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***Wellbeing and Sustainability:
Regional Science Discussions
at the Earth's Core***

Toward a Reinterpretation of Regional Resilience Under the Impact of the War in Ukraine: A Comparative Study of European Regions

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Why Resilience? Why Now?

**European regions are no longer recovering from one crisis
– they are navigating several at once.**



Global Financial Crisis (2008–2012)

Exposed structural weaknesses in peripheral regions. Triggered austerity, divergence and long-term scarring of labour markets. Slow-burning consequences lasted well into the 2010s.

SLOW-BURNING · STRUCTURAL



COVID-19 Pandemic (2020–2021)

Sudden demand collapse across all sectors. Uneven spatial and sectoral impacts – tourism, hospitality and urban economies hit hardest. Accelerated digitalisation and remote work transitions.

ACUTE · SECTORAL



War in Ukraine (2022–present)

Energy price shock, refugee flows, supply chain disruption, geopolitical reorientation. First geopolitical shock to directly reshape EU regional development trajectories since the Cold War.

ACUTE + SLOW-BURNING · GEOPOLITICAL

Each shock alone would demand a policy response. Together, they constitute a polycrisis — overlapping, interacting, and mutually amplifying disruptions that challenge existing frameworks of regional resilience.

The RECORU Project



Regional policy in Europe under development shocks – challenges for regional development arising from the socio-economic consequences of Russia's aggression against Ukraine

Scientific Goal

To identify spatial differences in selected social and economic consequences of Russia's aggression against Ukraine and to explain their impact on the transformation of the regional development process and the evolution of regional policy in the EU



WEBSITE: recoru.web.amu.edu.pl/en/

Project Details

Funder: National Science Centre, Poland

Duration: October 2024 – October 2028

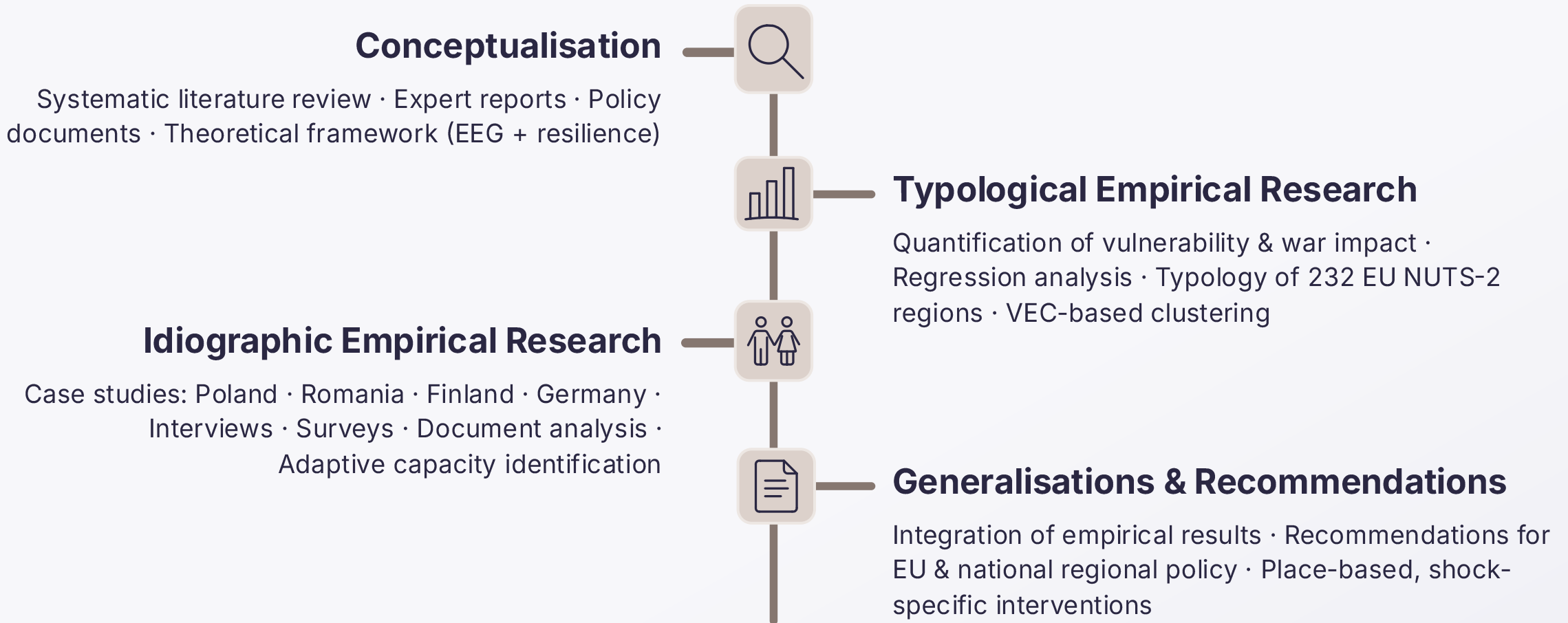
Research Consortium

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RECORU: Four Research Stages



Theoretical Background:

Evolutionary Economic Geography

Our framework is rooted in Evolutionary Economic Geography (EEG) — treating regional development as a dynamic, irreversible, path-dependent process of continuous change.

Three Theoretical Pillars

- Evolutionary Economics – Generalised Darwinism: variety, selection, retention
- Path Dependence Theory – historical contingency, lock-in, branching, path creation
- Complexity Theory – complex adaptive systems, emergence, self-organisation, resilience

Key Principles

- Processes are dynamic – we focus on change, not equilibrium
- Processes are irreversible – history matters; path dependence shapes present and future
- Novelty drives self-transformation – endogenous innovation and self-organisation
- Spatial differences are not random – they result from historically conditioned, place-dependent processes

System Approach

- Region as Territorial Social System (Chojnicki, 1988): composition, entourage, structure
- Multi-Level Perspective (Geels, 2002): landscape → regime → niche
- Actor-Network Theory (Latour, 2005): human and non-human actors, networks of relationships

The war in Ukraine can be interpreted as a landscape-level shock that destabilises the regional regime – opening a window of opportunity for niche innovations to accelerate systemic transformation. Source: Boschma & Martin (2010); Kogler et al. (2023, 2025)

Four Conceptualisations of Regional Resilience

"Regional resilience = 'bouncing forward' — finding a new normality by replacing some parameters with new ones." (after Martin, 2012 & Sutton et al., 2023)

Engineering Resilience (Martin, 2012; Hundt & Holtermann, 2020)

Return to pre-shock equilibrium — single equilibrium assumed. Speed of recovery is the key metric. Best suited to short, sharp shocks. Primarily quantitative methods.

→ Equilibrium-based

Ecological Resilience (Capello et al., 2015; Wilson, 2018)

Absorb shocks while maintaining core structure. Multiple equilibria possible — allows reorientation and path switching. Structural core remains unchanged. Quantitative + qualitative methods.

→ Equilibrium-based

Evolutionary / Adaptive Resilience (Boschma, 2015; Bristow & Healy, 2018)

Path-dependent process of creative destruction. No equilibrium — continuous adaptation. Focus on actors, learning, institutional transformation and endogenous innovation. Best for slow crises and structural change.

→ Adaptive / non-equilibrium

Transformative Resilience (Sutton et al., 2023)

Capacity to create an entirely new structural configuration when the existing one becomes dysfunctional after a shock. Systemic transition — not just adaptation but fundamental transformation. Corresponds to MLP transition theory.

→ Adaptive / non-equilibrium



The first two approaches are equilibrium-based; the last two are adaptive. Our study draws on all four — with emphasis shifting between research stages.

Four Dimensions & Four Properties of Regional Resilience

To fully capture how regional economies respond to shocks, resilience must be understood across four interrelated dimensions (Martin, 2012) and four structural properties (Palekiene et al., 2015).

Four Dimensions (Martin, 2012)

1. Resistance — The degree of sensitivity or depth of reaction of the regional economy to a shock: scale of decline in output, jobs, etc.
2. Recovery — Speed and degree of recovery from the shock; extent of return to pre-shock growth path.
3. Re-orientation — Extent of re-orientation and adaptation of the regional economy in response to the shock: changes to industrial, technological and workforce composition, business models, working practices.
4. Renewal — Extent to which the regional economy renews its growth path: resumption of pre-recession path or hysteretic shift to new growth trend.

4R Properties (Palekiene et al., 2015)

1. Robustness — Ability of the system to maintain its structure despite disruptions; strength of elements to withstand external pressure without loss of performance.
2. Redundancy — Ability to respond to disruptions by decoupling from specific resources, substituting or relocating them.
3. Resourcefulness — Ability to mobilise and apply material and human resources to achieve goals in disruption situations.
4. Rapidity — Speed of return toward the previous state; rate of recovery.

How Our RECORU project fits to the Resilience Framework

Our three-stage research design deliberately aligns different resilience approaches with different analytical methods — matching the nature of each stage to the most appropriate theoretical lens.

Stage 1 — Typological Empirical Research

"Risk & Resistance: depth and structure of the shock response"

- Theoretical lens: Engineering resilience — equilibrium-based, quantitative
- Focus: Pre-shock vulnerability + exposure channels → observed consequences
- Method: VEC framework, Ward's hierarchical clustering, 232 NUTS-2 regions
- Output: 5 resilience profiles — a diagnostic typology for policy targeting

ENGINEERING APPROACH

Stage 2 — Idiographic Empirical Research

"Re-orientation & Recoverability — the regional system's response"

- Theoretical lens: Evolutionary + transformative resilience — adaptive, non-equilibrium
- Focus: How regions adapt, reorient and potentially transform after the shock
- Method: Case studies in Poland, Romania, Finland, Germany — interviews, surveys, document analysis
- Output: Grounded theory of regional resilience under geopolitical shock
- Key question: Adaptation (within existing paths) or Adaptive Capacity (new path creation)?

EVOLUTIONARY-TRANSFORMATIVE APPROACH

Stage 3 — Generalisations & Recommendations

"From evidence to action — integrating results into policy frameworks"

- Theoretical lens: Transformative resilience — place-based, shock-specific policy design
- Focus: Integration of Stage 1 typology and Stage 2 case study findings
- Method: Synthesis, comparative analysis, stakeholder consultation
- Output: Recommendations for EU & national regional policy — place-based, shock-specific interventions

TRANSFORMATIVE-POLICY APPROACH

What This Study Sets Out to Do

This presentation develops and applies an original methodological framework for the operationalisation of regional resilience and constructs a typology of EU Member State regions in terms of their responses to the socio-economic consequences of Russia's aggression against Ukraine.

Central Aim

To develop and apply an integrated VEC-based operationalisation of resilience — combining vulnerability, exposure and consequences — with a multi-dimensional regional characterisation across social, economic, infrastructural/environmental, institutional and geopolitical/strategic dimensions, in line with an evolutionary, multi-phase understanding of resilience.

Three Research Questions

1. How can regional resilience to geopolitical shocks be operationalised across multiple dimensions in a risk-aware manner?
2. What distinct resilience profiles emerge among EU regions in response to Russia's aggression against Ukraine?
3. How do configurations of vulnerability and exposure translate into observed socio-economic consequences and adjustment processes?

The typology serves as a systematic analytical tool for structured cross-regional comparison and provides a robust basis for selecting regions for idiographic studies tracing adaptation, reorientation and potential transformational change.

The VEC Framework: Our Analytical Lens

VEC is not a sum of regional features — it is a process.

Pre-existing conditions → Contact with shock → Observable consequences

Vulnerability × Exposure → Consequences

V — Vulnerability

An internal structural characteristic of the region, existing BEFORE the shock, historically conditioned (path dependence). Describes what in the region can break – independently of the shock itself.

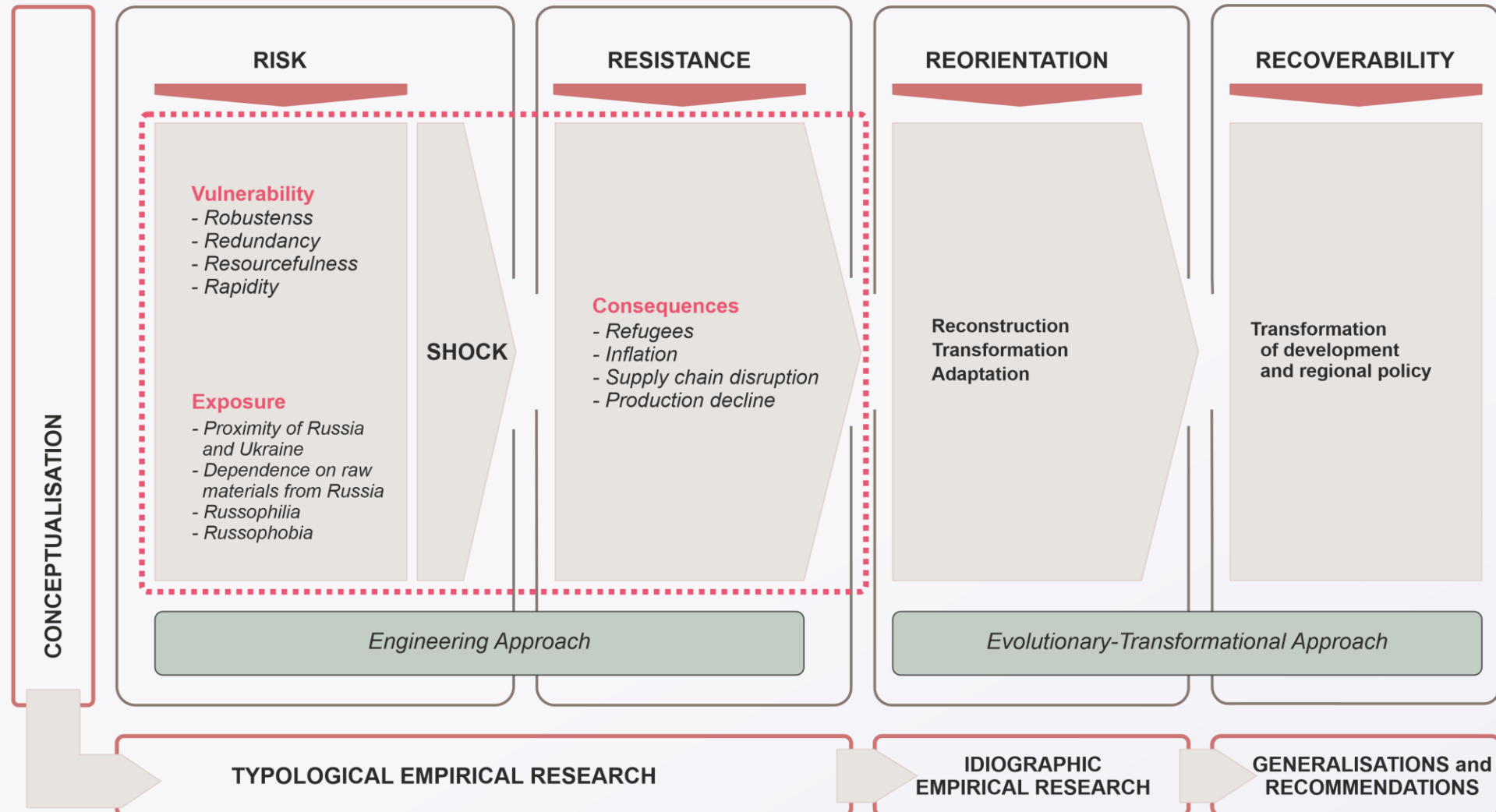
E — Exposure

The channels and intensity of shock transmission – determined by the region's location and external linkages. Relational and network-based, not structural. A region can be low in vulnerability but highly exposed – and vice versa.

C — Consequences

Empirically observable effects of the shock – positive, neutral, ambivalent or negative – in the dynamics of regional socio-economic systems. Dynamic in nature: measured as change or deviation from trend after the shock.

VEC in Practice of the Typological Empirical Research: How We Measure Regional Resilience



232

NUTS-2 regions

27 EU member states, excl. outermost territories

19

Composite variables

9 vulnerability + 4 exposure + 6 consequences

2022–2023

Primary shock period

Analysed in the study

Variable Construction

Each composite variable aggregates multiple Eurostat indicators using standardisation and weighting. Variables operate at both national and NUTS-2 level to capture multi-scalar dynamics.

Typological Method

Ward's hierarchical clustering on standardised VEC scores yields a 13-cluster solution, subsequently aggregated into 5 resilience profiles based on dominant shock-response mechanisms.

Vulnerability (V) — Country-Level Variables

What makes a country structurally exposed before the shock hits?

Three composite variables capture structural vulnerability at the national level — reflecting governance quality, economic dependency, and financial risk.



Lack of Institutional Capacity

Governance quality, public trust, digitalisation, cybersecurity; Global Cybersecurity Index, Worldwide Governance Indicators

e.g. Bulgaria, Romania



External Economic Dependency

Inward FDI stocks as % of GDP, energy import dependency

e.g. Luxembourg, Malta



Macroeconomic Risk Exposure

EMU convergence criterion bond yields — financial vulnerability indicator

e.g. Romania, Hungary

Vulnerability (V) — NUTS-2 Level Variables

What makes a region structurally fragile before the shock arrives?

Six composite variables capture structural vulnerability at the regional level — combining economic development potential, infrastructure, social conditions, sectoral structure, and demographic dynamics.



Low Economic Development Capacity

GDP per capita, R&D personnel, patents, high-tech employment, tertiary education, foreign-born population, internet access

e.g. Stockholm (high adaptive potential)



Low Spatial Accessibility & Connectivity

Motorways & railways density, healthcare & education accessibility time, population density of urbanised areas, share of employment in micro-firms

e.g. Aegean Islands



Socio-Economic Disadvantage

Low education (below secondary), poverty/social exclusion risk, unemployment rate aged 15–74

e.g. Campania



Service-Oriented Sectoral Structure

Herfindahl sectoral concentration index, GVA in industry & services, international tourist arrivals per 1000 inhabitants

e.g. Greek & Spanish islands



Negative Demographic Dynamics

Total fertility rate, share of births by mothers over 35, internal migration between NUTS-3 areas

e.g. Asturias



Demographic Ageing

Mean population age, old-age dependency ratio (population aged 65+ as % of 15–64)

e.g. Chemnitz

Exposure (E) — Country & Regional-Level Variables

How does the shock reach the region?

Four composite variables capture how the war in Ukraine reached European regions — through trade, energy, migration and geopolitical proximity.



Geopolitical Economic Exposure

E_Econ_rel — Trade links with Russia and Ukraine; sectoral dependence on affected value chains

e.g. Poland, Czech Republic



Energy Mix Exposure

E_Gas — Reliance on Russian fossil fuels (gas, oil, coal); share of energy imports from Russia

e.g. Bulgaria, Slovakia



Geographical Proximity

E_Proximity — Distance to conflict zone; border region status; strategic military significance

e.g. Eastern Poland, Baltic states



Migration Ties

E_UkRu_pop — Pre-war Ukrainian diaspora size; geographic proximity as a migration corridor; labour market integration capacity

e.g. Warsaw, Prague

Source: Churski et al. (2026). Baseline: 2021 pre-war data.

Consequences (C) — Regional-Level Variables

What actually happened in 2022–2023?

Six composite variables capture the observable socio-economic consequences of the war across EU regions — spanning social, fiscal, macroeconomic, demographic, labour market, and economic performance dimensions.



Macro-Level Social Impact C_Refugees

Refugee inflow intensity; pressure on housing, healthcare and education systems; poverty risk changes

e.g. Poland, Germany



Fiscal Policy Response C_Budget

Change in public expenditure; defence spending increases; energy subsidy costs; EU fund utilisation

e.g. Baltic states, Poland



Macroeconomic Impact C_Macroecon

Broad macroeconomic indicators reflecting the overall economic response to the war shock

e.g. Hungary, Romania



Demographic Change C_Pop

Population dynamics and migration-related demographic shifts in receiving and sending regions

e.g. Western Poland, Czech Republic



Labour Market Adjustment C_Unemploy

Unemployment rate changes; labour force participation shifts; wage dynamics

e.g. Czechia, Slovakia



Economic Performance C_GDP

GDP growth deviation from trend; industrial output changes; sectoral employment shifts

e.g. Baltic states, Finland

Source: Churski et al. (2026). Baseline: 2021 pre-war data.

Typological Analysis: From 13 Clusters to 5 Resilience Profiles

The typology was developed in two methodological stages: first, composite VEC variables were constructed from raw indicators; second, these variables were used to group EU regions into a resilience typology.

Stage 1 — Construction of Composite VEC Variables

01

Data Collection, Selection & Reduction

Starting from theoretical VEC dimensions, available indicators were identified, selected and reduced. Sources include Eurostat, UNHCR, Global Cybersecurity Index, and Worldwide Governance Indicators. Baseline: 2021 pre-war data.

02

PCA-Based Composite Variable Construction

Indicators were standardised, transformed and reduced using Principal Component Analysis (PCA) into 19 composite variables — 9 capturing Vulnerability (V), 4 Exposure (E), and 6 Consequences (C).

Stage 2 — Regional Typology Based on VEC Compositions

01

Standardisation & Balancing of VEC Variables

Composite variables were standardised to z-scores and balanced across V, E and C dimensions to ensure comparability and prevent any single component from dominating the clustering.

02

Ward's Hierarchical Clustering

232 NUTS-2 regions were grouped using Ward's method with Euclidean distance applied to the full 19-variable VEC matrix. Dendrogram analysis determined the optimal cluster number.

03

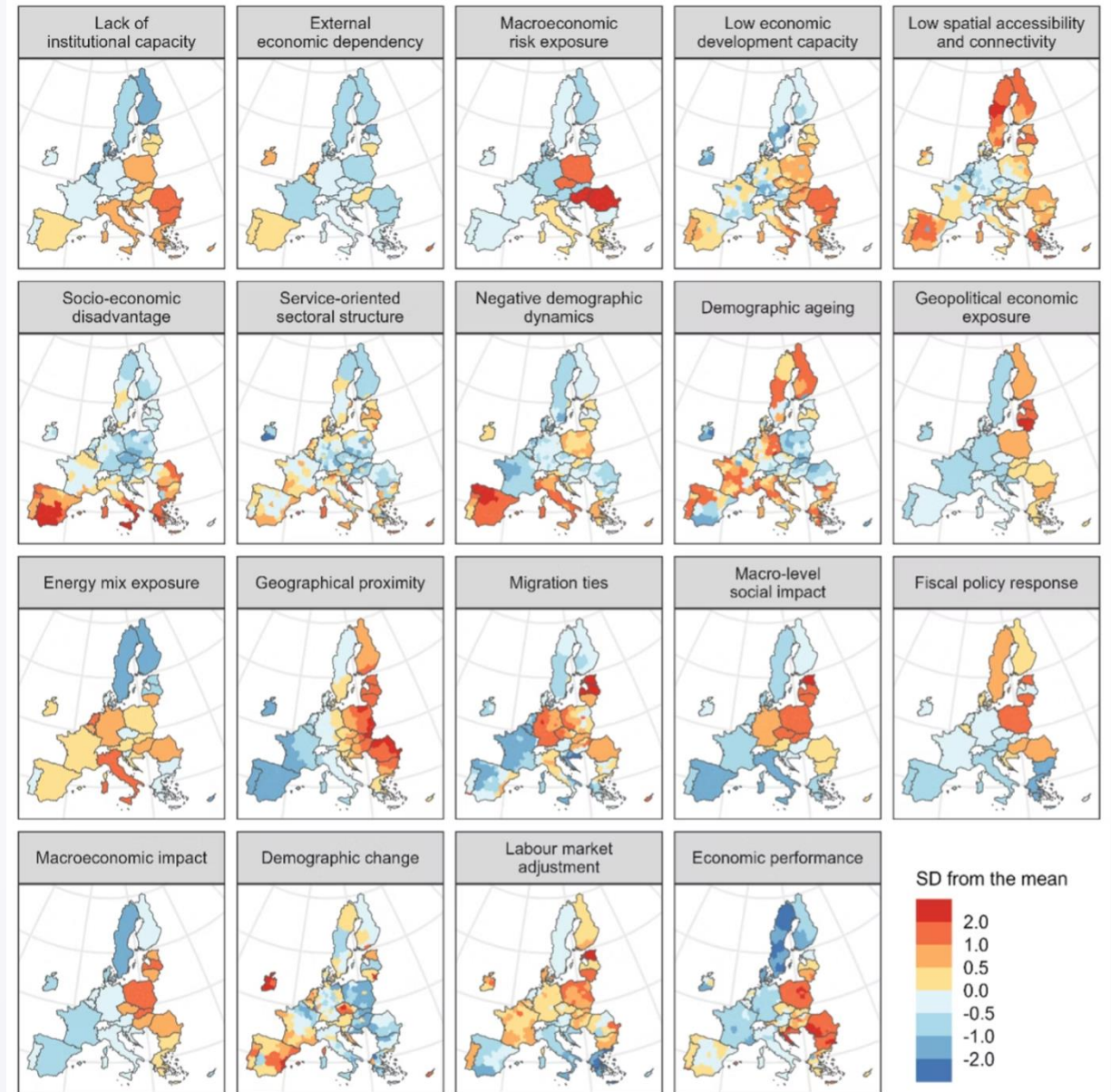
13-Cluster Solution → 5 Resilience Profiles

The dendrogram yields 13 statistically distinct clusters (validated using Calinski-Harabasz and Silhouette indices), subsequently aggregated into 5 interpretable resilience profiles based on dominant shock-transmission mechanisms and geographic coherence.

The two-stage approach ensures methodological rigour: composite variables are theoretically grounded (Stage 1), while the typology is statistically validated and policy-relevant (Stage 2).

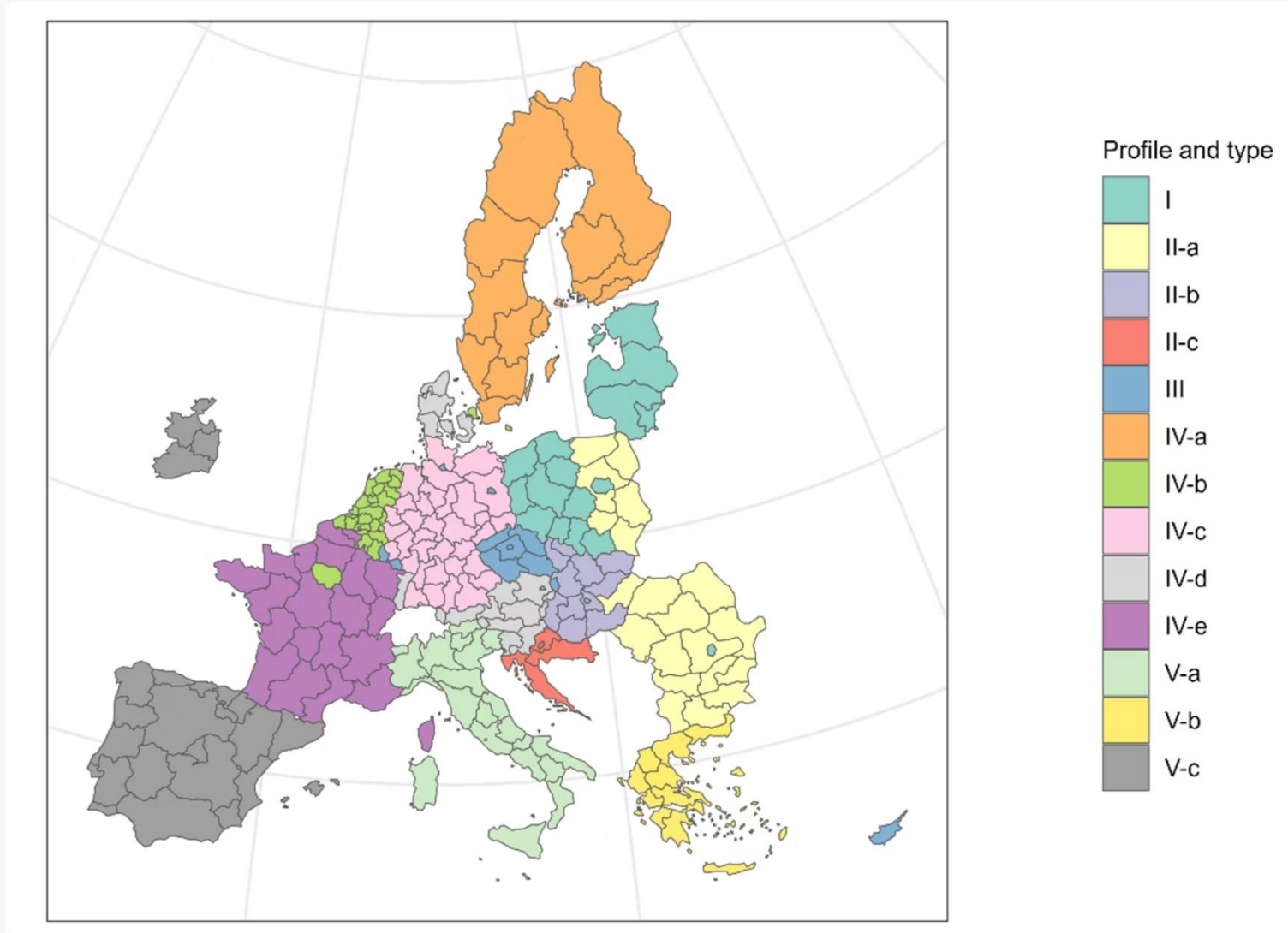
Geographic Patterns of Vulnerability, Exposure & Consequences Across EU Regions

Standardised composite variables (z-scores) mapped across 232 NUTS-2 regions reveal distinct spatial patterns in how the war in Ukraine affected European regions through structural vulnerability, exposure channels, and observed consequences.



Five Resilience Profiles: VEC Characteristics by Type

Standardised VEC scores for each of the 13 cluster types reveal systematic differences in vulnerability, exposure and consequences — confirming that resilience profiles are shaped by distinct configurations rather than single dominant factors.



Five Resilience Profiles: The Big Picture

Cluster analysis of 232 EU NUTS-2 regions yields five distinct resilience profiles, each defined by a characteristic configuration of vulnerability, exposure and consequences.

1

Profile I

Geopolitically Exposed & Reactive

Baltic states, eastern Poland, Finland. High proximity exposure, strong institutional response, significant refugee absorption.

2

Profile II

Peripheral Structural Vulnerability

Romania, Bulgaria, eastern Poland, Hungary, Slovakia, Croatia. Accumulated structural weaknesses amplify shock impacts; limited adaptive capacity.

3

Profile III

Transitional Absorbers

Central European regions. Moderate vulnerability, high migration exposure; labour market and social systems under pressure.

4

Profile IV

Resilient Core

Nordic countries, Germany, Netherlands, Belgium, Austria, France. High adaptive capacity; consequences primarily fiscal (energy transition costs).

5

Profile V

Mediterranean Service-Sensitive

Italy, Spain, Portugal, Greece, Ireland. Indirect exposure via tourism decline and energy prices; differentiated fiscal responses.



The 5 profiles are derived from a 13-cluster solution and reflect dominant shock-transmission mechanisms rather than simple geography.

Profile I: Geopolitically Exposed Regions with High Reactivity

Vulnerability (V)

Relatively favourable socio-economic conditions and reasonably effective institutions, combined with marked spatial peripherality and moderately constrained development potential

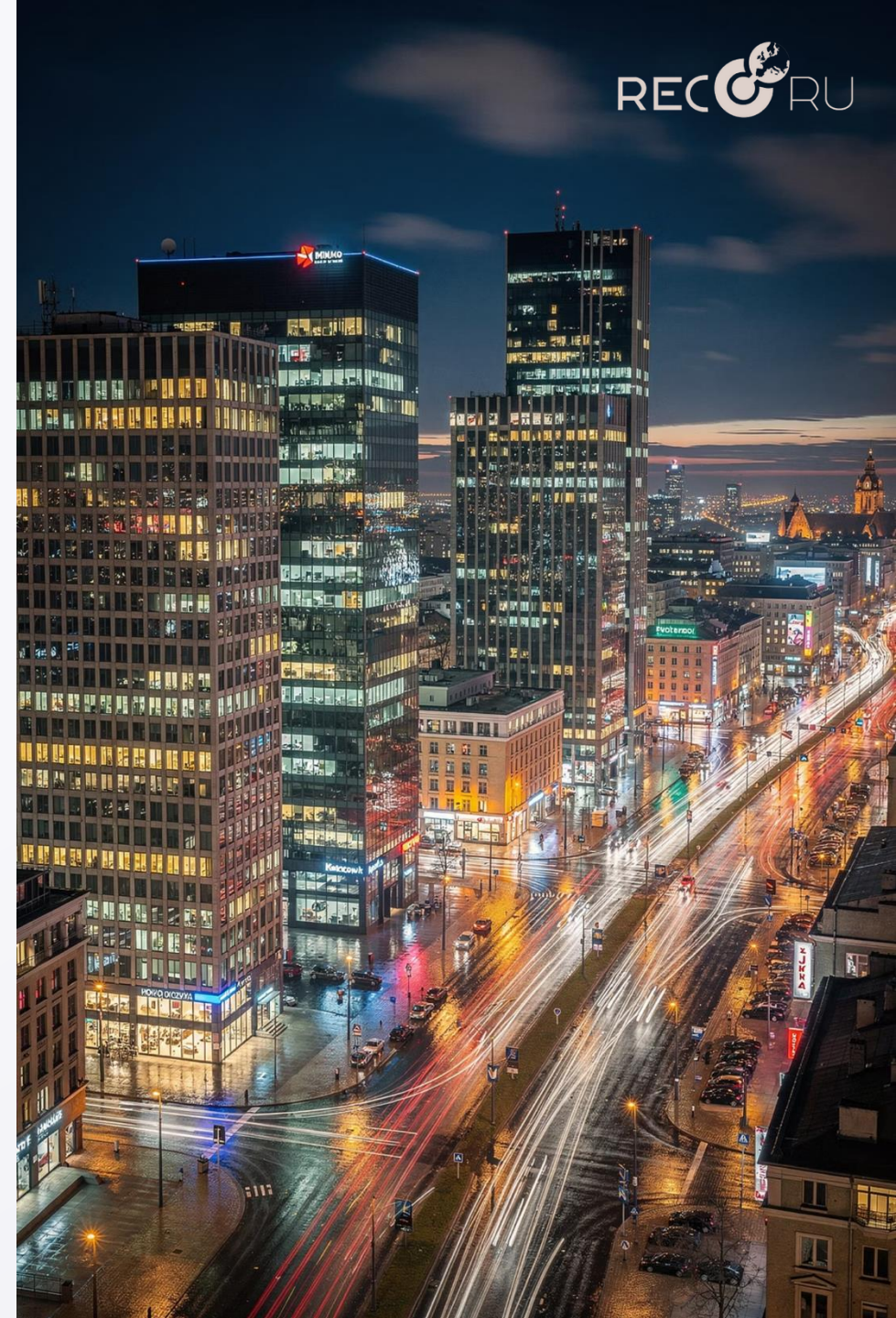
Exposure (E)

Most proximate to the conflict zone; strongly integrated into trade networks with Ukraine and Russia; sizeable diaspora communities — the most directly and intensely affected profile

Consequences (C)

Largest scale of refugee inflows; significant labour market pressures; marked increase in public expenditure; simultaneous maintenance of **positive economic growth**

Regions: 11 regions of Western and Central Poland, Lithuania, Latvia, Estonia, Bucharest (Romania), Budapest (Hungary)



Profile II: Peripheral Structural Vulnerability

Three Subtypes

Romania, Bulgaria, 6 eastern Polish regions, Hungary, Slovakia, and Croatia — characterised by an accumulation of structural weaknesses across multiple dimensions.

VEC Characteristics

- **Vulnerability:** Lower economic development, elevated macroeconomic risk, persistent institutional deficits
- **Exposure:** Primarily through the energy channel — dependence on Russian fossil fuels (subtypes II-b and II-c) and territorial adjacency to Ukraine
- **Consequences:** Ambivalent — comparatively favourable economic performance due to limited value chain integration, but deepening depopulation and markedly weaker fiscal policy response than Profile I



Profile III: Transitional Regions with Absorptive Migration Exposure

Vulnerability

Comparatively well developed, well connected, low deprivation — but strong export orientation renders them susceptible to broader economic disruptions

Exposure

Primarily as a **migration corridor** — strong population-based ties to Ukraine and moderate geographical proximity, without significant energy dependence on Russia

Consequences

Most visible in the demographic and social sphere: substantial refugee influx and increased pressure on public services; labour markets and economic output remained relatively stable

Regions: Czech regions, Luxembourg, Cyprus, Bratislava, Vienna, Berlin, Hamburg, Bremen



Profile IV: Resilient Core Regions with Adaptive Fiscal Response

Vulnerability

Highest development levels in the EU — robust institutions, well-developed infrastructure, diversified economies. Strong adaptive capacity buffers against structural shocks.

Exposure

Primarily through the energy channel — Germany and the Netherlands severely affected by disruption of Russian gas supplies. Nordic countries had lower direct exposure due to diversified energy mix.

Consequences

Consequences predominantly fiscal — significant public expenditure on energy transition and defence. Economic output remained broadly stable; limited social effects. Strongest institutional response capacity of all profiles.

Regions from: Sweden, Finland, Denmark, Germany, Netherlands, Belgium, Austria, France



Profile V: Mediterranean Service-Sensitive Regions

Vulnerability Profile

High dependence on tourism and services, elevated poverty levels in parts, advanced population ageing, and prolonged structural decline in fertility – creating a distinctive vulnerability configuration.

Exposure

Predominantly **indirect**: decline in tourist arrivals from Russia and Ukraine; rising energy prices, particularly acute in Italy — despite considerable distance from the frontline.

Consequences

Limited social effects — these regions did not emerge as primary refugee destinations. Fiscal restraint common across all three subtypes. Differentiated economic outcomes:

- Relatively contained effects in V-b and V-c subtypes (in Spain, Portugal, Ireland, Greece)
- Marked deterioration in Italy, where rising energy costs proved most acute



Results: VEC Scores Across Profiles — What the Data Shows

Comparing standardised VEC scores across the five profiles reveals systematic patterns in how vulnerability, exposure and consequences interact — and where they diverge.

Vulnerability Scores

- Profile II (Peripheral Structural Vulnerability) scores highest on vulnerability — structural deficits across all 4 dimensions
- Profile IV (Resilient Core) scores lowest — strong institutions, diversified economies, high human capital
- Profile I (Geopolitically Exposed & Reactive) shows moderate vulnerability despite high geopolitical exposure
- Profile V (Mediterranean Service-Sensitive) shows elevated social vulnerability (ageing, poverty) but moderate economic vulnerability

Exposure Scores

- Profile I (Geopolitically Exposed & Reactive) scores highest on exposure — geopolitical proximity, trade and migration channels all active
- Profile IV (Resilient Core) scores high on energy exposure specifically — German and Dutch gas dependence
- Profile V (Mediterranean Service-Sensitive) scores low on direct exposure but high on indirect (tourism, energy prices)
- Profile II (Peripheral Structural Vulnerability) shows heterogeneous exposure — energy-dependent subtypes vs. geographically proximate subtypes

Consequences Scores

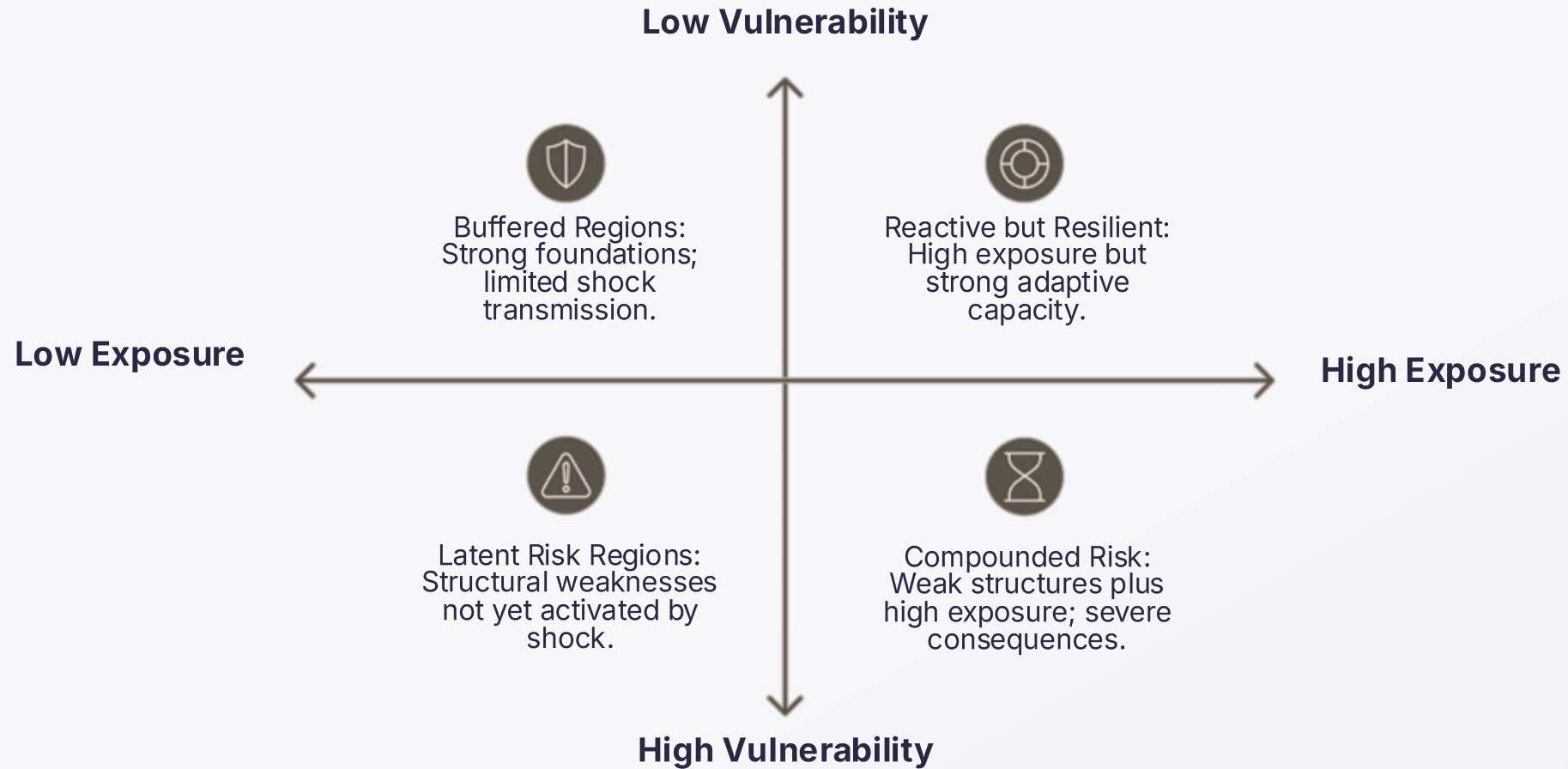
- Profile I (Geopolitically Exposed & Reactive): High social consequences (refugee absorption), positive economic trajectory
- Profile II (Peripheral Structural Vulnerability): Ambivalent — limited value chain integration buffered economic consequences; deepening depopulation
- Profile III (Transitional Migration Absorbers): Social and labour market pressure dominant
- Profile IV (Resilient Core): Predominantly fiscal consequences; economic output stable
- Profile V Mediterranean Service-Sensitive: Differentiated — Italy most affected; Spain, Portugal, Ireland more contained

Key insight: High exposure does not automatically produce severe consequences — institutional capacity and adaptive response are the decisive moderating factors.

Results: The Vulnerability–Exposure Interaction

The relationship between vulnerability and exposure is not additive — it is interactive.

The same level of exposure produces radically different consequences depending on the region's structural vulnerability.



This 2×2 typology reveals that geography alone is insufficient — the V×E interaction is the true diagnostic tool for identifying regions at risk.

Results: Challenging the Core–Periphery Paradigm

"The war in Ukraine did not respect the traditional core–periphery divide."

Core regions under pressure

Profile IV (Resilient Core – Germany, Netherlands) experienced severe energy-driven consequences despite being classified as 'core' regions. High exposure through energy dependence overrode structural advantages in the short term.

Peripheral regions showing resilience

Profile I (Geopolitically exposed & Reactive) includes regions traditionally classified as peripheral (Baltic states, eastern Poland) that demonstrated strong institutional responses and maintained positive economic trajectories — outperforming some core regions.

New periphery emerging

Profile II (Peripheral Structural Vulnerability) reveals a new vulnerability geography — regions peripheral not just economically but institutionally and geopolitically. These face compounded risks that standard cohesion policy metrics fail to capture.

Spatial heterogeneity within profiles

Each profile contains significant intra-profile variation. Even within Profile IV (Resilient Core), Nordic regions and German industrial regions responded very differently — confirming that NUTS-2 level analysis must be complemented by sub-regional and sectoral perspectives.

Finding: The war in Ukraine has reshuffled the EU's regional vulnerability map — creating new spatial patterns that cut across traditional development hierarchies and demand a recalibration of cohesion policy targeting.

Key Finding: Resilience is Configurational, Not Geographical

Proximity to the frontline does not determine resilience. Configuration does.

What we found

- Geographically distant regions (e.g. Italy, Germany) experienced severe consequences through energy and trade channels
- Geographically proximate regions (e.g. Baltic states) demonstrated strong adaptive responses despite high exposure
- Peripheral regions far from Ukraine showed deep vulnerability due to structural, not geopolitical, factors
- No simple core-periphery pattern holds across all VEC dimensions

What this means

Resilience is the product of a specific configuration of structural conditions, institutional capacity, exposure channels and adaptive responses. Single-indicator or proximity-based assessments systematically misidentify both vulnerable and resilient regions.

Discussion: Adaptive Capacity as the Differentiating Factor

Across all five profiles, adaptive capacity emerges as the critical moderating variable — determining not just the scale of losses, but the direction of structural change.

Absorptive Capacity

Regions with strong institutions and fiscal buffers contained the immediate social and economic impacts of the shock — even under high exposure (Profile I Geopolitically Exposed & Reactive, IV Resilient Core).

Adaptive Capacity

Regions that reconfigured their economic structures — accelerating energy transition, diversifying supply chains, integrating refugees into labour markets — moved beyond "bouncing back" toward "bouncing forward."

Transformative Capacity (Antifragility)

A small subset of regions used the shock as a catalyst for structural transformation — emerging with stronger, more diversified and more sustainable regional economies.

This hierarchy of capacities aligns with Taleb's concept of antifragility: the most resilient regions do not merely withstand shocks — they gain from them. The war in Ukraine, paradoxically, accelerated green energy transitions and defence-sector growth in several Profile I Geopolitically Exposed & Reactive and IV Mediterranean Service-Sensitive regions.

Next Steps

Idiographic Case Studies (In Progress)

4 case study regions selected	Mixed-methods: document analysis, stakeholder interviews, regional data deep-dives	Focus: evolutionary and transformational change processes
Output: Grounded theory of regional resilience under geopolitical shock		Target: RECORU project completion 2027

Future Research Directions

- Extending the VEC framework to other geopolitical shocks
- Longitudinal tracking of resilience trajectories post-2023
- Integration with EU cohesion policy evaluation frameworks



Questions for Discussion

1. Does the VEC framework capture dimensions of resilience that existing approaches miss?
2. How should EU cohesion policy differentiate between the five resilience profiles?
3. Can the typology be extended to non-EU European regions or other geopolitical shocks?
4. What role does adaptive capacity play in transforming exposure into opportunity?

Thank you for your attention

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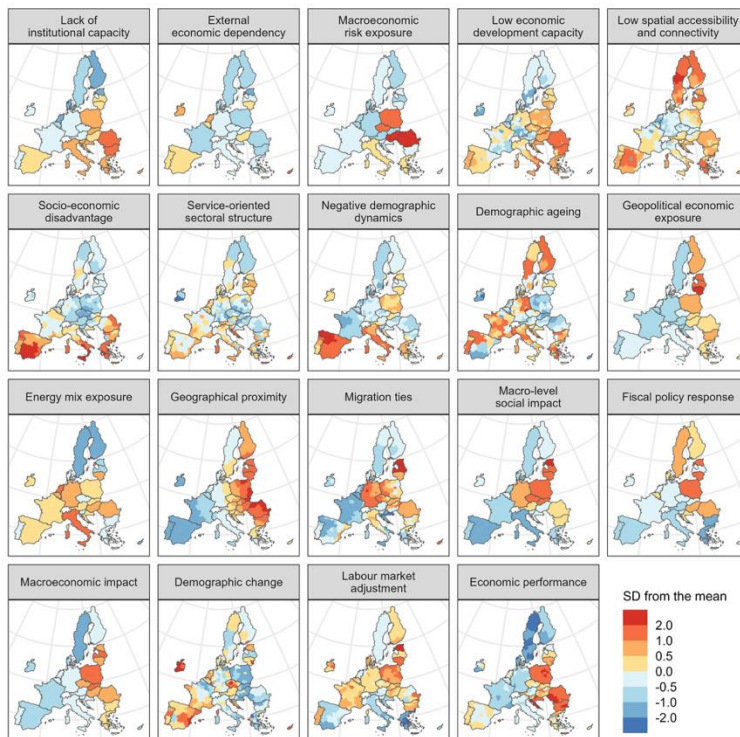
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Towards a reinterpretation of regional resilience amid the war in Ukraine: A comparative study of European regions



WORKING PAPERS OF RECORU PROJECT

REINTERPRETING REGIONAL RESILIENCE IN THE CONTEXT OF THE WAR IN UKRAINE: A CASE STUDY OF EUROPEAN REGIONS



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ABSTRACT: Over the past decade, European regions have confronted a succession of major shocks, including the global financial crisis, the COVID-19 pandemic, and Russia's aggression against Ukraine. These events, combining sudden disruptions with "slow-burning" pressures, have exacerbated spatial inequalities, positioning regional resilience at the forefront of public policy. The confluence of acute and chronic stressors creates a complex environment that complicates mitigation efforts, particularly at regional and local levels. Consequently, addressing these challenges requires a reinterpretation of resilience grounded in a precise identification of shock sources and their impact on regional development trajectories. The aim of this analysis is to develop and implement a methodological framework for operationalizing regional resilience, specifically to categorize European Union regions based on their capacity to withstand the impacts of Russia's aggression against Ukraine. By integrating the VEC components (vulnerability, exposure, and consequences) with a multidimensional assessment encompassing social, economic, infrastructural, environmental, and institutional factors, this study adopts an evolutionary, multi-phase perspective on resilience. The results of the typology provide a basis for selecting test regions for idiographic studies aimed at identifying the process of evolutionary and transformational change in regional socio-economic systems occurring in response to the development shock in question.

KEY WORDS: regional resilience, vulnerability, exposure, consequences, Russia's aggression against Ukraine, typology, EU regions.

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Recommendation

Reinterpreting regional resilience in the context of the war in Ukraine: a case study of European regions

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