

The European Commission's science and knowledge service

Joint Research Centre

JRC work on resilience

F. Campolongo

Directorate Growth & Innovation

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JRC developed a **conceptual framework** for resilience

in consultation **with European Commission services**



JRC SCIENCE FOR POLICY REPORT

**Building a Scientific Narrative
Towards a More Resilient EU Society**

*Part I: a Conceptual
Framework*

Manca, Anna Rita
Benczur, Peter
Giovannini, Enrico



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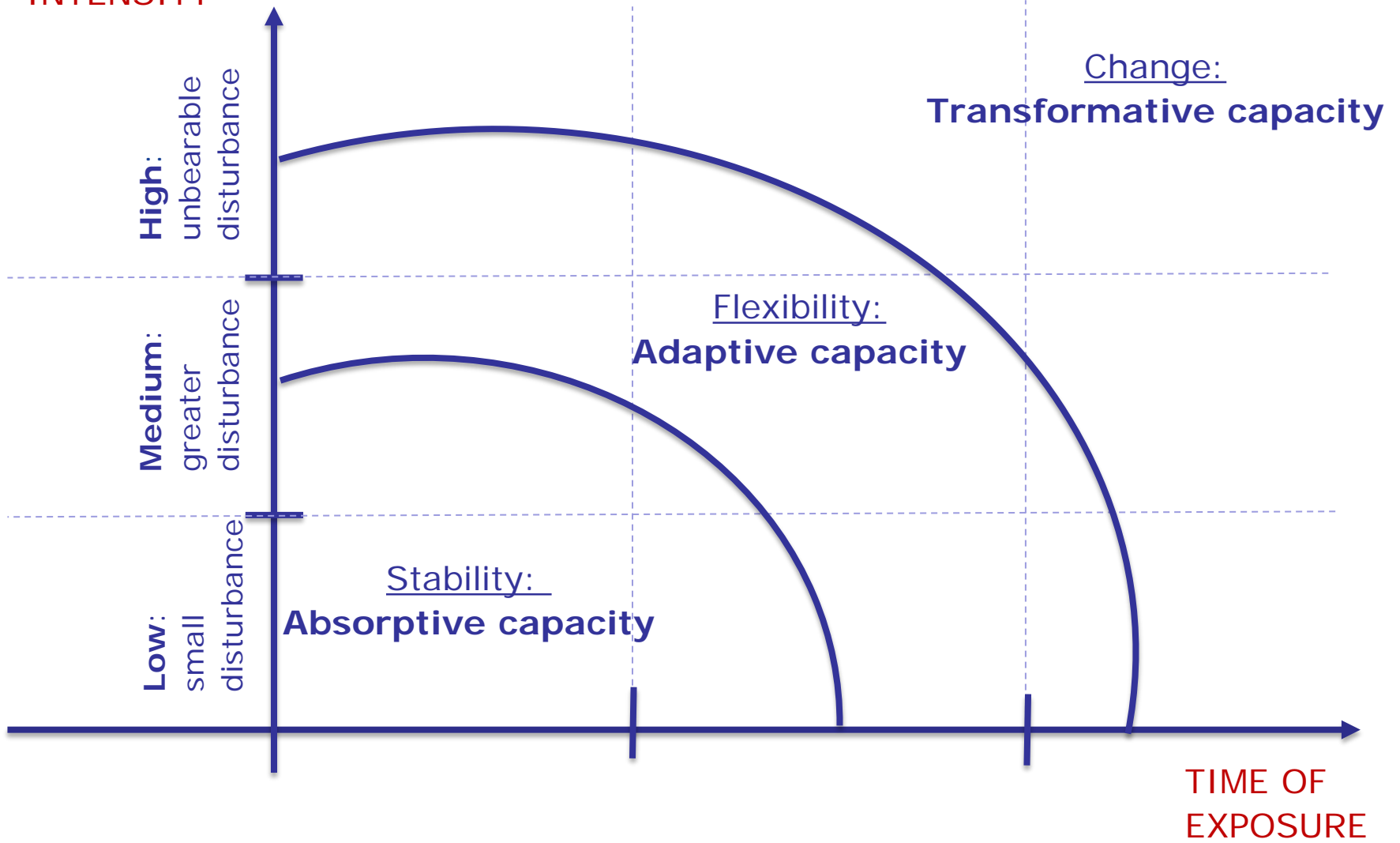


What is resilience?

Resilience is the ability of a system/society to **sustain its level of societal wellbeing**, without compromising that of future generations, by reacting to shocks and persistent structural changes

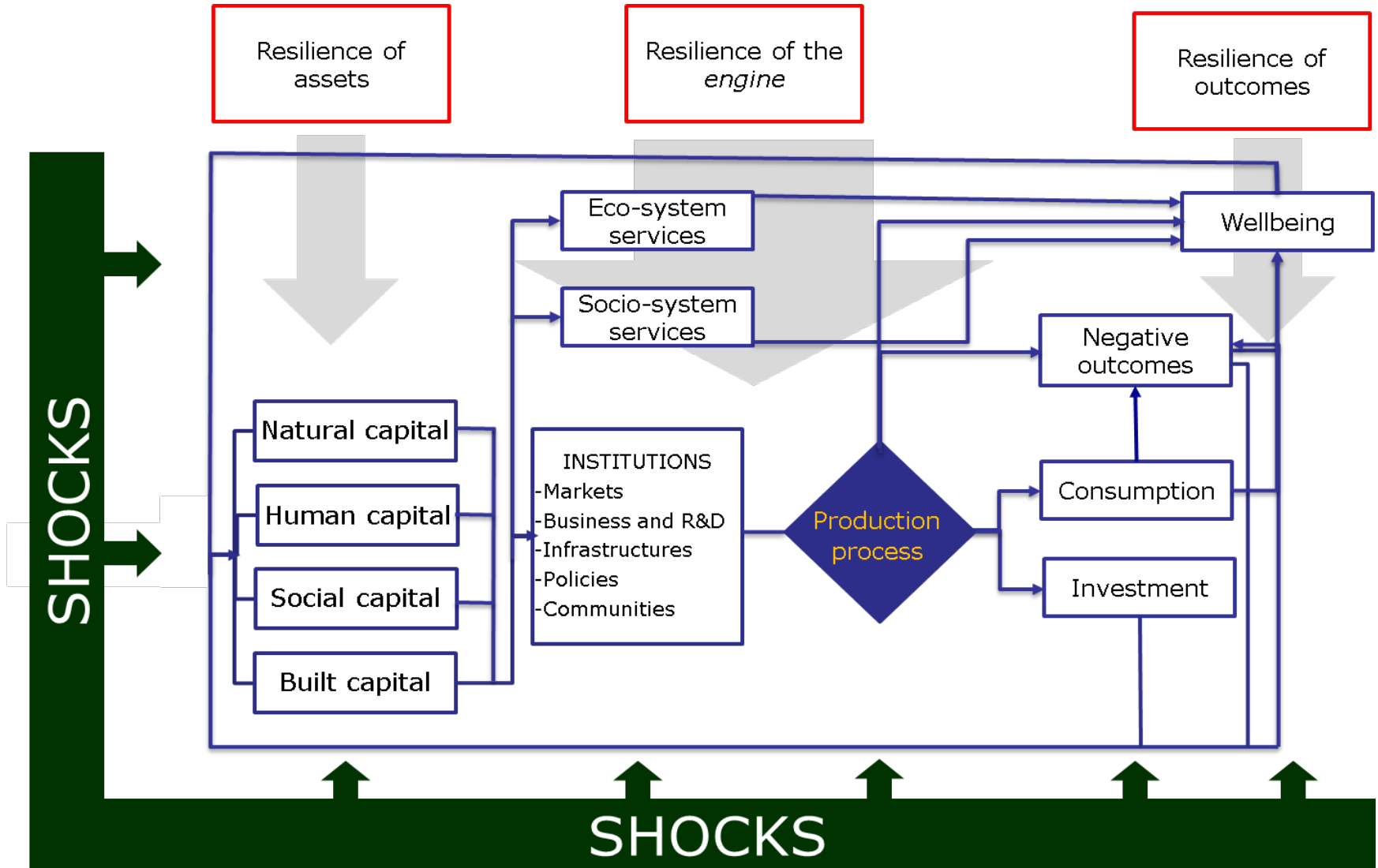


**DISTURBANCE
INTENSITY**



**TIME OF
EXPOSURE**

The system view



A test case on the 2008-2012 financial and economic crisis



Measurement strategy



System variables

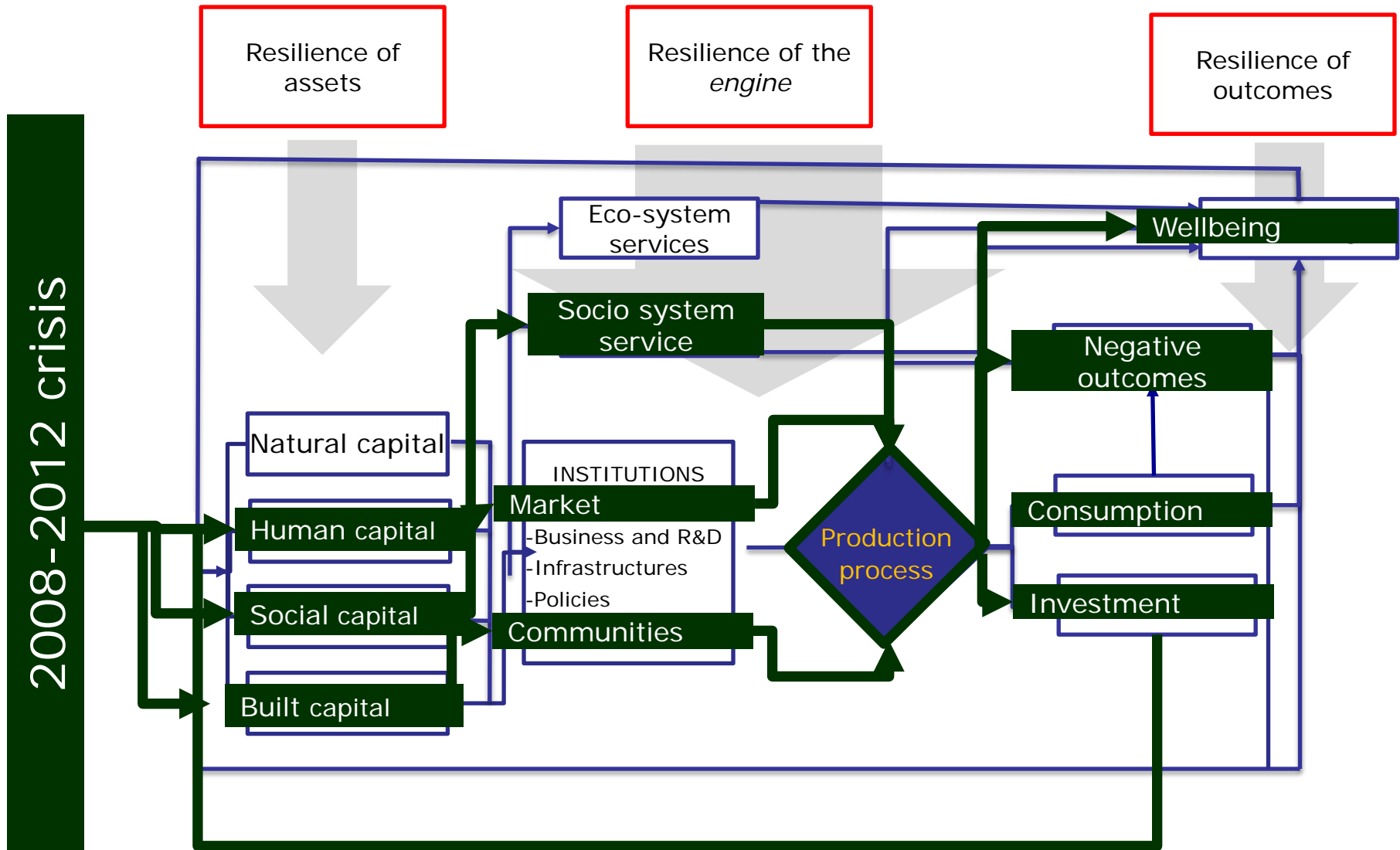


Indicators of resilience

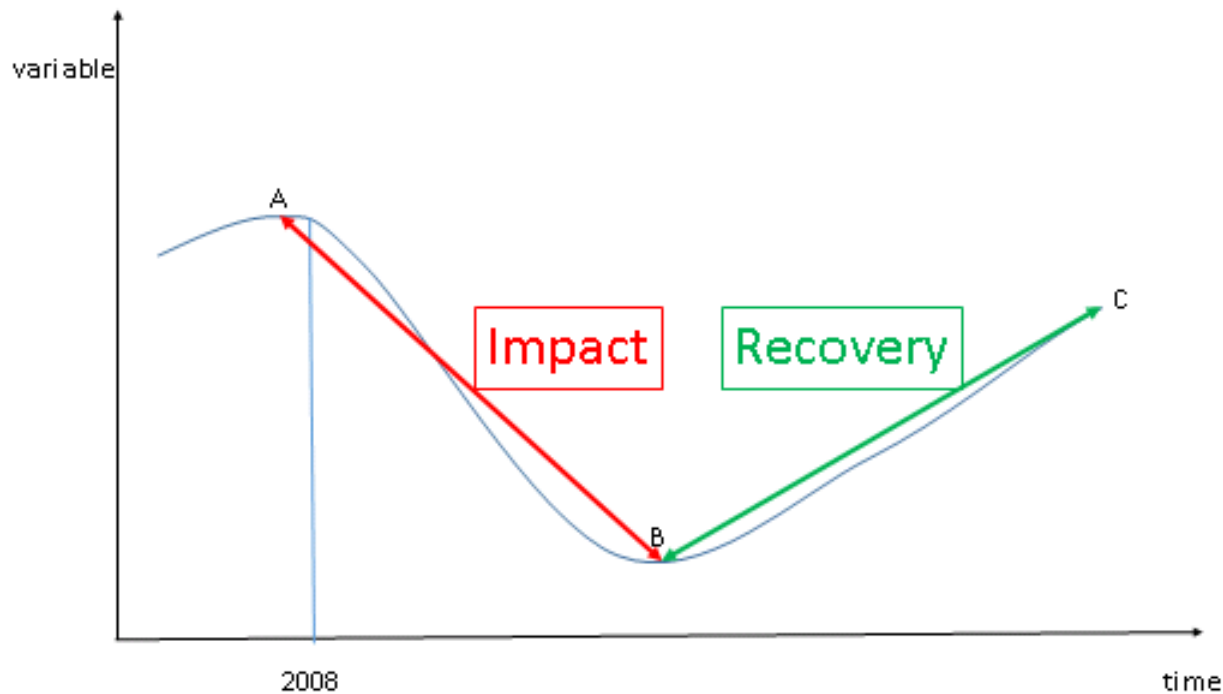


Resilience drivers

Pilot on the financial and economic crisis



Indicators of resilience - examples

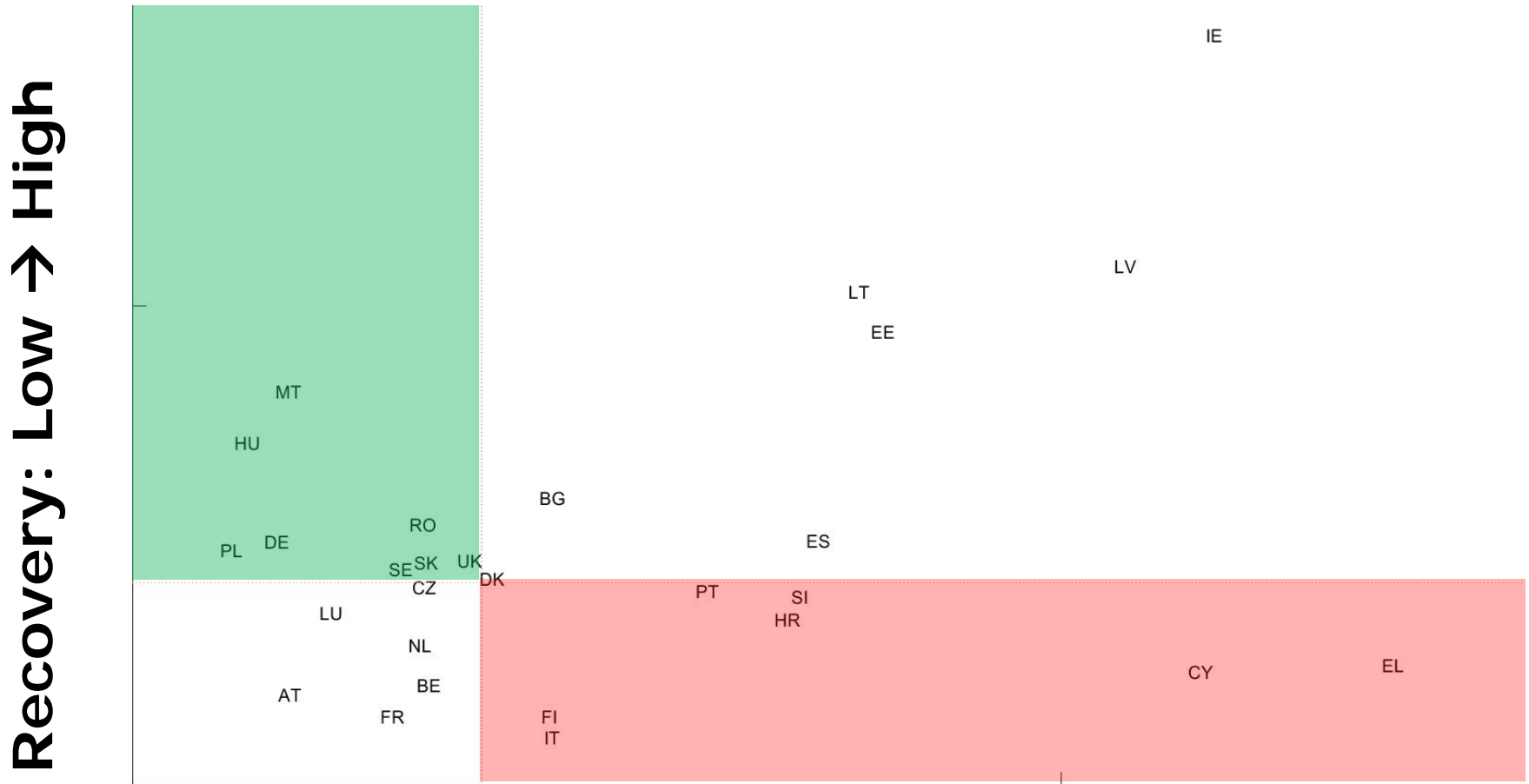


Impact
Absorptive
capacity

Recovery
Adaptation
capacity

Result 1: Good absorption does not imply good adaptation, and vice-versa

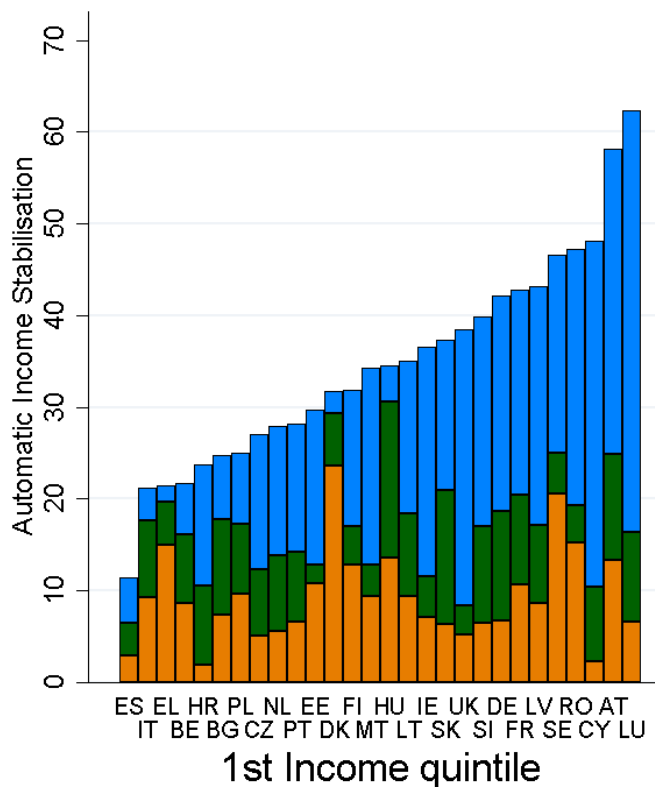
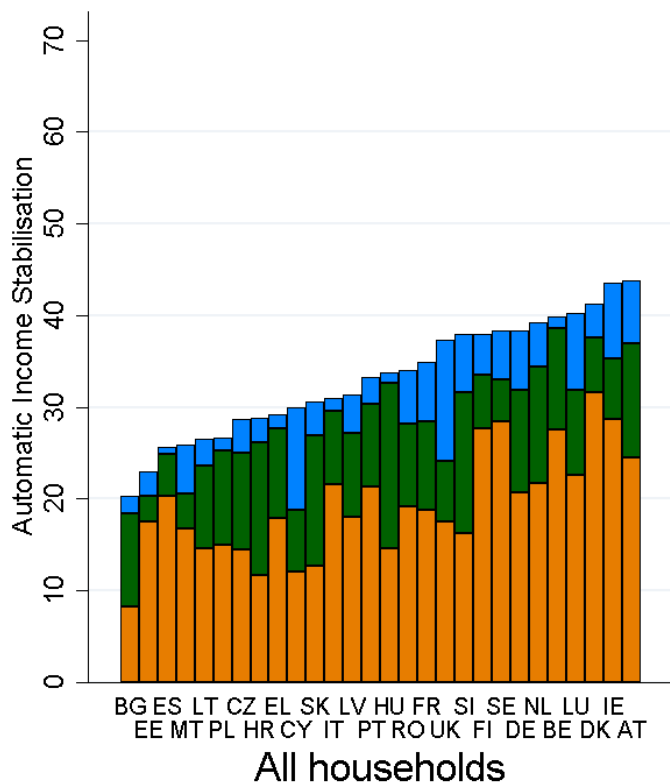
Economic and financial resilience



Impact: Low → High

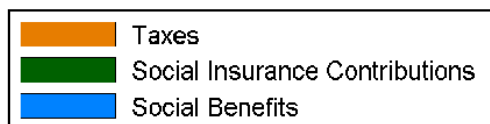
Result 2: Shock absorption : the role of tax & social benefits as "automatic stabilisers"

Level of automatic income stabilisation for households in EU countries (2014)



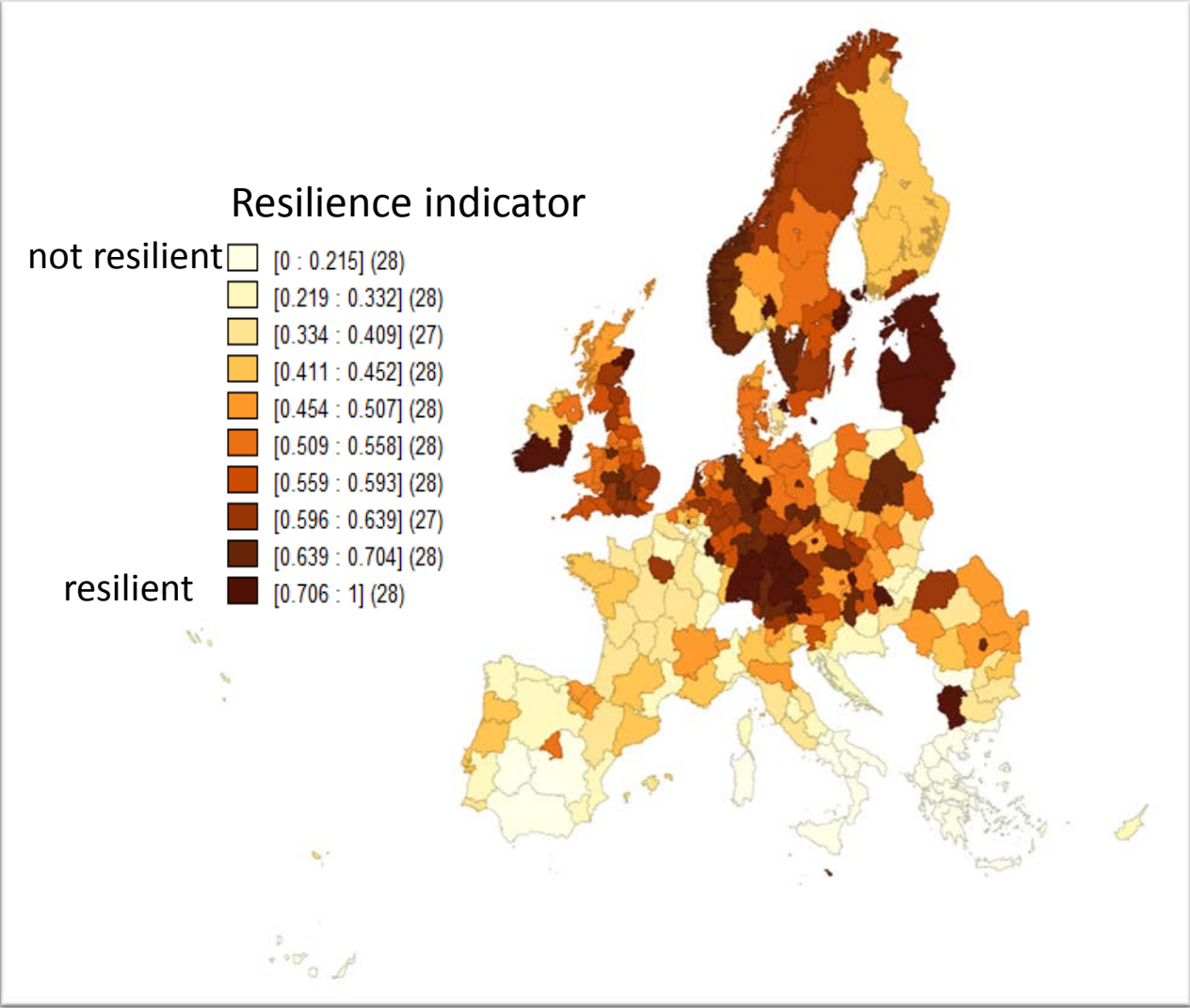
Negative shocks on household income are absorbed by between 20% and 45% on average in the EU (lhs).

Social benefits are particularly important for the poorest households (rhs).



Result 3: We need to go down to regions

Regional Resilience indicator



Key variables :

- GDP per capita: key variable for measuring economic performances
- Productivity (GDP/employment): required for a lasting growth
- Employment rate (employment/population): key for generating GDP

Note:

$$\text{GDP/pop.} = \text{GDP/employment} \times \text{employment/pop}$$

Result 4: We need to go down to different groups/communities

Change of employment, by type of occupation and country - 2011-2016



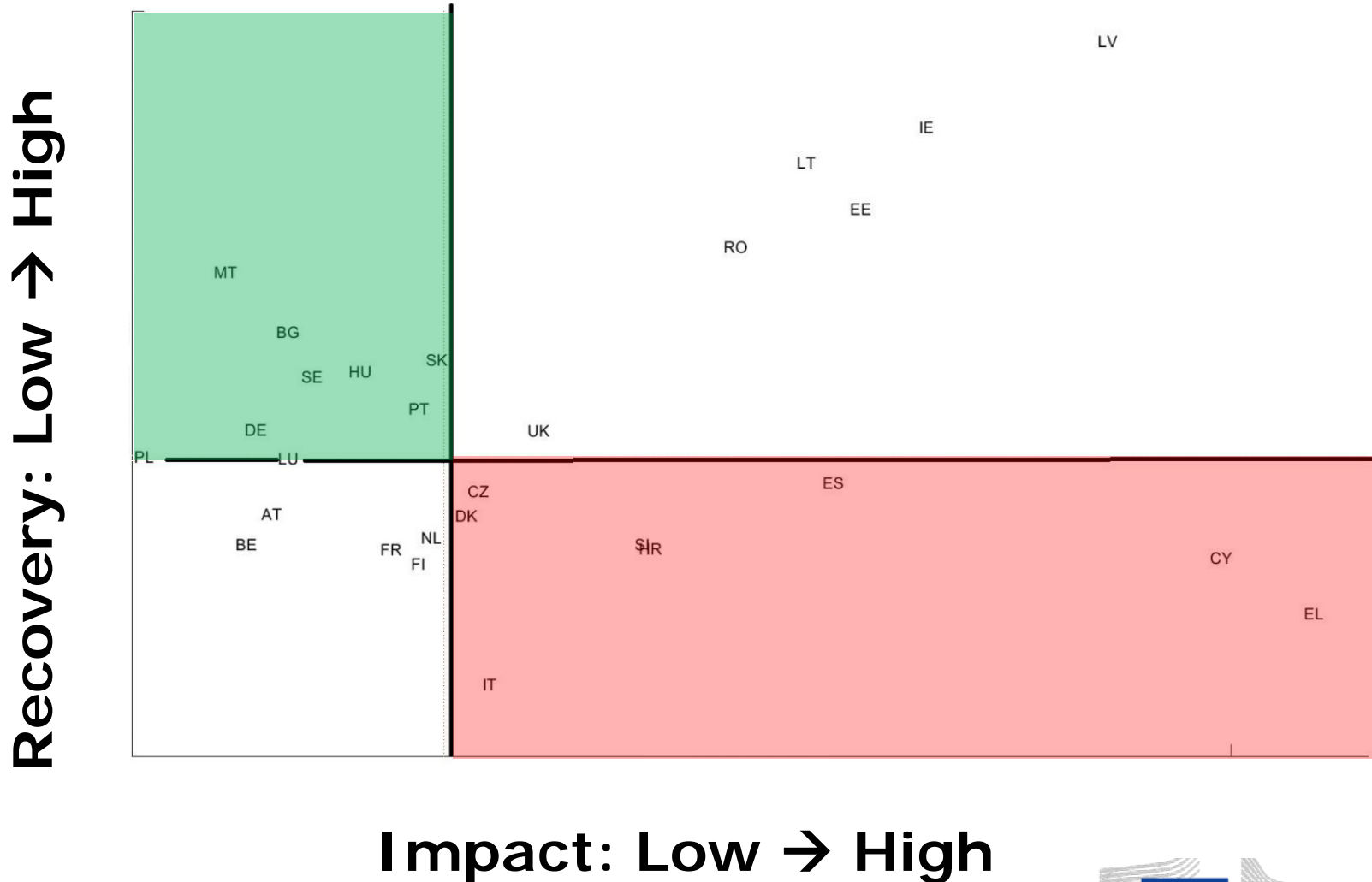
Routine workers are the least resilient group

*Data not available for LTU, LUX and MLT

Source: Eurostat

Result 5: A system view is what we need

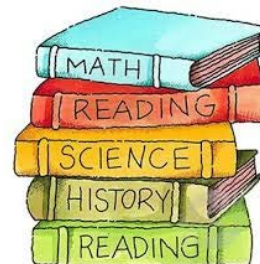
System view: including social resilience



Result 6: TRUST helps increasing resilience

Preliminary findings of a JRC study indicate that:

- **Generalized trust is positively associated to education**
- This association **is stronger** in countries with **greater birthplace diversity** and **weaker** in countries with **greater income inequality**



Way forward

- Further develop our case studies (e.g. dig into resilience characteristics/drivers to produce a **dashboard** for monitoring purposes)
- Enlarge the dataset with region- and city-level data
- Extend the work to urgent challenges such as **migration** and **digital transformation**



Potential collaboration with the OECD

- Data exchange
- Use JRC resilience framework as intergovernmental standard in the context of the project being discussed between NIST, NAEC, JRC (meeting 13 October)

