth is a key demographic indicator in which Spain and Sweden lead the way (83.2 years), demonstrating strong healthcare systems. However, Bulgaria and Ukraine lag behind with 71.5 and 70.0 years, indicating healthcare challenges. Infant mortality rates and the percentage

Table 1
Threshold values of economic security indicators

Indicator	Level of economic security								
	Critical (1)	Dangerous (2)	Unsatisfactory (3)	Satisfactory (4)	Optimal (5)	Satisfactory (4)	Unsatisfactory (3)	Dangerous (2)	Critical (1)
1	2	3	3	4	5	6	7	8	9
1. Industrial security									
1.1. Yields of major grains and legumes, centners per 1 ha of harvested area	[15; 20]	[20; 25]	[25; 35]	[35; 45]	[45; 55]	(55; 75]	(75; 95]	(95; 100]	(100; 150]
2. Demographic security									
2.1. Life expectancy at birth, years	[66; 68]	[68; 70]	[70; 75]	[75; 78]	≥ 78				
2.2. Infant mortality rate (per 1000 live births)					≤ 4	(4; 5]	(5; 7]	(7; 9]	(9; 11]
2.3. Population aged 65 and over (% of the total population)	[11; 13]	[13; 15]	[15; 17]	[17; 18]	[18; 20]	(20; 21]	(21; 22]	(22; 23]	(23; 25]
2.4. Age dependency ratio (% of the working age population)	[35; 36]	[36; 38]	[38; 40]	[40; 45]	[45; 50]	(50; 51]	(51; 52]	(52; 53]	(53; 55]
3. Energy security									
3.1. Renewable energy consumption (% of total final energy consumption)	[2; 3]	[3; 3.5]	[3.5; 4]	[4; 6]	≥ 6				
4. Foreign trade security									
4.1 Exports to imports coverage ratio, times	[0.85; 0.9]	[0.9; 0.95]	[0.95; 0.975]	[0.975; 1]	[1; 1.2]	(1.2; 1.25]	(1.25; 1.3]	(1.3; 1.5]	(1.5; 1.7]
5. Investment and innovation security									
5.1. Research and development expenditures (% of GDP)	[0.5; 1]	[1; 1.5]	[1.5; 2]	[2; 3]	≥ 3				
6. Macroeconomic security									
6.1. Current account balance (% of GDP)	[-7; -5]	[-5; -4]	[-4; -3]	[-3; -1.5]	[-1.5; 1.5]	(1.5; 3]	(3; 5]	(5; 7]	(7; 10]
6.2. Unemployment, total (% of total labour force) (ILO modelled estimate)					≤ 5	(5; 6]	(6; 7]	(7; 8]	(8; 9]
6.3. Inflation, consumer prices (annual %)	[-2; -1]	[-1; -0.5]	[-0.5; 1]	[1; 2]	[2; 3]	(3; 4]	[4; 5]	(5; 8]	(8; 12]
7. Food security									
7.1. Average calories per person per day (kcal)	[2250; 2500]	[2500; 2700]	[2700; 2900]	[2900; 3100]	≥ 3100				

(End of Table 1)

1	2	3	3	4	5	6	7	8	9
7.2. Grain production per capita per year, metric tonnes	[0.6; 0.7)	[0.7; 0.8)	[0.8; 0.9)	[0.9; 1)	≥ 1				
8. Social security									
8.1. Ratio of total income of the richest 10% and the poorest 10% (decile ratio), times					≤ 4.5	(4.5; 5]	(5; 5.5]	(5.5; 6]	(6; 7]
8.2. Public expenditures on education, total (% of GDP)	[3; 4.5)	[4.5; 5.5)	[5.5; 6.5)	[6.5; 7)	≥ 7				
8.3. Public expenditures on healthcare, total (% of GDP)	[3; 4.5)	[4.5; 5.5)	[5.5; 6.5)	[6.5; 7)	≥ 7				
9. Financial security									
9.1. Public debt, total (% of GDP)					≤ 20	(20; 30]	(30; 40]	(40; 50]	(50; 60]
9.2. Total stocks in months of imports	[1.5; 2)	[2; 2.5)	[2.5; 3)	[3; 5)	≥ 5				

Source: compiled by the author based on data from the Ministry of Economic Development and Trade of Ukraine

of the population aged 65 and over also vary: Estonia has an extremely low infant mortality rate (1.6 per 1,000 live births), while Italy has a high percentage of its population aged 65 and over (24.1%).

The share of renewable energy consumption (3.1; 2020) indicates progress towards sustainable and self-sufficient energy sources, which reflects the level of energy security. Sweden stands out for its renewable energy consumption (58.4% of total energy consumption), which indicates a strong commitment to sustainable energy. Conversely, countries such as Malta and Ukraine have lower rates (9.2% and 8.7%), indicating that there is potential for growth in the renewable energy sectors.

The exports-to-imports ratio (4.1; 2022) sheds light on the balance of international trade, which is key to foreign trade security. Ireland's ratio is high (1.413 times), indicating a favourable trade balance. However, Greece's coefficient (0.831) indicates a trade deficit, which could affect economic stability.

R&D expenditure highlights a country's innovation capacity and potential for future growth, contributing to investment and innovation security (5.1; 2021). Sweden (3.42%) and Austria (3.26%) are leaders in this area, potentially contributing to better economic growth through innovation. However, Romania (0.47%) and Cyprus (0.83%) lag behind, indicating potential areas for increased R&D investment.

Traditional indicators such as the current account balance (6.1; 2022), unemployment rate (6.2; 2023; Ukraine – 2021) and inflation rate (6.3; 2022) remain crucial for assessing overall macroeconomic security. Germany is running a current account surplus (4.2% of GDP), indicating economic strength, while Greece's large negative balance (-10.4%) is a cause for concern. Unemployment rates are particularly high in Spain (12.1%) and Greece (10.8%), while inflation is highest in Estonia (19.4%) and Lithuania (19.7%).

Indicators such as calorie intake (7.1; 2019) and grain production per capita (7.2; 2022; Malta 2017) are important in assessing a country's ability to meet its food security needs. Ireland (3,811 kcal) and Belgium (3,800 kcal) have high calorie intakes, indicating a high level of food security. In terms of grain production, Lithuania (2.0 metric tonnes) and Denmark (1.6 metric tonnes) have high per capita production, which underlines their strong agricultural sectors.

The ratios related to income distribution (8.1; 2021; Germany 2019; Malta and Ukraine 2020), education (8.2; 2021) and health expenditure (8.3; 2020; Denmark, Ireland, Luxembourg) provide an indication of the effectiveness of the social security system in promoting equitable growth, illustrating social protection. Income inequality, as measured by the ratio of the total income of the highest and lowest 10 per cent of the population, varies considerably.

Italy (11.4 times) and Romania (12.6 times) have high levels of income inequality, while Slovenia (4.9 times) shows greater equality. Public spending on education and healthcare also varies, with Denmark (9.3% on education) and Germany (10.1% on healthcare) investing heavily in these areas.

Finally, the level of public debt (9.1; 2021; data not available for Cyprus, Czech Republic, Denmark, Finland, Germany, Italy, Latvia, Luxembourg, Malta, the Netherlands, Poland, Portugal and Slovenia) and import cover reserves (9.2; 2022) provide valuable information on a country's fiscal sustainability and ability to weather economic crises, which contributes to financial security. The high debt of the Greek central government (237.4% of GDP) is a concern, while Bulgaria's high import cover reserves (7.5 months) indicate sound financial security, in contrast to Luxembourg's low reserves (0.1 months).

Table 2 illustrates that staple grain yields are between optimal and satisfactory levels for 23 countries, while Cyprus is at an unsafe level. There were no countries with critical or worse than critical levels. Life expectancy is optimal and satisfactory in 21 countries, while 7 post-socialist and post-communist countries

(Bulgaria, Hungary, Latvia, Lithuania, Romania, Slovak Republic and Ukraine) are unsatisfactory. Infant mortality rates are unsatisfactory in 4 countries, namely: Bulgaria, Malta, Romania and Ukraine. Six countries demonstrate an unsafe level of security for the population aged 65 and over, while Finland and Italy have a critical level. As for the dependency ratio, 17 countries have a level worse than critical, and only Malta and the Slovak Republic have an optimal level.

All 28 countries analysed reach the optimal level of security in terms of the share of renewable energy consumption. Sixteen countries demonstrate optimal and satisfactory levels in terms of export/import coverage, but Romania reaches a critical level, while Greece and Ukraine perform even worse. Only 10 countries demonstrate optimal and satisfactory levels of R&D expenditure. Bulgaria, Cyprus, Latvia, Malta, and the Slovak Republic are at the critical level, while Romania and Ukraine are even worse. Traditional indicators, such as the current account balance of the balance of payments, are giving terrible results: 12 countries are in critical or worse than critical condition. Unemployment rates are

Table 2
Levels of economic security in EU Member States and Ukraine

Country	1.1	2.1	2.2	2.3	2.4	3.1	4.1	5.1	6.1	6.2	6.3	7.1	7.2	8.1	8.2	8.3	9.1	9.2
AUT	4	5	5	5	3	5	5	5	5	4	1	5	1	0	2	5	0	0
BEL	3	5	5	5	0	5	4	5	5	4	1	5	0	1	3	5	0	0
BGR	5	3	3	2	0	5	5	1	5	5	0	3	5	0	2	2	3	5
HRV	4	4	5	2	0	5	2	2	4	3	1	5	3	0	2	3	0	5
CYP	2	5	5	2	4	5	5	1	0	3	1	4	0	0	3	3	n.a.	0
CZE	4	4	5	4	0	5	4	4	1	5	0	5	3	2	2	5	n.a.	5
DNK	4	5	5	4	0	5	5	4	0	5	2	5	5	1	3	5	n.a.	4
EST	4	4	5	4	0	5	4	3	3	3	0	5	5	0	3	3	4	0
FIN	4	5	5	1	0	5	2	4	4	3	2	5	2	2	3	5	n.a.	0
FRA	4	5	5	3	0	5	2	4	4	2	2	5	4	0	2	5	0	2
DEU	4	5	5	2	0	5	5	5	3	5	2	5	0	0	2	5	n.a.	1
GRC	4	5	5	2	0	5	0	2	0	0	1	5	0	0	1	2	0	0
HUN	4	3	5	5	2	5	3	3	0	5	0	5	4	1	2	2	0	3
IRL	3	5	5	3	1	5	2	2	0	5	2	5	0	1	1	2	0	0
ITA	5	5	5	1	0	5	3	2	5	2	1	5	0	0	1	5	n.a.	4
LVA	4	3	5	3	0	5	2	1	2	3	0	5	5	0	3	2	n.a.	1
LTU	4	3	5	4	0	5	4	2	1	3	0	5	5	0	2	2	2	0
LUX	4	5	5	3	4	5	4	2	1	4	2	5	0	0	2	2	n.a.	0
MLT	5	5	3	5	5	5	5	1	1	5	2	5	0	0	3	5	n.a.	0
NLD	3	5	5	4	0	5	5	4	1	5	1	5	0	2	2	5	n.a.	0
POL	5	4	5	5	4	5	5	2	4	5	0	5	5	1	2	2	n.a.	4
PRT	5	5	5	2	0	5	3	3	5	3	2	5	0	0	2	4	n.a.	2
ROU	4	3	3	5	2	5	1	0	0	4	0	5	5	0	1	2	1	4
SVK	5	3	4	4	5	5	3	1	0	4	0	4	1	2	1	3	0	0
SVN	4	5	5	4	0	5	5	4	5	5	1	5	0	4	3	4	n.a.	0
ESP	3	5	5	4	3	5	5	2	5	0	1	5	0	0	2	5	0	1
SWE	4	5	5	4	0	5	5	5	3	2	1	5	1	0	4	5	2	2
UKR	5	3	3	5	2	5	0	0	3	0	0	4	5	3	3	1	1	4

Source: compiled by the author based on data from the World Bank and the European Health Information Gateway

dangerous in France, Italy and Sweden, while Greece, Spain and Ukraine are in the worse-than-critical zone. The inflation rate is of particular concern: it is dangerous in 8 countries, critical in 10, and worse than critical in 10.

Bulgaria is the only country with an unsatisfactory level of average calorie intake, while all other countries have an optimal or satisfactory level of security. Grain production per capita is also an indicator of concern: Finland is at an unsafe level of security, Austria, the Slovak Republic and Sweden are at a critical level, and 12 countries have an economic security level worse than critical. Looking at the ratio of total income of the highest and lowest 10 per cent, no country has reached the optimal level, only Slovenia has a satisfactory level, while five countries have a critical level and 17 countries have a worse than critical level of economic security. Similarly, no country has reached the optimal level in terms of education expenditure, while Sweden is the only country with a satisfactory level, and 13 countries have a precarious and 5 countries have a critical level of economic security.

Healthcare spending is better: 12 countries have an optimal level, but 9 countries have a dangerous level, and Ukraine has a critical level. Finally, the levels of public debt and import reserves show that 9 and 13 countries, respectively, are performing worse than the critical level of economic security. An analysis of the economic security of the EU and Ukraine using a wide range of indicators shows significant disparities. For example, differences in agricultural efficiency, as seen in grain yields between Belgium and Ireland compared to Cyprus and Romania, are an important area for targeted policy intervention, and this finding is consistent with the arguments of Jankovska et al. (2018) and A. Stavytsky (2019) on the need for a strong economic foundation. However, the lack of data reflecting the ongoing war in Ukraine since 2022 is a critical limitation of the study. This conflict is likely to have had a significant impact on economic security, which is not reflected in the data.

The findings on disparities in the health care system, as evidenced by different life expectancy rates, resonate with V. Ivanova (2022) and N. Ivanova et al. (2022), who emphasise Ukraine's integration into European economic structures and highlight health care as a key indicator of economic security. The research also draws attention to the need for more dynamic models, as suggested by V. Bobyl, A. Loskutova and M. Dron (2023), who argue for structural reforms in Ukraine's external economic security. In addition, the study sheds light on the discrepancies in renewable energy consumption and R&D spending in the EU and Ukraine. It is worth noting Sweden's leadership in renewable energy and R&D investment, in contrast to countries such as Romania and Ukraine, which lag behind in these areas. This finding underscores the

argument of S. Sadyhov (2022) that diversification of energy sources is necessary to enhance EU energy security. An analysis of socio-economic factors, such as the distribution of income and expenditure on health and education, shows significant disparities between EU Member States and Ukraine, which is consistent with V. Khakimova's (2023) emphasis on EU-Ukraine partnership in political reform.

A major limitation of the research is the statistical lag and lack of data for certain indicators. For example, data on central government debt were missing for 13 countries, making a comprehensive assessment of financial security difficult. Furthermore, while the study uses data mostly from 2021-2022, some indicators are based on older data (as far back as 2017), which may not accurately reflect the current economic climate. Despite these limitations, the study fills a gap in the existing literature by providing a comprehensive comparison of economic security in the EU and Ukraine using a wide range of indicators. It is in line with the work of I. Gryshova et al. (2020) and M. Kyzym et al. (2018), which highlight the need for improved methodological tools in economic security assessments. The research supports Rosén G., Meunier S. (2023) and Steinberg F., Wolff G. (2024) advocacy for resilience in EU economic policy, especially in light of contemporary challenges such as the pandemic and climate change.

5. Conclusions

The quantitative analysis carried out to examine economic security in the EU and Ukraine has provided valuable insights into several dimensions. Firstly, disparities in cereal yields highlight agricultural inefficiencies, with countries such as Belgium and Ireland showing advanced practices, while Cyprus and Romania lag behind. This suggests the need for targeted policies and technological advances to improve agricultural performance. Secondly, differences in life expectancy highlight disparities in the effectiveness of health care systems, with Spain and Sweden leading the way with higher rates compared to Bulgaria and Ukraine. Addressing these differences will require comprehensive healthcare reforms. In addition, differences in renewable energy consumption, trade balances, R&D expenditure and socio-economic factors point to areas requiring attention to improve economic security.

It is crucial to adapt policies to address the specific problems identified. Recommendations for academia include further research on the causal links between economic security indicators and macroeconomic outcomes, using modern econometric models for a deeper analysis. For business, the priority is to align strategies with national economic priorities, such as investments in research and development and

renewable energy. In addition, longitudinal studies that track changes in indicators over time can provide insights into policy effectiveness, and expanding the geographical coverage of research to non-EU countries will provide a more complete understanding of global economic dynamics. Microeconomic analysis focusing on the vulnerabilities and opportunities of specific sectors can provide practical guidance to stakeholders. Finally, the inclusion of qualitative methods would deepen understanding and provide context for quantitative findings, contributing to more informed decision-making processes.

6. Acknowledgements

The research was conducted under the funding of the "EU ECONOMIC SECURITY" grant (project number: 101083446, project acronym: EUECOSEC, call: ERASMUS-JMO-2022-HEI-TCH-RSCH, topic: ERASMUS-JMO-2022-CHAIR) and "EU GENDER SECURITY" grant (project number: 101078301, project acronym: EUGENSEC, call: ERASMUS-JMO-2022-HEI-TCH-RSCH, topic: ERASMUS-JMO-2022-MODULE), provided by the European Education and Culture Executive Agency.

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Received on: 23th of June, 2024

Accepted on: 27th of August, 2024

Published on: 20th of September, 2024