Tracking adaptation to climate change

Concepts, data and indicators

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TRacking Adaptation to Climate Change Collaboration (TRAC3)

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Why tracking adaptation policy?

- Tracking is needed to address crucial questions: *Is adaptation taking place? If so, who is adapting and what types of adaptation are being undertaken? Are we adapting more over time? Which nations, regions, and sectors are leading on adaptation, what factors determine this?*
- Adaptation tracking requires 4Cs: consistency, comparability, comprehensiveness, coherency
    - But: Conceptual, methodological and empirical challenges exist
- Tracking is necessary component of evaluation

Conceptual: What is adaptation?


A


B

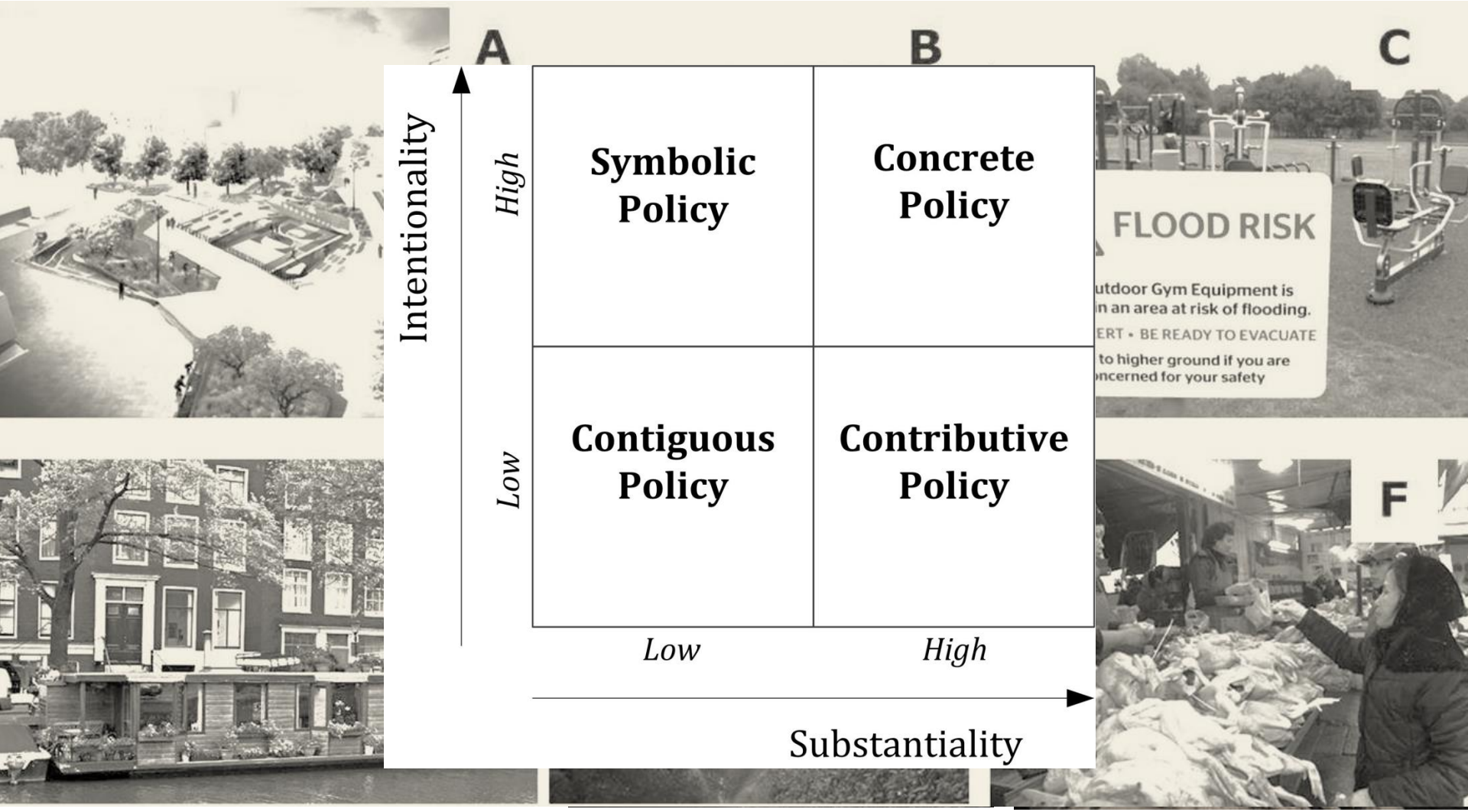
C


D


E


F

Conceptual: What is adaptation?



Dupuis, J., Biesbroek, R., 2013. Comparing apples and oranges: The dependent variable problem in comparing and evaluating climate change adaptation policies. Global Environmental Change 23, 1476–1487

Global Adaptation Dataset

The Global Adaptation Dataset captures **progress on adaptation** reported in the National Communications (5 and 6).

- **Indicators:**
- Type of action
- Vulnerability
- Sector
- Stage of implementation
- Stakeholders
- Implementation approach
- Vulnerable groups

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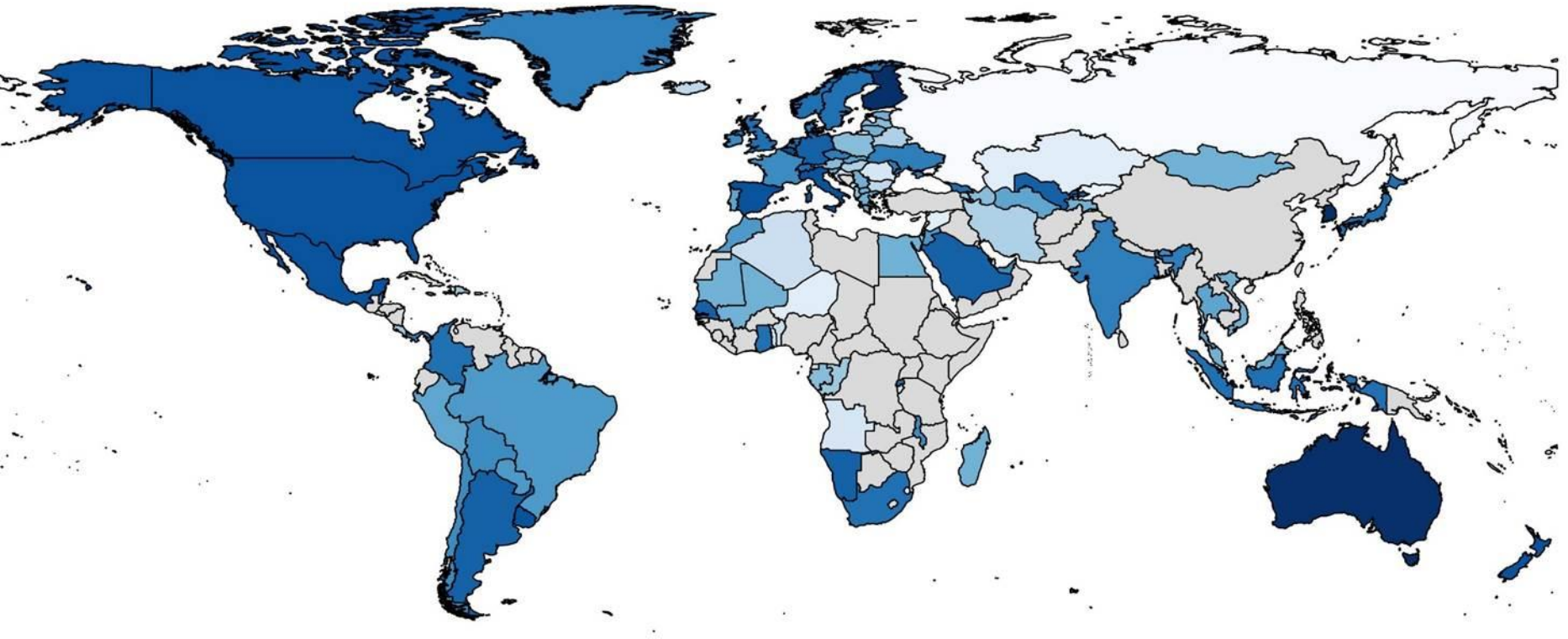
Global Adaptation Index

Map by Malcolm Araos Egan



AII Scores

0 19 No Data

Adaptation (weighted) Score: ($ToA_{\#GW1}$) + ($ToA_{\#ADAPT2}$)

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Lesnikowski, A., Ford, J.D., Biesbroek, G.R., Berrang-Ford, L. and J. Heymann (2016) National-level progress on adaptation *Nature Climate Change* **6**, 261–264

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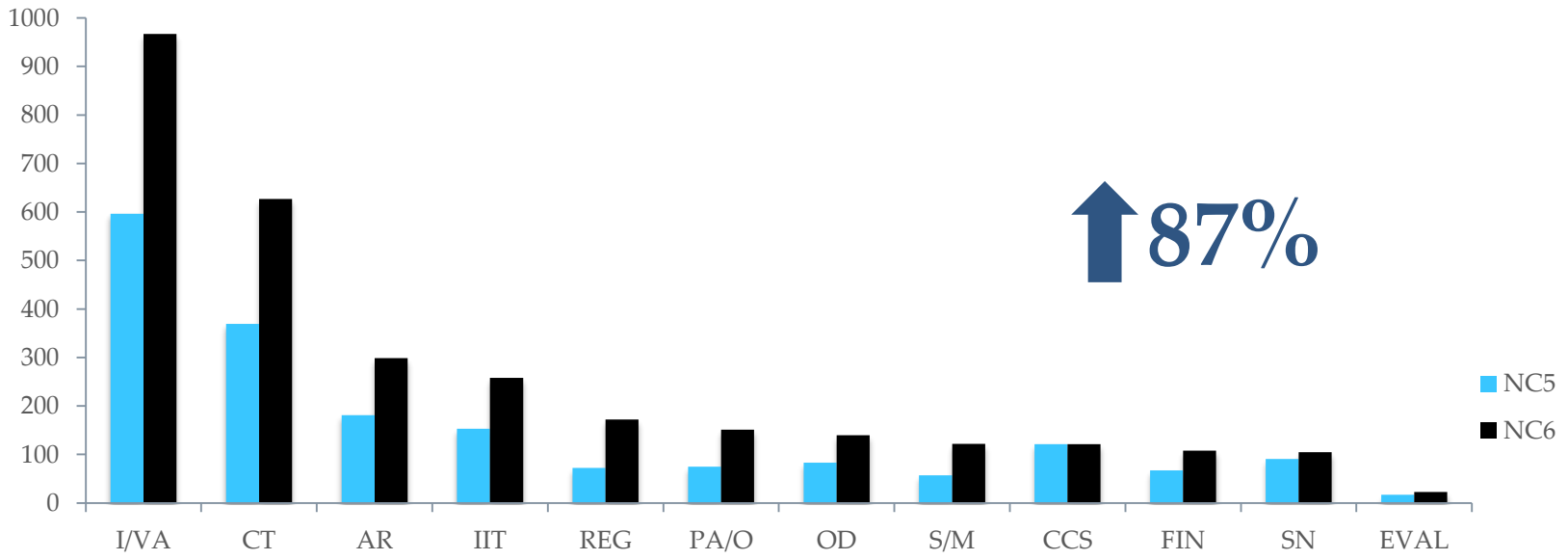
Observed change among high-income countries (NC5-NC6)



I/VA= Impact & vulnerability assessment
CT= Conceptual tool
AR= Adaptation research
IIT= Infrastructure/innovation/technology
REG= Regulation
PA/O= Public awareness & outreach
OD= Organizational development
S/M= Surveillance & monitoring
CCS= Climate change scenario
FIN= Financial support
SN= Stakeholder networking
EVAL= Evaluation

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Observed change among high-income countries (NC5-NC6)

Table 1 | Adaptation Initiative Index.

Country	Change	NC5	NC6
Kazakhstan	14	3	17
Romania	10	4	14
Russia	10	1	11
Bulgaria	9	6	15
Luxembourg	9	5	14
Monaco	8	0	8
Portugal	8	11	19
Lithuania	7	10	17
Croatia	6	5	11
Greece	6	11	17
Austria	4	9	13
Czech Republic	4	14	18
Estonia	4	11	15
Latvia	4	9	13
Liechtenstein	4	5	9
Norway	4	15	19
Poland	4	9	13
Sweden	4	15	19
United Kingdom	4	15	19
Ukraine	3	14	17
Ireland	3	13	16
Malta	3	13	16
Canada	2	17	19
France	2	13	15
Spain	2	17	19
Switzerland	2	15	17
Belarus	1	7	8
Germany	1	16	17
Hungary	1	7	8
Slovenia	1	10	11
Australia	0	19	19
Belgium	0	17	17
Finland	0	19	19
Iceland	0	6	6
Italy	0	17	17
Japan	0	15	15
United States	0	17	17
Denmark	0	16	16
Netherlands	0	15	15
New Zealand	0	17	17
Slovakia	−1	11	10

Scores for the AII are calculated from 0 to 19 and capture the diversity of policy instruments reported by each country according to the instrument typology applied in the coding scheme. Higher scores correspond to a wider range of instrument types. The table is ordered by change in AII score (greatest to least) from the NC5 to the NC6.

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Reflections: data, concepts and methods

Content analysis of National Communications

Strengths

- Comprehensive dataset
- Longitudinal dataset to assess change
- Global dataset
- Reporting obligation under UNFCCC

Weaknesses

- Political nature of climate change
- Between rhetoric and reality
- Reporting bias (success more reported than failure)
- Measuring reporting?
- Content of documents varies
- Only high intentional action

Policy diffusion in EU: patterns of divergence or convergence?

- Expert survey (summer 2013), 3 respondents per country, 28 countries

Top countries modeled	N	Total
UK	21	30
Germany	9	19
Finland	3	10

Results:

- Patters of convergence
- Learning or mimicking mechanism after UK

Why other countries influenced adaptation	Score
They have good institutions or organizations for adaptation	4,21
They are a leader on adaptation	4,02
Personal contacts or networks	3,74
Similar impact & vulnerability profile	3,71
Geographical proximity	3,57
They are a traditional environmental policy leader	3,39
Similar political system	3,00

Massey, E., Biesbroek, G.R., Huitema, D. and A. Jordan (2014) Climate policy innovation: The adoption and diffusion of adaptation policies across Europe *Global Environmental Change* 29, 434–443,

What are drivers/barriers?

Internal	Mean (0-5)
Drivers	
Past extreme weather events in the country	(1) 4,31
Public awareness and attention to climate change impacts	(5) 3,45
Domestic political pressure	(6) 3,29
Recognizing the benefits of adaptation to climate change	(7) 3,14
NGO activity	(9) 2,90
Barriers	
Lack of resources to invest on adaptation	(1) 3,98
Lack of political urgency to adapt	(2) 3,69
Lack of institutional capacity	(3) 3,64

External	Mean (0-5)
Drivers	
Research on projected climate change IVA	(2) 4,03
International efforts on adaptation (e.g. UNFCCC/OECD)	(4) 3,56
European efforts on adaptation (e.g. EU White Paper, ECCP)	(3) 3,81
Motivated by the progress in other countries	(8) 3,10
Financial support from international grants or funding for adaptation	(10) 2,63
Barriers	
Lack of access to adaptation knowledge and information from other countries	(6) 2,58
Lack of support and guidance from the EU	(5) 2,66
Lack of network ties with (other) leading countries on adaptation	(4) 2,84

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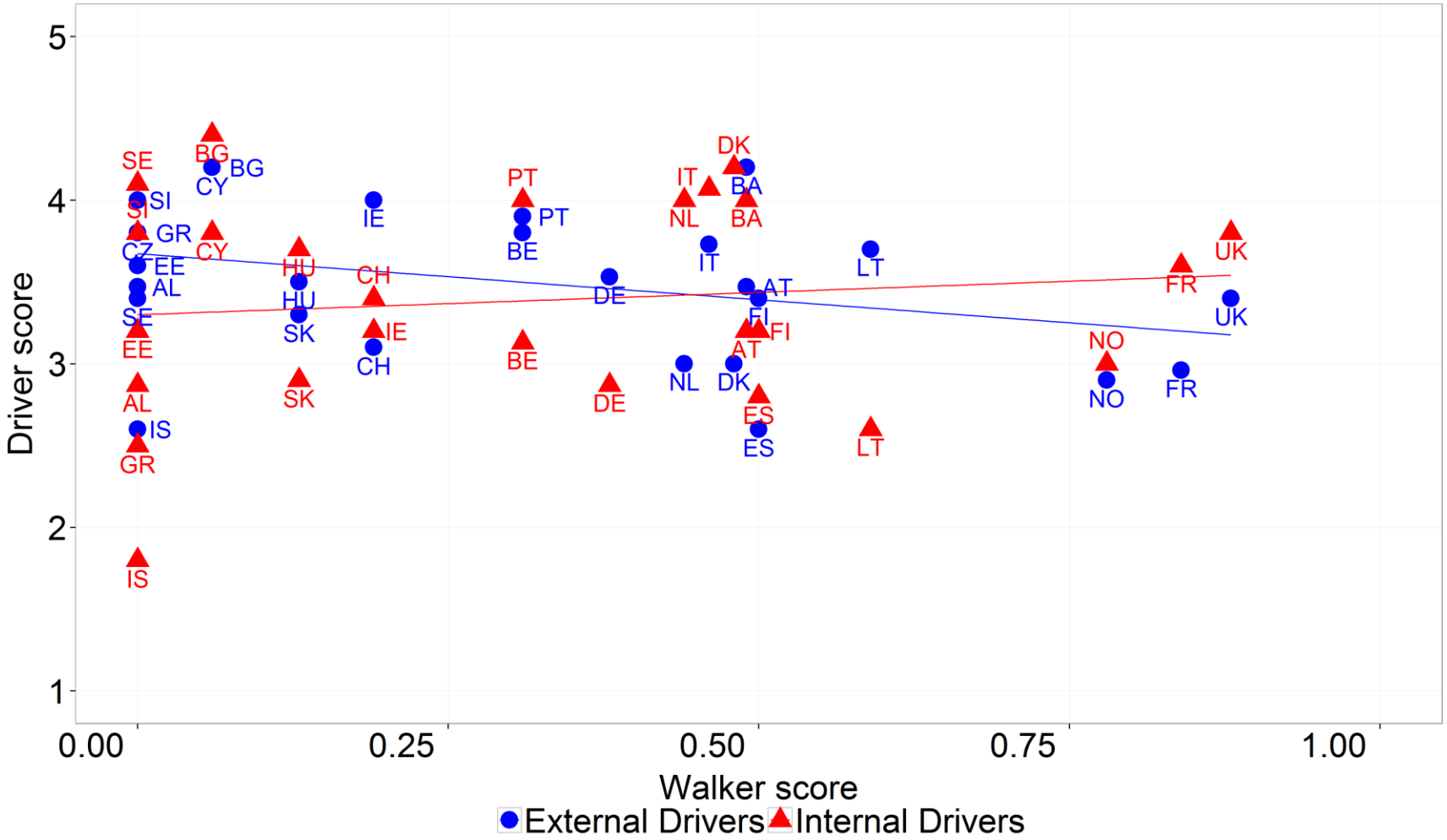
Drivers – external and internal



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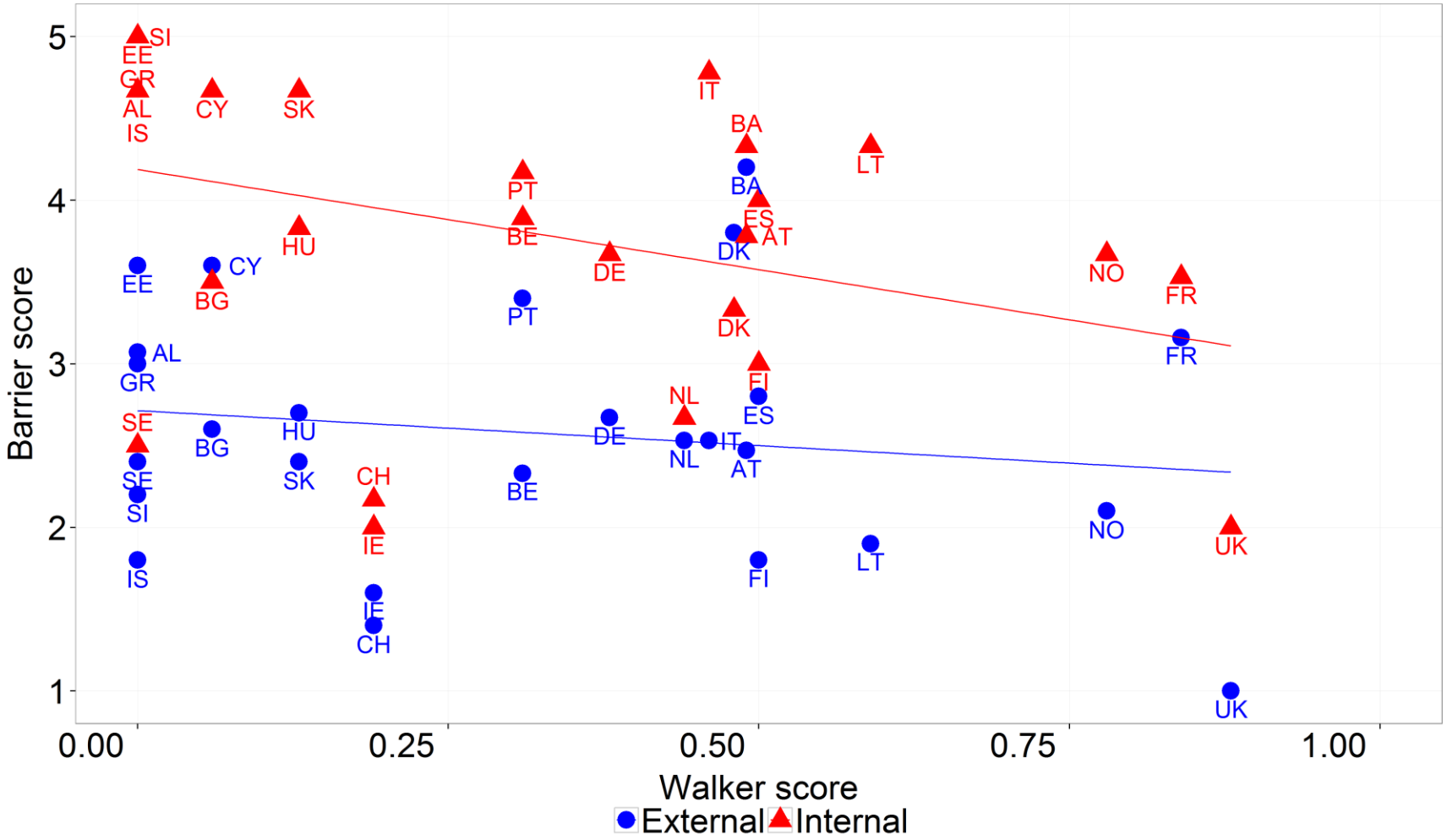
Barriers - external and internal



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Reflections: data, concepts, methods

Strengths

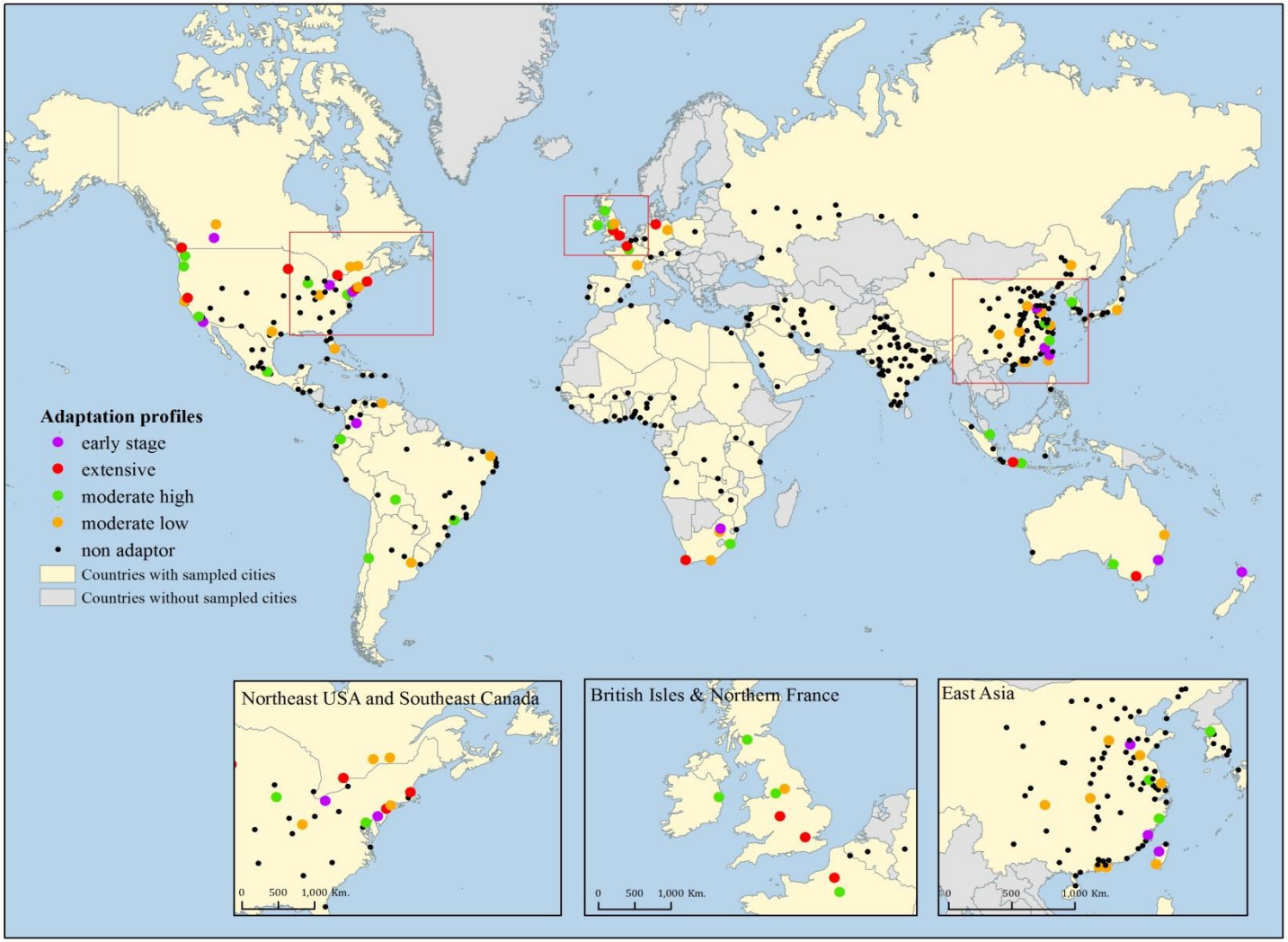
- Specific questions allow for specific answers
- Flexibility to implement in specific contexts and time scales
- Multiple times to measure changes in perception

Weaknesses

- response rate per country is difficult to achieve due few policy experts on adaptation
- Difficult to administer in low income countries
- Perceptions of experts, rather than objective and measurable items
- Time intensive for those completing (compensation?)

Tracking city level adaptation (>1milion)

Map by Malcolm Araos Egan



Araos, M. Berrang-Ford, L., Ford, J., Austin, S.E., and G.R. Biesbroek (2016) Climate change adaptation planning in large cities: a systematic global assessment, *Environmental Science and Policy*

Reflections: data, concepts and methods

Systematic web searches (>1 million)

Strengths

- No alternative global data source exist (e.g. ICLEI, C40 are early adopters)
- Multiple data sources (govt. websites, plans, strategies)
- Go beyond usual suspects
- Have global south included

Weaknesses

- Non-reporting ≠ non adapting
- Reporting as indicator for awareness instead of action
- Limited time available
- Language
- Breath over depth (also strength)

Conclusions: MLG in Europe

- European countries generally have more advanced policies compared to other countries globally
- Eastern European countries have progressed most between period NC5-NC6
- Observe policy dismantling in some countries
- EU commission is important driver and not seen as main barrier – mostly at level of country
- Difficult to connect national->city policies due to attribution problem
- Cities are adapting but comprehensive overview for Europe is missing

What is next? Key questions remain

- How to deal with ‘symbolic policy making’?
- How to measure if targets are met (i.e. success?)
- How to capture autonomous (i.e. low intentional) adaptation in our assessments?
- How to measure policy effectiveness?
- How to deal with attribution problem (output-outcome)
- How to measure adaptation once it is integrated (and relabelled)?

Thank you!

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