



Vrije Universiteit Brussel

ULB

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The Index of Sustainable Economic Welfare (ISEW)

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Outline

- **The ‘Threshold Hypothesis’**
- The Index of Sustainable Economic Welfare (ISEW)
- The ISEW for Belgium
- Discussion
- On the future of the ISEW



Threshold Hypothesis Introduction

- Lately, concerns that the costs of extra economic activity would outweigh the additional benefits are frequently voiced by EEists.
- Threshold Hypothesis (Max-Neef, 1995):
 - “For every society there seems to be a period in which economic growth (as conventionally measured) seems to bring about an improvement in the quality-of-life, but only up to a point - the threshold point - beyond which, if there is more economic growth, quality-of-life may begin to deteriorate.”
 - evidence: based on the Index of Sustainable Economic Welfare (ISEW)

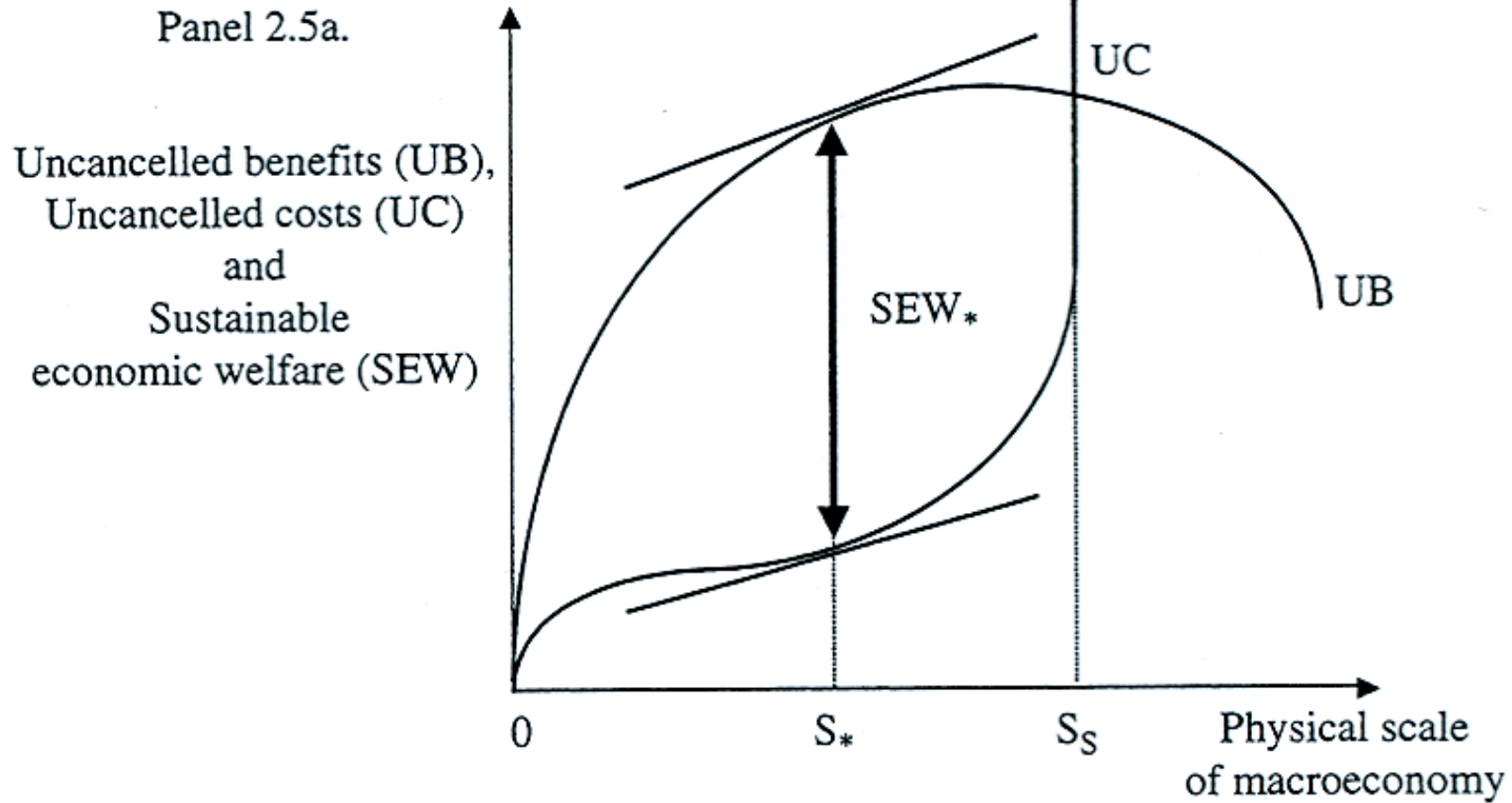
Threshold Hypothesis

ISEW

- Index of Sustainable Economic Welfare (ISEW): a measure that tries to capture the overall impact of economic activity on human welfare
- Cost Benefit Analysis:
 - uncancelled costs
 - uncancelled benefits



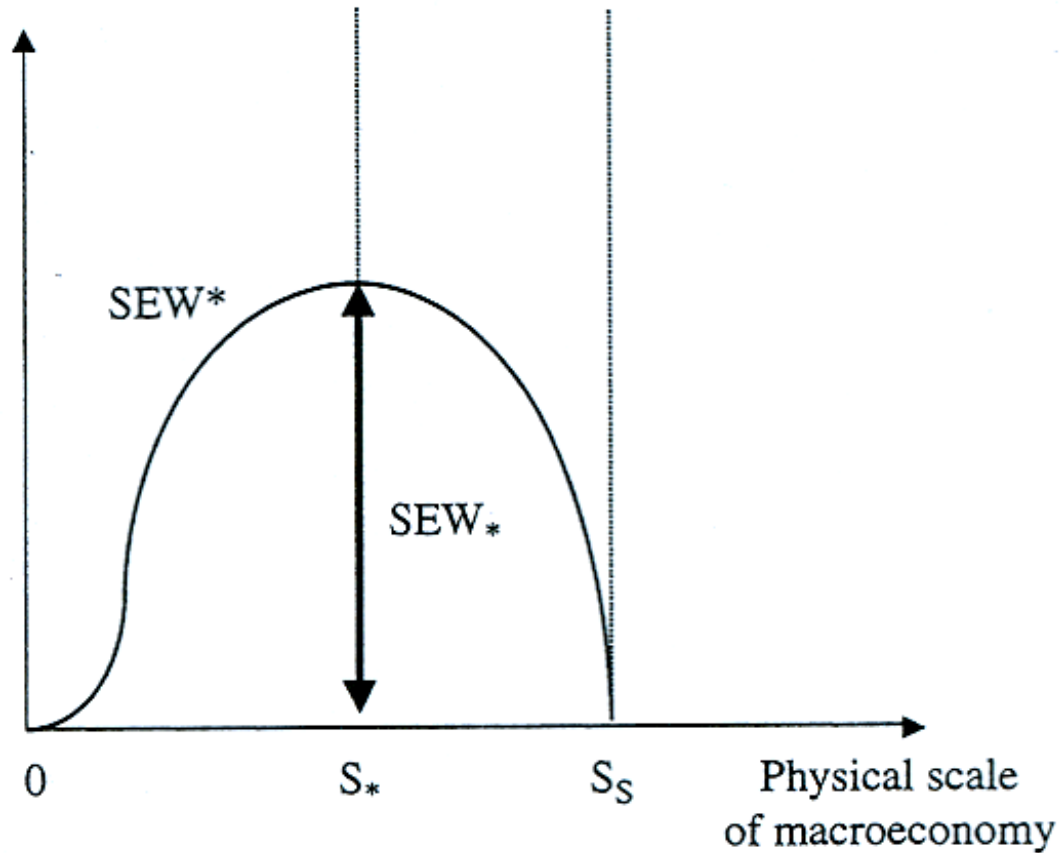
Threshold Hypothesis Optimal Physical Scale (1)





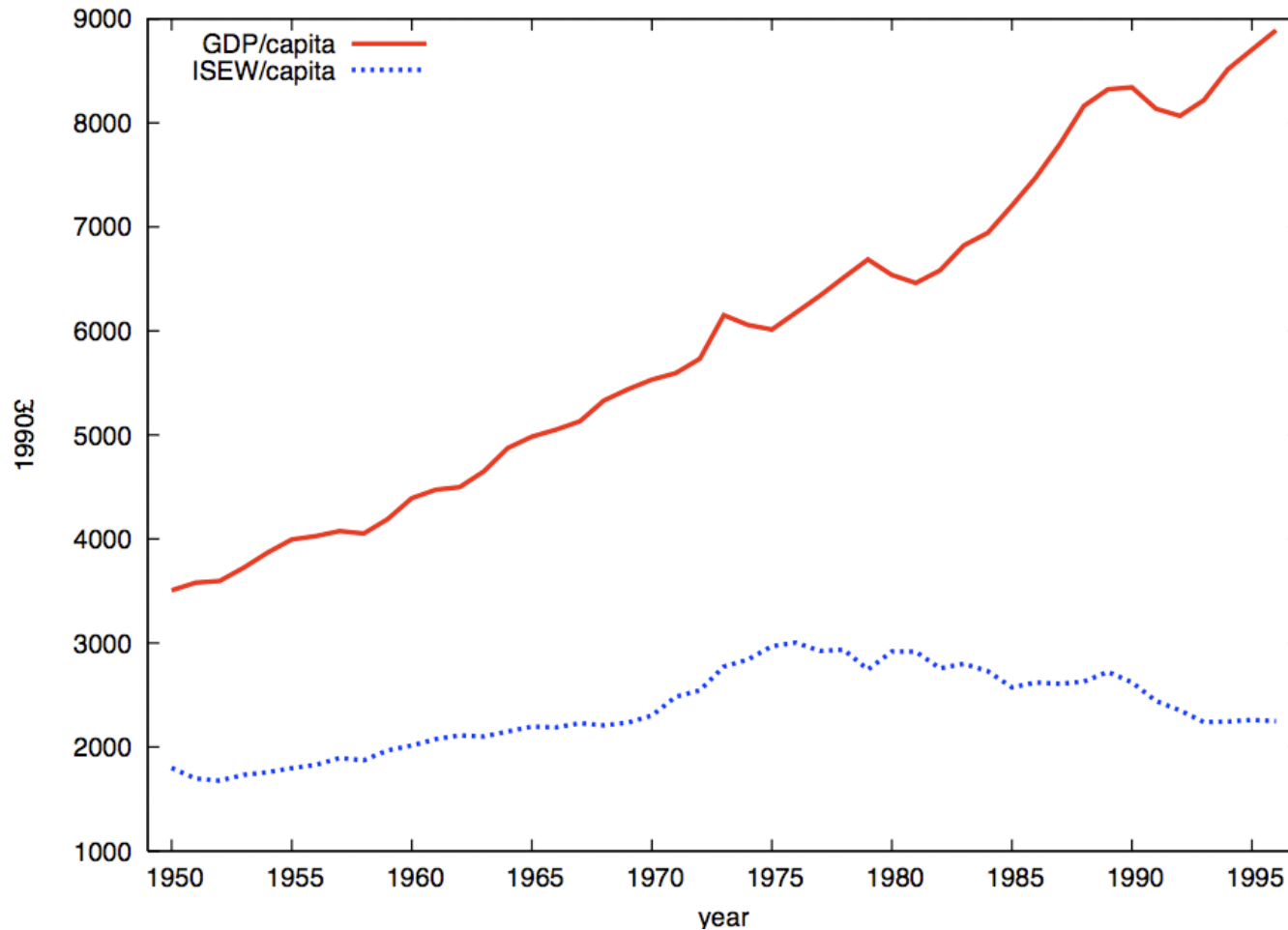
Threshold Hypothesis Optimal Physical Scale (2)

Panel 2.5b
Sustainable economic
welfare (SEW)



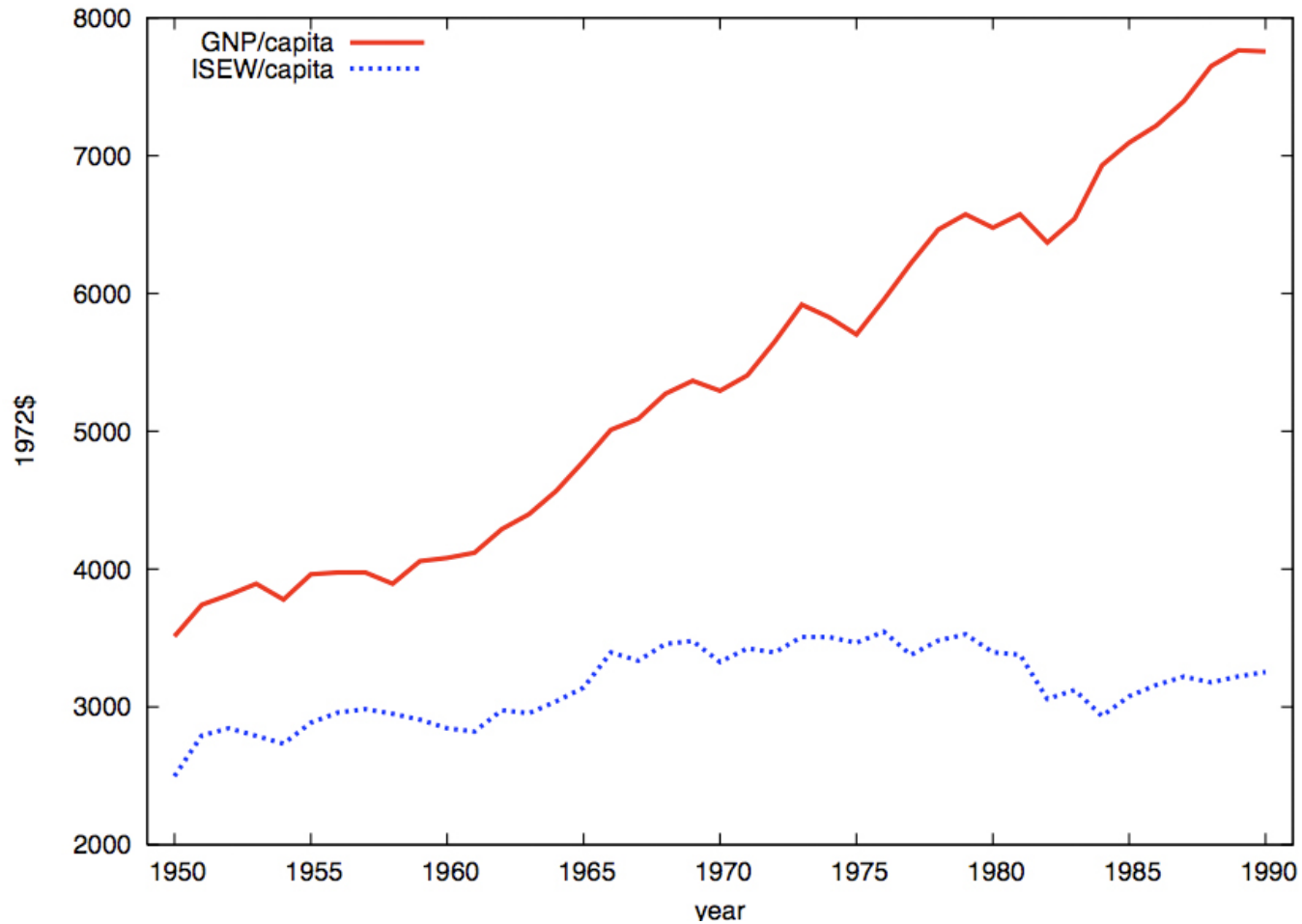


Threshold Hypothesis The ISEW for the UK





Threshold Hypothesis The ISEW for the US





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ISEW History

- Developed by Herman Daly and John Cobb in 1989 based on:
 - previous efforts (MEW, EAW)
 - insights from criticism on traditional indicators such as GDP
- Methodological update in 1994 and rebranding in 1998 (Genuine Progress Indicator - GPI)



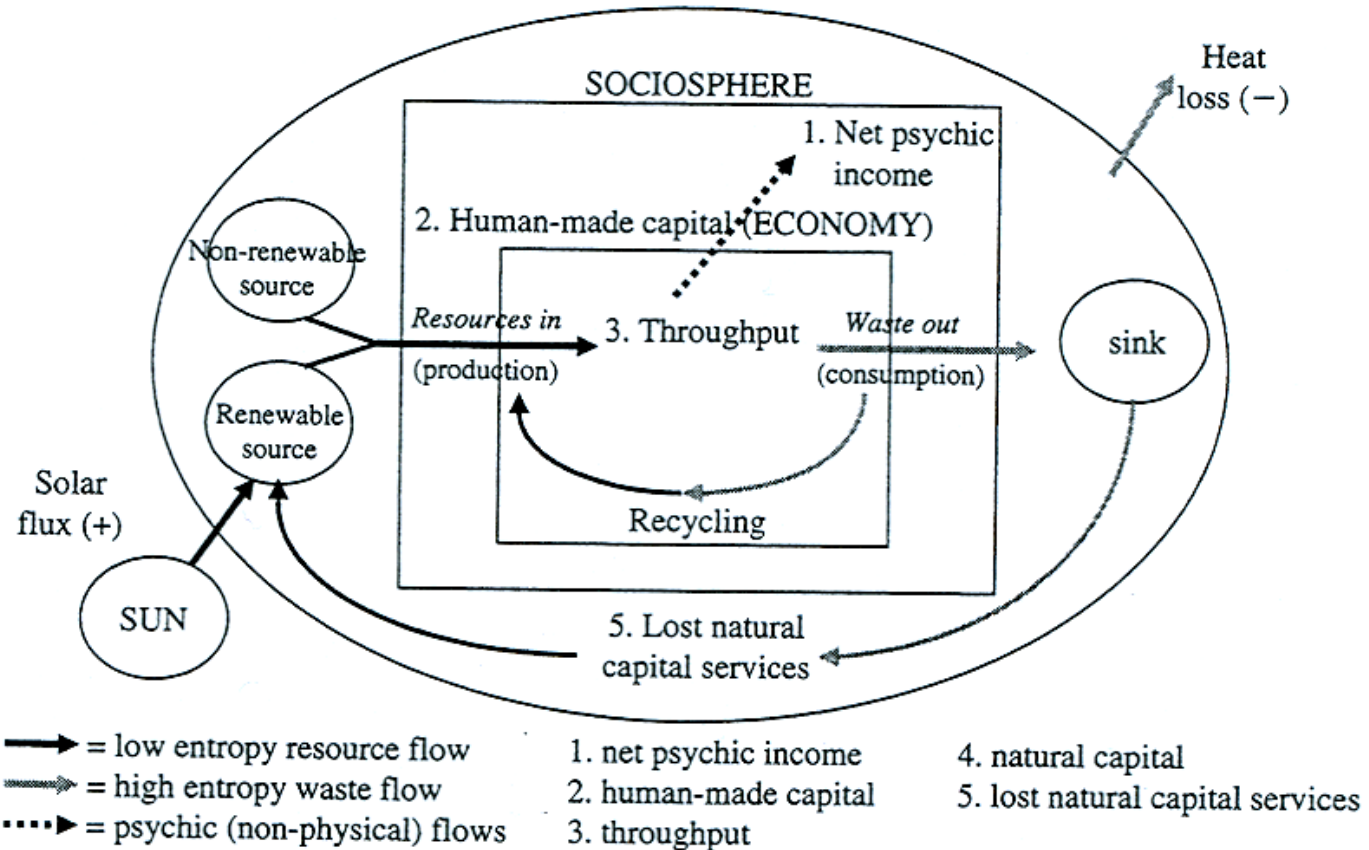
ISEW Underlying Model

- ISEW is made up of two elemental categories:
 - uncanceled benefits: 'net psychic income' as defined by Fisher (1906) -> psychic services from wealth creation minus the associated psychic disservices
 - uncanceled costs: loss of natural capital services
- Based on a Linear Throughput Model (LTM)



ISEW Linear Throughput Model

4. Natural capital (ECOSPHERE)
(sole provider of source, sink, and life-support services)





ISEW Methodology (1)

- ISEW =
 - private consumption expenditures
 - losses from income inequality (-)
 - value of domestic labour (+)
 - non-defensive public expenditures (+)
 - defensive private expenditures (-)
 - capital adjustments (+/-)
 - costs of environmental degradation (-)
 - depreciation of natural capital (-)



ISEW Methodology (2)

- Implementation
 - calculations: >20 adjustments are made to the index base (private consumption expenditures)
 - monetary aggregation
 - ISEW is expressed in constant prices (using the GDP deflator)
 - results depend very much on the assumptions made within the methodological framework of the index



ISEW Classification

- The ISEW is a comprehensive measure of current economic welfare
 - economic welfare: contribution of the economic system to our overall level of human welfare
 - current: no element of sustainability
 - comprehensive: based on a linear throughput model
- Traditional measure of economic welfare = Gross Domestic Product (GDP)



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The ISEW for Belgium Setting

- ISEW calculated for Belgium
 - 1970-2006
 - data obtained from numerous sources
 - Jackson et al. (1997) was taken as a starting point for the analysis
 - list of items
 - graphs
 - conclusion



The ISEW for Belgium Items (2)

- **private consumption expenditures (+)**
 - from national accounts
- **welfare losses from income inequality (-)**
 - using the Atkinson index
- **value of domestic labour (+)**
 - data taken from time use studies + number of hours worked multiplied by shadow price (wage rate of cleaning personnel)



The ISEW for Belgium Items (2)

- **non-defensive public expenditures (+)**
 - defensive expenditures = expenditures that are made to offset a decrease in welfare
 - half of public expenditures on health and education
- **defensive private expenditures (-)**
 - *costs of commuting*
 - *private costs of pollution control*
 - *costs of car accidents*
 - *costs of noise pollution*



The ISEW for Belgium Items (3)

- **costs of environmental degradation – ST (-)**
 - *costs of water pollution*
 - rescale US cost estimate + use surface water quality index to spread estimate over time
 - *costs of air pollution*
 - emissions of 5 air pollutants are valued at their marginal social costs (estimates)



The ISEW for Belgium Items (4)

- **costs of environmental degradation – LT(-)**
 - *costs of climate change*
 - cumulative emissions of CO₂ (since 1900) are valued at estimates of their marginal social costs (fluctuates through time)
 - *costs of ozone layer depletion*
 - cumulative consumption of CFCs in Belgium are valued at a constant cost per unit estimate



The ISEW for Belgium Items (5)

- **natural capital depletion (-)**
 - *loss of farmlands*
 - quality and qauntity
 - *depletion of non-renewable resources*
 - consumption for non-renewable energy resources are valued at a replacement cost estimate (renewable substitutes) + escalation factor
 - oil, natural gas, coal and nuclear energy



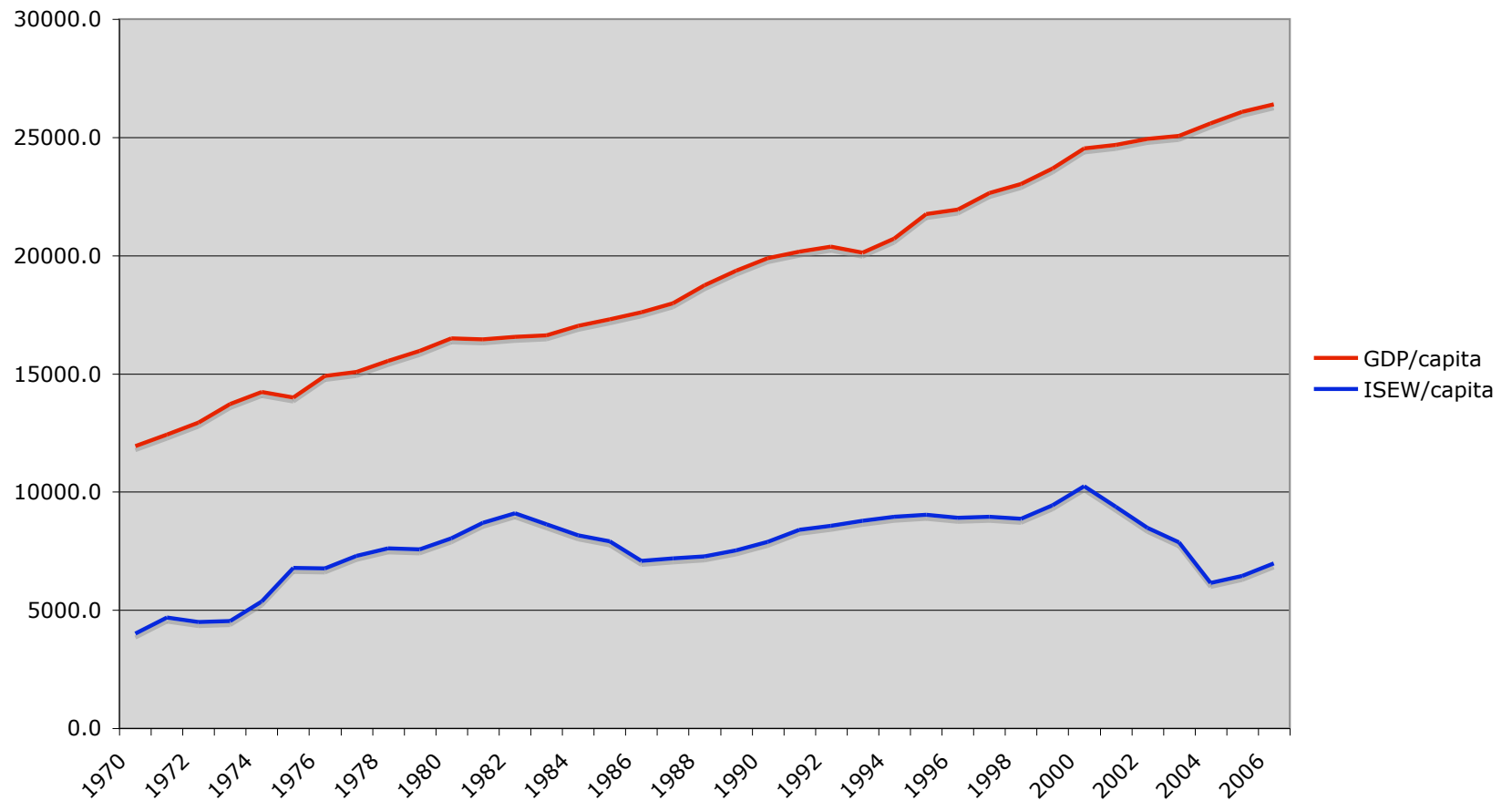
The ISEW for Belgium Items (6)

- **capital adjustments (+\ -)**
 - *durable consumer goods*
 - *net capital growth*
 - taking into account depreciation and changes in the labour force
 - *changes in net international investment position*
 - compares debts and loans to other countries
 - sustainability requires long-term self-reliance
- **result: ISEW and ISEW/capita**



The ISEW for Belgium Results (1)

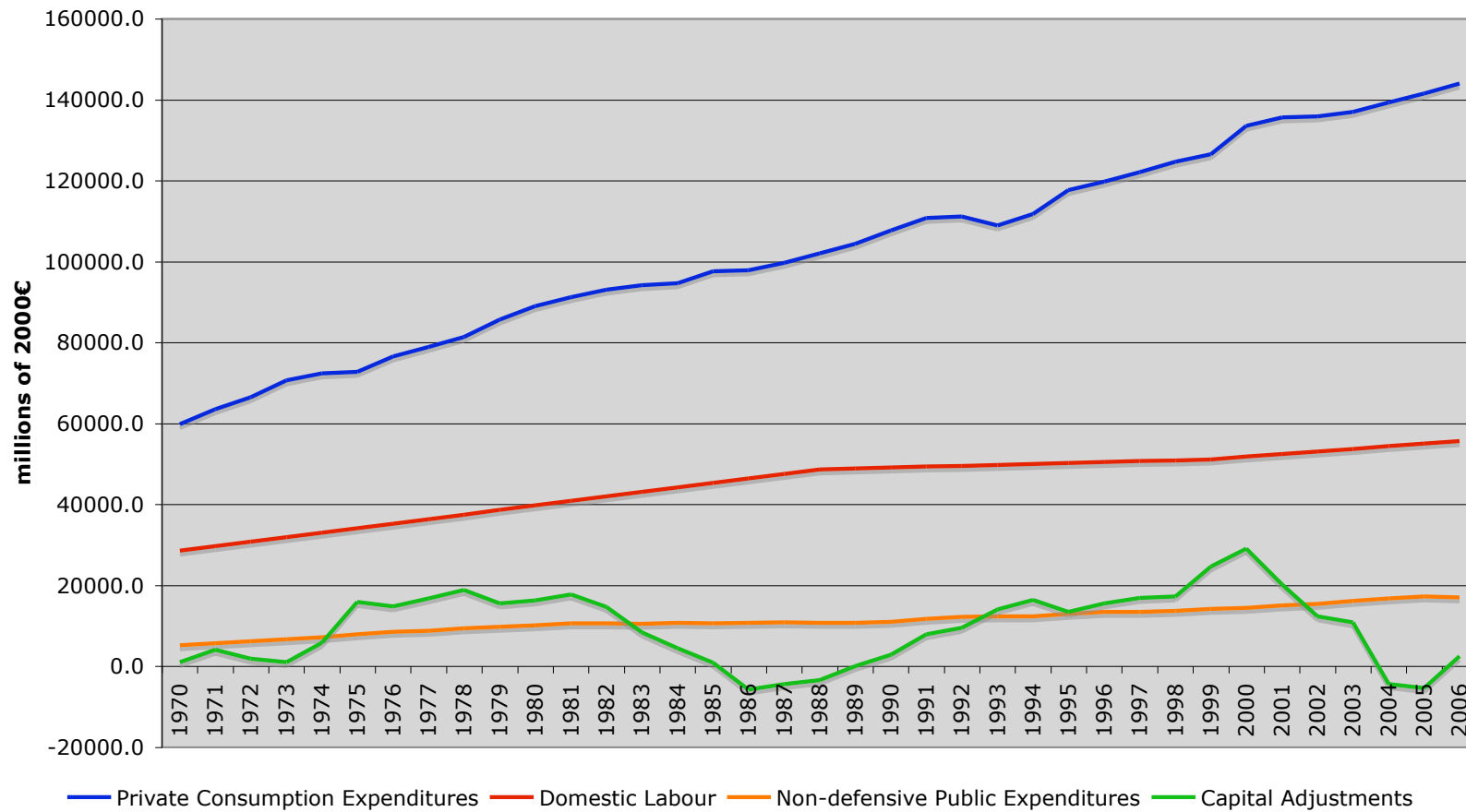
ISEW - 2006 Update





The ISEW for Belgium Results (2)

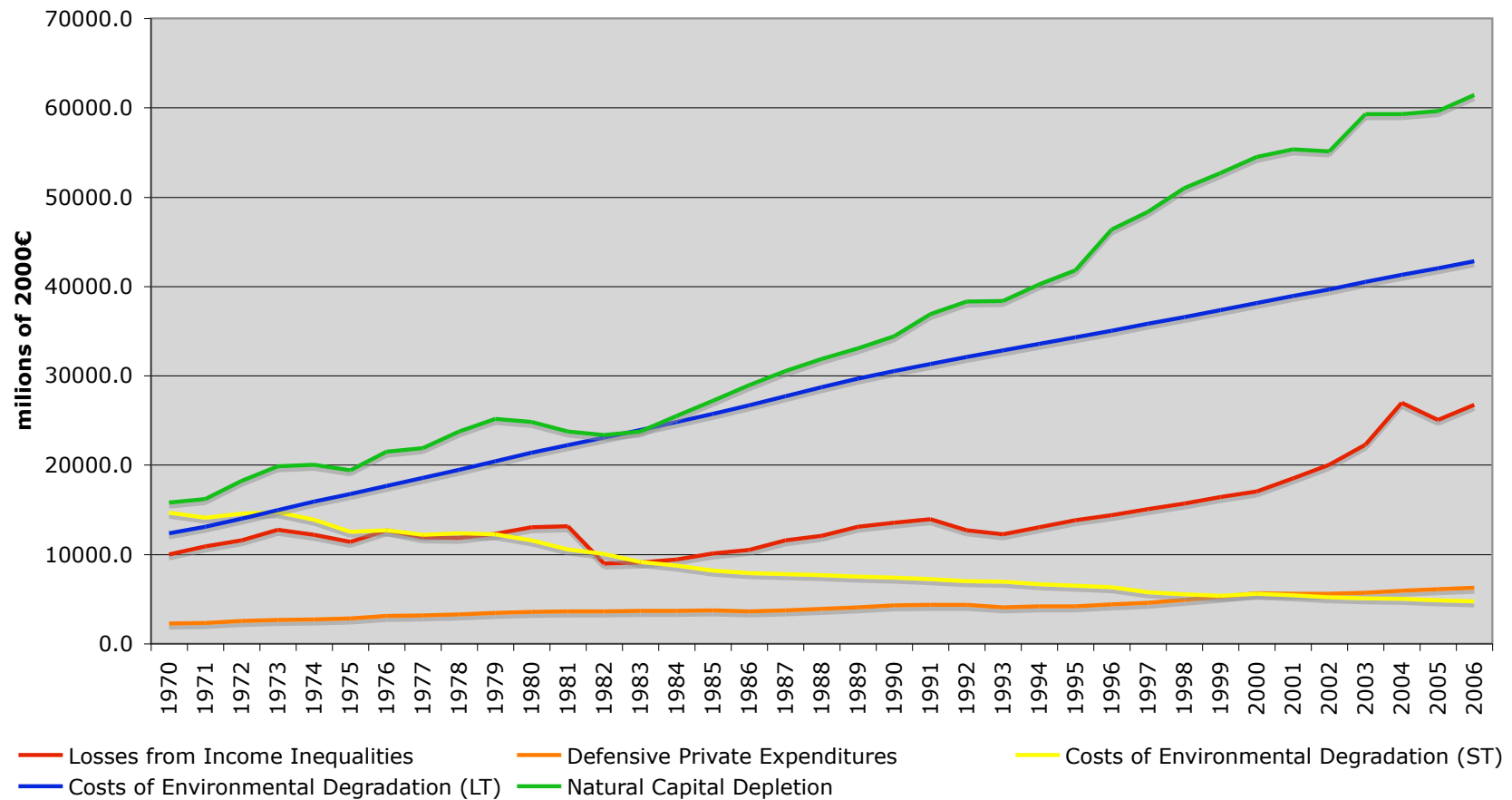
Positive Items





The ISEW for Belgium Results (3)

Negative Items





The ISEW for Belgium Conclusions

- GDP/capita: almost continuous increase over the entire period 1970-2006
- ISEW/capita:
 - two longer periods of increases in ISEW/capita, ended by shorter periods of drastic decline
 - first period of recession (mid 1980s): decrease in net capital growth
 - second period of recession (early 2000s): decrease in Belgium's net international investment position and increasing costs of non-renewable energy consumption
- Threshold hypothesis: recent period of decline is not long enough to draw solid conclusions on the hypothesis



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Discussion ISEW - General

- Strengths
 - more comprehensive approach to measuring economic welfare
 - valuable insights + empirical translation of the criticism on GDP as a measure of economic/human welfare
 - first step towards a new way of economic measurement?
 - communication tool
- Weaknesses
 - which items are taken into account?
 - high sensitivity
 - criticism on methodology and on valuation methods
 - inconsistencies



Discussion Critical Analysis

- methodology has not changed much since 1994
- theoretical framework (Lawn)
- methodological criticism (Neumayer)
 - inconsistency: the ISEW cannot be both an indicator of current welfare and one of sustainability
 - ISEW is certainly not an indicator of strong sustainability
 - index and methodology are subjective



Discussion

Critical Analysis (2)

- practical:
 - several valuation methods have been strongly criticized over the years (natural capital depletion, long-term environmental degradation, ...)
 - compilation requires a lot of data
- Neumayer (2000): the growing discrepancy between GDP/capita and ISEW/capita “might be the artifact of highly contestable methodological assumptions”.



Discussion

Possible Answers

1. Updated methodology

- to increase consistency with the theoretical framework of the index
- to incorporate more recent valuation methods
- result: ISEW/capita (adjusted)

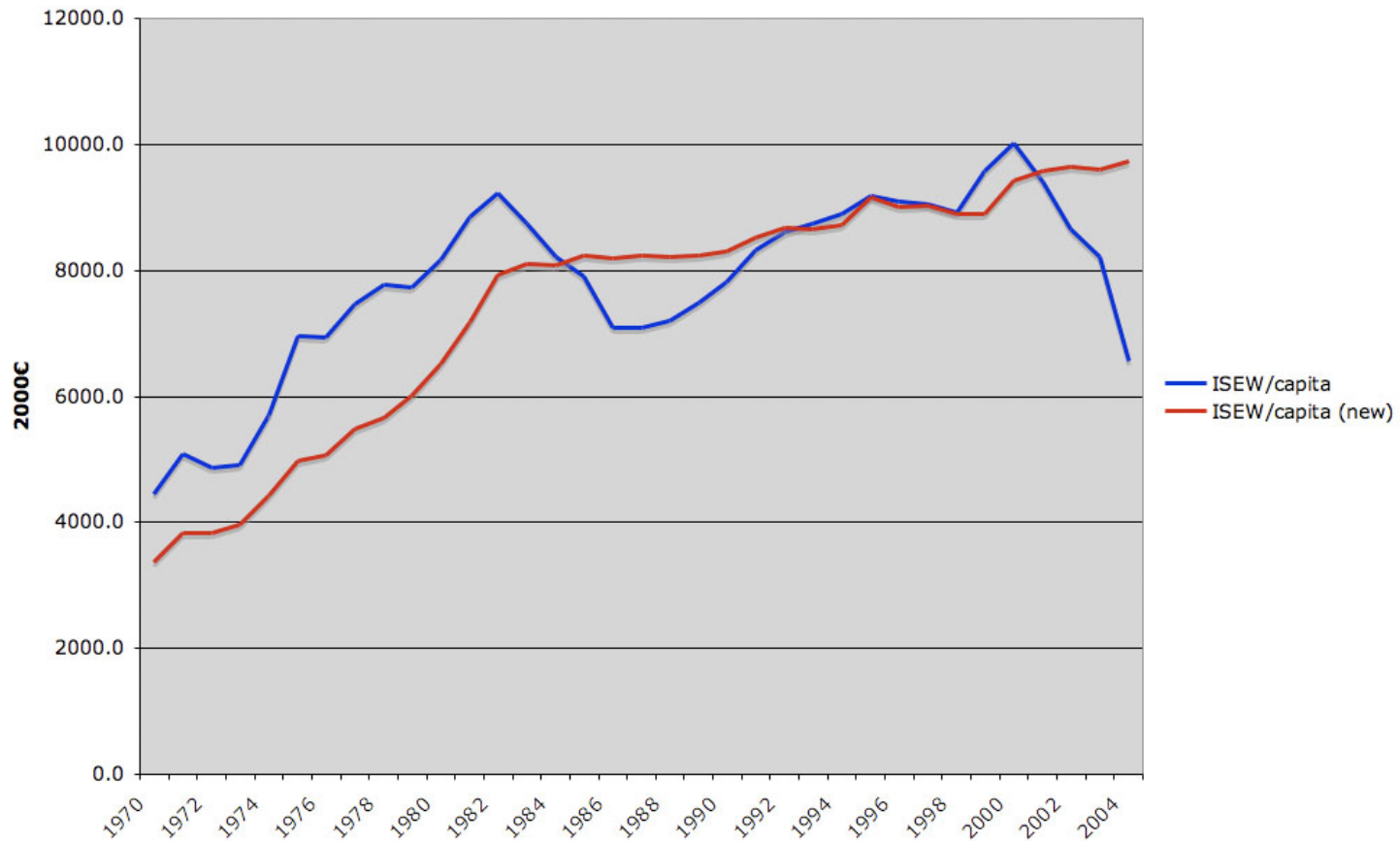
2. A Simplified ISEW

- only quantitatively most important items are taken into account
- result: SISEW/capita



Discussion

Updated Methodology (1)





Discussion

Updated Methodology (2)

- Results:
 - non-decreasing ISEW/capita over time
 - fall in the growth rate of ISEW/capita (early 1980s) can be explained by
 - A growing income inequality
 - A rise in the costs associated with long-term environmental damage
 - underline the importance of underlying assumptions + stress the need for a consistent set of items and valuation methods
 - Artifact?



Discussion

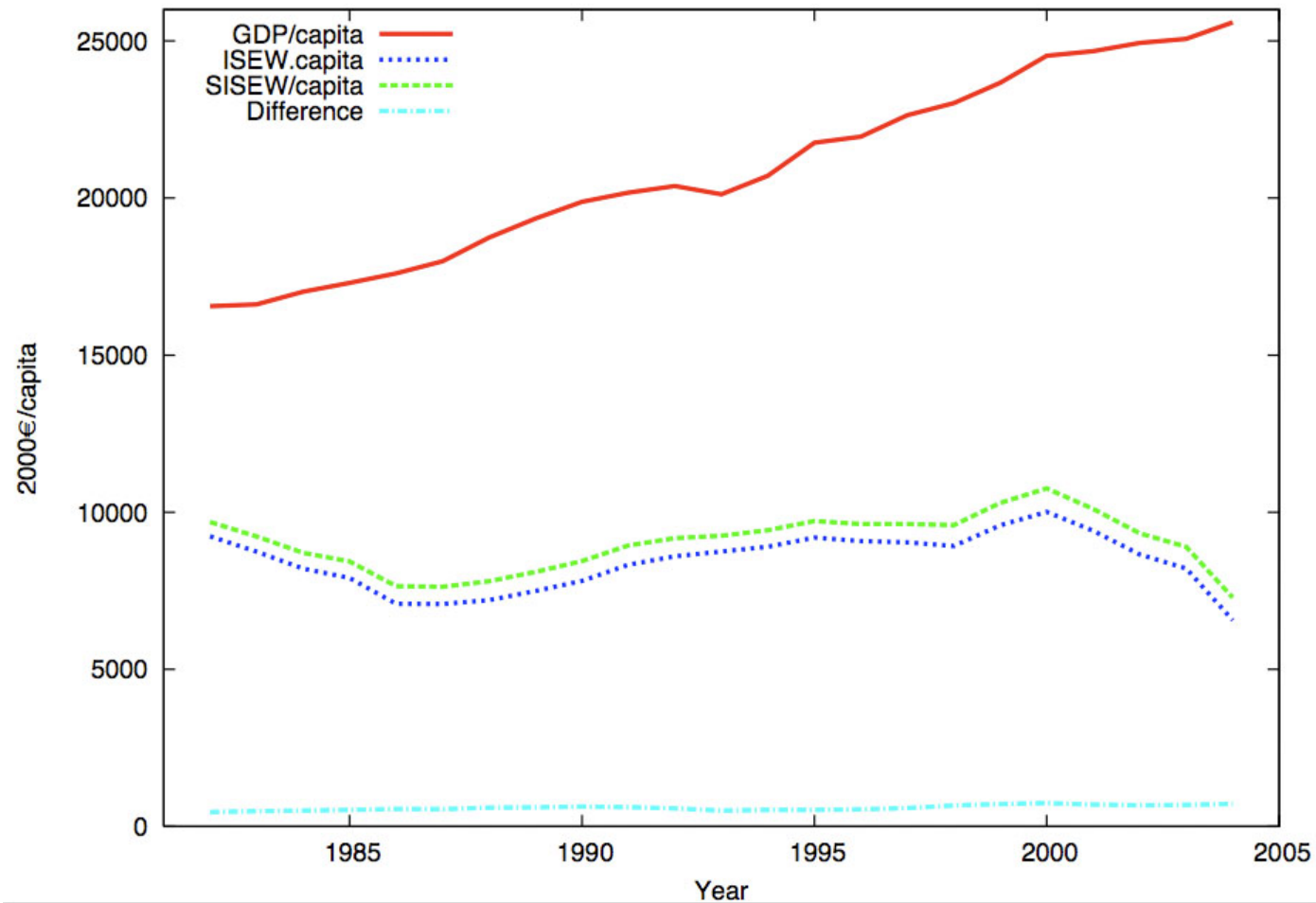
A Simplified ISEW (1)

ITEMS		
Personal Consumption Expenditures	+	1.35
Losses from Income Inequality	-	0.16
Value of Household Work	+	0.59
Public Expenditures Health & Education	+	0.15
Costs of Commuting	-	0.05
Costs of Air Pollution	-	0.07
Natural Capital Depletion	-	0.47
Costs of Climate Change	-	0.28
Costs of Ozone Layer Depletion	-	0.11
Net Capital Growth	+/-	0.09
Change in NIIP	+/-	0.08



Discussion

A Simplified ISEW (2)





Discussion

A Simplified ISEW (3)

- Conclusions:
 - easier compilation
 - outcome of the exercise remains unchanged (trend over time)
 - highlights the items that most urgently need an internationally agreed upon methodology
 - possibility of calculating SISEW/capita for a large group of countries using a standardized set of valuation methods
 - important to keep in mind that the eventual omission of any items is based on historical observations



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On the Future of ISEW (1)

- Call for alternative measures of well-being increases:
 - petitions in Belgium and the Netherlands
 - workshops in different EU member states (bv. Germany, France, the Netherlands, ...)
 - “Beyond GDP” (conference organised by the European Commission)
 - ISEW and GPI are often put forward as alternatives for the GDP

On the Future of ISEW (2)

- However, ISEW and GPI are not ready to take up this role:
 - no consistent set of items and valuation methods
 - ISEW and GPI are not picked up by international organisations, research at the individual level
- Yet: the ISEW and GPI should be seen as a first step in a new direction



On the Future of ISEW (3)

- Both ISEW and GPI have great value as communication tools (especially when combined with a sustainability index, such as the Genuine Savings index and/or the Ecological Footprint)
- New macro-level set of accounts is needed, insights from ISEW/GPI might help here



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On the Future of ISEW (4)

Thank you!

Questions?

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