

Measuring Well-Being and Performance: Purpose, Measures and Policy

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Growth: Addressing the Knowledge Gaps’**

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Initial points

- GDP and Beyond, rather than Beyond GDP
 - Attempts to adjust GDP have not convinced theoretically or practically
 - Many statements about alleged deficiencies of GDP are muddled, wrong or both (e.g. GDP is not a good welfare measure (it is not meant to be); GDP counts 'bads' (e.g. pollution) as 'goods' (it doesn't – it counts human responses to 'bads' (e.g. cleaning up pollution) as 'goods' (which they are))
- Human welfare, well-being, utility, happiness: synonymous?
- Measures of human well-being
 - Subjective measures (responses to questions): Evaluative, e.g. How satisfied are you?, e.g. Eudemonic (meaning, purpose), e.g. How worthwhile is your life? Experiential, e.g. How happy/worried are you?
 - Objective measures of issues people report as important to their well-being
- Purpose – UK:
 - Monitoring progress;
 - Informing policy design;
 - Policy appraisal
- Need for theoretical coherence: intellectual framework; lines of cause and effect

Influences on human well-being (1)

- The ‘big seven’ (Layard 2005, *Happiness*) (first five in order of importance)
 - Family relationships (importance of marriage)
 - Financial situation (relative income; “benefit of extra income is less if people are rich” Layard 2005; people get less pleasure out of increased consumption than they thought they would – adaptation (Easterlin 2003))
 - Work (employment)
 - Community and friends (trust)
 - Health (emphasis on mental health)
 - Personal freedom
 - Personal values (importance of religion)
- Inequality?
 - “Some groups like inequality” (Layard 2005 – because gives opportunities for mobility, relative advantage)
 - “Equality is better for everyone” (Wilkinson and Pickett, 2009)
- Environment: absent from earlier, but not later lists: not clear why

Influences on human well-being (2)

From the environmental economics literature

- Real income per capita; health and nutritional status; educational achievement; access to resources; income distribution; basic freedoms (Pearce et al. 1990, pp.2-3)
- Income; income distribution; employment; working conditions; leisure ['work-life balance']; environment; relationships; safety of the future/security (Hueting 1986, pp.243ff.)

OECD and ONS well-being domains

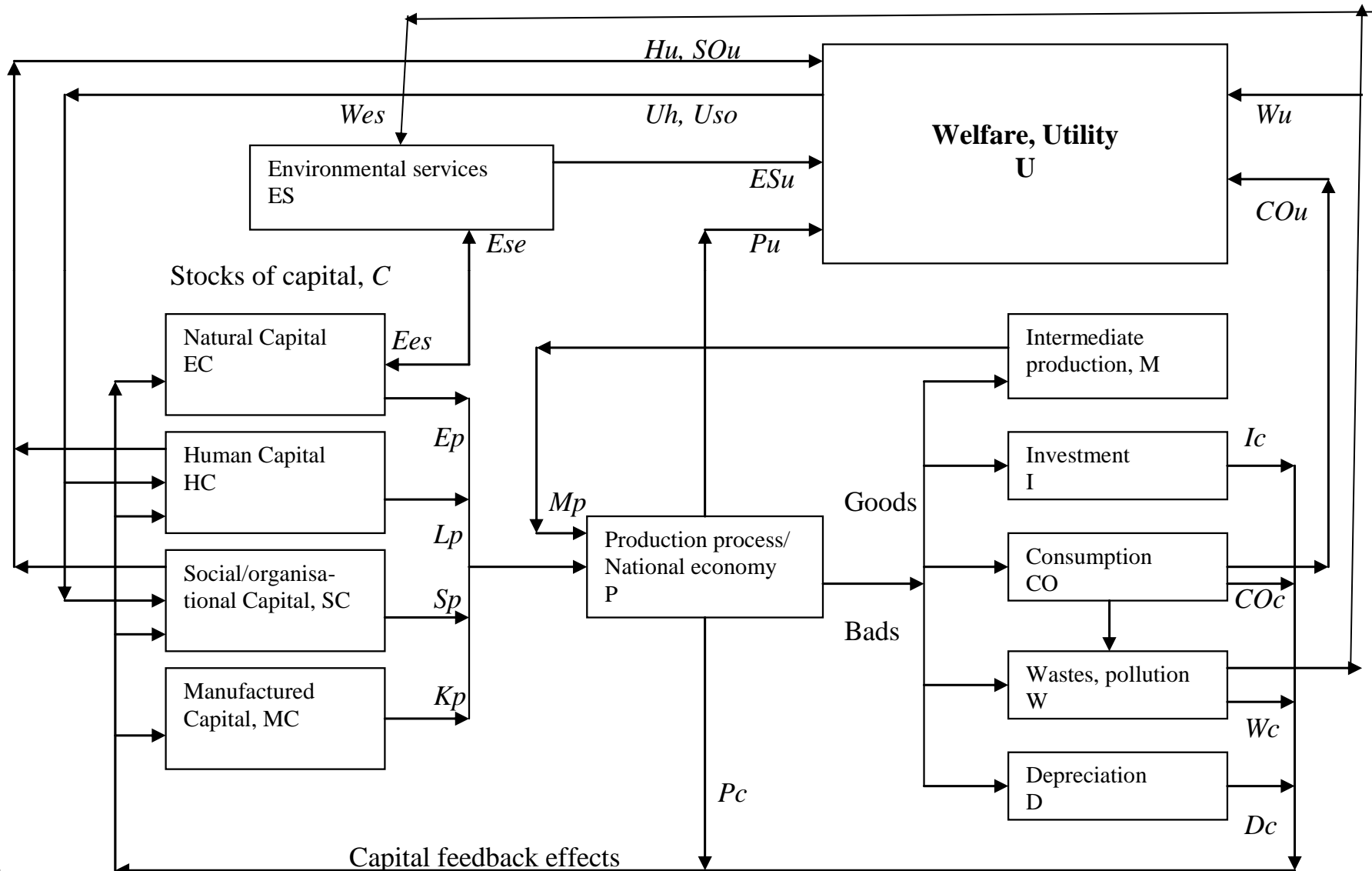
Source: Beaumont, J. 2011 'Measuring National Well-being – Discussion paper on domains and measures', October, Office for National Statistics, London

OECD Section	OECD Section Domain	Proposed ONS domains
<i>Material Living Standards</i>	Income and wealth	Individual finance
	Jobs and earnings	What we do plus Individual finance
	Housing	Where we live
<i>Quality of life</i>	Health status	Health
	Education and skills	Education and skills
	Environmental quality	The natural environment and Where we live
	Civic Engagement and Governance	Our relationships and Governance
	Individual security	Where we live
	Social connections	Our relationships
	Work and Life Balance	What we do
	Subjective Well-being	Individual well-being
<i>Sustainability over time</i>	Natural capital	The natural environment
<i>Preservation of:</i>	Economic capital	The economy
	Human capital	Education and skills
	Social capital	Our relationships

The four capitals model of wealth creation

- Capital is
 - A STOCK, or asset, which has the characteristic of producing
 - A FLOW of income or some other benefit
 - The stock value is the net present value of the flow
- Four capitals model
 - Manufactured (or physical) capital
 - Human capital
 - Social capital
 - Natural (or environmental, ecological) capital
 - Financial capital is a form of social capital with the power of mobilising the other four capitals
- The four capitals generally need to be combined in a production process in order to generate their benefits (this is least true of natural capital which generates many benefits independently of humans)

The four capitals model of wealth-creation



Human capital

- “The knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being” (OECD 2001)
- Importance of
 - Health
 - Learning: family and early childcare settings, formal education and training, workplace training and informal learning at work or in daily life. Importance to learning of “the collection of family-based resources such as parental education levels, social class, and family habits, norms and practices which influence academic success” (OECD 2001)
- Social benefits of education include better health, lower crime, political and community participation, social cohesion, more volunteering and charitable giving and better informed citizens
- Inequalities in income and wealth lead to inequalities in health and learning – reduced levels of human capital, lower wealth creation (Wilkinson and Pickett, 2009)

Social capital

- OECD (2001): “networks together with shared norms, values and understandings that facilitate co-operation within or among groups”. May be seen to include:
 - Organisational capital, which “reflects the shared knowledge, teamwork and norms of behaviour and interaction within organisations” (OECD 2001e p.19)
 - Cultural capital, “the habits or cultural practices based on knowledge and demeanours learned through exposure to role models in the family and other environments” (OECD 2001).
 - Political, institutional and legal arrangements.
- Indicators of social capital: Intensity of involvement in community and organisational life; Public engagement (e.g. voting); Community volunteering; Informal sociability (e.g. visiting friends); Reported levels of trust
- Inequality destroys social capital (Wilkinson and Pickett, 2009)

Natural capital (cf EC 'Roadmap to a Resource-Efficient Europe')

Resources	Unit	Indicator		Target/Sustainability criterion
		Home	Abroad	
Energy	MJ/MWh	Energy productivity Absolute energy use Renewable energy use	Embodied energy in EU imports	EU20:20:20 and 2050 target; reduction in embodied energy in EU imports
Water	Tonnes	Water exploitation index (WEI)	Embodied water in EU imports	20% EU; reduction in water in EU imports
Land: not built up ¹	Hectares	Protected areas	Protected areas	Percent protected areas EU/abroad No biodiversity loss
Land: built up	Hectares	Built-up area (less gardens?)	Land use from EU imports	Reduced/no increase in built-up area
Marine area	Hectares	MPAs	MPAs	Percent MPAs in EU seas/internationally
Materials: biotic, land	Tonnes	Components of DMC/ DMI/TMI (inc. HF ²)	Components of TMC/ TMR (inc. HF ²)	Max. sustainable yield Safe biological limits
Materials: biotic, marine	Tonnes	Components of DMC/ DMI/TMI (inc. HF ²)	Components of TMC/ TMR (inc. HF ²)	Max. sustainable yield Safe biological limits
Materials: abiotic (inc. fossil fuels)	Tonnes	Components of DMC/ DMI/TMI (inc. HF ²)	Components of TMC/ TMR (inc. HF ²)	Increased resource productivity Decrease in absolute use of key scarce minerals
Environment				
Greenhouse gases	Tonnes CO ₂ e	Emissions	Emissions	EU 2020 and 2050 targets; 2°C warming limit
Air: non-GHG emissions	Tonnes various	Emissions	Emissions	Emission targets related to health; sustainability gap (distance to target)
Water: emissions	Tonnes various	Emissions	Emissions	Waste targets; sustainability gap (distance to target)
Land: emissions	Tonnes various	Emissions	Emissions	Waste targets; sustainability gap (distance to target)

Core issues of sustainable development

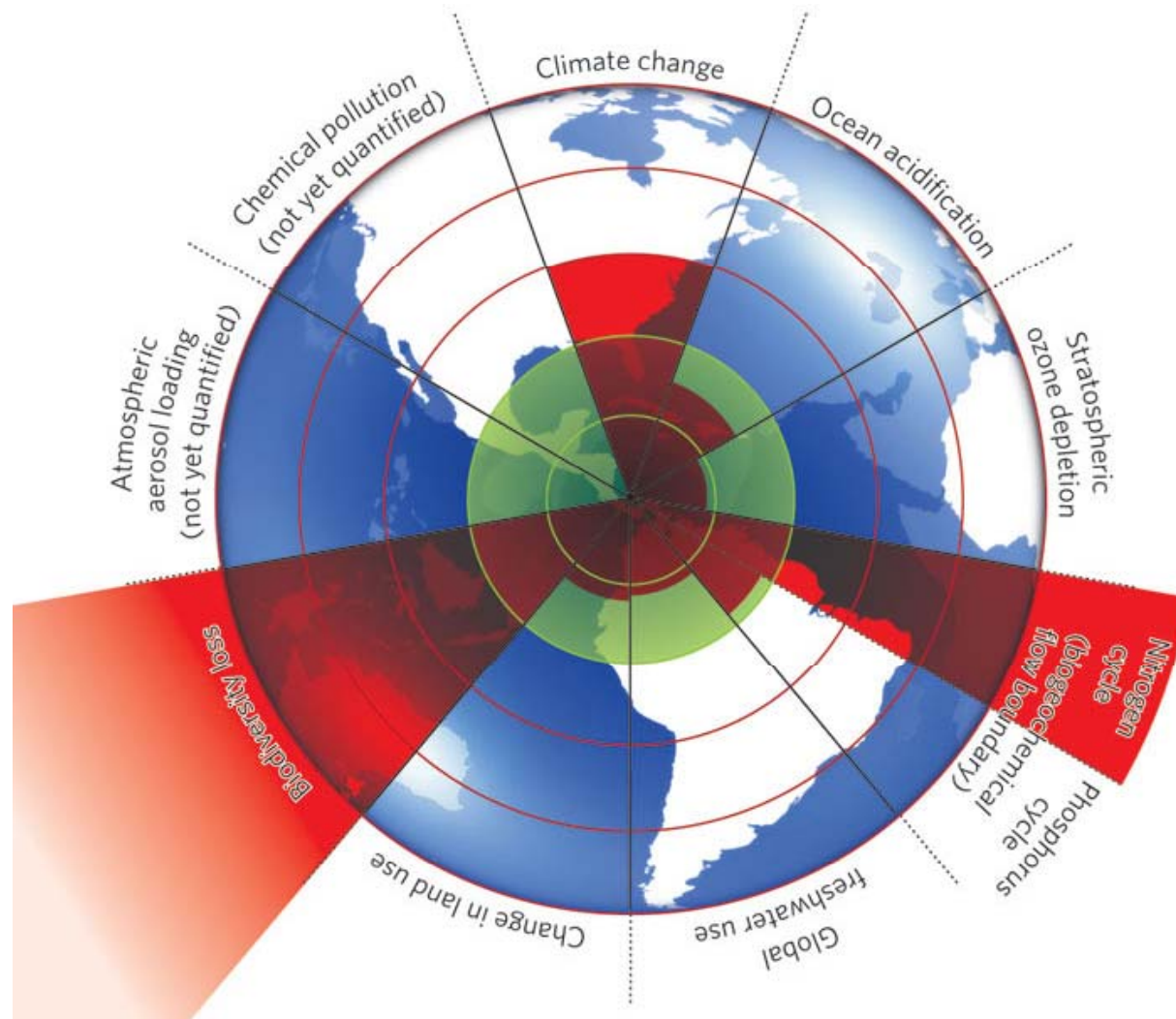
- Sustainability entails maintenance of human welfare and therefore of the benefits which give rise to it and therefore of the capital stock which produces the benefits.
- Issues of substitutability between capitals: weak and strong sustainability
- Issues of benefit valuation - and therefore valuation of the capital stocks
- Difference between economic, social and environmental sustainability
- Measures
 - Aggregate: monetary (e.g. ISEW, Genuine savings), index (e.g. HDI)
 - Framework

Environmental sustainability

- **Sustainability: capacity for continuance**
- **Environmental sustainability: maintenance of important environmental functions and the natural capital which generates them. Importance:**
 - Not substitutable, irreversible loss, 'immoderate' losses
 - Maintenance of health, avoidance of threat, economic sustainability
- **Any aspiration for sustainable economic growth must start from the recognition of the need for the sustainable use of resources and ecosystems, and be rooted in basic laws of physical science:**
 - Indefinite physical expansion of the human economy on a finite planet is impossible;
 - All use of non-solar forms of energy creates disorder, and potential disruption, in the natural world
- **Thermodynamics: at a certain physical scale, further physical growth becomes counter-productive.**
- **There is little doubt that except from a very short-term perspective this scale has now been exceeded**
- **What is the optimal physical scale of the human economy? Measures:**
 - Physical individual: safe operating space (Rockstrom et al)
 - Physical aggregate: ecological footprint
 - Index: Sustainability gap

A safe operating space for humanity:

Rockstrom et al. 2009, *Nature*



Closing the Sustainability Gap

	Environmental stress (ES)		Sustainability standard (SS)	Sustainability Gap (SGAP) (ES-SS)		Normalised SGAP (100*SGAP/SS), E _{Peq}		Years to sustainability
	1980	1991		1980	1991	1980	1991	
Climate change, C _{eq}	286	239	10	276	229	2760 100	2290 83	54
Ozone depletion, O _{eq}	20000	8721	0	20000	8721	na	na	8.5
Acidification, A _{eq}	6700	4100	400	6300	3700	1575 100	925 59	16
Eutrophication, E _{eq}	302	273	86	216	187	251 100	217 86	71
Dispersion, D _{eq}	251	222	12	239	210	1992 100	1750 88	80
Waste disposal, W _{eq}	15.3	14.1	3	12.3	11.1	410 100	370 90	102
Disturbance, N _{eq}	46	57	9	37	48	411 100	533 130	never
TOTAL	na	na	na	na	na	7399 100	6085 82	51

Table 3.2: Various Sustainability Measures for the Netherlands

Source: Ekins, P. & Simon, S. 2001 'Estimating Sustainability Gaps: Methods and Preliminary Applications for the UK and the Netherlands', *Ecological Economics*, Vol.37 No.1, pp.5-22

What kind of growth?

- Physical growth (growth in the amount of matter/energy mobilised by the economy: indefinite growth of this kind is impossible in a finite physical system subject to the laws of thermodynamics)
- Economic (GDP) growth: growth in money flows/incomes/value added/expenditure: there is no theoretical limit on this kind of growth
- Growth in human welfare:
 - Dependent on sustaining environmental functions
 - Complex relationship to economic growth (although hard to argue that, *ceteris paribus*, more money is not better than less)
 - Dependent on many other factors (as above)
- ‘Green growth’: Increases in GDP that *either* keep the economy within the safe operating space *or* move it back towards this space [optional: while also increasing human well-being]

The imperative of decoupling physical from financial growth

- **Decoupling:** a decline in the ratio of the amount used of a certain resource, or of the environmental impact, to the value generated or otherwise involved in the resource use or environmental impact. The unit of decoupling is therefore a weight per unit of value.
- **Relative decoupling:** in a growing economy, the ratio of resource use (e.g. energy consumption) or environmental impact (e.g. carbon emissions) to GDP decreases
- **Absolute decoupling:** in a growing economy, the resource use or environmental impact falls in absolute terms
- If GDP growth continues, climate stabilisation at levels of CO₂ concentration that limit global average temperature increases to 2°C will require a degree of absolute decoupling of GDP from carbon emissions that is outside all previous experience

Decoupling is possible, but very difficult for systematic pollutants (e.g. CO₂) or impacts (e.g. biodiversity)

Decoupling of CO₂ and other air pollutants in some OECD countries

Table 2: GDP and Domestically Produced Emissions Indices, selected OECD Countries, 2005 (1990=100)

	GDP	SO _x	NO _x	Particulates	CO	VOC	CO ₂
France	132	35	66	67	50	52	98
Germany	123	10	50	10	33	35	82
Ireland	258	38	95	106	55	58	126
Japan	120	76	94		67	88	107
Portugal	135	69	104	133	70	94	143
Turkey	173	128	166		92		184
UK	143	19	55	53	29	41	85
USA	155	63	74	81	62	69	116

Shading = no absolute decoupling

Source: Everett et al. 2010, p.22

Note: International aviation and shipping emissions are excluded from the 'territorial' emissions figures, but the economic benefits from aviation and shipping are included in GDP.

Policies for increasing happiness (Layard 2005, except last two points)

- Monitor development of happiness
- Rethink range of issues:
 - Tax: restrains excessive status-seeking
 - Performance-related pay: encourages excessive status seeking
 - Mobility: weakens family/community, increases crime
- Help the poor (marginal utility of income)
- Improve family life, subsidise activities that promote community life
- Eliminate high unemployment (benefits conditional on working)
- Spend more addressing mental illness
- Reduce escalation of wants (curb advertising, especially to children)
- Improve education
- Reduce inequality? Yes (Wilkinson and Pickett, 2009)
- Promote environmental sustainability (absent until recently from well-being literature)



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Thank You

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