

More isn't always better a special briefing on growth and quality of life in the UK

Britain is on course, according to John Major during the 1997 General Election campaign, to "double our living standards in the next 25 years". We cannot be sure what will happen in that time, but let us just imagine that in the early 1970s Prime Minister Ted Heath had made the same promise.

He would have been close: gross domestic product is over one and a half times higher than it was in 1972. But during the same period, violent crime has quadrupled, the incidence of asthma has tripled, the number of work-less households has tripled, car traffic has almost doubled, and concentrations of climate changing gases in the atmosphere have grown to perilous levels.

Living standards may have doubled, but the quality of life in Britain, exemplified by such trends, seems to have declined. 'More' has not been 'better'. How could we have got things so wrong?

This briefing explains why the economic indicators we have relied upon have so misled our politicians, and how the uncritical pursuit of growth in gross domestic product has undermined quality of life. It makes the case for new indicators of progress to steer our society: a task which is possible, necessary and urgent. The new, revised *Index of Sustainable Economic Welfare (ISEW)*, presented here, grew by almost 3% a year during the 1970s, but has since seen a steady and persistent decline, reflecting a real downward trend in quality of life. Since 1980, according to the ISEW, real well-being has actually fallen by over 20 per cent: the biggest fall in the period covered by the index, which goes back to 1950. See page 3.



**FRIENDS of the
earth**

Why this briefing?

The New Economics Foundation is an independent research institute based in London. We have been campaigning for better economic indicators for 10 years. Friends of the Earth, the widely respected environmental pressure group, is calling for new indicators to help society achieve sustainable development.

Both organisations are part of the Real World coalition, which advocates a new measure of economic welfare which includes social and environmental factors. Real World includes over 40 of the most respected social and environmental organisations in the UK, whose combined supporters number over 2 million people - more than all the political parties put together.

Authors

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More isn't always better

In economic debate, no belief is more widely shared than the idea that economic growth is the central determinant of national progress.

Political candidates from all main parties promise to deliver this. Gross Domestic Product (GDP) per person, the 'headline' indicator of economic growth, has increased by a third since 1979. Those in power take credit for this growth. Not fast enough, says the opposition. "We will raise the trend rate of growth", the Labour Manifesto promises.

Economists may disagree on many things, but they rarely, if ever, dispute the sovereignty of GDP as a measure of progress. "The rate of growth of the economy" as academic and city economists Christopher Johnson and Simon Briscoe put it "is the most important single indication of a country's economic performance."

But while over recent years, there has been increasing evidence that life is not getting any easier for the majority of Britons, little of this has been reflected in the economic statistics. As a result, as the economic recession of the early 1990s lifted, the media coined a new term - the 'feel good factor' - to explain why the mood of the country seemed so at odds with what the economists

were saying. Policy-makers anxiously awaited its return.

To begin with, economic commentators agreed. They identified the feel-good factor with the post-tax disposable income of consumers. As the legacy of debts incurred in the previous consumption-led boom faded, consumer spending started to recover. But few could claim that the boom years were back.

Attention then turned to job insecurity and its effects on Middle England, the parochial heartland of political debate. Yet, again, once the claims had settled down, it was clear that growth prospects had little to do with the mood of the nation. The risk of being unemployed and not finding a new job had risen, self-employment

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had risen, large companies were downsizing. On the other hand, the average length of tenure of jobs in Britain had barely fallen. Perception may be reality, but this was not a reality that economists found easy to explain within a growth paradigm.

The traditional conditions are in place for a return in confidence. House prices are up, employment is up and our main competitors, such as Germany and Japan, are in recession. Yet Britons remain full of foreboding about the fundamental direction of society and what the future will hold for them and their children. A survey of 3,000 teenagers, for example, found them confused and frightened about what the future holds,

What are Indicators?

Indicators serve as a way of capturing and communicating complex trends through quantification. Indicators are central to economic policy and decision-making. They are the main way of getting feedback on what is happening in the economy and society. The economic indicators we use serve to frame public policy and market behaviour.

and obsessed with their own personal economic security.

Now, for want of any useful gauge of the nation's well-being, politicians and commentators look to such ephemera as BritPop, the Spice Girls and success at the Oscars as signals that the feel-good factor is on its way.

The reality is that there is now an utter divorce between economists and what they measure and the real, day to day factors that make for the quality of life of British citizens. Quality of life can be defined not just as something private to each individual, but as encompassing shared social goods, such as health, education, security, education, environment and social cohesion that affect all our lives.

So are we actually better off, but suffering from affluenza: a condition whereby lingering nostalgia outweighs economic advance? Or, as this briefing suggests, has the old formula of growth equals progress broken down, and even gone into reverse?

What's wrong with GDP?

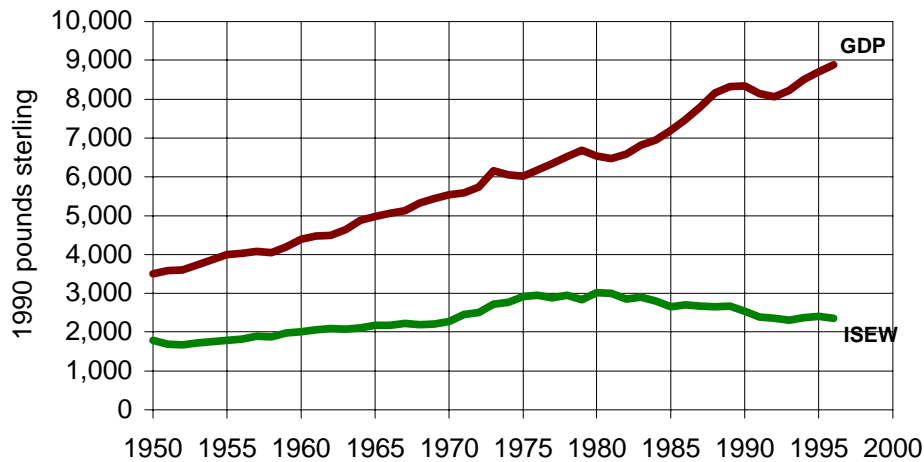
This economic indicator was never intended by its architects to measure progress. Nobody listened.

What is wrong with GDP is quite simple. It only performs, repeatedly, one simple arithmetic calculation. It adds. Yet, in reality, much of what it adds in fact serves to reduce the quality of life. It is as if economists have not yet learned to subtract.

The central point about growth is 'growth of what?' No doctor assumes that a growth of cancer is a good thing. Yet, the costs of crime, ill-health, stress, environmental damage and social breakdown can all add to economic growth, as measured by GDP. In fact, a cancer patient is a model GDP-wealth

creator, generating the sums of medical care that have the numbers turning. This was the point made by John Ruskin in the last century, who coined the phrase 'illth' to describe the damage to landscapes and human health, virtue and dignity associated with growth and industrialisation.

UK-ISEW per capita 1950-1996



Like metres and kilos, GDP appears to provide a universal, scientific measure. Yet, GDP has only been developed in the last fifty years on the basis of work, notably, of John Maynard Keynes and Simon Kuznets. Moreover, the assumptions that lie behind it relate not to a 21st Century economy but quite firmly to bygone eras.

The central assumptions of economic measurement relate to the history out of which they were born. The growing emphasis on quantitative measurement in the natural sciences was paralleled by a greatly increased role for monetary exchange and monetary values in economic life. The shift away from the land and into manufactures, services and open trade informed a model of wealth creation focused therefore not on tangible goods but on money changing hands.

From the outset, Simon Kuznets warned of the limits of GNP. "The welfare of a nation", he wrote, can "scarcely be inferred from a measure-

ment of national income." The architects of GDP simply could not foresee economic values becoming such a central determinant of social organisation, nor the extent to which a measure of national income is used as a proxy for overall progress and well-being. By

1962, Kuznets argued that national accounting needed to be fundamentally rethought.

Keynes may also have seen coming these limitations of what he had proposed. Before his death, he nominated the German-born economist Fritz Schumacher as his most likely successor. It was Schumacher that then proved the most

trenchant critic of growth economics in his 1974 book *Small is Beautiful*, a book which helped to inspire the search for new, more appropriate economic indicators.

A new economic equation

Today, it is common for commentators to acknowledge in one

breath the limitations of GDP, from its exclusion of housework to its inadequacies in accounting for environmental loss. In another breath, they deny that any other approach will serve. Any attempt to develop one, drawing on social and environmental factors, will be fraught with too many assumptions and too many value judgements. Better to stick with GDP, they say.

The UK Office for National Statistics, for example, is exploring revisions to the national accounts for environmental loss, but shies away from 'value judgements' and any calculation that would show how far GDP had departed from what would have been environmentally sustainable.

Yet, each of the assumptions and value judgements they decry is already implicit within GDP. Like a range of indicators, such as the World Bank's Genuine Savings indicator and the UN Human Development Index, GDP does deal with wider issues. But unlike these new indicators, GDP already puts a value on them, which is to assign them at the start a value of zero.

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The New Economics Foundation has led the call for new indicators in the UK for over ten years. There is no single way to do this: we need more, not less, sophistication on the part of economists, after all. There may never be, nor should there necessarily be, straightforward ways to assign values to critical aspects of human well-being, whether that is community life or the tranquillity of our surroundings. But the challenge is to approach these in a more reasonable way than simply assigning them a value of zero. As Herman Daly, winner of the alternative Nobel Prize, the *Right Livelihood Award*, has put it: it is better to be roughly right than precisely wrong.

In the face of a complex array of environmental pressures, including climate change, loss of topsoil and declining fish catches, being precisely wrong could be a matter not just of well-being but of survival. Indeed all three major political parties are already committed to some form of indicators of 'sustainable development'. The Index of Sustainable Economic Welfare (ISEW) is offered here as evidence that new indicators are possible, that they are necessary and that they are urgent. The issue now is not whether, but how to create a more accurate picture of economic reality.

The Index of Sustainable Economic Welfare

What then is the new economic equation? The Index of Sustainable Economic Welfare (ISEW) provides a way of looking at how sustainable welfare is changing over time. It takes as its basis the measure of consumer expenditure which also underlies the economic measure of GDP. The ISEW then makes adjustments to account for

Measuring the real economy

The limitations of using GDP as a measure of welfare range from factors such as the absence of accounting for the depreciation of human-made capital to more trenchant critiques such as those raised eloquently by the late Senator Robert Kennedy who accused GDP of measuring "everything except that which makes life worthwhile". Traditional national accounts sometimes compute a Net National Product (NNP) which does at least adjust for the first omission noted above. But a number of failings remain, and are recognised by a growing number of economists. Robert Eisner, for example, highlights the need for:

- expansion of the definition of capital to include (eg) natural and human capital;
- inclusion of non-market flows such as the value of domestic labour or losses from environmental damage;
- re-classification of certain "defensive" expenditures as intermediate rather than flows.

One of the earliest attempts to make a more comprehensive adjustment to the national accounts was the Measure of Economic Welfare (MEW) which Nordhaus and Tobin prepared for the United States in 1972. Their results suggested that between 1950 and 1965, welfare in the US grew consistently, although at a slower rate than the growth in GDP. Nordhaus has recently presented a new MEW which reflects an increasing divergence from GDP in the later years of the study.

The most widely applied attempt to adjust conventional accounts in recent years has been the Index of Sustainable Economic Welfare (ISEW) pioneered (for the United States) by Herman Daly, John Cobb, and Clifford Cobb in an appendix to Daly and Cobb's seminal 1989 book *For the Common Good*. The ISEW takes as its basis the measure of consumer expenditure which also underlies the GDP. It then makes a number of additions and subtractions to account for certain environmental and social factors including, for example, (positive) contributions from unpaid household labour, and (negative) contributions from resource depletion, income inequality and environmental damage.

The initial US ISEW was revised by the Cobbs in their 1994 book *The Green National Product*, and now forms the basis for the Genuine Progress Indicator. A UK ISEW for the period from 1950 to 1990 was first published in 1994 by the New Economics Foundation and the Stockholm Environment Institute. ISEWs have also been constructed for Austria, Germany, the Netherlands, and Sweden, and work is in progress in several other countries.

eighteen aspects of our economic lives that GDP ignores (see box and technical note).

The ISEW has attracted broad public endorsement - but with some technical reservations. In particular, there was a significant time-lag in pilot versions. The new ISEW has been significantly improved and brought up to 1996, drawing on inputs from a wide range of economists, social scientists and environmental experts.

Results

The key differences between ISEW, as a measure of sustainable economic welfare, and GDP, as a

measure of production, are that in the ISEW:

- spending to offset social and environmental costs (defensive expenditure) is taken out;
- longer-term environmental damage and the depreciation of natural capital are accounted for;
- the net formation of man-made capital (ie investment) is included;
- changes in the distribution of income are included, reflecting the fact that an additional pound in the pocket means more to the poor than to the rich;
- a value for household labour is included.

The politics of well-being

Administration			average GDP growth	average ISEW growth
Winston Churchill	Conservative	1951-55	2.8%	1.4%
Anthony Eden	Conservative	1955-57	1.0%	2.7%
Harold Macmillan	Conservative	1957-63	2.2%	1.5%
Alec Douglas-Home	Conservative	1963-64	4.1%	1.8%
Harold Wilson	Labour	1964-70	2.1%	1.3%
Edward Heath	Conservative	1970-74	2.3%	5.1%
Harold Wilson	Labour	1974-76	1.0%	3.2%
James Callaghan	Labour	1976-79	2.7%	-1.4%
Margaret Thatcher	Conservative	1979-90	2.0%	-1.0%
John Major	Conservative	1990-96	1.1%	-1.3%

The results (see page 3) show a striking difference between the trends in GDP and ISEW. Per capita GDP is 2.5 times greater in real terms in 1996 than it was in 1950, with an average year on year growth rate of 2 per cent.

In contrast, the trend in the ISEW over the same period has been up and down. The level of the ISEW in 1996 ends up a modest 31 per cent higher than it was in 1950: an average annual growth of just 0.6 per cent.

The difference between GDP and ISEW is particularly marked from the mid-1970s onwards. Between 1950 and 1975, ISEW rises, albeit more slowly than GDP per capita. After a period of stagnation in the late 1970s, however, ISEW has actually fallen - by around 22 per cent since 1980. GDP on the other hand continued to rise, by over a third.

Over the last six years, per capita ISEW has declined at an average rate of 1.3 per cent a year (compared to per capita GDP growth of 1.1 per cent).

The key factors which contribute to the decline are environmental degradation (in particular depletion of non-renewable resources and long-term environmental damage) and income inequality. The decline would have been greater, had it not been for positive factors in the ISEW, such as services from household labour, over the same period.

It is not easy to draw any political message from trends in the ISEW, nor would we presume to do so. Neither party has a monopoly on increasing ISEW: the most rapid declines in ISEW occurred under both Labour and Conservative administrations (see table).

All things considered, the average UK citizen may have more money in his or her pocket, but the quality of life is hardly any better, and indeed appears to be considerably worse than it was in the mid-1970s.

Environment at the heart of well-being and economic performance

The environmental component of ISEW is a significant one. This reflects the importance of environmental sustainability to well-being and to present and future economic performance. There are three reasons for this.

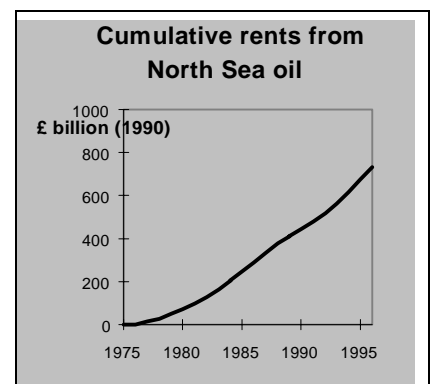
First, the depletion of non-renewable resources, such as North Sea Oil, which are included in the ISEW. Oil revenues are arguably one of the single most important contributions to the Scottish and the wider British economy over the last twenty years. However, the reckless treatment of an endowment created over millennia as if it were a

business in liquidation barely registers on the columns and research papers of economists and economic analysts in the UK.

Drawing on concepts of net income set out by the British economist John Hicks, the ISEW argues that the sustainable way to treat the depletion of North Sea Oil is to set aside an amount of rent from resource production as a replacement cost. This could be, for example, in renewable energy alternatives that would come on stream when eventually the oil does run out. Countries as diverse as Norway and Botswana have started to do this, but not the UK. By 1996, the ISEW adjustment for this "rent" had climbed to £734 billion at 1990 prices (see figure). Over the last 5 years, this has averaged £50.4 billion annually - around 5 times what is spent on social security for unemployment.

Secondly, and similarly, climate change, carrying a diverse and uncertain range of knock-on effects, may arguably be the most significant single factor affecting the global economy over the next forty years.

Concentrations of carbon dioxide (the main greenhouse gas) in the global atmosphere have been growing inexorably. CO₂ is a long-lived pollutant, and the threat of climate change arises from the accumulated emissions of several decades. The ISEW is adjusted to account for the contribution of UK emissions of CO₂ to this problem. This in turn reflects wider trends in environmental degradation and quality of life, as its main sources - the burning of petrol, oil, coal and gas - are also re-



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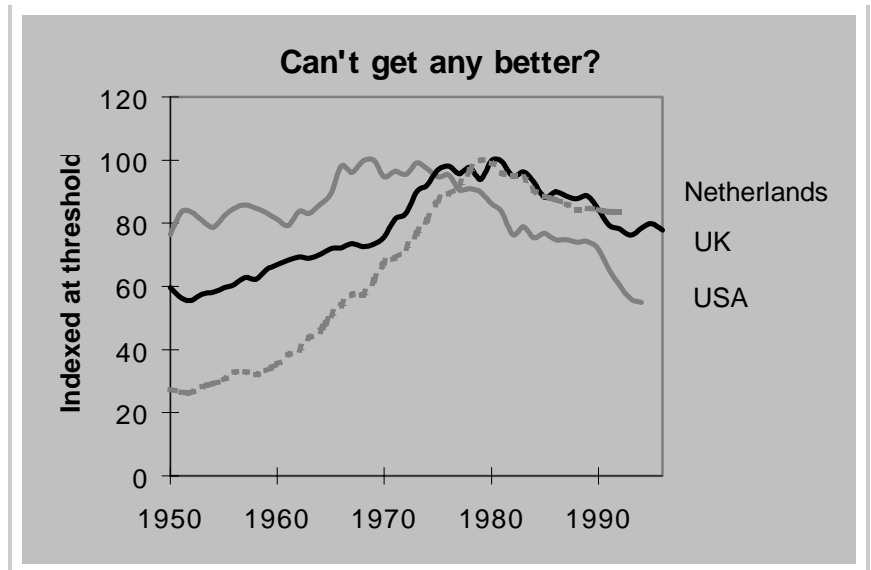
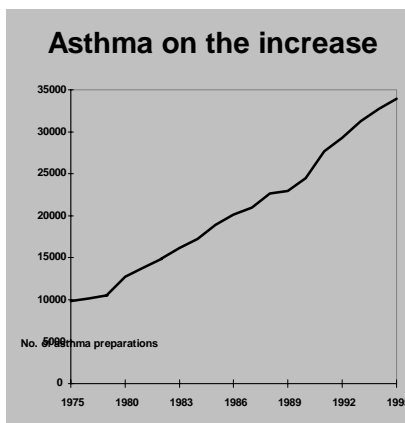
sponsible for many short-term and more localised pollution problems.

While the historic trend suggests that energy use per unit of GDP is declining, overall energy use, which is ultimately what counts, is still not falling.

The third reason for including an environmental component, and one that relates more directly to personal experience, is the negative feedback a polluted environment has on human well-being. Perhaps the most important single factor in quality of life is our health - it consistently tops opinion surveys on quality of life, and the state of the health services is a continuing concern for many of the British public. The ISEW makes a partial allowance for health by subtracting an allowance for defensive expenditures, such as health care costs, from the overall value of the index.

Although we currently enjoy a greater life expectancy than any preceding generation, we still worry about the quality of life we can enjoy - and modern threats to health concern increasing numbers of people, from growing levels of stress and psychiatric disorders, to higher incidence of asthma in our children.

Asthma is a good indicator of health in daily life, and one that reflects wider concerns about the quality of air in our towns and cities: asthma attacks are known to be triggered and exacerbated by poor air quality. With the exception of heart disease and stroke, asthma is now the largest cause of hospital admissions. Hospital admissions and prescriptions of inhalers and other



medicines have all increased in recent years. Preparations for asthma treatment have increased more than 3-fold since 1975 (see graph).

The threshold hypothesis

The findings of the UK ISEW have parallels in experience overseas. In each case, sustainable economic welfare rose up to an apparent turning point, at which any relationship between per capita GDP and ISEW turned negative. One interpretation of these findings might be dubbed the 'threshold hypothesis'.

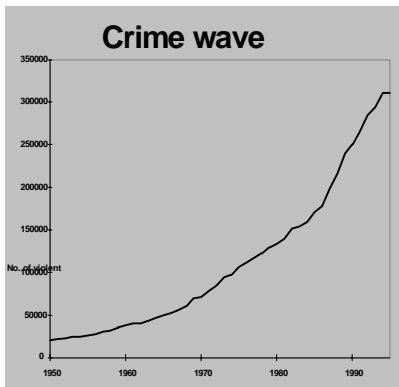
This hypothesis holds that for every country, economic growth (as conventionally measured) brings about an improvement in the quality of life, but only up to a point - the threshold point beyond which more economic growth leads to a decline in the quality of life.

The implications of this would be considerable, implying the need to turn traditional economic thinking upside down beyond the threshold point, with a concentration on qualitative improvement rather than quantitative growth.

A number of commentators, such as John Gray, have argued over recent years that growth economics is now a utopian project which is devouring the very social and environmental basis on which markets rest and wealth creation is made possible. The existence of a threshold point would bear this out, as non-market institutions, such as family and community, and values, such as citizenship and public service, are devalued and eroded in the face of market ethics and practice.

These non-market institutions have traditionally performed many of the tasks of community support and mutual care. Beyond the threshold, the result is if these tasks are done at all, the market provides for those that can afford it, while what remains of the traditional institutions try to cope, often at considerable stress and self-sacrifice to those concerned. Alternatively, the state seeks to provide - but at an increasingly unsustainable cost.

A wide range of studies, for example, now reveal correlations between trends related to conventional economic growth, such as inequality of earnings (now at its widest this century) and social problems such as emotional stress, ill-health and the erosion of trust. Violent crime, for example, is now rising at an average rate of 5% per annum, increasing to 10% over the last twelve months.



The concept of ‘social capital’, as Jane Jacobs termed it, is based on networks of trust and support that take considerable time to build, but little time to destroy. The presence of this stable social capital is a prerequisite for market growth, but after the threshold point, the destruction of social capital by markets contributes to the insecurity and decline of society.

Evidence of diminishing, or even negative, returns is in evidence, for example, in the rethinking of transport policy, where a whole new vocabulary - *pile-ups, grid-lock, road-rage* - has become necessary to describe the experience of travel in the 1990s.

The answer to the threshold problem is not to reverse growth and hope that this would improve quality of life. This would simply repeat the error of growth economists. In practice, different patterns of growth will have different social and ecological outcomes. But in many cases, such as in relation to energy use, there will need to be a dramatic shift in the *quality* of consumption before environmental improvement can accompany increased growth.

Conclusions: the politics of quality

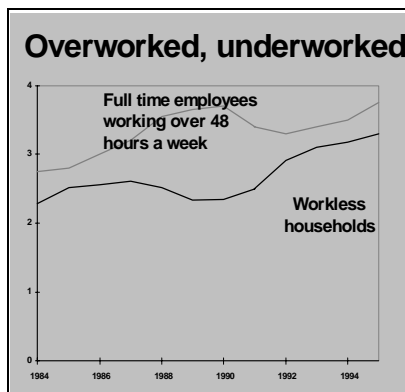
At present, the clash between quantity and quality - market and non-market - values is working its way through the conventional political debate on both the left and the right. Political gravity has shifted towards the language of ethics and personal moral-

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ity to counter the threat of social disintegration, without questioning the growth economics which fuels it. ‘The family’ is now on centre stage: there is concern about divorce, break-up, reduced care and youth delinquency, but little on offer to tackle the economics of one in four men working over fifty hours a week and a threefold increase since 1975 in the number of households with no-one in employment.

It has been argued that the UK is due for a political realignment, but the extent to which the issues of growth versus quality of life will act as a pole for this has yet to be seen. Politicians on both right and left, from Jimmy Goldsmith to Alan Simpson MP, are increasingly questioning the validity of the goal of economic growth *per se*. In the centre, the unquestioned belief in economic orthodoxy is also in tension with communitarian and environmental

economic change - including family-friendly economics, a labour-intensive economy or a sustainable economy. The fall from grace of GDP is not the end of economic debate, but the start of a new one.



ideals.

Quality of life remains a complex concept, encompassing both the personal and social, seeking reconciliation between income, equity and futurity. It does not easily reduce to quantitative assessment, single perspectives or policy prescriptions. Yet, if there is to be life beyond growth, economists and politicians need to embrace this complexity and the prizes will go to those who can understand and act on this first.

What will mark the success of this agenda is that politicians no longer talk of growth, but recognise and experiment instead with different qualities of

The index - a technical briefing

Since its original formulation, the ISEW methodology has come under considerable scrutiny, and a number of criticisms have been raised of particular aspects of the index. The updated UK ISEW which is presented briefly in this paper has taken these criticisms into account and made some important methodological revisions to the original index. Full details of these revisions, together with an account of their effects on the index and a number of important sensitivity analyses, are to be found in a forthcoming paper from the Centre for Environmental Strategy at the University of Surrey (Jackson *et al* 1997). In the following paragraphs the most important revisions are briefly described. The full range of factors contributing to the Index is shown in the table, together with the values which these factors assume at the beginning, middle and end of the study period.

Income inequality

In the original index, the adjustment for income inequality was essentially *ad hoc*: an index of inequality was constructed from time series Gini coefficients by setting the 1950 coefficient equal to 100. Consumer expenditure was then “weighted” by dividing the raw data by the inequality index. In the updated index we have used a method specifically developed for measuring the economic impact of distributional inequality. The method determines a level “perfectly distributed” income equivalent to each unequal distribution of income (Atkinson 1983). The two incomes are equivalent in the sense that both incomes are deemed to deliver the same level of social welfare. The Atkinson income is thus ideal for use as a basis for the Index of Sustainable Economic Welfare.

The revised method allows for an input to reflect society’s aversion or otherwise to income inequality. A factor *epsilon* ranges from zero (reflecting absolute indifference to income inequality) to infinity (reflecting complete aversion). For the purposes of this revision we have used the rather low figure of 0.8 suggested by studies of actual attitudes in the UK. However, we are not entirely convinced that it is appropriate to accept a judgement about social welfare inferred from existing patterns of consumption. The acceptance of (or aversion to) income inequality is an issue which legitimately ought to refer to a social

evaluation (for instance by surveys of public attitudes) as well as to market behaviour, and such an evaluation is not yet available for the UK. Sensitivity analyses demonstrate that a slightly higher value of *epsilon* would considerably depress the index, particularly over the last fifteen years of the study during which income inequality has reached “unprecedented” levels (Goodman and Webb, 1994).

Long-term environmental damage

A number of people have criticised the original ISEW method of accounting for the long-term environmental costs associated with fossil and nuclear fuel consumption. A simple tax of 50 cents (in 1972 dollars) was levied for every barrel of oil equivalent consumed by either fossil fuels or nuclear power. As a *post hoc* justification, the authors made comparison with certain estimates of the future costs of climate change, showing that in some cases, their provision was relatively conservative by comparison.

The revised UK ISEW explicitly uses cost estimates for long-term damage from global warming, relating these directly to emissions of carbon. A marginal social cost (in 1990) of around £11 per tonne of carbon emitted has been derived from estimates by Fankhauser (1994). This cost is then used as the basis for determining retrospective marginal social costs which rise over the time period according to the cumulative level of emissions from past activities. Applying these marginal social costs to the actual emissions in each year has provided a stream of annual contributions to future damages. Since these future damages accumulate, year on year, the associated costs are accumulated through the index.

The ISEW research team at the Centre for Environmental Strategy gave detailed consideration to the view expressed by some critics that only the annual contributions to future damages should be counted in each year. However, they decided against this argument for a number of reasons, principally because it is clear that, all other things being equal, paying off the damages associated with a single year (say 1990) would not reduce the present value of future welfare losses to zero. The accumulated debt of the past would still represent a very real loss to the future. The present

The roots of GDP

The first attempt at producing national accounts was by Thomas Petty in 1665, who was attempting to calculate the taxable wealth of the nation. In France, Physiocrats believed that agriculture was the basis of economic wealth, but it was Adam Smith that first set out a theory of the wealth of nations that included manufacturing and a framework of international trade. Yet Smith in fact also excluded a range of services, such as government and lawyers, because there were ultimately ‘unproductive of any value’.

It was Alfred Marshall, the father of neo-classical economics, who disputed this and set out the basis for our modern concept of economic value. The real worth of an item lay not in its intrinsic value, or in being a physical commodity, but in its market price. What was left out was the natural environment and the social sphere of family and community, where work and production was for family use or community benefit but no money changed hands.

Building on this approach, John Maynard Keynes, at the start of the second world war, co-authored a paper titled *The National Income and Expenditure of the United Kingdom and How to Pay for the War*. This set out the conceptual framework which, with the work of Simon Kuznets in the US Department of Commerce, established the System of National Accounts in 1947 and Gross National Product (later GDP). The underlying method of calculation for GDP has undergone a series of revisions, most notably in 1968 and, more recently, 1993.

In the origins of economic theory, the exclusive focus on market exchange seemed justified. The market economy seemed small in comparison to the bountiful social and environmental realms around it. The architects of GDP could not foresee that on the edge of the twenty first century, it is aspects of society and nature, rather than the market, that are in dangerous scarcity.

value of that future loss is the very least that an index of sustainable economic welfare should measure.

Further revisions

Several other refinements of the methodology have been made. These include: re-basing the costs of ozone depletion to consumption of CFCs in the UK, instead of production; expanding the category formerly accounting for wetlands loss to include other forms of natural habitat loss;

smoothing the year on year effects of certain financial factors which might legitimately vary from year to year without adversely affecting long-term economic welfare; and updating a number of columns for which better data have been found.

Effect of the revisions

The main effect of the revisions we have undertaken has been to present a slightly less dramatic picture of the change in welfare in the UK than was presented in the first pilot index. The principal reason for this has been the choice of a relatively low aversion to income inequality. Nevertheless, the picture presented by the revised index is not different in kind from that revealed by the earlier version. Sustainable economic welfare rose in the UK from about 1950 to around the mid-1970s more or less in line with the rise in economic output. It has declined considerably over the last fifteen years of the study, in spite of increasing growth in *per capita* GNP.

Contributions to the ISEW: 1950 - 1973 - 1996

Year	1950	1973	1996
Consumer expenditure	2,435	4,067	6,402
Adjusted personal consumption	2,234	3,751	5,485
Services: household labour	948	1,470	2,368
Public expenditure on health & education (consumption)	89	192	365
Difference between consumer expenditure on & services from goods	206	446	1,160
Defensive private expenditures on health & education	14	25	109
Costs of commuting	52	127	206
Costs of personal pollution control	-	8	58
Costs of car accidents	30	43	36
Costs of water pollution	94	73	52
Costs of air pollution	410	464	324
Costs of noise pollution	36	36	39
Costs of loss of habitat	21	40	54
Costs of loss of farmlands	14	24	34
Depletion of non-renewable resources	332	920	1,812
Long-term environmental damage	292	718	1,321
Ozone depletion costs	8	209	621
Net capital growth	-	382	1
Change in net international position	37	52	41
Per capita ISEW	1,799	2,713	2,349
Per capita GDP	3,507	6,151	8,890

Further reading

- Atkinson, A., 1983. *The Economics of Inequality*, 2nd edition. Oxford University Press, Oxford.
- Cobb C., & Cobb, J., 1995, *The Green National Product*, University of Americas Press, Lanham, Md.
- Cobb, C., Halstead, E., & Rowe, J., 1995, *The Genuine Progress Indicator- summary of data and methodology*, Redefining Progress, Washington, DC.
- Daly, H., & Cobb, J. 1989. *For the Common Good- redirecting the economy towards community, the environment and sustainable development*. Beacon Press, Boston.
- Eisner, R., 1988, The Total Income System of Accounts, *Journal of Economic Literature*, vol 26: 1611-1684.
- Fankhauser, S. 1994. The Social Costs of Greenhouse Gas Emissions- an expected value approach, *The Energy Journal* 15(2), pp157-184.
- Goodman, A., and Webb, S. 1994. *For Richer, for Poorer - the changing distribution of income in the UK 1961-1991*. Institute for Fiscal Studies, London.
- Jackson, T., & Marks, N., 1994. *Measuring Sustainable Economic Welfare: a pilot index for the UK 1950 - 1990*. Stockholm Environment Institute/New Economics Foundation, London.
- Jackson, T., Laing, F., MacGillivray, A., Marks, N., Ralls, J, and Stymne, S. 1997. *An Index of Sustainable Economic Welfare for the UK 1950 - 1996*. Centre for Environmental Strategy, University of Surrey.
- MacGillivray, A, & Zadek, S, 1996, *Accounting for Change*, New Economics Foundation, London.
- Max-Neef, M., 1995, Economic Growth and Quality of Life: a threshold hypothesis, *Ecological economics*, 15, 115-118.
- Nordhaus, W., 1992, Is Growth Sustainable? - paper prepared for the International Economic Society, Varenna, Italy, October 1992.
- Nordhaus W., & Tobin, J., 1972, Is Growth Obsolete? in *Economic Growth, Fiftieth Anniversary Colloquium*, National Bureau of Economic Research, Columbia University Press, NY.
- Robertson, J., 1987, *Future Wealth: a new economics for the 21st century*, Cassells, London.