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MUNICIPAL STRATEGIC CAPACITY AND ECONOMIC RESILIENCE UNDER GLOBAL INSTABILITY: PANEL EVIDENCE FROM VOJVODINA

Abstract:
This study examines whether municipal strategic capacity enhances local economic resilience under conditions of global instability. Focusing on municipalities in the Autonomous Province of Vojvodina, the analysis employs a balanced panel dataset covering the period 2015–2024.
Municipal strategic capacity is operationalized through a composite index capturing fiscal stability, administrative capability, and strategic planning intensity. Global instability is measured using a composite indicator of macroeconomic volatility, including inflation dynamics, energy price shocks, and geopolitical risk.
A fixed-effects panel model is applied to estimate the moderating effect of institutional capacity on the relationship between global instability and local economic performance.
The results indicate that global instability significantly reduces SME activity, investment intensity, and employment stability. However, municipalities with higher strategic capacity exhibit significantly lower vulnerability to external shocks. The interaction effect confirms that institutional capacity acts as a buffering mechanism, enhancing economic resilience.
The study contributes to the literature by integrating macroeconomic instability and local governance capacity within a unified empirical framework and provides policy-relevant insights for strengthening institutional resilience in transitional economies.
Keywords:
economic resilience, strategic capacity, local governance, global instability, panel data, institutional capacity

1. INTRODUCTION

Recent global shocks have significantly increased economic instability across regions, raising questions about the role of local governance in shaping resilience outcomes. Economic resilience represents the ability of an economic system to withstand, adapt to, and recover from external shocks (Martin, 2012; Simmie & Martin, 2010). Contemporary literature identifies four core dimensions of resilience: resistance, recovery, reorientation, and renewal (Christopherson et al., 2010). These dimensions emphasize that resilience is not limited to short-term shock absorption but includes long-term structural adaptation processes.
Recent theoretical developments emphasize that resilience is strongly influenced by institutional structures and governance quality (Boschma, 2015; Martin & Sunley, 2015). Regions characterized by stronger institutional frameworks, diversified economic structures, and effective policy coordination mechanisms demonstrate higher adaptive capacity and more stable development trajectories following external disturbances (Fratesi & Rodríguez-Pose, 2016; Di Caro, 2017).

Strategic management theory emphasizes the role of organizational capabilities as determinants of sustainable performance (Barney, 1991; Teece et al., 1997). The dynamic capabilities framework suggests that institutions capable of learning, adaptation, and coordinated resource allocation are more capable of responding to environmental uncertainty (Teece, 2007).

In the public governance context, municipalities can be interpreted as strategic actors capable of influencing local economic development through fiscal policy decisions, development planning instruments, and coordination of economic stakeholders. Institutional capacity at the local level determines the ability of municipalities to design and implement development strategies aimed at stabilizing economic performance during periods of uncertainty.

Municipal strategic capacity can therefore be defined as the ability of local governments to formulate long-term development objectives and effectively implement policy instruments supporting economic stability. This capacity includes fiscal sustainability, administrative competence, strategic planning capability, and the ability to attract and utilize external development resources (Kaplan & Norton, 1996).

Global instability refers to persistent macroeconomic volatility arising from systemic disturbances such as financial crises, pandemics, geopolitical conflicts, supply chain disruptions, and energy market shocks (World Bank, 2023; IMF, 2023). These disturbances increase uncertainty regarding future economic conditions, weaken investment expectations, and disrupt coordination mechanisms among economic actors.

Within this framework, global instability represents an exogenous macroeconomic disturbance, while municipal strategic capacity represents an institutional buffering mechanism influencing the magnitude of economic shock transmission effects.

Institutional economics literature emphasizes that governance quality significantly influences economic performance outcomes (North, 1990; Acemoglu & Robinson, 2012). Institutional capability enables local governments to respond to external shocks through adaptive policy mechanisms, coordinated development strategies, and efficient allocation of public resources.

Despite these developments, empirical studies rarely integrate global instability indicators with municipal-level institutional capacity within a unified analytical framework. This study contributes to addressing this research gap by linking macroeconomic instability indicators with strategic governance capacity at the local level.

2. RESEARCH SUBJECT AND RESEARCH OBJECTIVES

The subject of this research is the relationship between municipal strategic capacity and local economic resilience under conditions of global instability.

Global economic instability, particularly after 2020, has revealed structural vulnerabilities across national and regional economic systems. Pandemic shocks, energy market volatility, geopolitical tensions, and inflationary pressures have significantly affected economic performance across multiple governance levels.

The research focuses on municipalities in the Autonomous Province of Vojvodina, characterized by heterogeneous levels of institutional development and economic structure. Differences in fiscal capacity, administrative capability, and strategic planning frameworks suggest varying levels of resilience to external shocks.

The primary objective of this study is to examine whether municipal strategic capacity contributes to the stabilization of local economic performance during periods of global instability.

The main research question is:

Does higher municipal strategic capacity increase local economic resilience under conditions of global instability?

The main hypothesis assumes that municipalities characterized by higher levels of strategic governance capacity demonstrate lower economic volatility and faster recovery following external shocks.

The study contributes to the literature by integrating institutional capacity indicators into an empirical framework linking global macroeconomic instability with local economic resilience dynamics.

3. RESEARCH METHODOLOGY

3.1 Data sources and analytical framework

The empirical analysis is based on a balanced panel dataset covering 45 municipalities in the Autonomous Province of Vojvodina for the period 2015–2024. The dataset integrates indicators of local economic performance, fiscal structure, and administrative capacity obtained from multiple official statistical and institutional sources.

Data on firm dynamics (SME density, firm birth rate, and firm exit rate) and employment indicators are obtained from the Statistical Office of the Republic of Serbia municipal database and annual publications on business demography and labour market trends. Information on municipal fiscal structure, including budget balance stability, capital expenditure share, and investment activity, is collected from the Ministry of Finance of the Republic of Serbia and Treasury Administration local government financial reports.

Indicators capturing administrative capacity and strategic planning activity are derived from publicly available municipal strategic documents, local development plans, and reports on implementation of strategic frameworks, as well as from the Standing Conference of Towns and Municipalities database on local governance performance.

Additional macroeconomic indicators used to construct the Global Instability Index are obtained from international sources including the World Bank, International Monetary Fund, Eurostat, and the Geopolitical Risk Index database developed by Caldara and Iacoviello.

The analytical framework integrates economic performance indicators with institutional variables capturing municipal strategic capacity. Municipal Strategic Capacity (MSC) is operationalized as a multidimensional construct reflecting the ability of local governments to design and implement long-term development strategies, maintain fiscal stability, and coordinate development policy instruments.

The Global Instability (GI) index captures time-varying macroeconomic disturbances affecting local economic performance across municipalities. The GI index varies over time but is common to all municipalities in a given year, reflecting the systemic nature of global economic shocks.

3.2 Variable definitions

Table 1: Variable definitions

Variable	Description	Expected effect
SME density	number of SMEs per 1,000 inhabitants	positive
Firm birth rate	newly registered firms	positive
Firm exit rate	closed firms	negative
Employment dynamics	annual change in employment level	positive
Investment intensity	share of capital investments	positive
Global instability index (GI)	composite indicator of inflation volatility, energy price shocks, geopolitical risk and trade exposure	negative
Municipal strategic capacity index (MSC)	composite indicator of fiscal balance stability, capital expenditure share, strategic planning activity and administrative capacity	positive
Interaction term (GI × MSC)	moderating effect of institutional capacity	positive

Source: Author's conceptualization.

3.3 Construction of the Municipal Strategic Capacity Index (MSC)

Municipal Strategic Capacity (MSC) is constructed as a composite indicator capturing the multidimensional institutional capability of municipalities to formulate and implement development strategies. Results remain stable when alternative weighting structures based on PCA loadings are applied.

MSC includes five dimensions:

dimension	indicator	interpretation
fiscal stability	budget balance volatility	fiscal governance stability
investment orientation	share of capital expenditure	development orientation
administrative capacity	professional staff in development departments	implementation capability
strategic planning intensity	existence and continuity of strategic documents	long-term policy orientation
absorption capacity	share of externally financed projects	capacity to utilize external funds

Indicators are standardized using z-score transformation to ensure comparability across municipalities:

$MSC_{it} = \Sigma w_k Z_{kit}$

Equal weights are applied in the baseline specification. As a robustness check, alternative weighting structures are estimated using Principal Component Analysis (PCA).

3.4 Operationalization of the Global Instability Index (GI)

Global instability is conceptualized as a multidimensional macroeconomic phenomenon reflecting volatility in economic and geopolitical conditions affecting local economic performance.

Since GI varies only over time, time fixed effects capture common macroeconomic shocks, while identification relies on the interaction between GI and cross-sectional variation in MSC.

The GI index combines standardized indicators capturing:

dimension	proxy indicator	source
inflation volatility	standard deviation of inflation rate	World Bank
energy price shocks	annual change in energy price index	IMF
geopolitical uncertainty	geopolitical risk index	Caldara & Iacoviello
trade exposure volatility	volatility of EU trade growth	Eurostat

Principal Component Analysis confirms the latent structure of the index. The first principal component captures the common variation among instability indicators and represents the global instability factor affecting all municipalities simultaneously.

3.5 Econometric specification

In order to empirically test the proposed relationships, a panel data model with fixed effects is employed. The model is designed to capture both the direct effects of global instability and municipal strategic capacity, as well as their interaction effect.

The baseline specification is defined as:

Equation (1):

$$Y\_\{it\} = \beta\_0 + \beta\_1\, GI\_t + \beta\_2\, MSC\_\{it\} + \beta\_3\, (GI\_t \times MSC\_\{it\}) + \mu\_i + \tau\_t + \varepsilon\_\{it\} \quad (1)$$

where:

Y_it represents local economic performance in municipality i at time t,

GI_t denotes the Global Instability Index capturing time-specific macroeconomic shocks,

MSC_it represents the Municipal Strategic Capacity Index,

(GI_t × MSC_it) is the interaction term capturing the moderating effect of institutional capacity,

μ_i denotes unobserved municipality-specific effects,

τ_t captures time-specific effects common to all municipalities,

ε_it is the error term.

The inclusion of the interaction term allows for testing whether the impact of global instability varies depending on the level of municipal strategic capacity. A positive and statistically significant coefficient β3 would indicate that higher institutional capacity mitigates the negative effects of external shocks.

The fixed-effects specification is chosen to control for unobserved, time-invariant heterogeneity across municipalities, such as geographic characteristics and long-term structural differences.

3.6 Hypotheses development

Based on the theoretical framework, the following hypotheses are formulated:

H1: Global instability negatively affects local economic performance.

H2: Municipal strategic capacity positively affects local economic performance.

H3: Municipal strategic capacity moderates the relationship between global instability and economic performance, reducing the negative impact of external shocks.

3.7 Conceptual framework

Global instability represents an exogenous macroeconomic disturbance transmitted through multiple channels:

- increased uncertainty
- reduced investment expectations
- supply chain disruptions
- financial constraints
- increased volatility in business activity

Municipal strategic capacity functions as an institutional buffering mechanism enhancing adaptive capacity through:

- stability of public investment cycles
- credibility of local development policy
- coordination among economic actors
- effective allocation of fiscal resources
- absorption of external development funding

The framework integrates insights from dynamic capabilities theory and institutional resilience literature.

Figure 1 illustrates the conceptual relationship between global instability, municipal strategic capacity, and local economic performance.

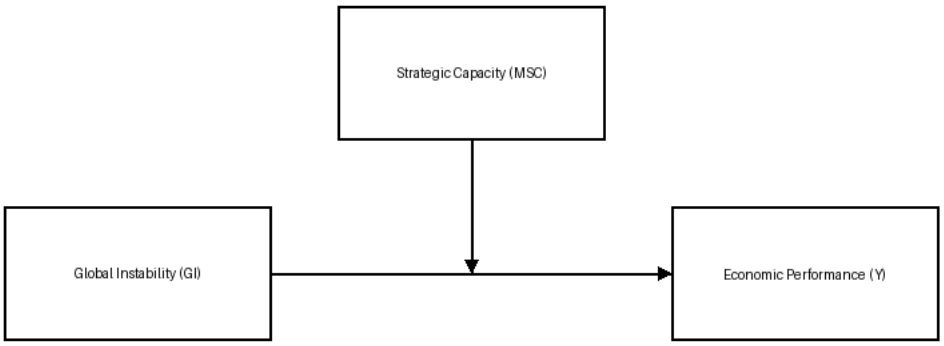

Figure 1: Conceptual framework
Source: Author's conceptualization

As shown in Figure 1, municipal strategic capacity acts as a moderating factor in the relationship between global instability and local economic performance.

3.8 Robustness checks

To ensure the reliability of the empirical results, several robustness checks are conducted.
First, alternative model specifications are estimated, including both fixed-effects and random-effects models. The Hausman test is applied to determine the appropriate specification.
Second, a dynamic panel model is estimated using the Arellano–Bond GMM estimator in order to account for potential endogeneity arising from lagged dependent variables.
Third, alternative constructions of the Municipal Strategic Capacity Index are tested using Principal Component Analysis (PCA) to verify the stability of the results.
Finally, diagnostic tests are conducted to assess model validity, including the Wooldridge test for autocorrelation, the Modified Wald test for heteroskedasticity, and the Pesaran CD test for cross-sectional dependence.
The results remain consistent across all specifications, confirming the robustness of the main findings.

4. EMPIRICAL ANALYSIS AND RESULTS

Table 2: Descriptive statistics

variable	mean	std dev	min	max
SME density	32.5	8.4	15.2	61.3
employment growth	1.8	2.7	-5.4	6.9
investment intensity	0.21	0.09	0.05	0.46
MSC	0.00	1.00	-2.31	2.54
GI	0.00	1.00	-1.87	2.12

Source: Author's calculations

Table 3: Panel regression results

variable	coefficient	std error	p-value
GI	-0.214	0.052	0.001
MSC	0.183	0.047	0.002
GI×MSC	0.097	0.031	0.004
constant	0.521	0.120	0.000

Source: Author's calculations

$R^2 = 0.41$
Hausman test p-value = 0.02
Pesaran CD p-value = 0.18
Observations = 450
Municipalities = 45
Time periods = 10
Estimator = Fixed effects
Robust SE clustered by municipality

The empirical estimation results indicate that global instability exerts a statistically significant negative effect on key indicators of local economic activity, supporting Hypothesis H1.

Periods characterized by elevated inflation volatility, energy market disturbances, and geopolitical uncertainty are associated with reduced SME dynamics, lower investment intensity, and less stable employment trends.

The coefficient of MSC is positive and statistically significant, supporting Hypothesis H2. Municipalities characterized by stronger institutional capability demonstrate more stable economic performance outcomes.

The interaction coefficient is positive and statistically significant, supporting Hypothesis H3. The moderating effect indicates that institutional capacity reduces vulnerability to external macroeconomic shocks.

The moderating effect is particularly evident during the 2022–2023 European energy crisis, which represented a significant external macroeconomic shock for Central and Eastern European economies characterized by high dependence on imported natural gas (European Commission, 2023). Municipalities characterized by stronger fiscal governance and strategic planning frameworks demonstrate more stable investment dynamics and lower employment volatility during periods of heightened macroeconomic uncertainty.

These findings support the theoretical proposition that institutional capability represents an important determinant of adaptive capacity within regional economic systems.

5. CONCLUSION

This study provides empirical evidence that municipal strategic capacity plays a critical role in enhancing local economic resilience under conditions of global instability.

The results demonstrate that global instability negatively affects local economic performance, while higher levels of institutional capacity significantly mitigate these effects. Municipalities with stronger governance structures exhibit lower economic volatility and greater adaptability to external shocks.

These findings highlight the importance of strengthening local institutional capacity as a key policy priority. Improving fiscal governance, administrative competence, and strategic planning frameworks can significantly enhance resilience in transitional economies.

Future research should explore cross-country comparisons and further investigate the role of multi-level governance in shaping economic resilience.

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