ECO-CHICA

The economic valuation of the health impacts of climate action (or inaction)

OHE.ORG

eco-chica

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Funded by: Wellcome Trust

XLV Jornadas de Economía de la Salud

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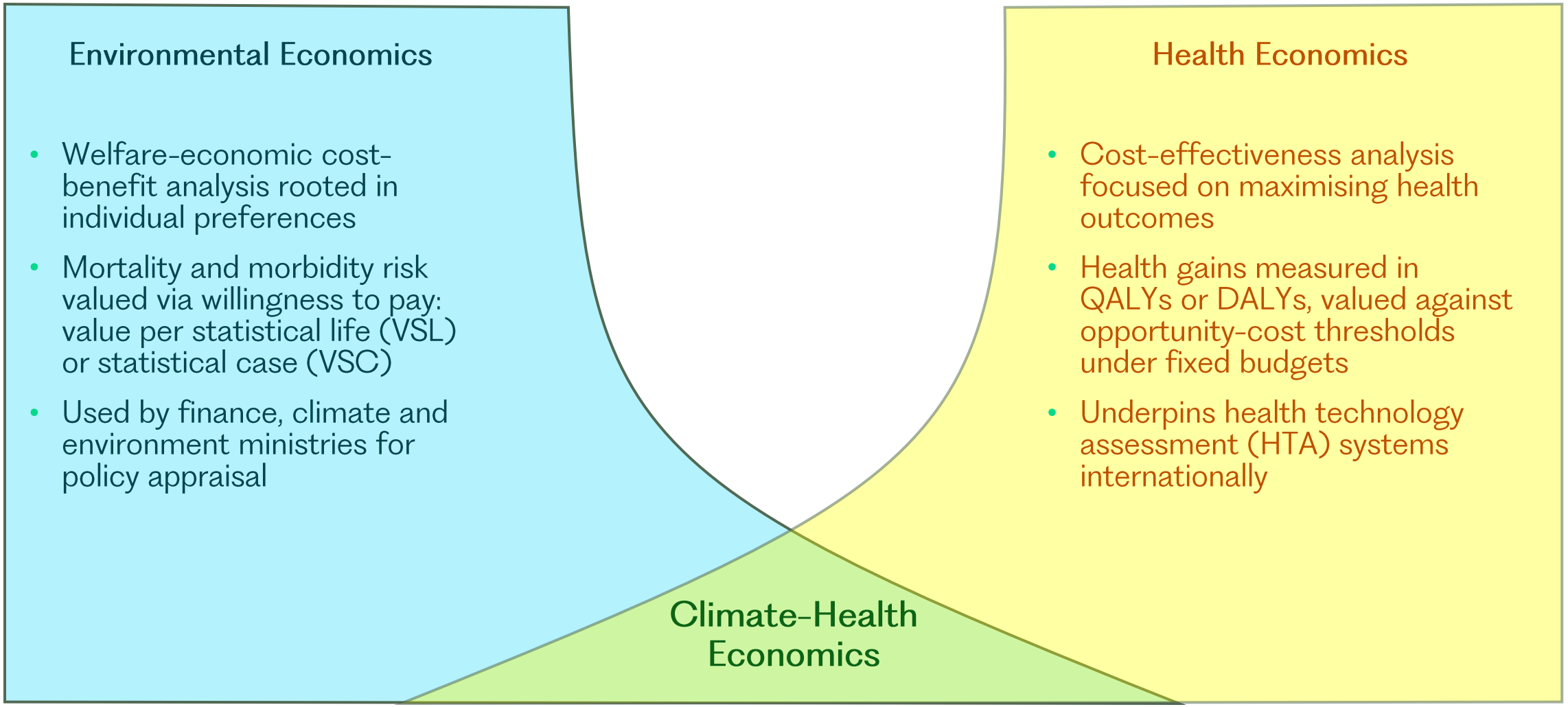
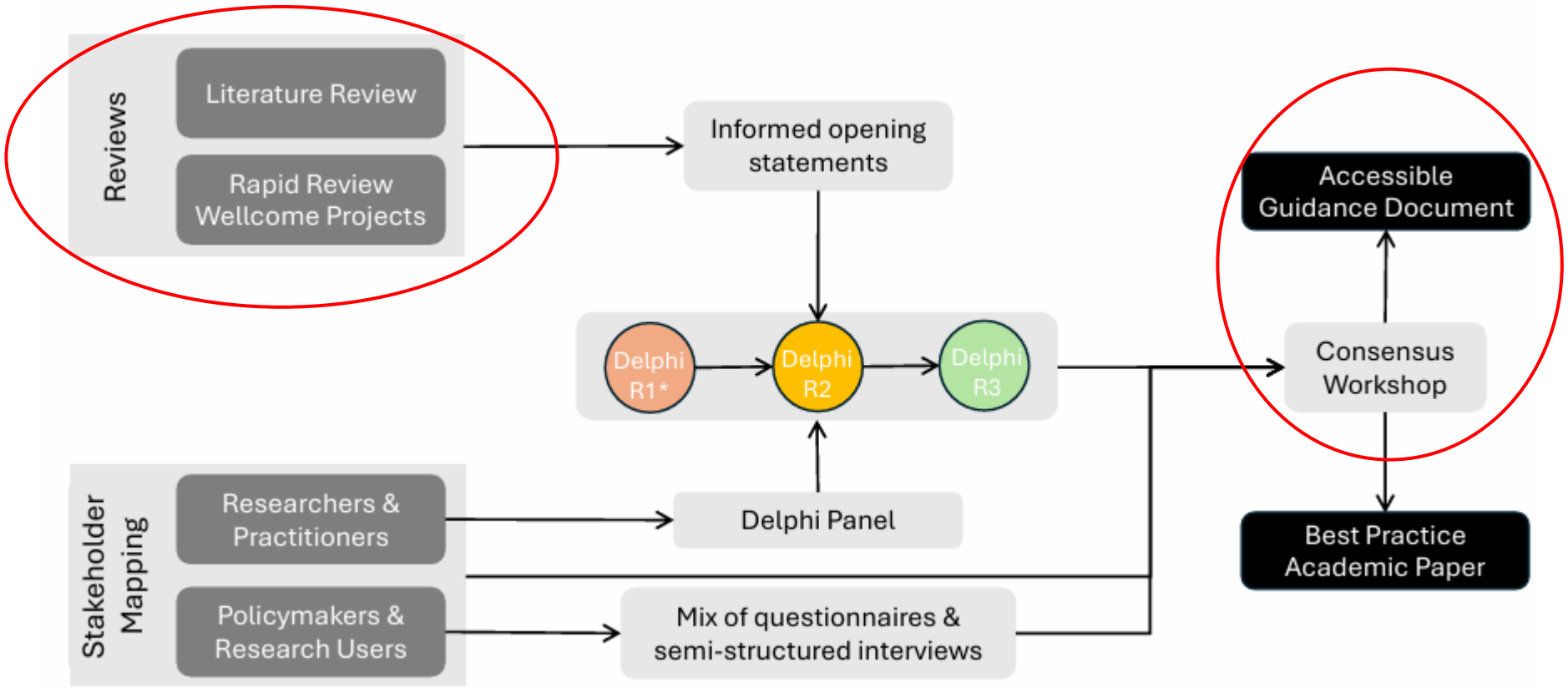
Rationale: two valuation traditions, one practical barrier

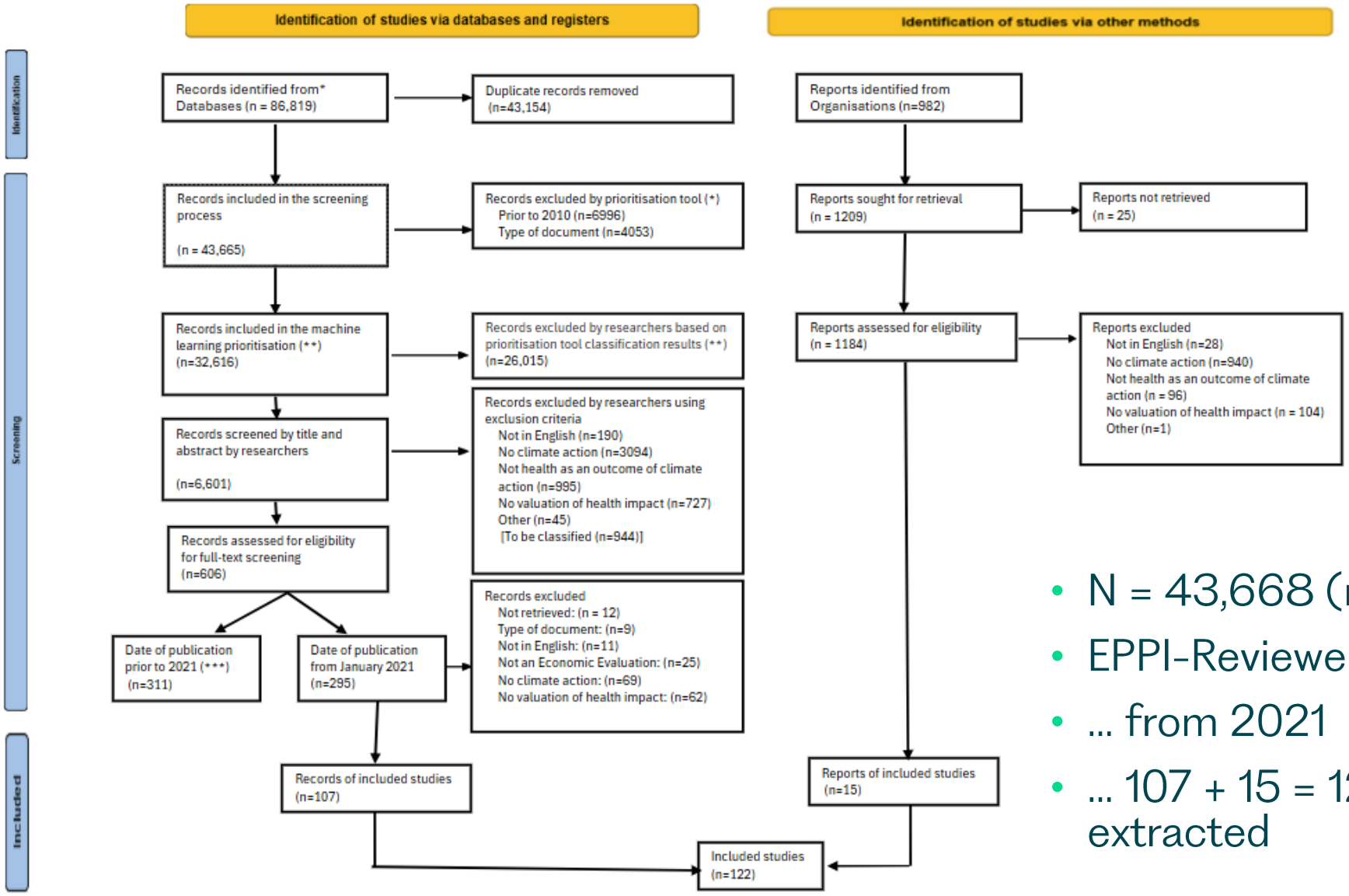


A multi-method consensus process spanning disciplines



11 consensus guidance across two domains: the valuation of health impacts of climate actions, and related methods of economic evaluation

Systematic Literature Review (scoping review)



EPPI-Reviewer (iterative model learning and prioritisation)

- Two researchers
- Blinded title and abstract screening
- Batches of 50 references
- Reconciliation
- When inclusion rates < 25%, the algorithm is re-trained

- N = 43,668 (no duplicates)
- EPPI-Reviewer
- … from 2021
- … 107 + 15 = 122 documents extracted

EXCLUSIONS		INCLUSIONS	
RED	ORANGE	YELLOW	GREEN
Exposure/Risk factor/Epidemiological measures	**Health outcomes in natural units**	**Health outcomes in natural units - close to health valuation**	**Health values**
Access to safe drinking water	Cardiovascular health	Condition-specific health measure	DALYs
Access to sanitation facilities	Cognitive function	EQ-5D	QALYs
Better nutritional health	Complication rates	EQ-HWB	Monetary
Blood toxicity	Disease burden	HRQoL (other)	Social cost
Cancer rates	Disease progression	HUI	Value of avoided emissions
Enhanced resilience to heat	Emergency visits	Improved well-being	Value of ...
Food security	Healthy aging	Life expectancy	Value of a life year (VLY)
House stability	Hospital stay length (days)	Mortality	WTP
Incidence	Improved child health	SF-6D	Quality-Adjusted life expectancy (QALE)
Lower LDL cholesterol	Improved maternal health	Years lived with disability (YLD)	Productivity (value)
Lower stress hormone levels (e.g., cortisol)	Improved mental health	Years of life lost (YLL)	
Obesity	Medication use		
Physical activity	Morbidity		
Prevalence	Reduced hospitalizations		
Prevalence or Type 2 diabetes	Respiratory health		
Rates of respiratory disease	Work absenteeism (natural units)		
Readmission rates	Work presenteeism (natural units)		
Reduced displacement	Workforce productivity (natural units)		
Reduced prevalence of anxiety			
Risk of chronic disease			
Social Interaction			
Traffic accidents			
Water-bourne disease vector prevelence			

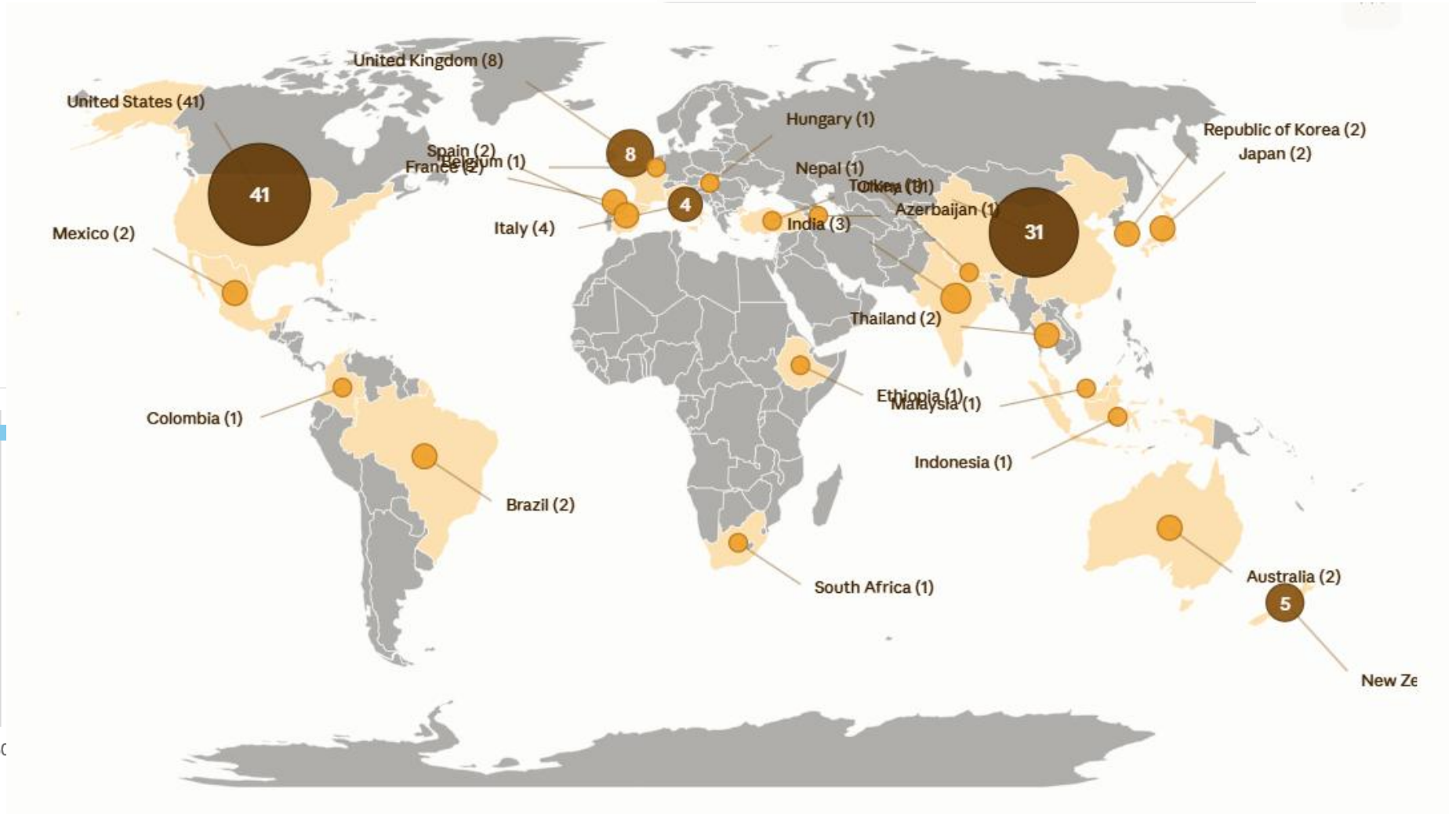
Main inclusion criteria

Studies were eligible if they:

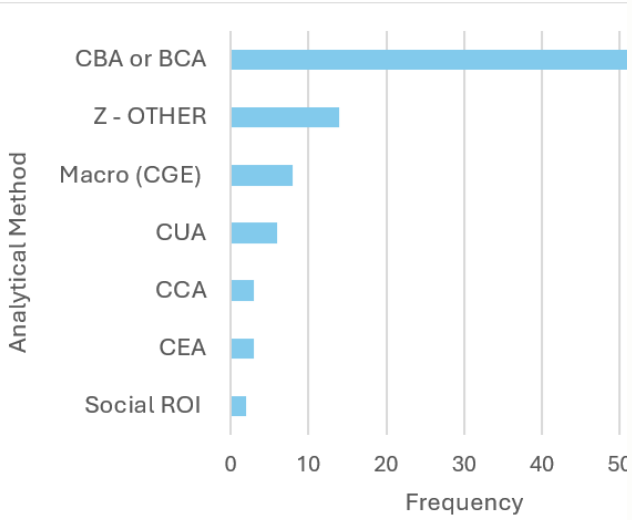
- (a) evaluated a mitigation or adaptation strategy for climate change;
- (b) *measured* health impacts; and
- (c) incorporated a *valuation* of these impacts

Main findings

Country of Evaluation - Distribution

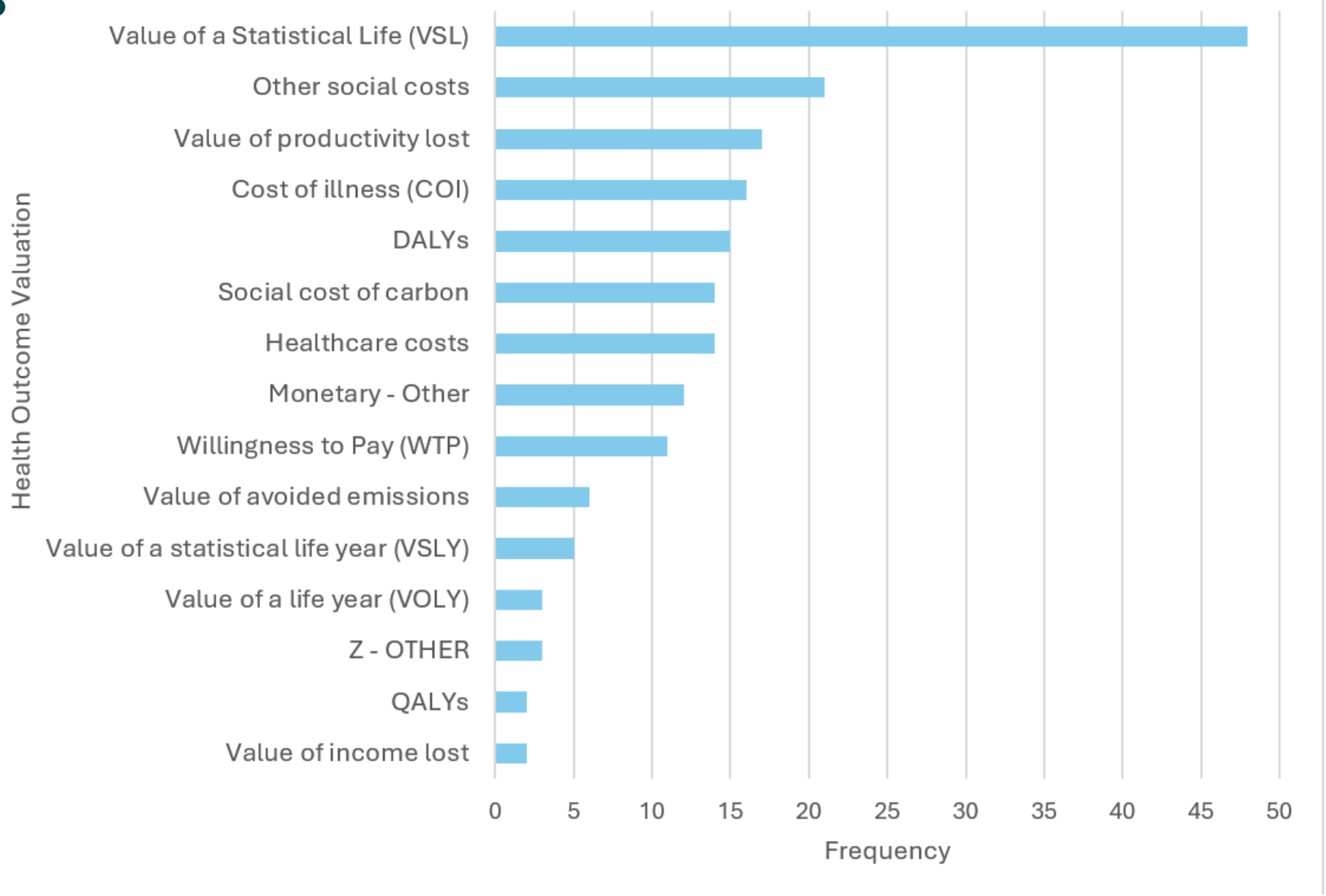


Frequency of analytical approaches to the valuation of health impacts

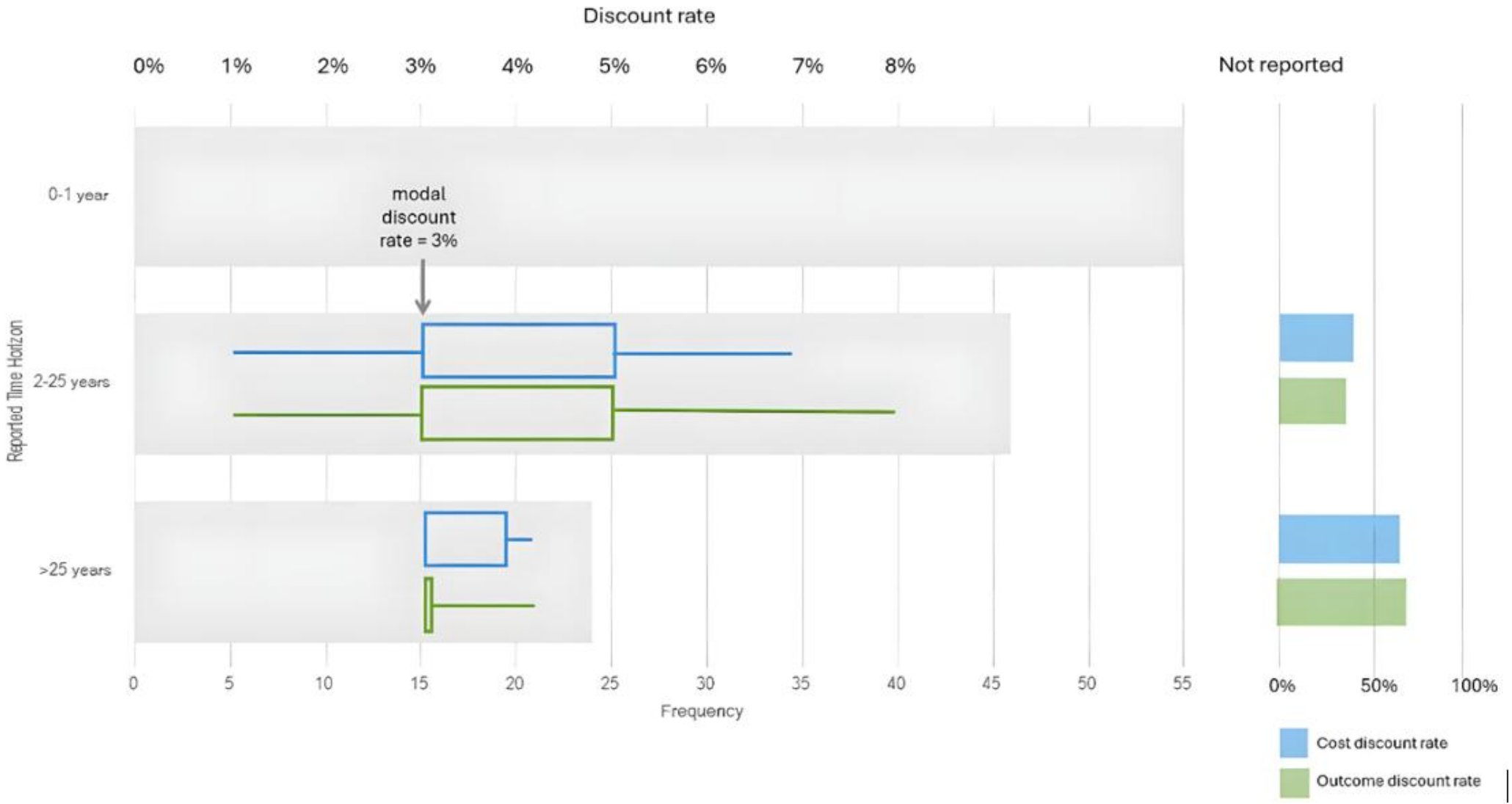


Main findings

Frequency of valuation of health impact method reported



Main findings



Consensus on foundations...
... and transparency where views diverge

Strong consensus

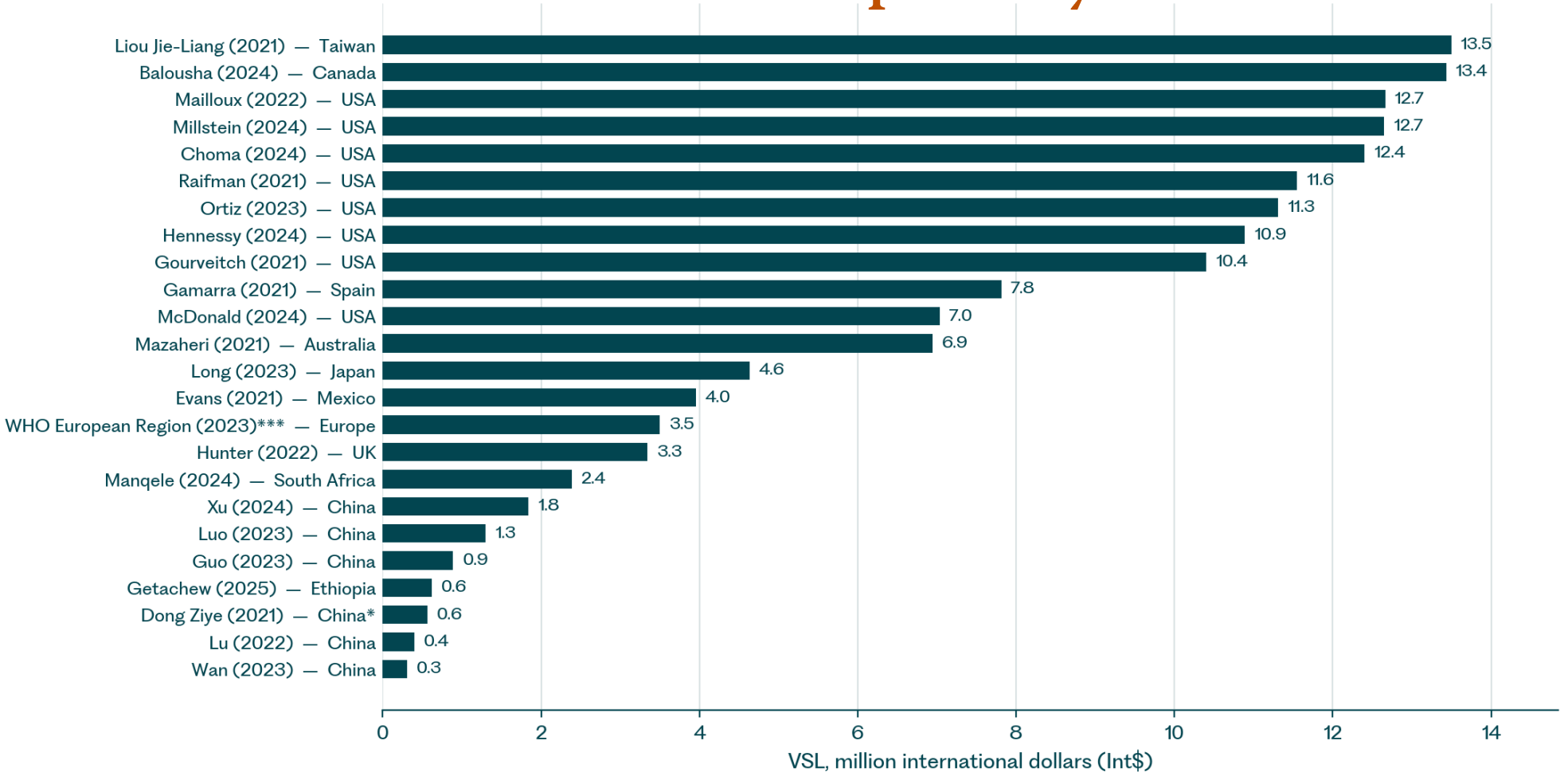
- Include health impacts systematically in evaluations of climate action, unless clearly negligible
- Report outcomes in natural units (deaths, cases) plus QALYs or DALYs
- Assess equity across generations, income levels and geographic areas
- Analyse and report uncertainty transparently

No single answer: be explicit

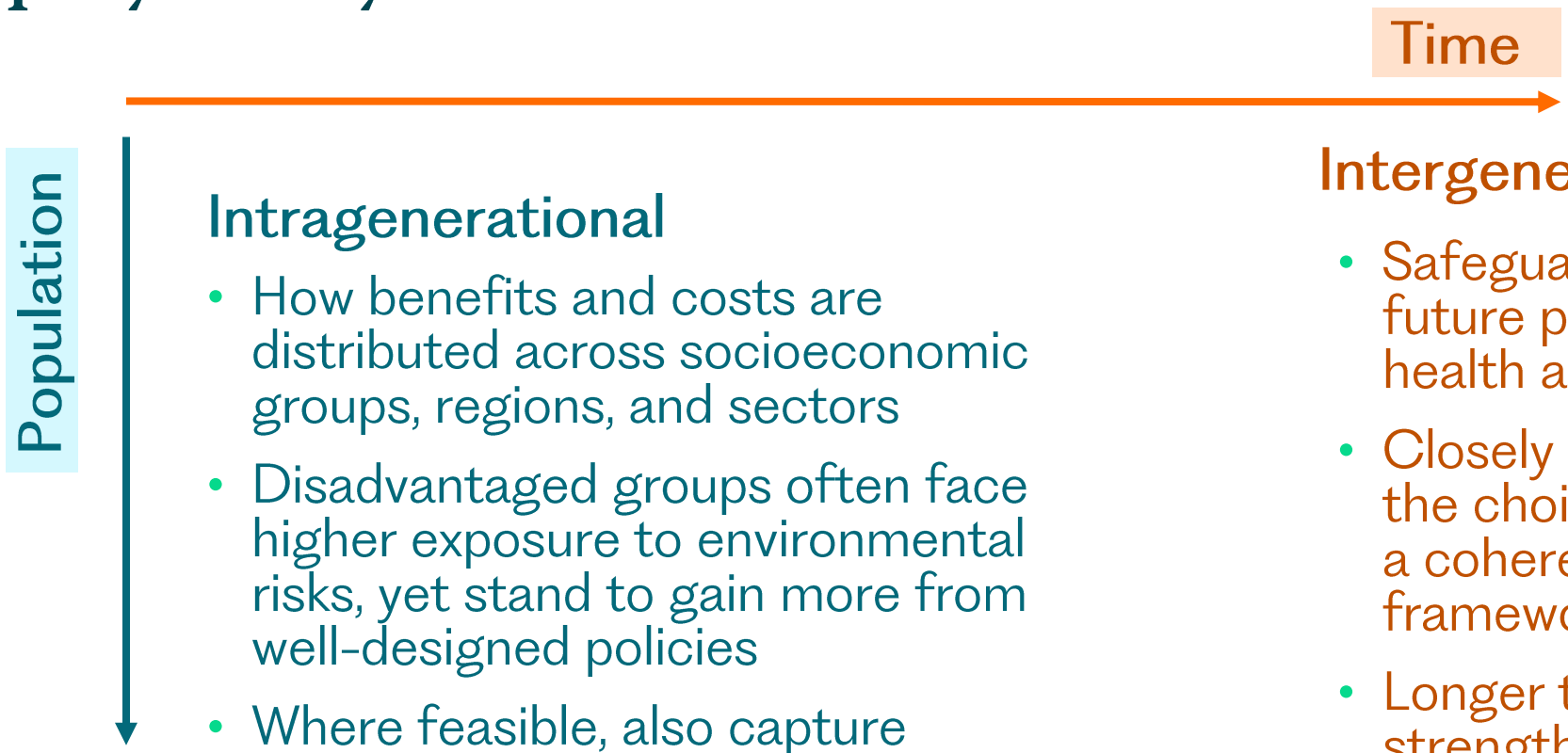
- Monetary valuation divides the opinion: WTP-based VSL/VSC versus monetised QALYs/DALYs
- Analysts should state and justify their chosen approach, and test alternatives in sensitivity analysis

Example: VSL estimates across settings

… and transparency where views diverge



Equity: always and in two directions



Intragenerational

- How benefits and costs are distributed across socioeconomic groups, regions, and sectors
- Disadvantaged groups often face higher exposure to environmental risks, yet stand to gain more from well-designed policies
- Where feasible, also capture productivity effects for marginalised groups, including unpaid carers and informal workers

Intergenerational

- Safeguard opportunities for future populations to achieve health and well-being
- Closely linked to discounting: the choice of rate should follow a coherent social welfare framework
- Longer time horizons strengthen the case for declining discount rates

Equity: alv

Population

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Population Group	Articles	Health impact (metrics)	Methods Used to Calculate Differential Health Impacts
Geography	Li (2024) Limoochi (2024) Zhao (2024) Zhou (2024) Rezaee (2022) Gamarra (2021)	GDP EBHI*	Distributional impact analysis Scenario analysis Distributional impact analysis Distributional impact analysis
Age	Sudmant (2024) Cheng (2023) Ortiz (2023) Schwarz (2023) Cleghorn (2022)	GDP VSL EBHI *	Health impact assessment Scenario analysis Health equity impact assessment
Income	Muth (2024) Sauter (2024) Peszko (2022) Lee (2024) Nico (2023)	WTP GDP EBHI *	Distributional impact analysis
Age, Income	Anderson (2022) Brown (2022) Chabba (2022) Huxley (2022)	VSL EBHI * WTP	Valuation of co-benefits for marginalised groups Distributional impact analysis Valuation of co-benefits for marginalised groups
Age, Ethnicity	Reynolds (2023) Cleghorn (2022)	QALY	Scenario analysis Health equity impact assessment
Age, Geography	Luo (2023) WHO (2024)	VSL	Scenario analysis
Age, Geography, Income	Ramirez (2024) Goulder (2024)	GDP VSL	MCDA Scenario analysis
Ethnicity, Income	Hennessy (2024) McDonald (2024)	EBHI * VSL	Distributional impact analysis Valuation of co-benefits for marginalised groups
Age, Education, Income	Bhat (2022)	VSL	Scenario analysis
Age, Ethnicity, Geography, Income	Hunter (2022)	EBHI *	Distributional impact analysis
Deprivation	Beevers (2025)	EBHI *	Distributional impact analysis
Deprivation, Geography	Hall (2024)	EBHI *	Scenario analysis
Education	WHO (2023)	Not clear	Not specified
Education, Geography, Income	Pei (2023)	Not clear	Not specified

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Summary

- Health impacts account for >50% of climate mitigation benefits — yet practice remains fragmented
- No consensus between WTP-based (VSL) and QALY-based valuation traditions — transparency is key
- Cross-country health valuation raises unresolved equity concerns
- ECO-CHICA offers a framework for explicit, justified methodological choices — not a prescriptive template
- Evidence base is uneven; adaptation interventions under-evidenced — iterative refinement needed