

Measuring Sustainability – what can be done? What should be done?



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Background

- Since 2003, OECD has addressed questions of measuring well-being (World Fora in Palermo, Istanbul, Busan 2009, Dehli 2012, Mexico 2015)
- *How's Life?* 2nd edition published
- Major report also on *Green Growth (2011, 2013)*
- Work on economic, environmental and social *sustainability*

Background

- **How do these activities hang together conceptually?**
- **How do we measure well-being and sustainability?**
- **What are main measurement issues?**

How concepts hand together: three levels

Current Well-being:

Outcomes, household-oriented, distributions

How's Life?

Economy-environment structural relations :

Environmental and resource productivity
Economic opportunities from Green Growth

Green Growth

Sustainability: Well-being over time

Produced capital
Natural asset base
Human capital
Social capital

Green Growth
How's Life?
Other OECD
work...

Level 1. Measuring Current Well-Being

How's Life Indicators

Quality of Life



Health



Work-Life Balance



Education and skills



Social Connections



Civil Engagement and Governance



Environmental Quality



Personal Security



Subjective Well-being

Material Well-being



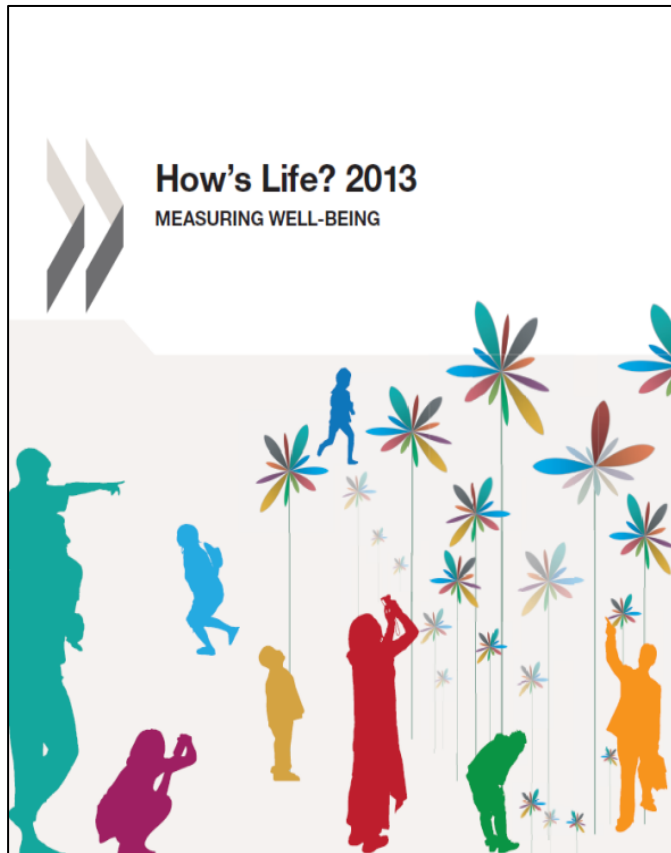
Income and Wealth



Jobs



Housing



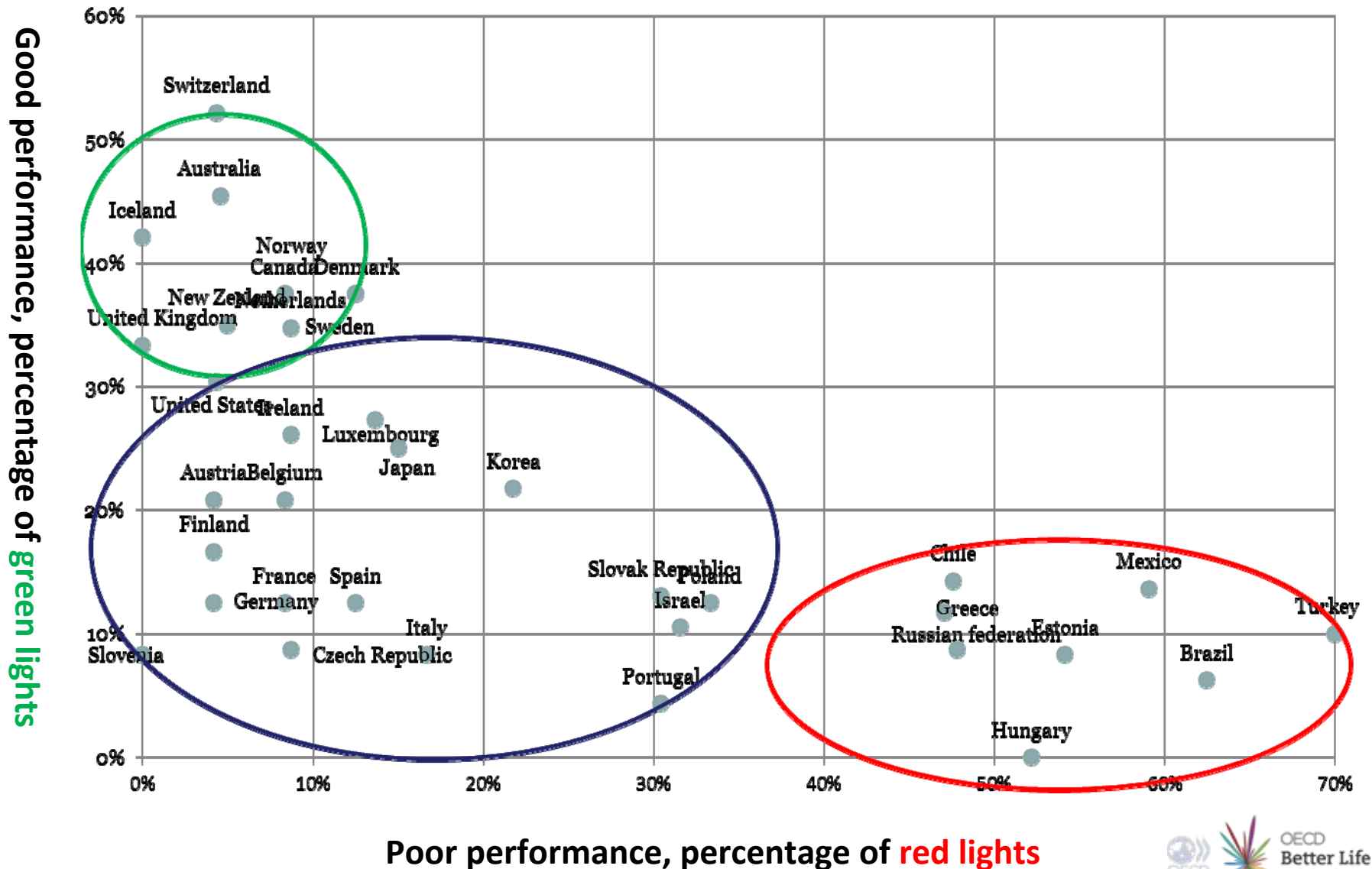
Measuring what matters in people's life

The human cost of the financial crisis

Well-being in the workplace

Gender gaps in well-being

No overall champion but some countries do better than others



- No composite index across 11 dimensions
- Too 'costly' to establish weights
- Composite information only in the context of
 - *Your Better Life Index*
 - OECD's work on *Inclusive Growth* with 3 dimensions and sound theoretical basis for aggregation

A composite measure: *Your Better Life Index*



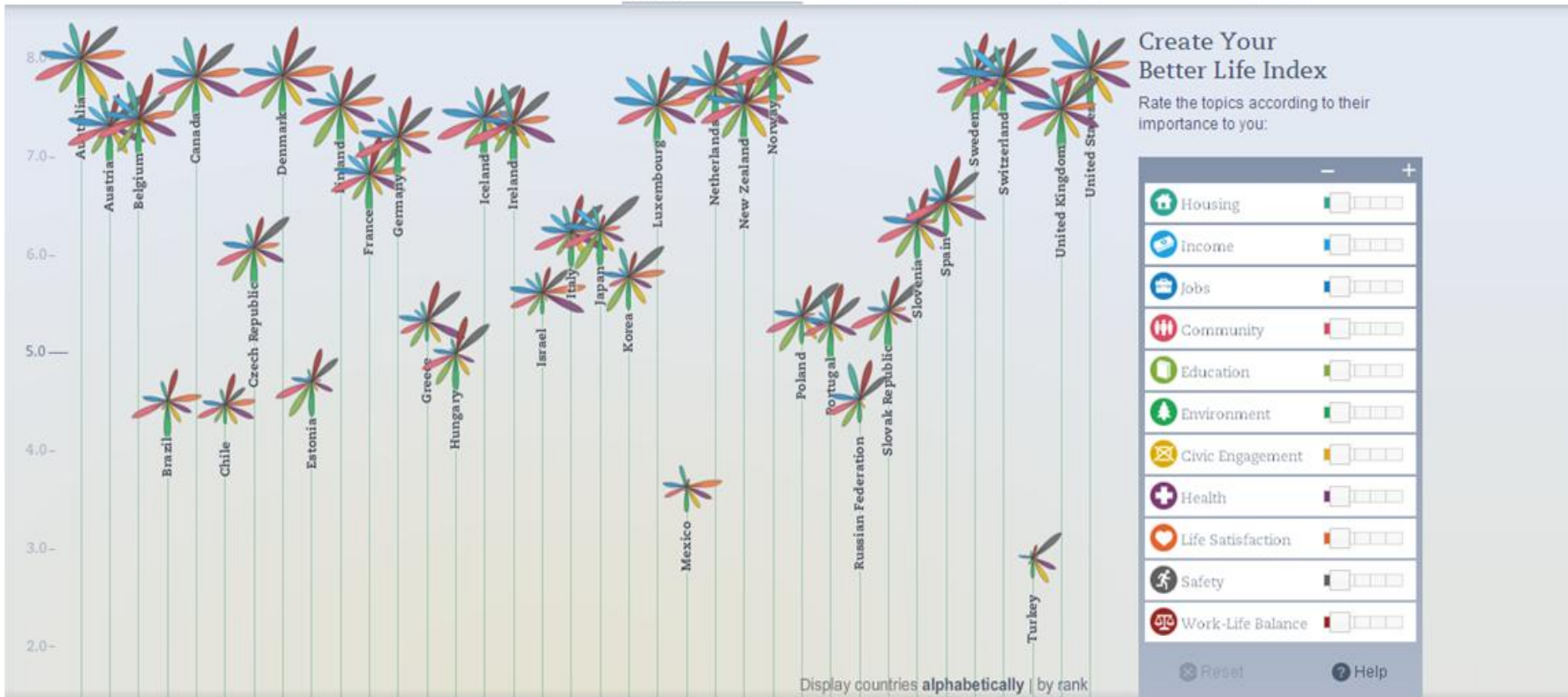
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Countries ▾

Topics ▾

About



Create Your Better Life Index

Rate the topics according to their importance to you:

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Income	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jobs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Life Satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Work-Life Balance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Compare your index					
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How's life?

Level 2. Measuring economy- environment structural relations

Green Growth Indicator Groups and Topics

1 The environmental and resource productivity of the economy

- Carbon and energy productivity
- Resource productivity: materials, nutrients, water
- Multi-factor productivity

2 The natural asset base

- Renewable stocks: water, forest, fish resources
- Non-renewable stocks: mineral resources
- Biodiversity and ecosystems

3 The environmental dimension of quality of life

- Environmental health and risks
- Environmental services and amenities

4 Economic opportunities and policy responses

- Technology and innovation
- Environmental goods & services
- International financial flows
- Prices and transfers
- Skills and training
- Regulations and management approaches

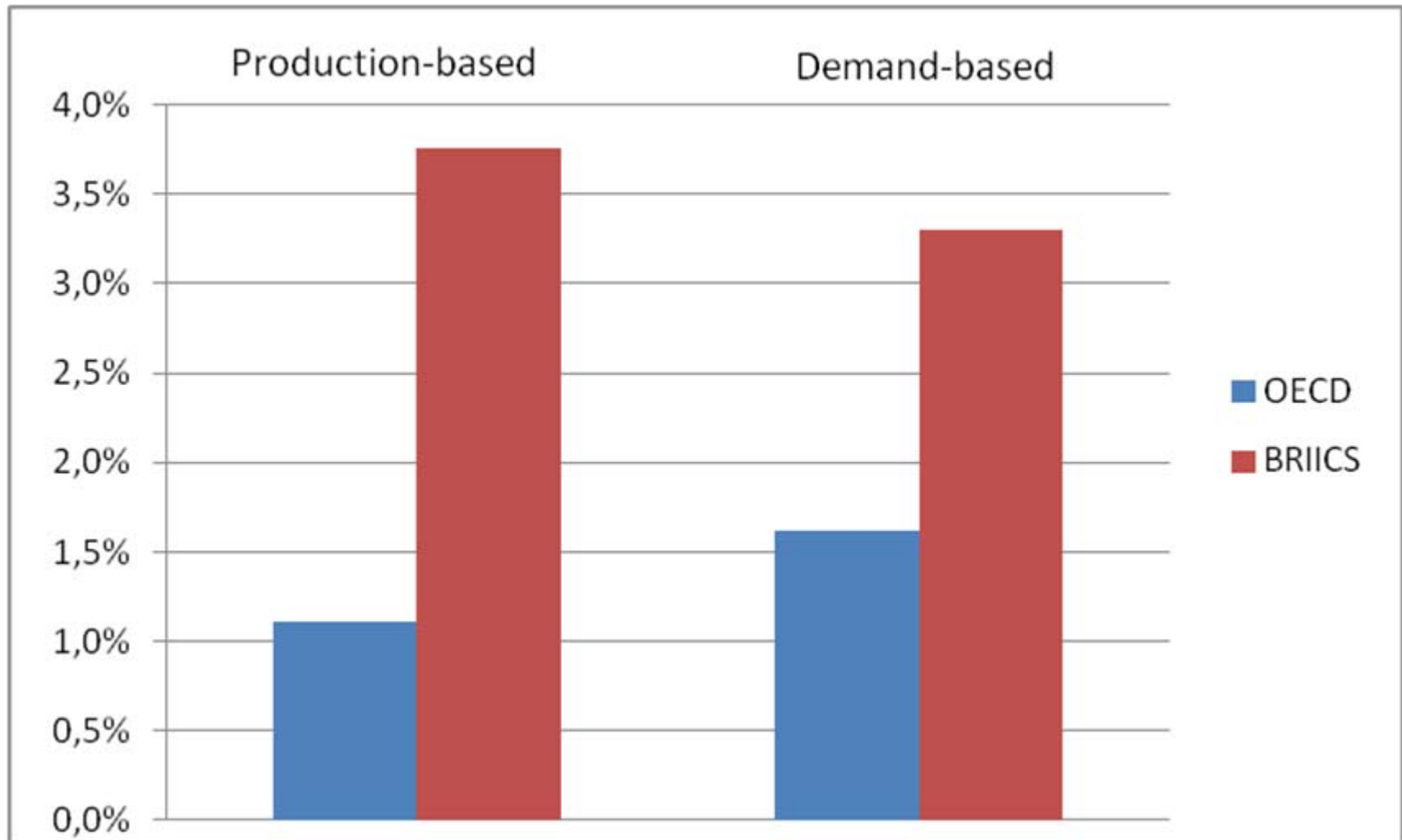
Socio-economic context and characteristics of growth

- Economic growth and structure
- Productivity and trade
- Labour markets, education and income
- Socio-demographic patterns



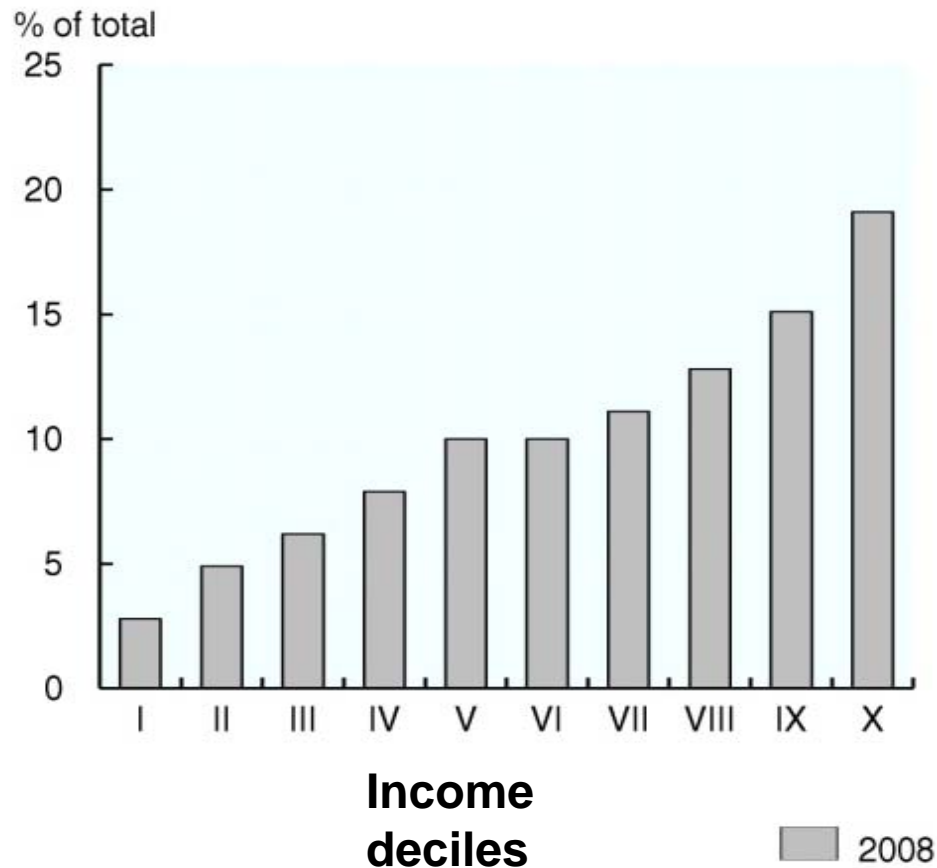
Example of measuring structural relations: production-based and demand-based CO₂ productivity in work on Green Growth

CO2 emissions, % change/year, 1995-2005

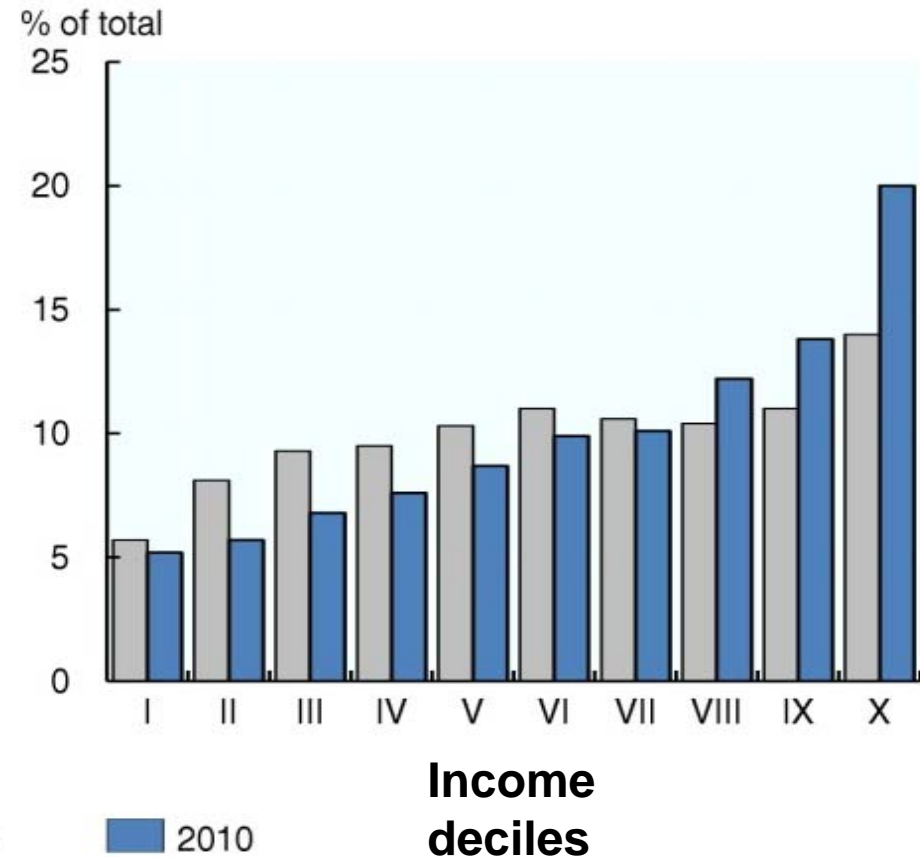


Example Mexico: the distribution of energy subsidies is regressive: An opportunity for reform

Petrol and diesel fuel subsidies



Residential electricity subsidies



Source: Ministry of Finance and Public Credit (2012 and 2010); *Distribución del pago de impuestos y recepción del gasto público por deciles de hogares y personas.*

Level 3. Measuring Sustainability

The theory: changes in comprehensive wealth

$$\Delta V = \underbrace{p_K \Delta K}_{\text{produced capital}} + \underbrace{p_N \Delta N}_{\text{natural capital}} + \underbrace{p_T \Delta T}_{\text{productivity / innovation}} + \underbrace{p_N \Delta H}_{\text{human capital / health}} + \underbrace{p_N \Delta S}_{\text{social capital}}$$

= Comprehensive net investments, valued at social shadow prices

- So we have sustainability if V does not decline?
- Only with some 'ifs' and 'buts'

Some issues...

- **Valuation of p's requires:**
 - Information on relative scarcities and ease of current and future substitution
 - Critical and irreversible levels
 - Social preferences today **and in the future**
- What exactly is this future path? Business as usual? Including adjustment strategies?
- In the end, $\Delta V < 0$ is an indication of **non-sustainability of current behaviour** given a projected path
- **Useful** but needs cautious interpretation
- Measurement of **stocks** is of **significant interest** in itself

Empirical points regarding the monetary valuation of natural assets

- 3 criteria
- **Criterion 1: is asset inside the national accounts asset boundary?**
 - Yes: should be amenable to monetary valuation
 - Example: land, subsoil resources, some biological resources, produced (orchards, fish from aquaculture) and non-produced (other fish, natural timber)

Monetary valuation of natural assets

- **Criterion 2:** private or social valuations?
 - Private values:
 - Market prices can be invoked (or emulated)
→ useful for balance sheets
 - Private shadow prices can sometimes be computed eg to measure effects of regulations
 - But externalities not valued → problem for tracking sustainability

Monetary valuation of natural assets

- **Criterion 2:** private or social valuations?
 - Social values:
 - Conceptually right measures to value assets and track (weak) sustainability
 - But vast differences in existing monetary estimates raises question about readiness for official statistics

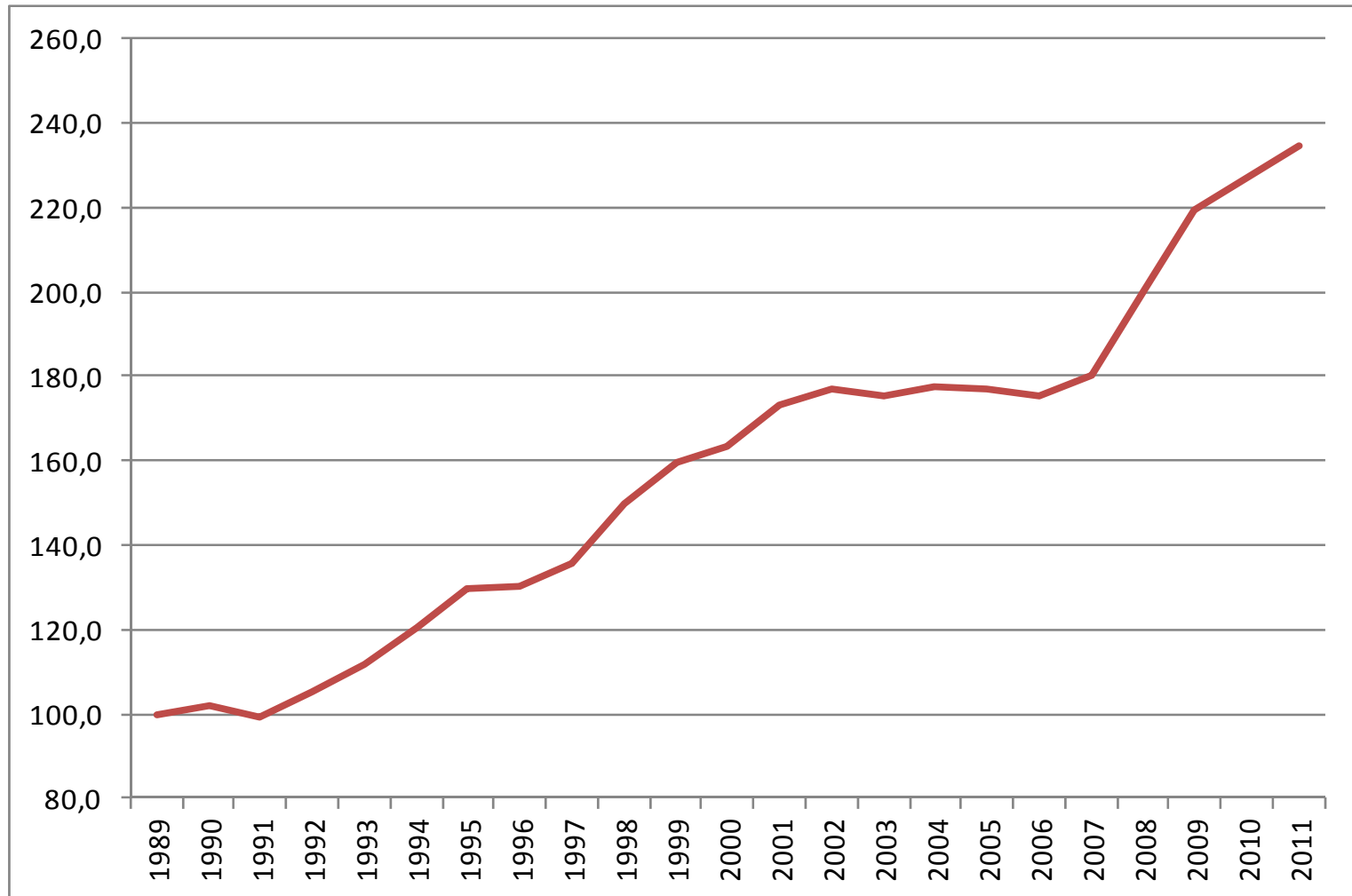
Monetary valuation of natural assets

- **Criterion 3:** individual or combined assets?
 - **Individual natural assets** (e.g. timber, sub-soil minerals, water,...)
 - **Ecosystems** as a combined asset
 - Conceptually important to recognise ecosystem assets and services
 - But major issues of quantification in physical terms (multi-dimensional, non-linear, space-dependent)
 - Even more complex: monetary valuation → excellent research subject but probably not ready for official statistics

Example: Net changes of subsoil assets in Australia

- Index = weighted average of physical changes in stocks
- Physical changes = economically viable discoveries minus extraction
- Weight = (market) value share of each type of stock

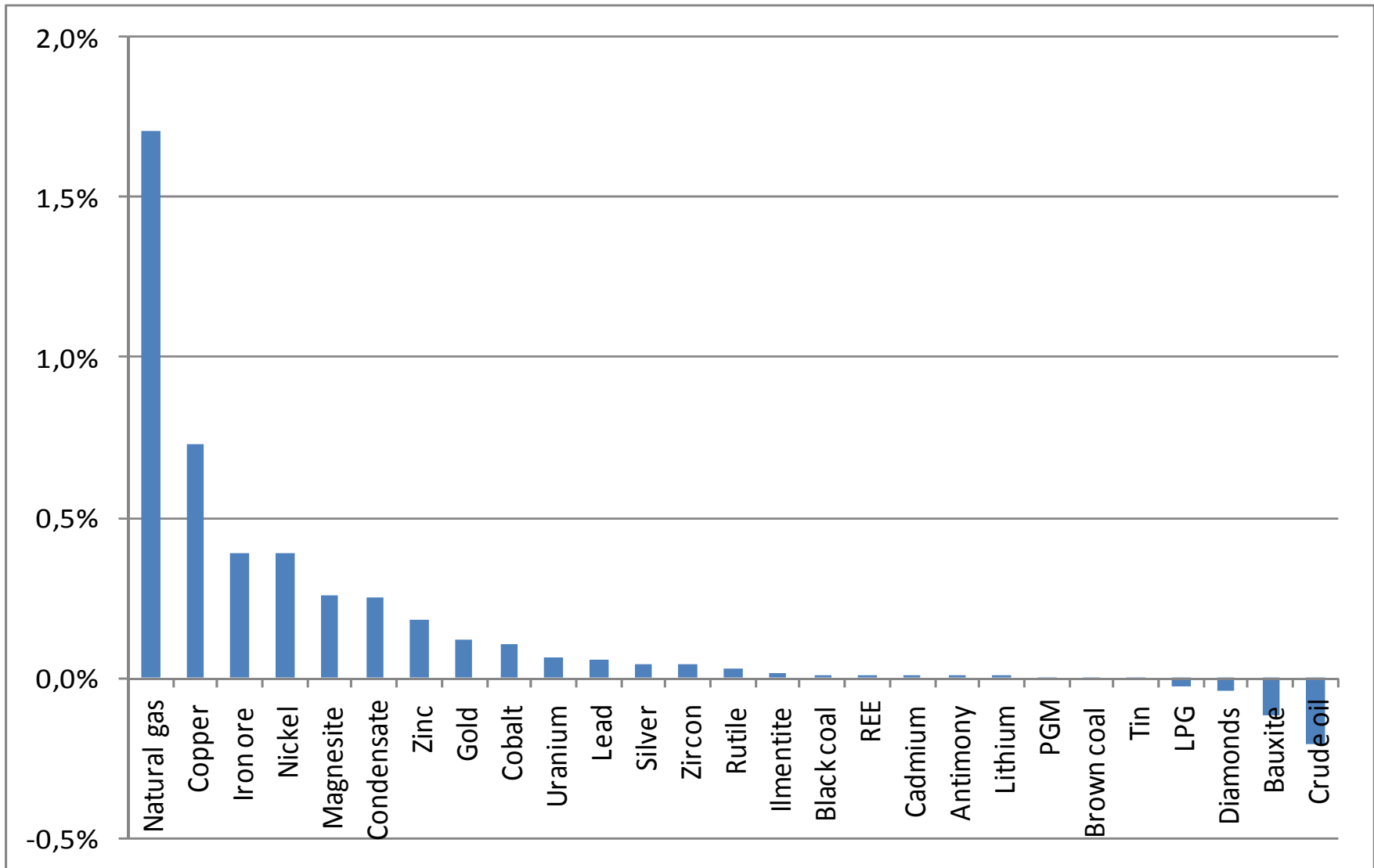
Volume index of sub-soil assets, Australia, 1989=100



Example: Australia

- Upward trend in asset volume: more additions than removals across all assets
- Some reserves become economically profitable and increase stock
- Contributions very different across sub-soil assets

Drivers of growth in index of sub-soil assets, Australia, 1989-2011



In summary, then: OECD Approach

- **Separate measurement of current well-being, structural relations and sustainability**
- **No aggregate index of current well-being over eleven dimensions**
 - But: more limited aggregation possible (Inclusive Growth)
 - But: Better Life Index
- **No aggregate index of green growth**
 - But 6 headline indicators
 - Emphasis on environment-economy policy links

OECD approach (2)

- **No aggregate index of sustainability**
 - But measurement of distinct capital components **starting with market valuation**
- **Scope**
 - produced capital
 - natural resources
 - human capital
 - Social capital (conceptual work)
- **Joint effort on asset management with World Bank**
- **Overall: a very pragmatic way to go about things**

Looking ahead

- **Indicators do not tell us which policies to adapt**
- **OECD efforts: linking various indicators to policy making**
- **Key: multi-dimensionality** of indicators and multi-dimensionality of objectives for policy makers
- **Mainstreaming** the use of indicators on current well-being, green growth and capital into economic analysis

Thank you!

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