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A METHODOLOGICAL FRAMEWORK FOR MEASURING NATIONAL ECONOMIC ADAPTIVITY AND ADAPTATION

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Abstract. Growing uncertainty in the global economy, ongoing structural transformations, and recurring crises have increased scholarly interest in the capacity of national economies to adapt to changing conditions. However, the literature still lacks a clear distinction between adaptivity, the adaptation process, and adaptation outcomes, which complicates both theoretical interpretation and empirical assessment. The purpose of this study is to develop a methodological framework for analysing national economic adaptivity based on a conceptual distinction between adaptivity, the adaptation process, and adaptation outcomes. The study draws on complexity economics, institutional economics, evolutionary economics, and the concepts of social capital and collective action. The national economy is examined as a complex adaptive system whose performance depends on interactions among the state, social partnership institutions, civil society, and the broader institutional environment. The article argues that adaptivity should be understood as the capacity of an economic system to respond to internal and external challenges; adaptation as a process of institutional, structural, and behavioural transformation; and adaptation outcomes as the observable socio-economic consequences of these changes. To operationalise these concepts, the study proposes an Adaptivity Index that captures institutional preconditions for adaptation and an Adaptation Outcomes Index that reflects changes in key macroeconomic and socially significant indicators. The findings suggest that successful adaptation depends not only on the quality of formal institutions but also on the effectiveness of coordination mechanisms between the state, business, and society, the level of social trust, and the capacity of economic policy to adjust

to changing conditions. The proposed framework provides a methodological basis for future comparative and empirical studies of national economic adaptivity.

Keywords: economic adaptivity; adaptation process; adaptation outcomes; complex adaptive systems; institutional economics; social partnership; social capital

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ҰЛТТЫҚ ЭКОНОМИКАНЫҢ БЕЙІМДІЛІГІ МЕН БЕЙІМДЕЛУІН ӨЛШЕУДІҢ ӘДІСНАМАЛЫҚ ТӘСІЛІ

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Аннотация. Әлемдік экономиканың өсіп келе жатқан белгісіздік жағдайында, құрылымдық өзгерістер мен қайталанатын дағдарыстар аясында ұлттық экономикалардың өзгермелі жағдайларға бейімделу қабілетін зерттеудің маңызы артып келеді. Сонымен қатар ғылыми әдебиетте адаптивтілік, бейімделу процесі және бейімделу нәтижелері ұғымдарының ара-жігін нақты ажырату мәселесі толық шешілмеген күйінде қалып отыр. Бұл аталған санаттарды теориялық тұрғыдан түсіндіруді де, эмпирикалық бағалауды да күрделендіреді. Зерттеудің мақсаты – адаптивтілік, бейімделу процесі және бейімделу нәтижелері ұғымдарын тұжырымдамалық тұрғыдан ажыратуға негізделген ұлттық экономиканың адаптивтілігін талдаудың әдіснамалық тәсілін әзірлеу. Зерттеудің әдіснамалық негізін күрделілік экономикасы, институционалдық экономика, эволюциялық экономика, сондай-ақ әлеуметтік капитал және ұжымдық әрекет тұжырымдамалары құрайды. Ұлттық экономика мемлекет, әлеуметтік әріптестік институттары, азаматтық қоғам және институционалдық орта арасындағы өзара әрекет арқылы дамытын күрделі адаптивті жүйе ретінде қарастырылады. Мақалада адаптивтілік экономикалық жүйенің ішкі және сыртқы сын-қатерлерге жауап беру әлеуеті ретінде, бейімделу процесі институционалдық, құрылымдық және мінез-құлықтық өзгерістердің жүзеге асу механизмі ретінде, ал бейімделу нәтижелері осы өзгерістердің байқалатын әлеуметтік-экономикалық салдары ретінде түсіндіріледі. Аталған ұғымдарды операцияландыру мақсатында

бейімделудің институционалдық алғышарттарын сипаттайтын Адаптивтілік индексі және әлеуметтік маңызы бар әрі макроэкономикалық көрсеткіштердің динамикасын көрсететін Бейімделу нәтижелері индексі ұсынылады. Зерттеу нәтижелері табысты бейімделудің тек формалды институттардың сапасына ғана емес, сонымен қатар мемлекет, бизнес және қоғам арасындағы үйлестіру тетіктерінің тиімділігіне, әлеуметтік сенім деңгейіне және экономикалық саясаттың өзгермелі жағдайларға уақтылы бейімделу қабілетіне тәуелді екенін көрсетеді. Ұсынылған тәсіл ұлттық экономикалардың адаптивтілігін салыстырмалы және эмпирикалық тұрғыдан зерттеуге арналған әдіснамалық негіз қалыптастырады.

Түйін сөздер: экономиканың адаптивтілігі; бейімделу үдерісі; бейімделу нәтижелері; күрделі адаптивті жүйелер; институционалдық экономика; әлеуметтік әріптестік; әлеуметтік капитал

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МЕТОДОЛОГИЧЕСКИЙ ПОДХОД К ИЗМЕРЕНИЮ АДАПТИВНОСТИ И АДАПТАЦИИ НАЦИОНАЛЬНОЙ ЭКОНОМИКИ

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Аннотация. В условиях возрастающей неопределенности мировой экономики, структурных изменений и повторяющихся кризисов возрастает значение исследований, посвященных способности национальных экономик адаптироваться к изменяющимся условиям. Вместе с тем в научной литературе сохраняется недостаточная определенность в разграничении адаптивности, процесса адаптации и результатов адаптации, что затрудняет как теоретическое осмысление данных категорий, так и их эмпирическую оценку. Цель исследования заключается в разработке методологического подхода к анализу адаптивности национальной экономики, основанного на концептуальном разграничении адаптивности, процесса адаптации и результатов адаптации. Методологическую основу исследования составляют экономика сложности, институциональная экономика, эволюционная экономика, а также концепции социального капитала и коллективного действия. Национальная экономика рассматривается как сложная адаптивная система, функционирование которой определяется взаимодействием государства, социального партнерства, гражданского общества и институциональной среды. В статье обосновывается необходимость различать адаптивность как потенциальную способность экономической

системы реагировать на внутренние и внешние вызовы, адаптацию как процесс институциональных, структурных и поведенческих изменений и результаты адаптации как наблюдаемые социально-экономические последствия этих изменений. Для операционализации данных категорий предлагаются индекс адаптивности, характеризующий институциональные предпосылки адаптации, и индекс результатов адаптации, отражающий динамику социально значимых и макроэкономических показателей. Показано, что успешность адаптации определяется не только качеством формальных институтов, но и эффективностью механизмов координации между государством, бизнесом и обществом, уровнем социального доверия и способностью экономической политики к своевременному обновлению в ответ на изменяющиеся условия. Полученные результаты формируют методологическую основу для дальнейших сравнительных и эмпирических исследований адаптивности национальных экономик.

Ключевые слова: адаптивность экономики; процесс адаптации; результаты адаптации; сложные адаптивные системы; институциональная экономика; социальное партнерство; социальный капитал

Introduction. The contemporary global economy operates amid growing uncertainty, deepening interdependence among economic systems, accelerating technological change, and recurring crises of various origins. The Global Financial Crisis of 2008–2009, the recession caused by the COVID-19 pandemic, disruptions in global supply chains, and energy and geopolitical shocks have demonstrated the limitations of traditional approaches to analysing the development of economic systems amid crises, market shocks, and other changes in the business environment. Under these circumstances, increasing attention is being paid not only to an economy's ability to withstand crises and shocks but also to its capacity to adapt to changing conditions by restructuring its institutional, structural, and behavioural parameters.

Research in evolutionary economics and complexity economics has substantially deepened understanding of adaptation patterns in economic systems. The national economy is increasingly viewed as a complex adaptive system in which macroeconomic dynamics emerge not through centralised control but through interactions among numerous heterogeneous agents, institutions, and coordination mechanisms. Despite the significance of these studies, an important conceptual gap remains. In the academic literature, the concepts of adaptivity, the adaptation process, and adaptation outcomes are often used without sufficient analytical rigour. As a result, it remains unclear exactly what should be understood by economic adaptivity: the potential capacity of a system to adjust, the process by which this capacity is realised, or the actual outcomes of adaptation.

A significant methodological problem arises in assessing adaptation outcomes. In most studies, the success of adaptation processes is evaluated using indicators such as economic growth, production recovery, trade dynamics, and other

macroeconomic variables. However, this approach primarily captures the economic consequences of adaptation while paying insufficient attention to socially significant dimensions. An economic system may demonstrate output growth, recovery of economic activity, or structural renewal without ensuring improvements in public welfare, reductions in social vulnerability, or strengthening of social trust. Therefore, adaptation outcomes should be considered more broadly—as the socially and economically significant result of the economy’s systemic adjustment to changing operating conditions.

The purpose of this study is to develop a methodological approach to assessing the adaptivity of the national economy based on a conceptual distinction between adaptivity, the adaptation process, and adaptation outcomes, taking into account the institutional framework, as well as to substantiate quantitative indicators that make it possible to analyse the dynamics of the adaptation process and conduct cross-country comparisons. The article views the national economy as a complex adaptive system whose capacity for adaptation is determined not only by the quality of economic institutions but also by the roles of the state, social partnership, and civil society, as well as by the system’s ability to revise and renew economic policy in response to changing conditions.

The proposed approach enables analytical distinction among adaptivity, the adaptation process, and adaptation outcomes, and establishes a system of indicators for their empirical assessment. This expands the possibilities for comparative analysis of national economies and provides a foundation for investigating the relationships among an economy’s institutional characteristics, the adaptation process, and its socio-economic outcomes. From a practical perspective, the approach may be used to develop economic policies aimed not only at restoring economic activity but also at achieving sustainable and socially significant results.

Literature Review. In Arthur (2015), the economy is presented as a continuously evolving system of interacting agents operating under conditions of bounded rationality and incomplete information. Unlike deterministic models, complexity economics emphasises the dynamics of adaptation, institutional learning, and the emergence of new forms of coordination in response to external shocks. Similar approaches are presented in Farmer et al. (2018), which highlight the evolutionary nature of economic dynamics and the ability of systems to self-organise through processes of variation, selection, and institutional retention.

Within the framework of evolutionary economics, adaptation is understood as a continuous process of information processing, learning, and institutional reconfiguration. This is particularly important during global crises, when traditional coordination mechanisms lose their effectiveness and economic adaptability depends on the system’s ability to modify interaction rules and reallocate resources rapidly. A significant contribution to the development of this line of research has been made by the theory of Complex Adaptive Systems (CAS). Preiser et al. (2018) demonstrate that the adaptivity of complex systems emerges not through centralised control but through institutional flexibility, distributed coordination, and feedback

mechanisms. Morin (2015) views socio-economic systems as nonlinear structures in which adaptivity arises through self-organisation and the emergence of order parameters. From this perspective, adaptation results from interactions among multiple agents and institutions rather than merely from government regulation.

Alongside the development of complexity economics, institutional economics has played a significant role in the study of adaptivity. Particularly important for the present study is North's concept of adaptive efficiency. North (2005) regards institutions not as static rules but as mechanisms that enable society to respond to uncertainty and changing conditions. Adaptive efficiency is determined by the ability of institutions to evolve in response to external shocks and reduce uncertainty over the long term. Within this framework, institutional quality is associated not only with the current effectiveness of governance but also with the system's capacity for institutional renewal.

The decisive role of institutions in economic development has been firmly established within institutional economics. Hall and Soskice (2001) view coordination among key economic actors as the foundation of the flexibility of national economic models. According to North (2005), institutions are a fundamental factor in reducing uncertainty, structuring interactions, and lowering transaction costs, which is particularly important during periods of crisis and instability. Rodrik (2021) emphasises that the adaptability of economic policy is determined by governments' ability to adjust institutional arrangements in response to changing conditions, rather than by strict adherence to predetermined regulatory models. Similar arguments are presented by Acemoglu and Robinson (2019), who associate the adaptivity of economic systems with the institutional balance between the state and society. Mazzucato (2021) describes the state as a coordinator of institutional transformation and a strategic architect of structural change.

Particularly important for the present study are works examining the role of social coordination, trust, and social partnership. Putnam (1993) demonstrates that institutional effectiveness is closely linked to the level of social trust and civic cooperation. Ostrom (2005) underscores the importance of self-organisation and collective governance under uncertainty, showing that the capacity for collective action can serve as an alternative to both rigid state control and purely market-based coordination. In general, there is a consensus that trust is a fundamental factor in the sustainability of socio-economic systems.

Studies of social partnership occupy an important place in the literature as a mechanism of institutional coordination. Aghion et al. (2021) show that economic adaptivity depends on the ability of institutions to create channels for reconciling interests and processing conflicts. Streeck (2016) regards social partnership as a mechanism for maintaining institutional resilience during periods of structural crisis. Within this framework, economic adaptivity is determined not only by the quality of state institutions but also by the density of coordination mechanisms linking the state, business, and society.

An expanding body of empirical research is devoted to resilience, adaptive governance, and the institutional resilience of national economies under crisis conditions (Martin & Sunley, 2020). These studies emphasise that economic adaptivity is determined not only by macroeconomic parameters but also by the ability of institutions to provide coordination, learning, and the processing of crisis signals. However, most of this literature focuses primarily on adaptation or resilience outcomes, whereas the institutionally embedded capacity of an economy to adaptively transform remains underexplored.

Despite substantial advances in the literature on institutional economics, governance studies, and complexity economics, existing research exhibits several limitations.

First, a significant proportion of studies focus on state institutions, market mechanisms, or individual indicators of governance quality without considering them as a unified institutional-coordination system of adaptive governance. As a result, the interrelationship between the state, social partnership, and civil society as a joint mechanism of adaptation remains insufficiently explored.

Second, adaptivity is often conflated with resilience, governance quality, or short-term outcomes of anti-crisis policy. Such conceptual overlap complicates the distinction between the institutional potential of an economy, the adaptation process, and the observable outcomes of crisis response. However, an economy's capacity to adapt cannot be reduced to the effectiveness of public administration or the speed of macroeconomic recovery alone. Adaptivity is a broader systemic property encompassing the capacity for institutional learning, self-organisation, and coordinated transformation.

Third, relatively few studies propose an integrated operationalisation of adaptivity that combines institutional quality, coordination mechanisms, social trust, and transaction costs within a single analytical framework. Most existing indices measure specific aspects of institutional development, administrative effectiveness, or regulatory quality but do not assess the institutionally embedded capacity of an economy to adapt under conditions of crisis and uncertainty. This gap limits the possibilities for comparative analysis of national economic adaptability and calls for a more comprehensive approach to measuring it.

Theoretical Framework. The national economy is a complex adaptive system comprising numerous interconnected economic actors – companies, corporations, organisations, and other forms of economic activity – that, through market interactions, form higher-level structures such as industries, territorial production complexes, value-added chains, and other forms of economic organisation. At the same time, the national economy cannot be reduced to a simple aggregation of individual agents. Rather, it functions as an integrated system possessing its own developmental logic, an established structure, institutional specificity, and characteristics shaped by geographic location, natural and climatic conditions, and the resource base.

The methodological logic of this study is based on distinguishing three

interrelated yet analytically distinct categories that characterise economic development under conditions of uncertainty: adaptivity, the adaptation process, and adaptation outcomes. Such a distinction makes it possible to consistently examine a system's capacity to respond to changes in its external and internal environments, the mechanisms through which this capacity is realised, and the socio-economic outcomes achieved.

Adaptivity is understood as a systemic property of the economy and its structural components that reflects their ability to respond to crises, market shocks, and other adverse changes in the external and internal environment. Within the framework of this study, adaptivity is also interpreted as the potential capacity of an actor to make and implement effective decisions under conditions of uncertainty. Sources of destabilisation may be either endogenous or exogenous.

The adaptation process represents the practical realisation of this potential and reflects the economy's dynamic adjustment to changing operating conditions. It is important to recognise that changes in the external environment occur continuously, whereas crises and shocks represent the most concentrated manifestations of such changes. Consequently, adaptation cannot be reduced to a one-time response to a particular crisis; rather, it is an ongoing process of institutional, structural, and behavioural change.

Adaptation outcomes reflect the measurable social and economic consequences of this process. It is at this level that an empirical assessment becomes possible of how effectively the economy realises its adaptive potential. Adaptation outcomes are expressed through a system of observable socio-economic indicators that characterise various dimensions of public welfare and economic performance.

Adaptivity, the adaptation process, and adaptation outcomes form a unified analytical sequence. Adaptivity characterises the economic system's potential to respond to changes in the external and internal environments; adaptation reflects the mechanism by which this potential is realised; and adaptation outcomes capture the resulting social and economic consequences. Accordingly, the adaptation process serves as the intermediary link through which the system's potential capabilities are transformed into observable outcomes.

The need to analytically distinguish among adaptivity, the adaptation process, and adaptation outcomes is supported by several studies on the evolutionary development of economic systems (Boschma, 2015; Kazhyken, 2026). Such a distinction is of fundamental importance because observable outcomes do not always adequately reflect an economy's internal adaptive potential. A country may demonstrate production recovery, trade expansion, or structural renewal; however, such changes alone do not necessarily constitute successful adaptation unless accompanied by improvements in public welfare and other socially significant development outcomes.

Since adaptation constitutes a continuous process, adaptivity cannot be regarded as a fixed property of an economic system. It is formed, accumulated, and evolves alongside changes in institutions, economic structures, and the behavioural

patterns of economic agents. From an evolutionary perspective, adaptation is not limited to short-term recovery following a crisis or shock; it also involves the emergence of new development trajectories resulting from interactions among structural, network, and institutional factors (Boschma, 2015).

Adaptivity reflects an economic system's potential to respond to external and internal challenges, whereas adaptation outcomes characterise the social and economic consequences of these changes. The institutional environment serves as the connecting link between the two, as it determines the opportunities, constraints, and mechanisms through which adaptive potential is realised. The quality of institutional coordination largely determines the speed, coherence, and effectiveness of economic adjustment to crises, market shocks, and other changes in operating conditions.

The effectiveness of the state's response to emerging challenges depends not only on the quality of policy decisions but also on its ability to take into account the interests and expectations of the principal participants in economic activity. In this regard, social partnership assumes particular importance, as it facilitates interaction among the state, employers, and employees in the formulation and implementation of economic policy. Its role extends beyond purely consultative functions. Social partnership helps reduce conflicts of interest, lower transaction costs, accelerate the flow of information between economic actors and public authorities, and enhance the coherence of policy decisions.

The significance of this institution becomes particularly evident during periods of crisis, when the timeliness and quality of institutional responses become critical determinants of successful adaptation. Well-developed mechanisms of collective bargaining, tripartite consultations, and institutionalised social dialogue enable governments to obtain more comprehensive information on labour market conditions, business needs, and public expectations. This reduces information asymmetry and creates the conditions necessary for formulating more effective economic policies.

At the same time, the speed of decision-making does not in itself guarantee effectiveness. Uncoordinated measures may not only fail to resolve existing problems but may also increase uncertainty. Consequently, the institutional system's ability to ensure the coordinated implementation of policy decisions is critical. In this context, social partnership functions as a mechanism of public legitimation, promotes compliance with established rules, and reduces resistance to necessary reforms.

Thus, social partnership should be regarded as one of the system-forming institutions of adaptation, ensuring the reconciliation of interests among the state, business, and employees. Through this mechanism, the economy's adaptive potential translates into practical actions and their corresponding socio-economic outcomes.

Accordingly, adaptivity characterises the capacity of an economic system to preserve its functional integrity while simultaneously modifying its structural

parameters in response to exogenous and endogenous factors. Adaptation, in turn, implies not a return to a previous state but the development of new mechanisms of coordination and development under changed conditions. The greater the extent to which the institutional environment corresponds to the needs of economic agents and the objective conditions of economic activity, the higher the probability of successful adjustment to emerging challenges. Observable social and economic indicators, in turn, enable empirical assessment of both adaptation outcomes and the effectiveness of the institutions that support the adaptation process.

Methodology. The methodology of this study is based on several interrelated assumptions. Firstly, national economic adaptivity is conceptualised as a systemic property that emerges from the interaction among multiple institutional factors, each reflecting a distinct aspect of the system's capacity to respond to changes in the external and internal environments. To quantify this property, an integral indicator – the Adaptivity Index (AD) – is employed. Second, adaptivity is understood as a comprehensive characteristic of the economy's institutional architecture, determining its capacity for coordination, crisis signal processing, and structural adjustment under conditions of uncertainty.

To quantify adaptivity, an integral indicator – the Adaptivity Index (AD) – is employed. The index combines institutional quality, the level of social partnership, social capital, and institutional costs within a unified analytical framework:

$$AD_t = w1 \times IQ_t + w2 \times SP_t + w3 \times SC_t + w4 \times TCinv_t \quad (1)$$

where t denotes the year; AD_t – Adaptivity Index in year t ; IQ_t – indicator of institutional quality; SP_t – indicator of social partnership; SC_t – indicator of social capital; and $TCinv_t$ – inverse indicator of transaction costs.

The IQ component characterises the quality of the institutional environment. It reflects the state's capacity to ensure effective regulation, implementation of adopted decisions, rule predictability, and institutional renewal under conditions of uncertainty. In the context of the present study, this indicator is regarded as one of the key prerequisites of national economic adaptivity. IQ is calculated as the arithmetic mean of four components:

$$IQ_t = (GE_t + RQ_t + RL_t + CC_t) / 4 \quad (2)$$

where: GE – Government Effectiveness; RL – Rule of Law; RQ – Regulatory Quality; CC – Control of Corruption. The data source for these components is the Worldwide Governance Indicators (WGI) database.

The SP component characterises the level of social partnership and the degree of institutionalised coordination among the state, employers, and employees. The indicator reflects the system's capacity to reconcile the interests of the principal actors in labour relations and to develop mechanisms of collective interaction under conditions of economic change. SP is calculated as follows:

$$SP_t = (CBC_t + UD_t + EOD_t + TCI_t) / 4 \quad (3)$$

where: CBC – Collective Bargaining Coverage; UD – Union Density; EOD – Employer Organisation Density; TCI – Tripartite Coordination Index. Data sources include the ICTWSS Database, ILOSTAT, and ILO Social Dialogue Indicators.

The SC component characterises the level of social capital and reflects society's capacity for coordination, cooperation, and collective action. Consistent with the concept of social capital, the indicator combines interpersonal trust, civic participation, and the development of horizontal social ties:

$$SC_t = (Trust_t + CivicParticipation_t + AssociationDensity_t) / 3 \quad (4)$$

where: Trust – indicator of interpersonal trust; CivicParticipation – indicator of citizens' involvement in civic organisations and forms of collective action; AssociationDensity- indicator of the prevalence of horizontal networks and civic associations. Data sources include the World Values Survey, OECD Trust Indicators, the Legatum Prosperity Index, and OECD Social Indicators.

The TCinv component is interpreted as an inverse measure of transaction costs and is calculated based on the normalised Ease of Doing Business Score (EDB) as follows:

$$TCinv_t = EDB_t \quad (5)$$

where: EDB_t denotes the normalised value of the Ease of Doing Business Score in year t . Higher values of TCinv correspond to lower administrative barriers, lower transaction costs, and more favourable conditions for economic activity.

The assessment of national economic adaptation outcomes is based on a system of indicators reflecting both macroeconomic dynamics and the socially significant consequences of the adaptation process. The index incorporates indicators of economic growth, export performance, unemployment, inflation, and income inequality. These indicators were selected in order to evaluate not only the recovery of economic activity but also the social consequences of ongoing changes. Such an approach makes it possible to move beyond a narrow interpretation of adaptation as the recovery of production and toward a more comprehensive assessment of the extent to which the economy preserves or improves public welfare under changing conditions.

The formula of the National Economy Adaptation Outcomes Index is as follows:

$$AOI_t = w_1 \times \Delta GDP_t + w_2 \times (1 - \Delta U_t) + w_3 \times (1 - \Delta INF_t) + w_4 \times \Delta EXP_t + w_5 \times (1 - \Delta GINI_t) \quad (6)$$

where: AOI – National Economy Adaptation Outcomes Index; Δ GDP – GDP growth rate; Δ U – growth rate of unemployment; Δ INF – inflation growth rate; Δ EXP – export growth rate; Δ GINI – change in the Gini coefficient relative to the base period.

The inclusion of the Gini coefficient has important methodological significance. Adaptation cannot be considered successful if a substantial increase in social inequality accompanies the recovery of economic activity. An economy may demonstrate positive GDP growth, export expansion, and employment stabilisation; however, the concentration of recovery benefits within particular sectors, regions, or social groups indicates that the outcomes achieved are incomplete and socially unsustainable.

Moreover, crises are typically characterised by asymmetric effects on different population groups. Even when macroeconomic indicators improve, excessive income differentiation, rising social polarisation, and a decline in the inclusiveness of economic growth may persist. For this reason, the assessment of adaptation outcomes requires consideration not only of economic growth but also of its social consequences.

The inclusion of the export indicator enables the capture of the external dimension of adaptation.

Thus, the AOI represents a multidimensional index of adaptation outcomes that combines indicators of macroeconomic dynamics, external economic resilience, and social inclusiveness. This approach avoids reducing adaptation solely to the rate of economic growth and provides a more comprehensive assessment of the socio-economic consequences of the adaptation process.

Accordingly, the dynamics of the AOI components enable evaluation of the effectiveness of adaptation through a set of observable socio-economic indicators. Improvements in the corresponding parameters indicate a more successful adjustment of the economy to changing conditions, whereas deterioration may indicate incomplete adaptation or limited adaptive potential.

To ensure comparability of the indicators, all original variables used to calculate the IQ, SP, SC, TCinv, and AOI components are first transformed to a common [0,1] scale using min–max normalisation. Following normalisation, the aggregated components and the composite indices AD and AOI are calculated. For indicators that hurt adaptation outcomes – namely unemployment, inflation, and inequality – an inverse transformation of the form $(1 - x)$ is applied after normalisation. This procedure ensures a consistent interpretation of all AOI components, with higher values corresponding to more favourable adaptation outcomes.

In equations (1) and (6), the weighting coefficients are assigned theoretically in accordance with the study's logic and reflect the presumed importance of individual components in shaping the national economy's adaptivity and adaptation outcomes.

Results. The state plays a key role in shaping the institutional conditions of adaptation, as it establishes the legal and regulatory framework for the functioning

of the economy and the institution of social partnership. At the same time, within the liberal economic tradition, this role requires clarification. Adaptation is viewed not as the outcome of directive control over economic processes but as a consequence of a decentralised system's capacity to respond to changes in its external and internal environments.

From the perspective of classical liberalism, the national economy constitutes a complex system of coordination among numerous autonomous economic actors possessing local knowledge, diverse interests, and heterogeneous behavioural strategies. Under such conditions, the economy's capacity for adaptation is determined primarily by the quality of the institutional environment, which ensures freedom of economic choice, predictability of rules, and the ability to respond independently to emerging challenges. Within the proposed framework, the state is not regarded as the direct source of adaptation. Its function is to establish an institutional order in which economic agents can adjust to changing conditions while incurring minimal coordination and transaction costs.

At the same time, research in complexity economics demonstrates that market mechanisms are not always capable of independently ensuring structural transformation, overcoming path dependence, or escaping inefficient local equilibria (Beinhocker, 2006). Within this perspective, the state serves as an architect of the institutional environment: without replacing market coordination with administrative control, it establishes the rules of interaction, reduces systemic risks, and creates conditions for the economy's long-term structural adaptation.

The capacity of a national economy to adapt is determined not by the scale of state intervention but by the quality of its institutional architecture, which ensures freedom of contractual relations, protection of property rights, regulatory predictability, a competitive environment, and low transaction costs. The greater the flexibility of such a system, the more rapidly economic agents can reallocate resources, reorganise production linkages, adjust behavioural patterns, and develop new mechanisms to adapt to changing conditions.

At the same time, this does not imply the state's exclusion from the adaptation process. On the contrary, its principal function lies in maintaining the basic institutional order necessary for a decentralised economy to function. This includes establishing stable rules of interaction, ensuring the enforcement of contracts, protecting economic freedoms and property rights, and reducing uncertainty that may hinder long-term decision-making.

Thus, within the proposed framework, the state is viewed not as the source of adaptation but as its institutional guarantor. The effectiveness of its role is determined not by the scale of direct intervention in the economy but by its capacity to sustain an environment in which economic agents can respond independently and in a coordinated manner to emerging challenges. In this sense, the role of the state consists in maintaining a normative order aligned with the needs of the economy and the mechanisms of social partnership.

The effectiveness of national economic adaptation largely depends on the level of civil society development. Civil society provides horizontal social coordination, facilitates collective responses to crises, market shocks, and other changes in the external environment, and strengthens the institutional mechanisms through which emerging challenges are addressed.

First and foremost, civil society performs an informational function by creating feedback channels between the population, economic agents, and public authorities. During periods of crisis, government institutions are not always able to promptly identify changes in public sentiment, levels of social tension, shifts in consumer behaviour, or the emergence of local economic imbalances. In this regard, civic institutions help reduce information asymmetry and ensure the more rapid transmission of signals concerning emerging problems and new adaptive challenges.

Equally important is the aggregation function, through which dispersed individual interests and local demands are transformed into collectively articulated social positions. Its significance increases during periods of instability, when social fragmentation complicates the formulation of coordinated responses and raises the costs of institutional coordination.

Another important mechanism is the legitimisation of adaptation measures. Even economically sound decisions may prove ineffective in the absence of public trust and the willingness of different social groups to support ongoing reforms. Consequently, the effectiveness of the adaptation process depends not only on the content of economic policy but also on the degree of its public acceptance.

Finally, civil society performs a coordination function by facilitating interaction among the state, business, and various interest groups. Within this framework, it serves as an intermediary institution that enhances the coherence of participants' actions in the adaptation process and improves the quality of decision-making.

The influence of civil society is not confined to the social sphere but extends to a broad range of economic processes. Participation in the formulation of social policy affects the distribution of public goods, the level of inequality, and the parameters of social justice. At the same time, civic institutions can influence employment, investment priorities, entrepreneurial activity, structural transformation, and the principles governing resource allocation. In this way, civil society becomes one of the actors involved in shaping the economic agenda and implementing adaptive transformations.

Conversely, when social self-organisation is weak and horizontal ties are underdeveloped, the effectiveness of adaptation processes declines significantly. A lack of trust and coordination intensifies information asymmetries, increases conflict, and complicates the reconciliation of interests among the principal participants in economic activity. As a result, even well-designed policy measures may encounter public resistance, a legitimacy deficit, and high implementation costs. Such problems are particularly evident under conditions of institutional

weakness in labour organisations, employers' associations, and other forms of public representation.

This conclusion is supported by contemporary empirical research demonstrating that levels of social trust, the quality of horizontal coordination, and the degree of civic engagement exert a significant influence on the resilience of socio-economic systems and their capacity to respond effectively to crises and other external challenges (Khadka, 2024; Gherghina, Volintiru and Sigurjonsson, 2023).

Thus, civil society should be regarded not as an auxiliary element of the institutional system but as one of the key mechanisms of national economic adaptation. Through the formation of social trust, the development of horizontal ties, and participation in coordinating collective action, it helps transform the economy's adaptive potential into practical outcomes. Its significance lies in strengthening social coordination, reconciling the interests of different groups, and enhancing the economic system's capacity to respond collectively to crises, market shocks, and structural change.

Discussion. The analysis conducted in this study demonstrates that the adaptation of a national economy cannot be reduced to a short-term response to crises and external shocks. Its effectiveness is determined by a combination of institutional, social, and cognitive factors that enable the economic system to respond promptly to changing conditions and to develop new mechanisms of coordination. One of the principal conclusions of the study is the necessity of distinguishing between adaptivity, the adaptation process, and adaptation outcomes. Adaptivity characterises an economy's capacity to respond to internal and external challenges; adaptation is the process of institutional, structural, and behavioural change; and adaptation outcomes reflect the socio-economic consequences of these transformations. Such a distinction helps avoid conflating an economy's adaptive potential with the observable outcomes of its actual performance.

The study also demonstrates that the success of adaptation depends not only on the quality of formal institutions but also on the effectiveness of coordination mechanisms linking the state, business, and civil society. In this regard, social partnership, social trust, and other forms of horizontal coordination acquire particular significance, as they reduce information asymmetries, facilitate the reconciliation of interests, and enhance the legitimacy of policy decisions. The greater the institutional system's capacity to ensure such interaction, the higher the probability of successful adaptation to crises, market shocks, and structural change.

The findings further suggest that the state should be viewed not as the direct source of adaptation but as an institutional guarantor of the normative order that ensures the predictability of rules, the protection of property rights, the enforcement of contracts, and the reduction of transaction costs. Within this framework, the effectiveness of the state is determined primarily by its capacity to maintain conditions in which economic agents can respond independently and

in a coordinated manner to changing circumstances. At the same time, adaptation involves not only institutional change but also the capacity to reconsider dominant assumptions regarding the principles of economic regulation. Economic history demonstrates that major crises are frequently accompanied by a reassessment of approaches to the state's role, coordination mechanisms, and economic policy instruments. In this sense, adaptivity is associated not only with institutional transformation but also with the renewal of the conceptual foundations of economic policy when existing models no longer correspond to new economic realities.

Thus, the adaptivity of a national economy is determined neither by individual institutions nor by isolated policy decisions, but by the coherence of the institutional environment, coordination mechanisms, and the system of economic policies. The proposed methodological framework enables the conceptualisation of the national economy as a complex adaptive system. It provides a foundation for further comparative and empirical research on adaptivity and adaptation outcomes amid growing uncertainty in the global economy.

Conclusion. The methodological approach proposed in this article is based on the consideration of the national economy as a complex adaptive system operating under conditions of increasing uncertainty, structural change, and recurring crises. Unlike traditional approaches that focus primarily on the macroeconomic outcomes of recovery, the proposed framework enables the distinction between adaptivity as a system's potential capacity to adjust, the adaptation process as the mechanism through which this capacity is realised, and adaptation outcomes as the observable socio-economic consequences of ongoing transformations. The analysis demonstrates that an economy's ability to adapt successfully is determined not by individual institutions or policy instruments alone, but by the quality of interaction among the state, social partnership institutions, and civil society. Their coordinated functioning creates the conditions necessary to reduce uncertainty, coordinate the actions of economic actors, and formulate responses that correspond to changing development conditions.

An important conclusion of the study is the need for a broader understanding of adaptation outcomes. Economic growth, production recovery, or export expansion alone do not provide a sufficient basis for assessing the success of the adaptation process. A more adequate evaluation requires consideration of socially significant parameters, including employment, inflation, income distribution, and other dimensions of public welfare.

The proposed approach provides a foundation for the further operationalisation and empirical assessment of the adaptivity of national economies. Promising directions for future research include the development of comparative international measures of adaptivity, the analysis of the relationship between adaptivity and adaptation outcomes, and the examination of institutional mechanisms that support sustainable economic development amid long-term global uncertainty. Thus, the concept of the adaptive economy expands the analytical possibilities for studying

economic development by linking the institutional characteristics of a national economy with its capacity not only to respond to crises and shocks but also to generate sustainable trajectories of future development.

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