LOCAL RESILIENCE

New Metrics in the Current Context
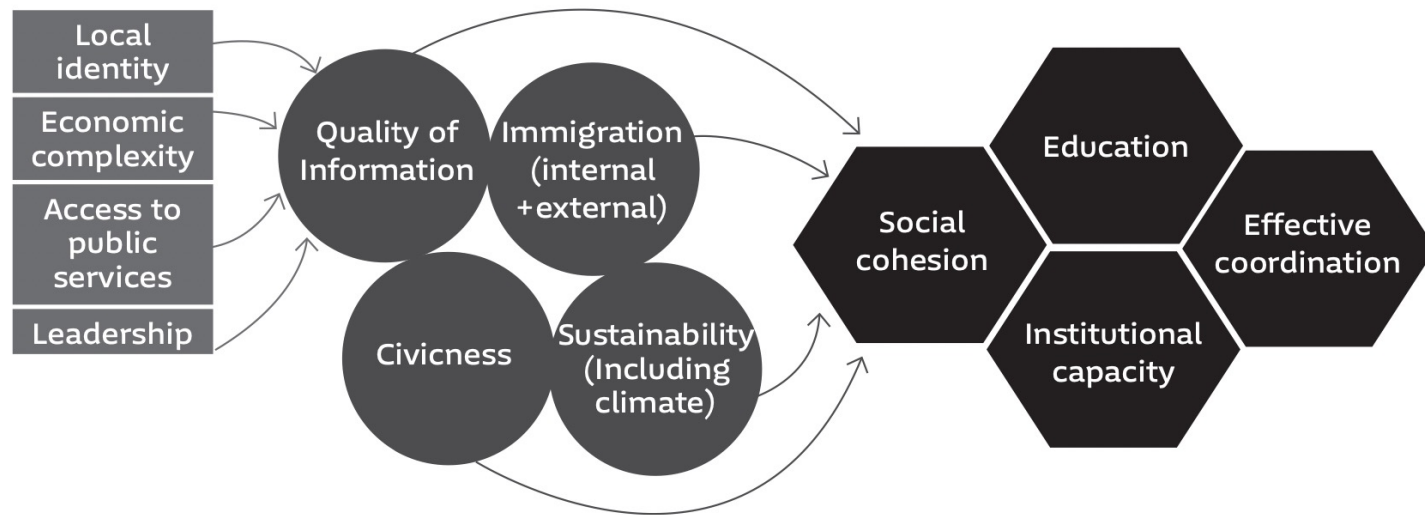
Prof. Clara Volintiru
Bucharest University of Economic Studies (ASE)
clara.volintiru@rei.ase.ro

Local Resilience

- Piloting Local Resilience Metrics in Romania (December 2021) and the Republic of Moldova (February 2022)

- Novel and comprehensive resilience measurement that identifies capabilities and vulnerabilities at local level.

- Reveals the socio-economic mechanisms at play in our communities and their challenges in times of crisis.

Local resilience can be defined as the capacity of a community to resist, adapt and recover its functions and structures after a crisis or a disruptive event.

Local Resilience

International Organizations Perspective:

	EC	NATO	OECD	WB	ISO
Resilience Dimension	Socio-Economic, Health, Geopolitics/ Raw, Materials, Green, Digital	Energy, Health, Transport, Financial, ICT, Water, Food, Public & Legal Order and Safety, Chemical & Nuclear Industry, Space and Research	Pandemics and natural disaster (i.e., climate-related shocks), digitalisation and global markets	Infrastructure, Institutional, Social, Economic	Security, reliability of supply chains, organizations
Metrics	Publicly available dashboards	Not defined / not publicly available	Selected thematic indicators	Selected thematic indicators	To be defined under the new ISO/TC 292
Measurement Unit	Member states— public sector (e.g., governance) and markets (e.g. competitiveness)	Countries— particularly in terms of public bodies (i.e., security capabilities)	Business Sectors and Countries	Public Institutions and Cities	Public and Private Organisations
Primary Function of Foresight Process	Structural Cohesion and Economic Recovery	Security & Emergency Response (Civilian Preparedness)	Global Markets	Institutional Resilience	Horizontal Harmonization, Standardization
Monitorization and Evaluation	Annual Strategic Foresight Process and RRF National Plans	Internal organisational review	Thematic reports	Thematic reports	Integrated in the ISO implementation and adoption

LOCRES DASHBOARD

- ■ Category
- ▨ Key dimensions

Socio-Economic Resilience ▶

Democratic Resilience ▶

Security Resilience ▶

SOCIO-ECONOMIC RESILIENCE

SOCIO-ECONOMIC POLICIES	ACCESS TO BASIC SERVICES	ECONOMIC OPPORTUNITIES

Contextual determinants of societal resilience

DETERMINANTS

- Existence of adaptive policy in economics
- Targeted social policies at local level
- Intra- and Inter-community connectedness (e.g. distance to services, territorial sprawl)
- Endowments (e.g hospital facilities, no. of hospital beds)
- Endowments (e.g., staff per capita / number of units per capita, school transport)
- Individual mobility
- Availability of financial resources
- Availability of support measures

INDICATORS

- Number of assets per capita (active, assets, available sums)
- Share of vulnerable people in the population (health, finances)
- Access to utilities (energy, sewage)
- Access to health services
- Access to education
- Unemployment
- GDP / capita
- Poverty
- Number of private companies
- Personal Income Tax Collected

Intrinsic measures of societal resilience

DEMOCRATIC RESILIENCE

INSTITUTIONAL CAPACITY	SOCIAL CAPITAL	GOVERNANCE INEQUITY	TRUST

Contextual determinants of societal resilience

DETERMINANTS

- Continuity in office
- Quality of local planning
- Frequency of reporting
- Civic culture
- Clientelism
- Politicization
- Corruption
- Trust in elected officials
- Trust in public institution
- Interpersonal trust

INDICATORS

- Capacity to monitor
- Capacity to control
- Continuity of public goods and service delivery
- Reliable communication
- Civic action
- Civic capabilities
- Compliant civic behaviour

Intrinsic measures of societal resilience

SECURITY RESILIENCE

CRITICAL INFRASTRUCTURE	NON CONVENTIONAL THREATS	SOCIAL POLARIZATION	SAFETY

Contextual determinants of societal resilience

DETERMINANTS

- Administrative reforms
- Continuous access to global supply chains
- Education inclusion
- Alternative sources of information
- System continuity
- Availability of green spaces
- Availability and use of public transportation
- Waste management facilities
- Energy efficiency
- Energy poverty
- Social cleavages (ethic, religious, marginalised, sexual minorities)
- Contentious politics (protest)
- Repression (experience with)
- Law enforcement capacity

INDICATORS

- Service digitisation (e.g. number of devices/public services online/internet penetration)
- Surveillance capacity (e.g. number of surveillance units)
- Disruption in critical supplies
- Affected by disinformation
- Cyber-attacks vulnerability
- Climate change effects (e.g. CO2 emissions/ pollution levels, heat waves / desertification / extreme weather events)
- Local inequalities (e.g. socio-economic, ethnic)
- Crime rates

Intrinsic measures of societal resilience

Socio-Economic Local Resilience Matrix

Impact of COVID-19

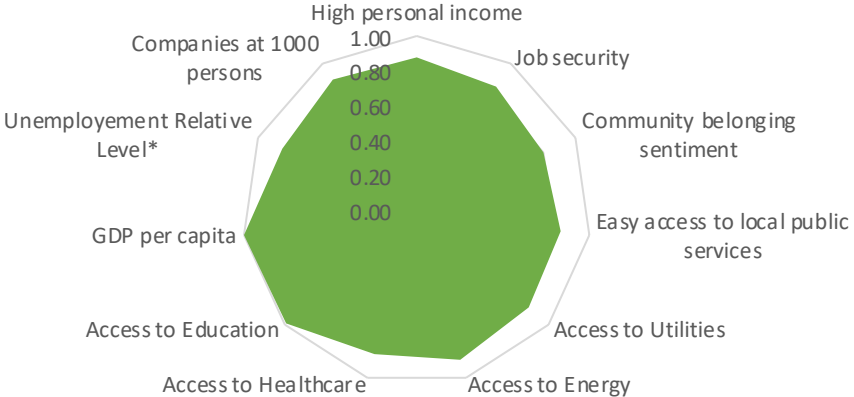| Difference Before - After March 2020	High personal income	Job security	Community belonging sentiment	Easy access to local public services	Access to Utilities	Access to Energy	Access to Healthcare	Access to Education	GDP per capita	Unemployment rate	Companies at 1000 persons
ALBA	-14.0%	-16.6%	-8.9%	-25.4%	-3.6%	-1.1%	-10.4%	-11.9%	0.0%	22.6%	7.1%
ARAD	-16.5%	-17.9%	-17.5%	-28.6%	-5.5%	-5.3%	-11.1%	-20.6%	-3.0%	83.3%	4.1%
ARGES	-6.9%	-11.4%	-4.2%	-19.7%	-1.9%	-0.6%	-14.2%	-8.3%	-6.1%	26.7%	5.8%
BACAU	-11.0%	-12.1%	-9.8%	-20.3%	-1.9%	-3.4%	-9.7%	-11.6%	1.7%	3.8%	6.7%
BIHOR	-17.8%	-27.3%	-20.9%	-27.7%	-6.1%	-4.6%	-14.9%	-19.3%	-5.0%	64.3%	4.7%
BISTRITA-NASAUD	-2.8%	-9.2%	-11.7%	-10.9%	-7.7%	-6.9%	-19.4%	-18.6%	-5.2%	30.8%	9.8%
BOTOSANI	-11.0%	-18.7%	-11.2%	-15.8%	-0.2%	-4.7%	-12.8%	-8.0%	-3.3%	11.5%	8.3%
BRAILA	-8.3%	-15.3%	-14.3%	-23.8%	-5.6%	-5.9%	-20.5%	-12.5%	-3.8%	22.9%	4.5%
BRASOV	-22.3%	-27.9%	-18.2%	-21.0%	-7.1%	-6.7%	-15.8%	-22.6%	-1.5%	30.0%	5.3%
BUCURESTI	-7.7%	-13.3%	-14.4%	-18.6%	-8.1%	-5.2%	-16.9%	-10.7%	-0.6%	0.0%	2.0%
BUZAU	-13.3%	-17.1%	-15.4%	-24.4%	-2.3%	-1.9%	-14.4%	-18.8%	3.7%	19.7%	4.6%
CALARASI	5.2%	-5.0%	-5.3%	-17.4%	-0.8%	-2.6%	-12.1%	-6.9%	-1.2%	19.4%	5.1%
CARAS-SEVERIN	-11.8%	-22.9%	-14.1%	-20.5%	0.6%	-0.8%	-10.7%	-9.7%	-2.7%	9.7%	5.0%
CLUJ	-11.7%	-10.1%	-10.9%	-15.7%	-1.2%	-2.5%	-8.2%	-9.8%	1.4%	33.3%	3.4%
CONSTANTA	-14.2%	-22.0%	-13.2%	-24.9%	-6.8%	-5.8%	-20.6%	-14.5%	-4.2%	20.0%	4.7%
COVASNA	-14.4%	-22.0%	-15.0%	-26.3%	-5.1%	-3.8%	-20.3%	-12.0%	-1.7%	54.5%	4.2%
DAMBOVITA	-7.7%	-20.5%	-8.4%	-13.2%	-2.7%	-2.6%	-13.3%	-15.2%	-4.7%	-5.9%	7.2%
DOLJ	2.9%	-3.6%	-8.6%	-10.4%	-2.3%	-3.8%	-3.8%	-16.0%	-0.7%	6.0%	6.3%
GALATI	-11.6%	-10.4%	-4.0%	-11.7%	-3.5%	-4.0%	-15.4%	-13.7%	0.0%	16.1%	4.0%
GIURGIU	-7.7%	-16.3%	-12.6%	-23.4%	-3.5%	-1.7%	-11.9%	-9.9%	-0.1%	30.0%	9.7%
GORJ	-14.5%	-21.6%	-14.2%	-20.2%	-2.9%	-5.5%	-13.2%	-11.7%	-3.4%	8.6%	6.3%
HARGHITA	-9.1%	-12.6%	-16.6%	-15.6%	-4.3%	-2.8%	-11.5%	-19.5%	-1.2%	18.4%	2.0%
HUNEDOARA	-8.8%	-16.9%	-13.9%	-21.9%	0.4%	-4.4%	-13.8%	-14.9%	-0.3%	13.3%	6.0%
IALOMITA	-19.5%	-23.3%	-14.0%	-21.9%	-9.2%	-7.7%	-18.8%	-17.2%	0.9%	8.9%	4.4%
IASI	-2.0%	-9.9%	-9.2%	-20.5%	-7.4%	-5.3%	-11.7%	-16.9%	-0.8%	14.8%	7.1%
ILFOV	-8.9%	-10.6%	-2.3%	-13.1%	-1.3%	-1.8%	-14.7%	-20.3%	-2.4%	75.0%	5.2%
MARAMURES	-11.9%	-21.5%	-22.8%	-21.7%	-4.1%	-4.3%	-14.3%	-15.8%	-1.4%	-11.5%	6.8%
MEHEDINTI	-7.1%	-11.8%	-16.3%	-15.4%	-3.9%	-4.5%	-19.2%	-17.1%	0.5%	-5.9%	7.3%
MURES	-10.9%	-11.1%	-13.5%	-15.9%	0.0%	-2.7%	-12.0%	-9.0%	1.4%	0.0%	4.9%
NEAMT	-12.3%	-18.1%	-13.4%	-18.7%	-1.0%	-1.9%	-15.9%	-14.8%	-2.5%	25.0%	5.1%
OLT	-12.9%	-17.2%	-17.2%	-24.0%	4.4%	-3.9%	-10.8%	-14.3%	-0.5%	7.3%	4.5%
PRAHOVA	4.1%	-19.2%	-11.8%	-16.6%	1.6%	-3.8%	-16.6%	-14.6%	0.8%	20.8%	5.4%
SALAJ	0.7%	-10.9%	-1.2%	-13.2%	-6.6%	-9.7%	-11.3%	-14.7%	-1.2%	23.8%	5.8%
SATU MARE	-9.5%	-12.4%	-13.8%	-22.6%	-2.0%	-4.2%	-13.5%	-16.3%	-5.1%	48.0%	5.4%
SIBIU	-13.7%	-14.5%	-7.9%	-14.6%	-4.7%	-11.0%	-15.0%	-18.6%	-0.4%	55.6%	5.7%
SUCEAVA	-14.8%	-17.4%	-21.9%	-26.5%	-8.5%	-8.1%	-23.5%	-28.6%	-2.3%	6.3%	5.4%
TELEORMAN	-4.1%	-13.0%	-17.0%	-13.9%	-9.2%	-7.5%	-18.4%	-22.5%	-3.8%	4.8%	6.4%
TIMIS	-10.6%	-9.0%	-17.0%	-22.0%	-3.8%	-5.9%	-15.2%	-16.5%	-3.4%	62.5%	4.7%
TULCEA	-11.5%	-7.5%	-3.0%	-17.3%	-6.9%	-8.8%	-16.3%	-16.6%	-1.9%	-14.3%	7.9%
VALCEA	-20.1%	-22.0%	-18.6%	-22.3%	-4.6%	-6.2%	-9.6%	-11.3%	-0.2%	28.6%	6.6%
VASLUI	-15.4%	-15.8%	-14.0%	-20.3%	-2.9%	-4.9%	-11.7%	-16.8%	-2.3%	-1.3%	6.4%
VRANCEA	-10.5%	-17.1%	-12.1%	-19.8%	-11.8%	-11.1%	-20.3%	-24.2%	-2.2%	16.7%	6.1%

Socio-Economic Local Resilience Matrix
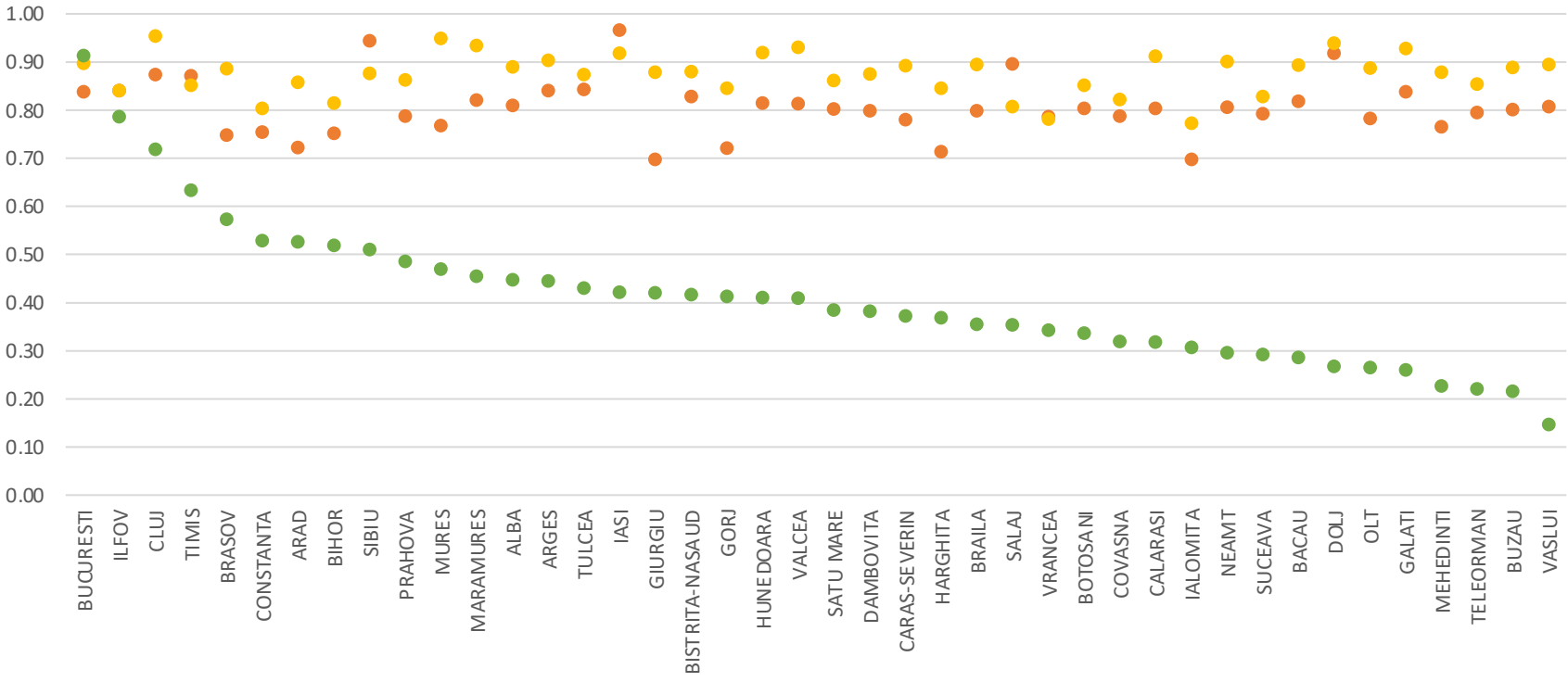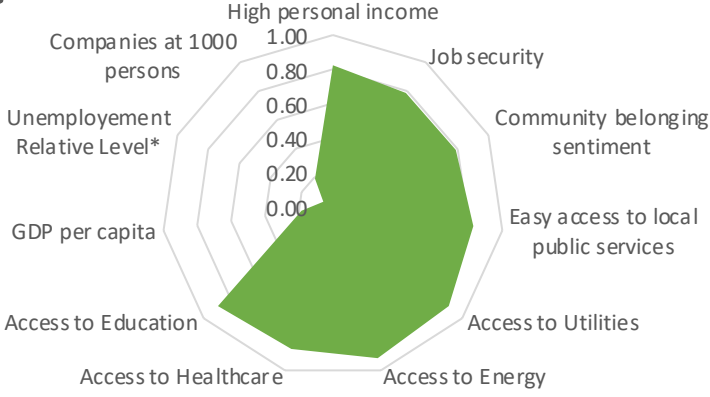
Current Context

After March 2020	High personal income	Job security	Community belonging sentiment	Easy access to local public services	Access to Utilities	Access to Energy	Access to Healthcare	Access to Education	GDP per capita	Unemployment rate	Companies at 1000 persons
ALBA	0.80	0.86	0.80	0.78	0.84	0.89	0.89	0.95	0.41	3.80	0.42
ARAD	0.74	0.77	0.67	0.70	0.86	0.88	0.85	0.84	0.39	2.20	0.46
ARGES	0.85	0.84	0.82	0.84	0.96	1.00	0.79	0.85	0.35	3.80	0.47
BACAU	0.81	0.83	0.82	0.82	0.93	0.94	0.84	0.86	0.26	5.40	0.28
BIHOR	0.80	0.68	0.72	0.81	0.85	0.88	0.79	0.74	0.31	2.30	0.54
BISTRITA-NASAUD	0.83	0.83	0.79	0.86	0.83	0.90	0.79	0.99	0.26	3.40	0.42
BOTOSANI	0.80	0.73	0.80	0.88	0.85	0.90	0.83	0.82	0.20	2.90	0.18
BRAILA	0.84	0.82	0.77	0.77	0.96	0.92	0.79	0.91	0.28	4.30	0.33
BRASOV	0.73	0.73	0.73	0.80	0.92	0.91	0.83	0.88	0.47	2.60	0.58
BUCURESTI	0.88	0.84	0.80	0.83	0.85	0.89	0.86	0.99	1.00	1.20	0.89
BUZAU	0.84	0.82	0.74	0.80	0.93	0.94	0.84	0.84	0.28	7.90	0.37
CALARASI	0.81	0.87	0.75	0.78	0.94	0.95	0.83	0.93	0.21	4.30	0.28
CARAS-SEVERIN	0.85	0.76	0.74	0.77	0.96	0.95	0.76	0.90	0.29	3.40	0.26
CLUJ	0.84	0.89	0.87	0.88	1.00	0.98	0.94	0.89	0.56	1.60	0.80
CONSTANTA	0.83	0.75	0.75	0.68	0.87	0.88	0.69	0.77	0.45	3.00	0.51
COVASNA	0.73	0.80	0.81	0.81	0.88	0.87	0.76	0.78	0.28	5.10	0.32
DAMBOVITA	0.82	0.73	0.80	0.84	0.93	0.93	0.81	0.83	0.25	3.20	0.29
DOLJ	0.97	1.00	0.86	0.85	0.96	0.98	1.00	0.81	0.30	7.10	0.40
GALATI	0.82	0.86	0.81	0.87	0.96	0.97	0.82	0.97	0.27	6.50	0.33
GIURGIU	0.70	0.69	0.67	0.72	0.83	0.92	0.84	0.92	0.24	2.60	0.35
GORJ	0.73	0.69	0.73	0.72	0.84	0.85	0.80	0.89	0.39	3.80	0.33
HARGHITA	0.67	0.74	0.69	0.75	0.89	0.86	0.80	0.83	0.28	4.50	0.39
HUNEDOARA	0.84	0.82	0.76	0.83	0.97	0.97	0.87	0.86	0.31	3.40	0.35
IALOMITA	0.64	0.66	0.73	0.76	0.79	0.83	0.69	0.78	0.26	4.90	0.28
IASI	1.00	0.89	1.00	0.97	0.90	0.91	0.89	0.97	0.32	3.10	0.33
ILFOV	0.78	0.94	0.79	0.85	0.88	0.96	0.74	0.78	0.45	0.70	1.00
MARAMURES	0.86	0.81	0.76	0.85	0.96	0.98	0.93	0.86	0.28	2.30	0.38
MEHEDINTI	0.82	0.81	0.69	0.75	0.96	0.94	0.76	0.85	0.27	6.40	0.22
MURES	0.75	0.84	0.72	0.77	0.95	0.97	0.88	0.99	0.32	2.70	0.43
NEAMT	0.81	0.80	0.77	0.84	0.94	0.96	0.78	0.92	0.25	5.00	0.27
OLT	0.77	0.77	0.80	0.78	0.92	0.94	0.82	0.87	0.25	5.90	0.29
PRAHOVA	0.89	0.74	0.72	0.80	0.89	0.91	0.77	0.89	0.41	2.90	0.41
SALAJ	0.90	0.88	0.91	0.89	0.76	0.80	0.82	0.85	0.32	5.20	0.40
SATU MARE	0.76	0.83	0.81	0.82	0.93	0.91	0.78	0.82	0.27	3.70	0.35
SIBIU	0.90	0.93	0.94	1.00	0.93	0.88	0.85	0.84	0.43	2.80	0.46
SUCEAVA	0.84	0.86	0.68	0.78	0.90	0.91	0.78	0.71	0.22	5.10	0.29
TELEORMAN	0.84	0.81	0.71	0.82	0.90	0.91	0.80	0.79	0.23	6.60	0.27
TIMIS	0.86	0.94	0.84	0.85	0.88	0.87	0.81	0.84	0.48	1.30	0.58
TULCEA	0.87	0.86	0.81	0.83	0.93	0.91	0.79	0.86	0.31	3.00	0.35
VALCEA	0.77	0.76	0.83	0.88	0.95	0.93	0.83	1.00	0.32	3.60	0.36
VASLUI	0.82	0.79	0.79	0.83	0.89	0.93	0.87	0.89	0.18	7.40	0.19
VRANCEA	0.78	0.76	0.77	0.83	0.83	0.83	0.74	0.73	0.24	4.20	0.32

LOC RES DASHBOARD

■ Category

□ Key dimensions

Economic Local Resilience

BUCURESTI

VASLUI

- Socio-economic policies
- Access to basic services
- Economic opportunities