

ECONOMIC RESILIENCE: CONCEPTS AND CHALLENGES

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***Abstract.** This study aims to outline a conceptual framework for national and international economic resilience, supporting economic development and improved living standards. It examines the case of the Republic of Moldova within the context of regional and global transformations, emphasizing the importance of governance, innovation, and institutional adaptability in fostering resilience. The research employs systemic, documentary, and both qualitative and quantitative analysis methods to investigate the dimensions of economic resilience and its macroeconomic indicators. The findings propose a systemic model highlighting the interaction between key decision-making factors and their impact on economic and social performance. The study underscores that resilience is essential for economic security, enabling timely adaptation to shocks and sustaining long-term development. The originality lies in the integrated analysis of socioeconomic, political, and geopolitical factors influencing Moldova's growth potential. The originality of the work is reflected by the comprehensive or system analysis of the interdependence between the multitude of socioeconomic, political and geo-political factors and their impact on the growth potential of the national economy in general and the business environment in particular. Economic resilience are fundamental factors that determine the strengthening of the security of the national economy. A competitive and well-developed business environment can help the Republic of Moldova to register high and sustainable economic growth. Thus, resilience is a factor that favors the entrepreneurial environment to resist economic fluctuations, crises and other negative events that affect the national economy. The article was developed within the framework of Subprogram 030101 „Strengthening the resilience, competitiveness, and sustainability of the economy of the Republic of Moldova in the context of the accession process to the European Union”, institutional funding.*

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1. Introduction

In a global environment characterized by economic interconnectedness, and under conditions of increasing disruption, resilience has unquestionably become a priority in response to the impact of recent crises. The global financial crisis, the COVID-19 pandemic, the growing climate crisis, regional conflicts, are the latest examples of unprecedented external shocks capable of disrupting economies and societies, have highlighted the need for economic resilience in ensuring stability, prosperity, sustainable and inclusive growth. As crises have become a persistent aspect of daily life, they have compelled governments and businesses to recognize the vital importance of economic resilience in responding to disruptions.

The financial crisis of recent years has highlighted the importance of economic resilience. It is worth noting that flexible economies are more resistant to negative shocks than rigid economies. For example, in Ireland the adjustment of wages and relative prices took place immediately after the recession of 2008-2009. As a result, an export-led recovery began in 2011 and the unemployment rate began to decline in 2012. The situation was different in other countries, such as Greece, Portugal and Spain, where nominal adjustment began many years after the recession (Sondermann, 2018). Thus, well-functioning national economic structures are important for ensuring economic resilience.

According to the World Economic Forum, resilience or the lack thereof can influence global annual GDP growth by 1% to 5%. Concurrently, effective efforts in reskilling and upskilling the workforce for a digital economy have the potential to boost economic growth by up to 4.5% annually by 2030 (WEF, 2022).

International experience demonstrates that economic resilience is a dynamic, evolving process rather than a fixed state, necessitating ongoing adaptation to emerging challenges and opportunities. In the scientific literature, a common approach to economic resilience is lacking.

In recent years, the manifestation of shocks in the economy is inevitable, then the study of the economy's ability to respond appropriately to them has become a topic of interest for decision-makers, a phenomenon also revealed by the objectives of the European Union's policies. The concept of economic resilience is a priority to understand the response of economies to shocks and to succeed in reducing the economic costs generated by these shocks. Low economic resilience is associated with poor economic structures, such as: weak economic competition, entry/exit difficulties, labor market rigidities, low governance quality and corruption. All this significantly reduces the ability to absorb shocks and the transformation needed to resume the trend of sustainable economic growth.

A resilient economy is one that either avoids or minimizes an economic downturn at best, and after the shock passes, quickly returns to the long-term trend of growth and high employment. Thus, an economy's ability to resist and recover from shocks depends on its flexibility, that is, the ability of capital and labor to adapt to ever-changing economic conditions.

The importance of having a resilient economy is given by the fact that it is subject to either smaller or shorter downturns. The longer or longer the period of economic decline, the more the confidence and optimism of companies and employees is affected in the long term, which can lead to repetitive effects (crisis leads to distrust, distrust leads to crisis).

2. Methodology

This research examines the theoretical and methodological foundations of resilience from economic, sectoral, and social perspectives, in relation to key objectives such as enhancing sustainability and aligning macroeconomic indicators. The study also develops a systemic framework to analyze the mechanisms of interaction between various decision-making actors and their influence on the economic and social environment through the lens of resilience and performance. It further investigates the nature and specific features of economic resilience tools that can contribute to sectoral development, as well as the strategic relevance of their implementation.

The research is primarily theoretical, focusing on the evolution of the concept of resilience and the foundational elements that have shifted the analytical focus toward the economic dimension. The structure of the study includes: a review of the relevant body of knowledge, identification of emerging trends, and the formulation of appropriate solutions.

The aim of the article is to synthesize current research on economic resilience and to identify contextual trends that mediate and moderate this relationship within varying national economic conditions. The study employs several analytical approaches, including the interpretation of findings from the specialized literature, the theory of resource depletion, systems analysis, and comparative analysis. The selected factors are examined from legislative, financial, and social perspectives.

3. Literature review

The term "resilience" is defined in the Larousse Dictionary as the mechanical characteristic of materials to resist various external shocks and to return to the initial state, being used at first only with this meaning. Etymologically, the word derives from the Latin verb *salio*, -ire, which means "to jump", "to jump", accompanied by the prefix *re-*, also of Latin origin, which means "against", "back". Only since the 70s, this concept has been used with a metaphorical meaning to describe systems that face different disturbing factors and that go through varied periods of imbalance, having the ability to resist and return to the initial state (Martin & Sunley, 2015).

The concept of resilience has progressively expanded in scope and has been integrated into a wide range of disciplines, including engineering, ecology, environmental studies, psychology, sociology, and economics. In fields such as philosophy and logic, resilience is often understood as an indicator of stability.

Therefore, resilience has been defined by the speed with which a certain ecosystem returns to its initial state after a period of imbalance, or by referring to the magnitude of a disruptive event, which a certain system can cope with, without changing its structure or functionality. The concept is very often considered a key element in the sustainable management of ecosystems, while biodiversity contributes to increasing the resilience, stability and functionality of ecosystems. Resilience has a special significance in periods of transition, of stress accumulation, periods that may also include unexpected events external to the individual (natural disasters, job loss, poverty). These events require increasing the ability to face them, in order to maintain a positive approach (psychological, attitudinal or behavioral).

The importance of the concept of resilience in sustainable development studies explains the establishment of the Resilience Alliance in 1999, an organization of scientists and practitioners from different fields and which aims to research the dynamics of socioecological systems. In this organizational and research framework, special importance is given to adaptive capacity, as an element of resilience. Other authors consider the adaptive capacity as actually being influenced by resilience and denoting the ability to make intervention plans and implement technical measures before, during and after the manifestation of extreme events; adaptive capacity is thus considered to be influenced by resilience (Puțuntică, 2013).

Economic resilience is "the ability to recover or adapt to the negative impacts of external economic shocks" (Briguglio et al., 2009). It foresees the following reactions in the face of a crisis: self-organization, adaptation, transformation and survival (Humbert and Joseph, 2019). Resilience characteristics are distinct for each actor in the economy and depend on both skills and capabilities: absorption, recovery, adaptation (Hafele et al., 2023; Martin and Sunley, 2015).

According to the OECD Report, it is necessary to learn the lessons to guide the policy actions necessary to strengthen economic resilience, understood as the following "tritych" policy:

- prevention of potential vulnerabilities;
- preparing to absorb shocks when they occur;

- the ability to recover quickly from those shocks through well-governed economic markets, as well as effective reforms of structural policies and institutional frameworks (OECD 2021).

The specialized literature offers multiple definitions of resilience, alongside various dimensions, characteristics, and principles that shape this multifaceted concept. Several authors (Zobel, 2011) categorize resilience into four key dimensions: technical resilience, referring to the capacity of an organization's physical systems to function appropriately during a crisis; organizational resilience, reflecting the ability of decision-makers to implement actions that prevent or mitigate crisis impacts; economic resilience, indicating the capacity to absorb and manage the financial costs associated with a disruption; and social resilience, which involves society's ability to adapt and respond effectively, often through the support of first responders or volunteer efforts.

4. Results and discussion

Resilience can be examined across multiple scales, including individual, collective, local, national, regional, ecological (or green), digital, and economic levels. Thus, individual resilience represents a stable trajectory of the individual's healthy functioning after an extremely turbulent event (trauma caused by factors, usually external) or the individual's ability to adapt to new internal or external environmental conditions, and can be one of the best predictors to deal with the threats of COVID-19. National resilience is a hybrid threat response tool, based on the promotion of security culture, and involves both the specific response measures designed at the institutional level and an overarching process that includes all the constituent elements of a nation, including social solidarity and patriotism.

Regional resilience is a highly complex process, significantly shaped by the nature, duration, and magnitude of shocks, as well as by additional influencing factors such as past experiences, regional economic structures, and multi-level public policies. A resilient region is characterized by the continuous adaptation of local markets and governance structures to evolving environmental conditions. Structural transformations typically occur only when these adaptive processes are hindered often as a result of inappropriate interventions by higher-level authorities that constrain local innovation and flexibility.

Green resilience refers to the capacity to adapt to climate change by enhancing the resilience of infrastructure, promoting the circular economy, minimizing environmental impacts on natural resources, preserving biodiversity, eliminating toxic substances, and transforming production and consumption patterns. It also encompasses the development of eco-friendly industries and employment, as well as the restoration of ecological systems to ensure that human activities remain within the planet's environmental limits.

Digital resilience ensures that the way we live, work, study and interact in the digital age respects/strengthens human dignity, democracy, equality, freedom, security and other fundamental European values. Resilient digital transformation can foster the shaping and appropriation of human-centered digital technologies, as well as their effective contribution to global sustainability. Digital transformation is a way to modernize the economy and address critical social challenges.

Economic resilience is generally the ability of an economy to withstand and recover from the disruptive effects of an economic shock and to achieve long-term structural change in an equitable and inclusive way. Given the cyclical and structural nature of changes, economies need not always return to their pre-shock status or the same growth trajectory.

The Strategic Foresight Report 2020, titled "Charting the Course Towards a More Resilient Europe", underscores the growing importance of strategic foresight in EU policy-making and introduces the overarching concept of EU resilience (European Commission, 2021). The report conceptualizes resilience through four interrelated dimensions: social and economic, geopolitical, ecological, and digital. For each dimension, it identifies key capacities, vulnerabilities, and opportunities revealed by recent crises, emphasizing the areas that require targeted policy action and investment in both the medium and long term to enhance the European Union's strategic autonomy and preparedness.

Social and economic resilience refers to the capacity to withstand economic shocks while pursuing long-term structural transformation in a manner that is both equitable and inclusive. Ecological resilience, on the other hand, involves achieving climate neutrality by 2050, alongside efforts to mitigate and adapt to climate change, reduce pollution, and restore the functionality of ecological systems, all while ensuring that human development remains within the planet's environmental limits.

Digital resilience means ensuring that the way we live, work, study and interact in this digital age respects and strengthens human dignity, freedom, equality, security, democracy and other fundamental European rights and values. Escalating US-China tech clashes disrupting global supply chains will heighten debate at European level on the need for the EU to pursue its agenda on technological and digital sovereignty.

Geopolitical resilience refers to the European Union's efforts to reinforce its 'open strategic autonomy' and assert its role as a global leader in an increasingly interdependent and competitive international landscape. The COVID-19 pandemic has accelerated existing geopolitical shifts and altered global power dynamics, emphasizing the EU's position as a reliable partner and responsible actor on the world stage. In the face of a potentially fragmented and destabilized global order, the EU aims to serve as a stabilizing force and a guarantor of peace. Open strategic autonomy' reflects the EU's commitment to open and fair trade, the preservation of an open economy, and the promotion of a revitalized multilateralism by supporting international partners in embracing shared global values (Stoica et al., 2021).

At the same time, the EU is aware of the need to reduce its dependence and strengthen its security of supply in key technologies and value chains (European Commission, 2020).

Lessons learned from previous epidemics have limited relevance for addressing the impact of COVID-19 on the global economy. The Spanish flu of 1918, one of the most devastating pandemics in history, caused major economic destruction worldwide, but in the wake of a four-year war (World War I) and in much less connected and much smaller economies than today. More recent epidemics have not caused such large economic collapses. The SARS crisis caused by SARS-CoV-1 in 2002–2003, one of the most significant health crises of the early 21st century, had notable economic repercussions on both the demand and supply sides. However, the overall economic impact proved to be less severe than initially anticipated, as most affected economies recovered relatively quickly, with economic activity and global trade connections largely restored.

As a result, embedded, inclusive, and often informal economies grounded in mutualism and solidarity have experienced notable growth. For example, the food supply sector has witnessed a significant expansion of solidarity-based initiatives, ranging from large-scale food donations to vulnerable populations to the provision of mobile food services for disadvantaged groups in certain countries. Communities have mobilized to address

systemic gaps and support those in need, with civil society organizations at times collaborating with state institutions to enhance the effectiveness of these efforts.

Effective economic governance is characterized by the decentralization of authority within enterprises, the active engagement and mobilization of workers and stakeholders to facilitate transformative change, and the centrality of networks and coalitions in economic coordination. It further entails deliberative decision-making processes and the democratization of knowledge to enable collective agency. These dimensions were particularly accentuated in the economic responses to the COVID-19 crisis, revealing the potential for more resilient and inclusive economic models.

The concept of resilience was also used before the publication of EUGS 2016, but in the context currently the EU proposes a so-called strategic approach to resilience, which leads on the one hand to increasing the impact that the EU's external action has and, on the other hand, to supporting the Union's objectives in terms of development, humanitarian assistance, foreign policy and security.

Thus, in the EU, the Recovery and Resilience Mechanism (RMR) is a temporary tool and a central element of NextGenerationEU - the plan that will help the Union emerge stronger and more resilient from the current crisis. Through the mechanism, the EU raises funds by borrowing on the capital markets (it issues bonds on behalf of the EU). These funds are then made available to its member states to implement ambitious reforms and investments through which:

- their economies and societies become more sustainable, more resilient and more prepared for the green and digital transition, according to the Union's priorities;
- to propose solutions to the challenges identified in the specific recommendations for each country formulated within the European Semester for the coordination of economic and social policies.

In order to access support under the Recovery and Resilience Facility, EU Member States were required to submit national recovery and resilience plans detailing the reforms and investments to be implemented by the end of 2026, structured around specific milestones and targets. Each plan was mandated to allocate a minimum of 37% of its budget to climate-related (green) measures and at least 20% to digital transformation initiatives.

Economic resilience measurement indicators. Measuring the economic resilience of EU regions and Member States to economic and financial crises can be achieved through the use of composite indicators, which integrate four core sub-indicators either composite or individual in nature:

- Macroeconomic resilience sub-indicator, constructed from three components: GDP per capita, gross fixed capital formation per capita, and real gross value added in the construction sector per capita;
- Firm-level economic resilience sub-indicator, based on a single metric: the survival rate of firms;
- Labor market resilience sub-indicator, measured using real GDP per capita divided by the total number of hours worked;

Financial-banking resilience sub-indicator, composed of two metrics: the Bank Z-score (which captures the likelihood of default in a country's commercial banking sector, inversely scaled post-normalization), and the ratio of credit extended by state-owned banks to state-owned enterprises relative to GDP (also inversely scaled).

Based on these indicators, two key temporal dimensions of resilience - commonly referenced in the literature can be identified:

a) Resistance (Impact phase) – defined as the interval between the peak value preceding the shock and the trough, or lowest value, observed during the shock. Notably, the trough may occur following brief periods of partial recovery.

b) Recovery (Bounce-back phase) – defined as the period from the trough to the year when the indicator returns to or surpasses its pre-shock value. If full recovery is achieved, the end of the recovery period is marked by the first year in which the pre-crisis level is equaled or exceeded. In cases where the indicator does not return to its pre-shock value, the latest available year is considered the endpoint (Lupu & Pavel, 2013).

The European Commission currently employs resilience dashboards as a key instrument in guiding resilience-building efforts. While these dashboards are valuable tools, their practical application in policymaking and international comparisons could be enhanced by supplementing them with a unified measure of economic resilience. This need arises for two main reasons: first, the dashboards lack a theoretical foundation specific to economic resilience; and second, they encompass over 100 indicators, which can limit their accessibility and utility for decision-makers. In response to these limitations, the Economic Resilience Index (ERI) has been developed. Grounded in a coherent theoretical framework, the ERI consolidates relevant indicators into a single composite measure, offering a more streamlined and theoretically consistent approach to assessing economic resilience.

Economic resilience has become a key focus in both public discourse and the European Union's policy agenda. Notable policy initiatives reflecting this priority include the Recovery and Resilience Facility (RRF), designed to mitigate the economic and social consequences of the COVID-19 pandemic while strengthening the resilience of EU economies. Furthermore, the European Commission has introduced the Single Market Emergency Instrument, aimed at reinforcing the resilience of the Single Market through enhanced crisis preparedness and management measures.

Building resilient economies requires a clear understanding of their defining characteristics. In recent decades, it has become evident that an exclusive reliance on GDP growth has left economies vulnerable to shocks and crises. Challenges such as climate change, ecological degradation, and growing social and territorial inequalities have intensified. In response, the EU has increasingly emphasized the need to move beyond GDP as the sole measure of progress. These debates support a broader vision of economies that ensure a good quality of life for all, within planetary boundaries. Crucially, such economies must not only achieve this in stable conditions, but also maintain or restore it in the face of multiple and overlapping disruptions.

The resilience dashboards were incorporated into the 2022 European Semester Country Reports for nine member states, including Denmark, Finland, and Estonia, to assess various dimensions of national resilience⁵. These dashboards serve as a comprehensive and detailed tool for policymakers to evaluate a country's capacity to withstand and adapt to shocks. However, their overall impact remains limited due to inconsistent integration across national Semester reports. To enhance their effectiveness and policy relevance, two key gaps hindering their successful use by policymakers must be addressed.

Furthermore, considering the economy's deep interconnection with society and the environment, its higher-level objective is defined as "ensuring wellbeing for present and future generations while remaining within planetary boundaries." Consequently, the role of

the economy is viewed as a means to contribute to this overarching goal. From this perspective, two key constraints emerge for the economic system: (1) to minimize adverse social impacts that undermine wellbeing, and (2) to operate within the environmental limits set by planetary boundaries. Figure 1 illustrates this interconnectedness, highlighting the economy’s embedded role within societal and environmental systems.

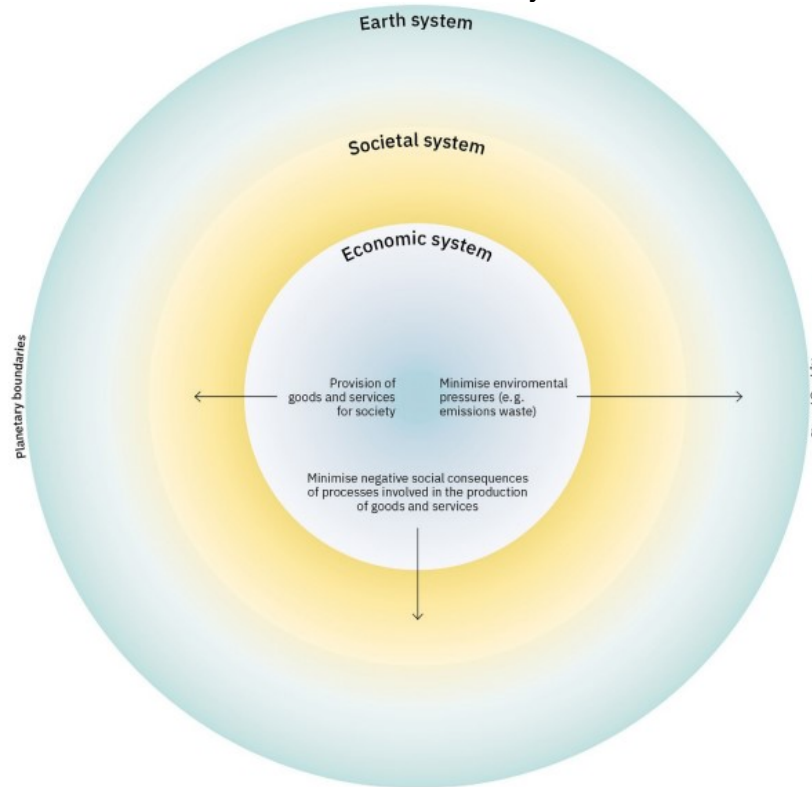


Figure 1. Purpose of the economy in relation to society and the environment, setting the reference value to assess economic resilience

Source: (Hafele et al., 2023).

Moreover, different components of the economy carry out activities aimed at fulfilling its overarching purpose. Four key actors involved in the provision of goods and services are identified: households, communities, businesses, and the state. These are collectively referred to as provisioning actors (Hafele et al., 2023). Provisioning is based on both monetary and non-monetary interrelations within and among these actors, conceptualized as flows (Phelan, 1999). Building upon this framework, provisioning actors require a specific set of eight core abilities that enable them to effectively perform their interlinked functions. For example, these actors must be able to access natural resources and to generate, disseminate, and apply knowledge (Hafele et al., 2023).

5. Conclusions and recommendations

Strategic resilience primarily entails the existence of a balanced, well-structured, and adaptable socio-economic system, in which daily processes and activities unfold without major disruptions, thereby facilitating the attainment of national development objectives. It

also enables individuals to contribute meaningfully to broader systems of cooperation and collaboration in which the state in this case, Romania - actively participates.

Beyond the domestic advantages, such as a high standard of living, mitigation of crisis impacts, and the general prosperity of citizens, a resilient and robust state, one that upholds universally recognized principles and norms, including human rights, the rule of law, a consolidated market economy, and a high level of security is consistently regarded as a reliable, valued, and respected international partner.

Attaining such a level of strategic resilience requires, above all, effective national governance, a well-functioning educational system capable of producing a skilled and educated workforce, and the rational allocation of resources aligned with long-term development strategies. These foundations are essential for building systemic capacities to prevent, absorb, and recover from external or internal shocks.

As previously emphasized, it is crucial to distinguish between stable and responsive initiatives in the broader resilience framework.

- Stable initiatives involve sustained, long-term efforts to enhance a community's or region's capacity to resist or avoid shocks altogether.
- Responsive initiatives, on the other hand, focus on the ability to respond swiftly and effectively to recovery needs following an adverse event.

Together, these two categories form the pillars of a comprehensive and proactive approach to resilience, integrating both preventive and reactive dimensions of strategic planning.

The complexity of the factors that have an impact on the prospects of economic growth for the Republic of Moldova, such as the context of war in a neighboring country, hybrid attack, an election year and climate change, increase uncertainties regarding the short-term dynamics. Such events can significantly influence the economic dynamics of countries. The military conflict and hybrid attacks generate instability in the security of the Republic of Moldova. Cyber security is also becoming essential to ensure sustainable economic growth by protecting economic activities, infrastructure and critical information. A secure digital infrastructure and online trust are fundamental to economic sustainability.

The risk of political instability, catalyzed by this year's presidential and 2025 parliamentary elections, may negatively affect domestic and foreign investor confidence by creating an unfavorable climate for business and investment. Government decisions taken in the context of elections can influence economic policy and reforms, consequences for the business and investment environment.

The Republic of Moldova remains a country where agriculture continues to play a significant role in the economy. Addressing the development challenges facing this strategic priority area sector. It is necessary to dynamize the process of reform and implementation of climate change adaptation strategies, reorientation of producers towards products and activities with high added value, and capacities to market products on the domestic and foreign markets. Given the austere nature of the national public budget, it is important to ensure a prioritization of the sector in the context of capitalizing on or attracting external support.

Vulnerability to international developments is growing. Among the risk factors can be mentioned, the continuation of the moderation of the pace of economic activity in the European Union, the uncertainty regarding the political configuration in several key states

where there are elections in 2024, the escalation of tensions and conflicts at the international level.

The themes addressed in this paper, economic resilience, as well as resilience indicators for the financial and other key sectors are of critical importance for the Republic of Moldova, particularly in light of anticipated future developments. They provide a valuable foundation for generating insights that can inform the design and implementation of strategic development plans aimed at strengthening the country's economic framework and ensuring sustainable growth.

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