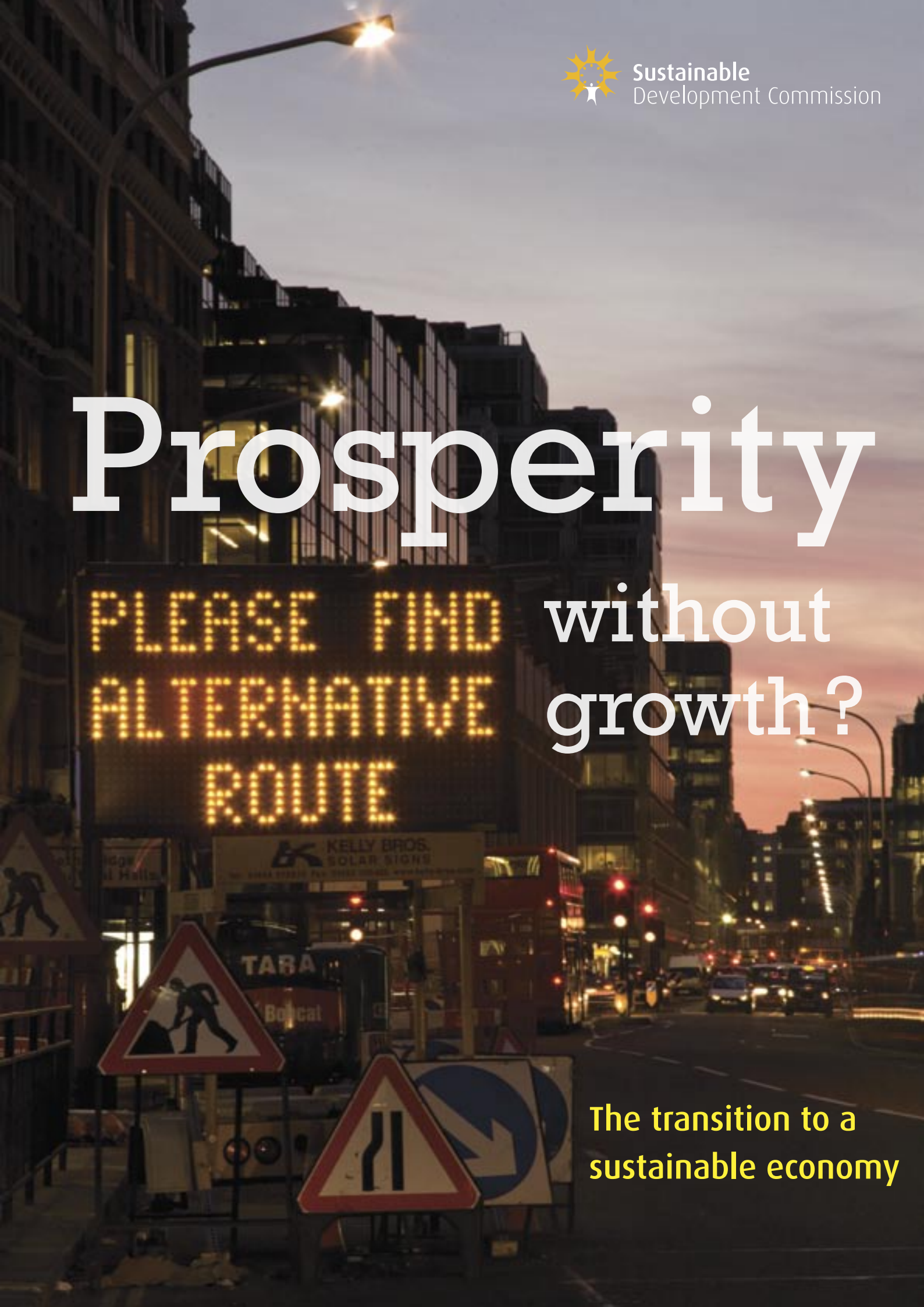
Sustainable Development Commission

Prosperity without growth?



The transition to a sustainable economy

Prosperity without growth?

The transition to a sustainable economy

Professor Tim Jackson
Economics Commissioner
Sustainable Development Commission

Sustainable
Development Commission

Acknowledgements

This report was written in my capacity as Economics Commissioner for the Sustainable Development Commission at the invitation of the Chair, Jonathon Porritt, who provided the initial inspiration, contributed extensively throughout the study and has been unreservedly supportive of my own work in this area for many years. For all these things, my profound thanks.

The work has also inevitably drawn on my role as Director of the Research group on Lifestyles, Values and Environment (RESOLVE) at the University of Surrey, where I am lucky enough to work with a committed, enthusiastic and talented team of people carrying out research in areas relevant to this report. Their research is evident in the evidence base on which this report draws and I'm as grateful for their continuing intellectual support as I am for the financial support of the Economic and Social Research Council (Grant No: RES-152-25-1004) which keeps RESOLVE going.

Though written as an individually authored thinkpiece, this study builds on work from right across the Commission. In particular, it draws extensively from the work programme on *Redefining Prosperity* which has been developed at the SDC over the last five years (see Appendix 1 for a summary of recent work). Throughout this period, my fellow commissioners past and present – Jan Bebbington, Bernie Bulkin, Lindsey Colbourne, Anna Coote, Peter Davies, Stewart Davies, Ann Finlayson, Tess Gill, Alan Knight, Tim Lang, Alice Owen, Anne Power, Hugh Raven, Tim O'Riordan, Waheed Saleem and Becky Willis – have been generous with their time, attending workshops, offering critical commentary and reviewing various drafts of this document.

Special thanks are owed to all those who contributed directly to the *Redefining Prosperity* workshops, in particular Simone d'Alessandro, Frederic Bouder, Madeleine Bunting, Ian Christie, Herman Daly, Arik Dondi, Paul Ekins, Tim Kasser, Miriam Kennet, Guy Liu, Tommaso Luzzati, Jesse Norman, Avner Offer, John O'Neill, Elke Pirgmaier, Tom Prugh, Hilde Rapp, Jonathan Rutherford, Jill Rutter, Zia Sardar, Kate Soper, Steve Sorrell, Nick Spencer, Peter Victor, Derek Wall, David Woodward and Dimitri Zenghelis.

A number of other colleagues and friends have helped and advised – sometimes without even knowing it! Particular thanks are due to Mick Common, Andy Dobson, Angela Druckman, Ian Gough, Bronwyn Hayward, Lester Hunt, Nic Marks, Miriam Pepper, Alison Pridmore and John Urry.

Finally, my thanks are due to the SDC Secretariat for their boundless expertise and enthusiasm throughout the project. Sue Dibb, Sara Eppel, Andrew Lee, Rhian Thomas, Jacopo Torriti, Joe Turrent and Kay West in particular have been a constant source of invaluable advice throughout. I owe a special debt of gratitude to Victor Anderson, whose wealth of intellectual experience and unswerving personal support have been indispensable at every turn.

Contents

Foreword 5

Summary 6

1 Introduction 15

2 The Age of Irresponsiblity 19

3 Redefining Prosperity 29

4 The Dilemma of Growth 37

5 The Myth of Decoupling 47

6 Confronting Structure 59

7 Keynesianism and the 'Green New Deal' 67

8 Macro-economics for Sustainability 75

9 Flourishing – within limits 85

10 Governance for Prosperity 93

11 Steps towards a Sustainable Economy 101

Appendix 1 The SDC 'Green Stimulus' Package 108

Appendix 2 Towards a Sustainable Macro-Economy 110

References 113

Endnotes 122

Foreword

Every society clings to a myth by which it lives. Ours is the myth of economic growth. For the last five decades the pursuit of growth has been the single most important policy goal across the world. The global economy is almost five times the size it was half a century ago. If it continues to grow at the same rate the economy will be 80 times that size by the year 2100.

This extraordinary ramping up of global economic activity has no historical precedent. It's totally at odds with our scientific knowledge of the finite resource base and the fragile ecology on which we depend for survival. And it has already been accompanied by the degradation of an estimated 60% of the world's ecosystems.

For the most part, we avoid the stark reality of these numbers. The default assumption is that – financial crises aside – growth will continue indefinitely. Not just for the poorest countries, where a better quality of life is undeniably needed, but even for the richest nations where the cornucopia of material wealth adds little to happiness and is beginning to threaten the foundations of our wellbeing.

The reasons for this collective blindness are easy enough to find. The modern economy is structurally reliant on economic growth for its stability. When growth falters – as it has done recently – politicians panic. Businesses struggle to survive. People lose their jobs and sometimes their homes. A spiral of recession looms. Questioning growth is deemed to be the act of lunatics, idealists and revolutionaries.

But question it we must. The myth of growth has failed us. It has failed the two billion people who still live on less than $2 a day. It has failed the fragile ecological systems on which we depend for survival. It has failed, spectacularly, in its own terms, to provide economic stability and secure people's livelihoods.

Today we find ourselves faced with the imminent end of the era of cheap oil, the prospect (beyond the recent bubble) of steadily rising commodity prices, the degradation of forests, lakes and soils, conflicts over land use, water quality, fishing rights and the momentous challenge of stabilising concentrations of carbon in the global atmosphere. And we face these tasks with an economy that is fundamentally broken, in desperate need of renewal.

In these circumstances, a return to business as usual is not an option. Prosperity for the few founded on ecological destruction and persistent social injustice is no foundation for a civilised society. Economic recovery is vital. Protecting people's jobs – and creating new ones – is absolutely essential. But we also stand in urgent need of a renewed sense of shared prosperity. A commitment to fairness and flourishing in a finite world.

Delivering these goals may seem an unfamiliar or even incongruous task to policy in the modern age. The role of government has been framed so narrowly by material aims, and hollowed out by a misguided vision of unbounded consumer freedoms. The concept of governance itself stands in urgent need of renewal.

But the current economic crisis presents us with a unique opportunity to invest in change. To sweep away the short-term thinking that has plagued society for decades. To replace it with considered policy capable of addressing the enormous challenge of delivering a lasting prosperity.

For at the end of the day, prosperity goes beyond material pleasures. It transcends material concerns. It resides in the quality of our lives and in the health and happiness of our families. It is present in the strength of our relationships and our trust in the community. It is evidenced by our satisfaction at work and our sense of shared meaning and purpose. It hangs on our potential to participate fully in the life of society.

Prosperity consists in our ability to flourish as human beings – within the ecological limits of a finite planet. The challenge for our society is to create the conditions under which this is possible. It is the most urgent task of our times.

Tim Jackson
Economics Commissioner
Sustainable Development Commission, March 2009

Summary

Economic growth is supposed to deliver prosperity. Higher incomes should mean better choices, richer lives, an improved quality of life for us all. That at least is the conventional wisdom. But things haven't always turned out that way.

Growth has delivered its benefits, at best, unequally. A fifth of the world's population earns just 2% of global income. Inequality is higher in the OECD nations than it was 20 years ago. And while the rich got richer, middle-class incomes in Western countries were stagnant in real terms long before the recession. Far from raising the living standard for those who most needed it, growth let much of the world's population down. Wealth trickled up to the lucky few.

Fairness (or the lack of it) is just one of several reasons to question the conventional formula for achieving prosperity. As the economy expands, so do the resource implications associated with it. These impacts are already unsustainable. In the last quarter of a century the global economy has doubled, while an estimated 60% of the world's ecosystems have been degraded. Global carbon emissions have risen by 40% since 1990 (the Kyoto Protocol 'base year'). Significant scarcity in key resources – such as oil – may be less than a decade away.

A world in which things simply go on as usual is already inconceivable. But what about a world in which nine billion people all aspire to the level of affluence achieved in the OECD nations? Such an economy would need to be 15 times the size of this one by 2050 and 40 times bigger by the end of the century. What does such an economy look like? What does it run on? Does it really offer a credible vision for a shared and lasting prosperity?

These are some of the questions that prompted this report. They belong in a long tradition of serious reflection on the nature of progress. But they also reflect real and immediate concerns. Climate change, fuel security, collapsing biodiversity and global inequality have moved inexorably to the forefront of the international policy agenda over the last decade. These are issues that can no longer be relegated to the next generation or the next electoral cycle. They demand attention now.

Accordingly, this report sets out a critical examination of the relationship between prosperity and growth. It acknowledges at the outset that poorer nations stand in urgent need of economic development. But it also questions whether ever-rising incomes for the already-rich are an appropriate goal for policy in a world constrained by ecological limits.

Its aim is not just to analyse the dynamics of an emerging ecological crisis that is likely to dwarf the existing economic crisis. But also to put forward coherent policy proposals (Box 1) that will facilitate the transition to a sustainable economy.

In short, this report challenges the assumption of continued economic expansion in rich countries and asks: is it possible to achieve prosperity without growth?

The Age of Irresponsibility

Recession throws this question into sharp relief. The banking crisis of 2008 led the world to the brink of financial disaster and shook the dominant economic model to its foundations. It redefined the boundaries between market and state and forced us to confront our inability to manage the financial sustainability – let alone the ecological sustainability – of the global economy.

This may seem an inopportune moment to question growth. It is not. On the contrary, this crisis offers the potential to engage in serious reflection. It is a unique opportunity to address financial and ecological sustainability together. And as this report argues, the two things are intimately related.

Chapter 2 argues that the current turmoil is not the result of isolated malpractice or simple failures of vigilance. The market was not undone by rogue individuals or the turning of a blind eye by incompetent regulators. It was undone by growth itself.

The growth imperative has shaped the architecture of the modern economy. It motivated the freedoms granted to the financial sector. It stood at least partly responsible for the loosening of regulations and the proliferation of unstable financial derivatives. Continued expansion of credit was deliberately courted as an essential mechanism to stimulate consumption growth.

This model was always unstable ecologically. It has now proven itself unstable economically. The age of irresponsibility is not about casual oversight or individual greed. If there was irresponsibility it was systematic, sanctioned widely and with one clear aim in mind: the continuation and protection of economic growth.

The failure of this strategy is disastrous in all sorts of ways. Not least for the impacts that it is having across the world, in particular in poorer communities. But the idea that growth can deliver us from the crisis is also deeply problematic. Responses which aim to restore the status quo, even if they succeed in the short term, simply return us to a condition of financial and ecological unsustainability.

Redefining Prosperity

A more appropriate response is to question the underlying vision of a prosperity built on continual growth. And to search for alternative visions – in which humans can still flourish and yet reduce their material impact on the environment. In fact, as Chapter 3 makes clear, the voluminous literature on human wellbeing is replete with insights here.

Prosperity has undeniable material dimensions. It's perverse to talk about things going well where there is inadequate food and shelter (as is the case for billions in the developing world). But it is also plain to see that the simple equation of quantity with quality, of more with better, is false in general.

When you've had no food for months and the harvest has failed again, any food at all is a blessing. When the American-style fridge freezer is already stuffed with overwhelming choice, even a little extra might be considered a burden, particularly if you're tempted to eat it.

An even stronger finding is that the requirements of prosperity go way beyond material sustenance. Prosperity has vital social and psychological dimensions. To do well is in part about the ability to give and receive love, to enjoy the respect of your peers, to contribute useful work, and to have a sense of belonging and trust in the community. In short, an important component of prosperity is the ability to participate meaningfully in the life of society.

This view of prosperity has much in common with Amartya Sen's vision of development as 'capabilities for flourishing'. But that vision needs to be interpreted carefully: not as a set of disembodied freedoms, but as a range of 'bounded capabilities' to live well – within certain clearly defined limits.

A fair and lasting prosperity cannot be isolated from these material conditions. Capabilities are bounded on the one hand by the scale of the global population and on the other by the finite ecology of the planet. To ignore these natural bounds to flourishing is to condemn our descendents – and our fellow creatures – to an impoverished planet.

Conversely, the possibility that humans can flourish and at the same time consume less is an intriguing one. It would be foolish to think that it is easy to achieve. But it should not be given up lightly. It offers the best prospect we have for a lasting prosperity.

The Dilemma of Growth

Having this vision to hand doesn't ensure that prosperity without growth is possible. Though formally distinct from rising prosperity, there remains the possibility that continued economic growth is *a necessary condition* for a lasting prosperity. And that, without growth, our ability to flourish diminishes substantially.

Chapter 4 explores three related propositions in defence of economic growth. The first is that material opulence is (after all) necessary for flourishing. The second is that economic growth is closely correlated with certain basic 'entitlements' – for health or education, perhaps – that are essential to prosperity. The third is that growth is functional in maintaining economic and social stability.

There is evidence in support of each of these propositions. Material possessions do play an important symbolic role in our lives, allowing us to participate in the life of society. There is some statistical correlation between economic growth and key human development indicators. And economic *resilience* – the ability to protect jobs and livelihoods and avoid collapse in the face of external shocks – really does matter. Basic capabilities are threatened when economies collapse.

Growth has been (until now) the default mechanism for preventing collapse. In particular, market economies have placed a high emphasis on labour productivity. Continuous improvements in technology mean that more output can be produced for any given input of labour. But crucially this also means that fewer people are needed to produce the same goods from one year to the next.

As long as the economy expands fast enough to offset labour productivity there isn't a problem. But if the economy doesn't grow, there is a downward pressure on employment. People lose their jobs. With less money in the economy, output falls, public spending is curtailed and the ability to service public debt is diminished. A spiral of recession looms. Growth is necessary within this system just to prevent collapse.

This evidence leads to an uncomfortable and deep-seated dilemma: growth may be unsustainable, but 'de-growth'[1] appears to be unstable. At first this looks like an impossibility theorem for a lasting prosperity. But ignoring the implications won't make them go away. The failure to take the dilemma of growth seriously may be the single biggest threat to sustainability that we face.

The Myth of Decoupling

The conventional response to the dilemma of growth is to call for 'decoupling': continued economic growth with continually declining material throughput. Since efficiency is one of the things that modern capitalist economies are supposed to be good at, decoupling has a familiar logic and a clear appeal as a solution to the dilemma of growth.

As Chapter 5 points out, it's vital to distinguish between 'relative' and 'absolute' decoupling. Relative decoupling refers to a situation where resource impacts decline relative to the GDP. Impacts may still rise, but they do so more slowly than the GDP. The situation in which resource impacts decline in absolute terms is called 'absolute decoupling'. Needless to say, this latter situation is essential if economic activity is to remain within ecological limits.

Evidence for declining resource intensities (relative decoupling) is relatively easy to identify. The energy required to produce a unit of economic output declined by a third in the last thirty years, for instance. Global carbon intensity fell from around one kilo per dollar of economic activity to just under 770 grams per dollar.

Evidence for overall reductions in resource throughput (absolute decoupling) is much harder to find. The improvements in energy (and carbon) intensity noted above were offset by increases in the scale of economic activity over the same period. Global carbon emissions from energy use have increased by 40% since only 1990 (the Kyoto base year).

There are rising global trends in a number of other resources – a range of different metals and several non-metallic minerals for example. Worryingly, in some cases, even relative decoupling isn't happening. Resource productivity in the use of some structural materials (iron ore, bauxite, cement) has been declining globally since 2000, as the emerging economies build up physical infrastructures, leading to *accelerating* resource throughput.

The scale of improvement required is daunting. In a world of nine billion people, all aspiring to a level of income commensurate with 2% growth on the average EU income today, carbon intensities (for example) would have to fall on average by over 11% per year to stabilise the climate, 16 times faster than it has done since 1990. By 2050, the global carbon intensity would need to be only six grams per dollar of output, almost 130 times lower than it is today.

Substantial economic investment will be needed to achieve anything close to these improvements. Lord Stern has argued that stabilising atmospheric carbon at 500 parts per million (ppm) would mean investing 2% of GDP each year in carbon emission reductions. Achieving 450 ppm stabilisation would require even higher levels of investment. Factor in the wider capital needs for resource efficiency, material and process substitution and ecological protection and the sheer scale of investment becomes an issue. The macro-economic implications of this are addressed in Chapter 8.

More to the point, there is little attempt in existing scenarios to achieve an equitable distribution of incomes across nations. Unless growth in the richer nations is curtailed, the ecological implications of a truly shared prosperity become even more daunting to contemplate.

The truth is that there is as yet no credible, socially just, ecologically sustainable scenario of continually growing incomes for a world of nine billion people.

In this context, simplistic assumptions that capitalism's propensity for efficiency will allow us to stabilise the climate and protect against resource scarcity are nothing short of delusional. Those who promote decoupling as an escape route from the dilemma of growth need to take a closer look at the historical evidence – and at the basic arithmetic of growth.

[1] De-growth (décroissance in the French) is an emerging term for (planned) reductions in economic output.

The 'Iron Cage' of Consumerism

In the face of the evidence, it is fanciful to suppose that 'deep' resource and emission cuts can be achieved without confronting the nature and structure of market economies. Chapter 6 exposes two interrelated features of modern economic life that together drive the growth dynamic: the production and consumption of novelty.

The profit motive stimulates a continual search by producers for newer, better or cheaper products and services. This process of 'creative destruction', according to the economist Joseph Schumpeter, is what drives economic growth forwards.

For the individual firm, the ability to adapt and to innovate – to design, produce and market not just cheaper products but newer and more exciting ones – is vital. Firms who fail in this process risk their own survival.

But the continual production of novelty would be of little value to firms if there were no market for the consumption of novelty in households. Recognising the existence, and understanding the nature, of this demand is essential.

It is intimately linked to the symbolic role that material goods play in our lives. The 'language of goods' allows us to communicate with each other – most obviously about social status, but also about identity, social affiliation, and even – through giving and receiving gifts for example – about our feelings for each other.

Novelty plays an absolutely central role here for a variety of reasons. In particular, novelty has always carried important information about status. But it also allows us to explore our aspirations for ourselves and our family, and our dreams of the good life.

Perhaps the most telling point of all is the almost perfect fit between the continual production of novelty by firms and the continuous consumption of novelty in households. The restless desire of the consumer is the perfect complement for the restless innovation of the entrepreneur. Taken together these two self-reinforcing processes are exactly what is needed to drive growth forwards.

Despite this fit, or perhaps because of it, the relentless pursuit of novelty creates an anxiety that can undermine social wellbeing. Individuals are at the mercy of social comparison. Firms must innovate or die. Institutions are skewed towards the pursuit of a materialistic consumerism. The economy itself is dependent on consumption growth for its very survival. The 'iron cage of consumerism' is a system in which no one is free.

It's an anxious, and ultimately a pathological system. But at one level it works. The system remains economically viable as long as liquidity is preserved and consumption rises. It collapses when either of these stalls.

Keynesianism and the Green New Deal

Policy responses to the economic crisis are more or less unanimous that recovery means re-invigorating consumer spending so as to kick-start economic growth. Differences of opinion are mainly confined to how this should be achieved. The predominant (Keynesian) response is to use a mixture of public spending and tax cuts to stimulate consumer demand.

Chapter 7 summarises some of the more interesting variations on this theme. It highlights in particular the emerging international consensus around a very simple idea. Economic recovery demands investment. Targeting that investment carefully towards energy security, low-carbon infrastructures and ecological protection offers multiple benefits. These benefits include:

- freeing up resources for household spending and productive investment by reducing energy and material costs
- reducing our reliance on imports and our exposure to the fragile geopolitics of energy supply
- providing a much-needed boost to employment in the expanding 'environmental industries' sector
- making progress towards demanding global carbon reduction targets
- protecting valuable ecological assets and improving the quality of our living environment for generations to come.

In short, a 'green stimulus' is an eminently sensible response to the economic crisis. It offers jobs and economic recovery in the short term, energy security and technological innovation in the medium term, and a sustainable future for our children in the long term.

Nonetheless, the default assumption of even the 'greenest' Keynesian stimulus is to return the economy to a condition of continuing consumption growth. Since this condition is unsustainable, it is

difficult to escape the conclusion that in the longer term something more is needed. A different kind of macro-economic structure is essential for an ecologically-constrained world.

Macroeconomics for Sustainability

There is something odd about the modern refusal to countenance anything but growth at all costs. Early economists such as John Stuart Mill (and indeed Keynes himself) foresaw a time in which growth would have to stop.

Herman Daly's pioneering work defined the ecological conditions of a steady-state economy in terms of a constant stock of physical capital, capable of being maintained by a low rate of material throughput that lies within the regenerative and assimilative capacities of the ecosystem.

What we still miss from this is a viable macro-economic model in which these conditions can be achieved. There is no clear model for achieving economic stability without consumption growth. Nor do any of the existing models account fully for the dependency of the macro-economy on ecological variables such as resources and emissions. In short there is no macro-economics for sustainability and there is an urgent need for one.

Chapter 8 explores the dimensions of this call in more detail. It presents results from two specific attempts to develop a macro-economics of sustainability. One of these suggests that it is possible, under certain assumptions, to stabilise economic output, even within a fairly conventional macro-economy. A crucial role is played by work-time policies in this model, to prevent rising unemployment.

The second model addresses the macro-economic implications of a shift away from fossil fuels. It shows that there may only be a narrow 'sustainability window' through which the economy can pass if it is to make this transition successfully. But crucially, this window is widened if more of the national income is allocated to savings and investment.

These exercises reveal that a new macro-economics for sustainability is not only essential, but possible. The starting point must be to identify clearly the conditions that define a sustainable economy.

These conditions will still include a strong requirement for economic stability as the basis for protecting both people's jobs and their capabilities for flourishing. But this condition will need to be supplemented by conditions that ensure distributional equity, establish sustainable levels of resource throughput and emissions, and provide for the protection of critical natural capital.

In operational terms, there will be important differences in the way that the conventional variables play out in this new macro-economy. The balance between consumption and investment, the split between the public and the private sector spending, the nature of productivity improvements, the conditions of profitability: all of these will have to be re-negotiated.

The role of investment is particularly crucial. Sustainability will need enhanced investment in public infrastructures, sustainable technologies and ecological maintenance and protection. These investments will operate differently from conventional capital spending (Appendix 2) and will have to be judged and managed accordingly.

Above all, a new macro-economics for sustainability must abandon the presumption of growth in material consumption as the basis for economic stability. It will have to be ecologically and socially literate, ending the folly of separating economy from society and environment.

Flourishing – within Limits

Fixing the economy is only part of the problem. Addressing the social logic of consumerism is also vital. This task is far from simple – mainly because of the way in which material goods are so deeply implicated in the fabric of our lives.

But change is essential. And some mandate for that change already exists. A nascent disaffection with consumerism and rising concern over the 'social recession' have prompted a number of initiatives aimed at improving wellbeing and pursuing an 'alternative hedonism' – sources of identity, creativity and meaning that lie outside the realm of the market.

Against the surge of consumerism there are already those who have resisted the exhortation to 'go out shopping', preferring instead to devote their time to less materialistic pursuits, to their family, or to the care of others.

Small scale 'intentional' communities (like the Findhorn community in Scotland or Plum Village in France) are exploring the art of the possible. Larger

social movements (such as the 'transition town' movement) are mobilising people's desire to live more sustainably. These initiatives don't appeal to everyone. But they do provide an invaluable learning ground, giving us clues about the potential for more mainstream social change.

Chapter 9 discusses their strengths and limitations. It explores why people may turn out both to be happier and to live more sustainably when they favour intrinsic goals that embed them in family and community rather than extrinsic ones which tie them into display and social status. Flourishing within limits is a real possibility, according to this evidence.

On the other hand, those at the forefront of social change are often haunted by the conflict of trying to live, quite literally, in opposition to the structures and values that dominate society. These structures represent a culture of consumption that sends all the wrong signals, penalising 'good' environmental choices and making it all but impossible, even for highly-motivated people, to live sustainably without personal sacrifice.

In this context, simplistic exhortations for people to resist consumerism are destined to failure. Urging people to insulate their homes, turn down the thermostat, put on a jumper, drive a little less, walk a little more, holiday at home, buy locally produced food (and so on) will either go unheard or be rejected as manipulation for as long as all the messages about high street consumption point in the other direction.

For this reason, structural change must lie at the heart of any strategy to address the social logic of consumerism. And it must consist in two main avenues. The first is to dismantle the perverse incentives for unproductive status competition. The second must be to establish new structures that provide capabilities for people to flourish – and in particular to participate meaningfully and creatively in the life of society – in less materialistic ways.

The advantages in terms of prosperity are likely to be substantial. A less materialistic society will enhance life satisfaction. A more equal society will lower the importance of status goods. A less growth-driven economy will improve people's work-life balance. Enhanced investment in public goods will provide lasting returns to the nation's prosperity.

Governance for Prosperity

Achieving these goals inevitably raises the question of governance – in the broadest sense of the word. How is a shared prosperity to be achieved in a pluralistic society? How are the interests of the individual to be balanced against the common good? What are the mechanisms for achieving this balance?

Particular questions arise about the role of government itself. Chapter 10 identifies an almost undisputed role for the state in maintaining macro-economic stability. For better or worse, government also 'co-creates' the culture of consumption, shaping the structures and signals that influence people's behaviour. At the same time, of course, government has an essential role to play in protecting the 'commitment devices' that prevent myopic choice and support long-term social goals.

History suggests a cultural drift within government towards supporting and encouraging a materialistic and individualistic consumerism. This drift is not entirely uniform across all countries. For example, different 'varieties of capitalism' place more or less emphasis on de-regulation and competition. But all varieties have a structural requirement for growth, and rely directly or indirectly (eg in export markets) on consumerism to achieve this.

Government itself is conflicted here. On the one hand, it has a role in 'securing the future' – protecting long-term social and ecological goods; on the other it holds a key responsibility for macro-economic stability. For as long as macro-economic stability depends on economic growth, government will have an incentive to support social structures that undermine commitment and reinforce materialistic, novelty-seeking individualism. Particularly where that's needed to boost high street sales.

Conversely, freeing the macro-economy from a structural requirement for growth will simultaneously free government to play its proper role in delivering social and ecological goals and protecting long-term interests.

The narrow pursuit of growth represents a horrible distortion of the common good and of underlying human values. It also undermines the legitimate role of government itself. At the end of the day, the state is society's commitment device, *par excellence*, and the principal agent in protecting our shared prosperity. A new vision of governance that embraces this role is urgently needed.

The Transition to a Sustainable Economy

The policy demands of this analysis are significant. Chapter 11 presents a series of steps that governments could take now to effect the transition to a sustainable economy. Box 1 summarises these steps. They fall into three main categories:

- building a sustainable macro-economy
- protecting capabilities for flourishing
- respecting ecological limits.

The specific proposals flow directly from the analysis in this report. But many of them sit within longer and deeper debates about sustainability, wellbeing and economic growth. And at least some of them connect closely with existing concerns of government – for example over resource scarcity, climate change targets, ecological taxation and social wellbeing.

A part of the aim of this report is to provide a coherent foundation for these policies and help strengthen the hand of government in taking them forward. For at the moment, in spite of its best efforts, progress towards sustainability remains painfully slow. And it tends to stall endlessly on the over-arching commitment to economic growth. A step change in political will – and a renewed vision of governance – is essential.

But there is now a unique opportunity for government – by pursuing these steps – to demonstrate economic leadership and at the same time to champion international action on sustainability. This process must start by developing financial and ecological prudence at home. It must also begin to redress the perverse incentives and damaging social logic that lock us into unproductive status competition.

Above all, there is an urgent need to develop a resilient and sustainable macro-economy that is no longer predicated on relentless consumption growth. The clearest message from the financial crisis of 2008 is that our current model of economic success is fundamentally flawed. For the advanced economies of the Western world, prosperity without growth is no longer a utopian dream. It is a financial and ecological necessity.

Box 1: 12 Steps To a Sustainable Economy

Building a Sustainable Macro-Economy

Debt-driven materialistic consumption is deeply unsatisfactory as the basis for our macro-economy. The time is now ripe to develop a new macro-economics for sustainability that does not rely for its stability on relentless growth and expanding material throughput. Four specific policy areas are identified to achieve this:

1. Developing macro-economic capability
2. Investing in public assets and infrastructures
3. Increasing financial and fiscal prudence
4. Reforming macro-economic accounting

Protecting Capabilities for Flourishing

The social logic that locks people into materialistic consumerism is extremely powerful, but detrimental ecologically and psychologically. A lasting prosperity can only be achieved by freeing people from this damaging dynamic and providing creative opportunities for people to flourish – within the ecological limits of the planet. Five policy areas address this challenge.

5. Sharing the available work and improving the work-life balance
6. Tackling systemic inequality
7. Measuring capabilities and flourishing
8. Strengthening human and social capital
9. Reversing the culture of consumerism

Respecting Ecological Limits

The material profligacy of consumer society is depleting natural resources and placing unsustainable burdens on the planet's ecosystems. There is an urgent need to establish clear resource and environmental limits on economic activity and develop policies to achieve them. Three policy suggestions contribute to that task.

10. Imposing clearly defined resource/emissions caps
11. Implementing fiscal reform for sustainability
12. Promoting technology transfer and international ecosystem protection.

For further details see pages 103-107

1

Introduction

"I think all of us here today would acknowledge that we've lost that sense of shared prosperity."

Barack Obama
March 2008[1]

Prosperity is about things going well for us – in accordance with (*pro-* in the Latin) our hopes and expectations (*speres*). Wanting things to go well is a common human concern. It's understood that this sense of things going well includes some notion of continuity. We are not inclined to think that life is going well, if we confidently expect things to fall apart tomorrow. There is a natural tendency to be at least partly concerned about the future.

There is also a sense in which individual prosperity is curtailed in the presence of social calamity. That things are going well for us personally is of little consolation if our family, our friends and our community are in dire straits. In both these senses – of caring about the future and of caring about others – prosperity has something in common with the concept of sustainability. The broad aim of this report is to explore that relationship – between prosperity and sustainability – in more detail.

At the heart of this exploration is a simple question: what can prosperity possibly mean in a finite world with a rising population that is expected to exceed nine billion people within decades?[1]

One response – perhaps the most familiar one – is to cast prosperity in economic terms and to recommend a continual rise in national (and global) economic output, with a corresponding increase in people's incomes. This response has an appealing logic for the world's poorest nations, where 20% of the population earn just 2% of the world's income. A meaningful approach to prosperity must certainly address the plight of the one billion people across the world who are living on less than $1 a day – half the price of a small cappuccino in Starbucks.[2]

But prosperity is not synonymous with income or wealth. Rising prosperity is not the same thing as economic growth. Until quite recently, prosperity was not cast specifically in terms of money at all; it was simply the opposite of adversity or affliction.[3] The concept of economic prosperity – and the elision of rising prosperity with economic growth – is a modern construction. It is a construction that has come under considerable criticism.

Economic growth, claim its critics, doesn't always increase our prosperity. On the contrary, it can detract from it in various ways. Perhaps most relevant here, the material implications of economic growth lead to the depletion of natural resources and the degradation of the environment, impoverishing both present and future generations. Climate change, depletion of oil resources, water scarcity, the collapse of fish stocks and the chronic loss of biodiversity are a few of these material concerns.[4]

Particular urgency pertains to the twin challenges of climate change and 'peak oil'.[i] In the first case, we can probably keep the economy going for a while even as we head towards the cliff. But as Sir Nicholas Stern has argued, costs will be punishingly high when the crunch comes. Early investment in the transition to a low carbon society is vital to avoid economic collapse later on.[5]

In the second case, oil price hikes have already shown they have the potential to destabilise the global economy and threaten basic securities. Fears peaked in July 2008 when oil prices reached $147 a barrel. Though prices fell sharply in the following months, the threat of peak oil hasn't gone away. The International Energy Agency estimates that the 'peak' could arrive as early as 2020. Other commentators believe it could be even sooner.[6]

Beyond these ecological concerns lie social ones. There is disturbing evidence that both the benefits and the costs of economic growth are unevenly distributed. The continuing disparities between rich and poorer nations are unacceptable from a humanitarian point of view and generate rising social tensions: real hardships in the most disadvantaged communities have a spill-over effect on society as a whole.[7]

Finally, the continued pursuit of economic growth (beyond a certain point at least) does not appear to advance and may even impede human happiness. Talk of a growing 'social recession' in advanced economies has accompanied the relative economic success of the last decade.[8]

[i] Peak oil is the term used to describe the point at which global oil output reaches a peak, before entering a terminal decline.

These three related arguments – ecological, social and psychological – are now well-rehearsed in the literature on sustainability (and on happiness). It is not the aim of this study to dwell on them in detail. Rather the intention is to turn the relationship between rising prosperity and economic growth on its head. If economic growth and rising prosperity are not the same thing, and since growth can damage both people and planet, should we not perhaps think about doing without growth, at least in the richer nations?

Clearly such a prospect is problematic in the poorest countries. But the conditions of living in cosmopolitan Europe or the USA are a far cry from the abject poverty of rural Africa and parts of South Asia and Latin America.

In a world of finite resources, constrained by strict environmental limits, still characterised by 'islands of prosperity' within 'oceans of poverty',[9] are ever-increasing incomes for the already-rich really a legitimate focus for our continued hopes and expectations? Is there some other path towards a more sustainable, a more equitable form of prosperity?

In short, this report challenges the assumption of continued economic expansion in rich countries and asks: is it possible to achieve prosperity *without* growth?

Some would say it's ironic to be asking such questions when economic stability is itself under threat and the world struggles with global recession. Raising deep, structural questions about the nature of prosperity in this climate might seem inopportune if not insensitive. 'That is not what people are interested in when financial markets are in turmoil,' admits George Soros of his own attempt to dig deeper into the global credit crisis.[10] But there are several reasons not to postpone this inquiry until the economy looks brighter.

The first is that the cumulative impacts of economic growth – climate change, resource depletion, social recession, for example – are unlikely to go away, just because growth slows down in the advanced economies. Some may get better, temporarily. But some of them may even get worse.

The second is that the current state of the economy and the concerns of this report are not unrelated. On the contrary, as we see in Chapter 2, it is impossible to ignore the influence of financial markets and commodity prices in the relationship between growth and prosperity. This interrelatedness has not gone unnoticed amongst world leaders. Speaking on the opening day of the 2008 G8 Summit in Hokkaido, UN Secretary General Ban Ki-Moon referred to the problems of climate change, soaring food prices and development as 'deeply interconnected' crises that need to be addressed simultaneously.[11]

The economist Peter Victor, one of the contributors to the SDC's *Redefining Prosperity* project, has argued that our overriding challenge is to build economies which are 'slower by design, not by disaster'.[12] But if the current economic crisis really does indicate (as some predict) the end of an era of easy growth, then the concerns of this report are doubly relevant. Prosperity without growth is a very useful trick to have up your sleeve when the economy is going down the pan.

Perhaps most telling of all is the clear window of opportunity – and overwhelming imperative – that now exists for change. In the face of economic collapse, governments have an undisputed duty to intervene. Public investment is essential. Restructuring is inevitable. Targeting these interventions towards sustainability makes obvious sense.

In short, there is no better time to make progress towards a more sustainable society. To invest in renewable technologies that will reduce both carbon emissions and our dependence on finite resources. To renew our financial and social institutions and create a fairer world. To invest in the jobs and skills that these tasks demand. To initiate the transition to a sustainable economy.

Whatever the state of the economy, the central question addressed in this report is undiminished. It has haunted debates on sustainable development for several decades. And in a very real sense, now may be the best possible time to make some clear progress in answering it. That at any rate is the intention of the following pages.

2

The Age of Irresponsibility

"This has been an age of global prosperity. It has also been an era of global turbulence. And where there has been irresponsibility, we must now clearly say: the age of irresponsibility must be ended."

Gordon Brown
September 2008[1]

The conventional formula for achieving prosperity relies on the pursuit of economic growth. Higher incomes will increase wellbeing and lead to prosperity for all, in this view.

This report challenges that formula. It questions whether economic growth is still a legitimate goal for rich countries like the UK, in the context of the huge disparities in income and wellbeing that persist across the globe and the constraints of living within finite environmental limits. It explores whether the benefits of continued economic growth still outweigh the costs and scrutinises the assumption that growth is essential for prosperity. In short, it asks: is it possible to have prosperity *without* growth?

This question was thrown into sharp relief during the course of writing the report. The banking crisis of 2008 led the world to the brink of financial disaster and shook the dominant economic model to its foundations. It redefined the boundaries between market and state and forced us to confront our inability to manage the financial – let alone social or environmental – sustainability of the global economy.

Consumer confidence has been shattered. Investment has stalled and unemployment is rising sharply. Advanced economies (and some developing countries) are faced with the prospect of a deep and long-lasting recession. Public sector finances will be stretched for a decade or more. Trust in financial markets will suffer for some considerable time to come. Not to stand back now and question what happened would be to compound failure with failure: failure of vision with failure of responsibility.

In search of villains

The causes of the crisis were complex. The most prominent villain was taken to be subprime lending in the US housing market. Some highlighted the unmanageability of the 'credit default swaps' used to parcel up 'toxic debts' and hide them from the balance sheet. Others pointed the finger of blame at greedy speculators and unscrupulous investors intent on making a killing at the expense of vulnerable institutions.

A dramatic rise in basic commodity prices during 2007 and early 2008 (Figure 1) certainly contributed to economic slowdown by squeezing company margins and reducing discretionary spending. At one point in mid-2008, advanced economies were facing the prospect of 'stagflation' – a simultaneous slow-down in growth with a rise in inflation – for the first time in thirty years. Oil prices doubled in the year to July 2008, while food prices rose by 66%, sparking civil unrest in some poorer nations.[2]

All of these can be counted as contributory factors. None on their own offers an adequate explanation for how financial markets managed to destabilise entire economies. Why loans were offered to people who couldn't afford to pay them off. Why regulators failed to curb individual financial practices that could bring down monolithic institutions. Why unsecured debt had become so dominant a force in the economy. And why Governments had consistently turned a blind eye or actively encouraged this 'age of irresponsibility'.

Political response to the crisis provides us with some clues. By the end of October 2008, governments across the world had committed a staggering $7 trillion of public money – over three times the Gross Domestic Product (GDP) of the UK – to securitise risky assets, underwrite threatened savings and recapitalise failing banks.[3] No one pretended that this was anything other than a short-term and deeply regressive solution. A temporary fix that rewarded those responsible for the crisis at the expense of the taxpayer. It was excused on the grounds that the alternative was simply unthinkable.

Collapse of the financial markets would have led to a massive and completely unpredictable global recession. Entire nations would have been bankrupted. Commerce would have failed *en masse*. Livelihoods would have been destroyed. Homes would have been lost. The humanitarian cost of failing to save the banking system would have been enormous. Those who resisted the US's Troubled Assets Relief Program (TARP) on its first reading through Congress appeared oblivious to these consequences, inflamed as they were with

understandable indignation over the unjustness of the solution.

But the harsh reality was that politicians had no choice but to intervene in the protection of the banking sector. In the language of the media, Wall Street is the lifeblood of Main Street. The health of the modern economy hangs on the health of the financial sector. Anything less than total commitment to its survival would have been unthinkable. The appropriate goal of policy at that point in time was incontestably to stabilise the system: to reassure savers, to encourage investors, to assist debtors, to restore confidence in the market. Very much as governments around the world tried to do.

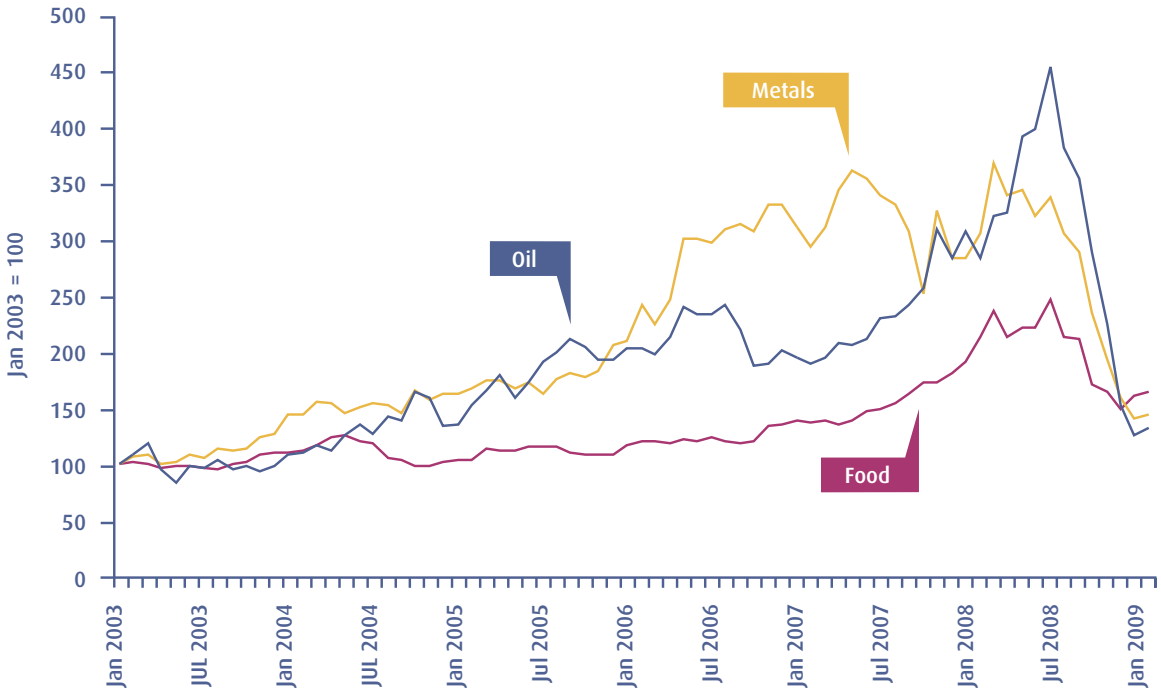
They were only partially successful – halting an immediate slide into chaos but failing to avert the prospect of a deep recession across the world. This prompted a further round of economic recovery packages early in 2009 which aimed to 'kick-start' consumer spending, protect jobs, and stimulate economic growth again. In Chapter 7 we explore some of these 'stimulus packages' in more detail.

It was abundantly clear, by the time the World Economic Forum met in Davos in February 2009, that a little reflection was in order. Political leaders, economists and even financiers accept the point. The suspension of practices like short-selling; increased regulation of financial derivatives; better scrutiny of the conditions of lending: all of these became widely accepted as inevitable and necessary responses to the crisis. There was even a grudging acceptance of the need to cap executive remuneration in the financial sector.

Admittedly, this was born more of political necessity in the face of huge public outcry over the bonus culture than through recognition of a point of principle. In fact, huge executive bonuses were still being paid. Goldman Sachs paid out $2.6 billion in end of year (2008) bonuses in spite of its $6 billion dollar bailout by the US government, justifying these on the basis that they helped to 'attract and motivate' the best people.[5]

But even these responses were seen as short-term interventions, designed to facilitate the restoration of business as usual. Short-selling was suspended for six months, rather than banned. The part-nationalisation of financial institutions was justified on the basis that shares would be sold back to the private sector as soon as reasonably possible. The capping of executive remuneration was 'performance related'.

Figure 1 **Global Commodity Prices: Jan 2003 – Feb 2009**[4]



Extraordinary though some of these interventions were, they were largely regarded as temporary measures. Necessary evils in the restoration of a free market economy. Their declared aim was clear. By pumping equity into the banks and restoring confidence to lenders, the world's leaders hope to re-invigorate demand and halt the recession.

Their ultimate goal was to protect the pursuit of economic growth. Throughout the crisis, this has been the one non-negotiable: that growth must continue at all costs. Renewed growth was the end that justified interventions unthought of only a few months previously. No politician seriously questions it.

Yet question it we must. Allegiance to growth was the single most dominant feature of an economic and political system that led the world to the brink of disaster. The growth imperative has shaped the architecture of the modern economy. It motivated the freedoms granted to the financial sector. It stood at least partly responsible for the loosening of regulations, the over-extension of credit and the proliferation of unmanageable (and unstable) financial derivatives.

The labyrinth of debt

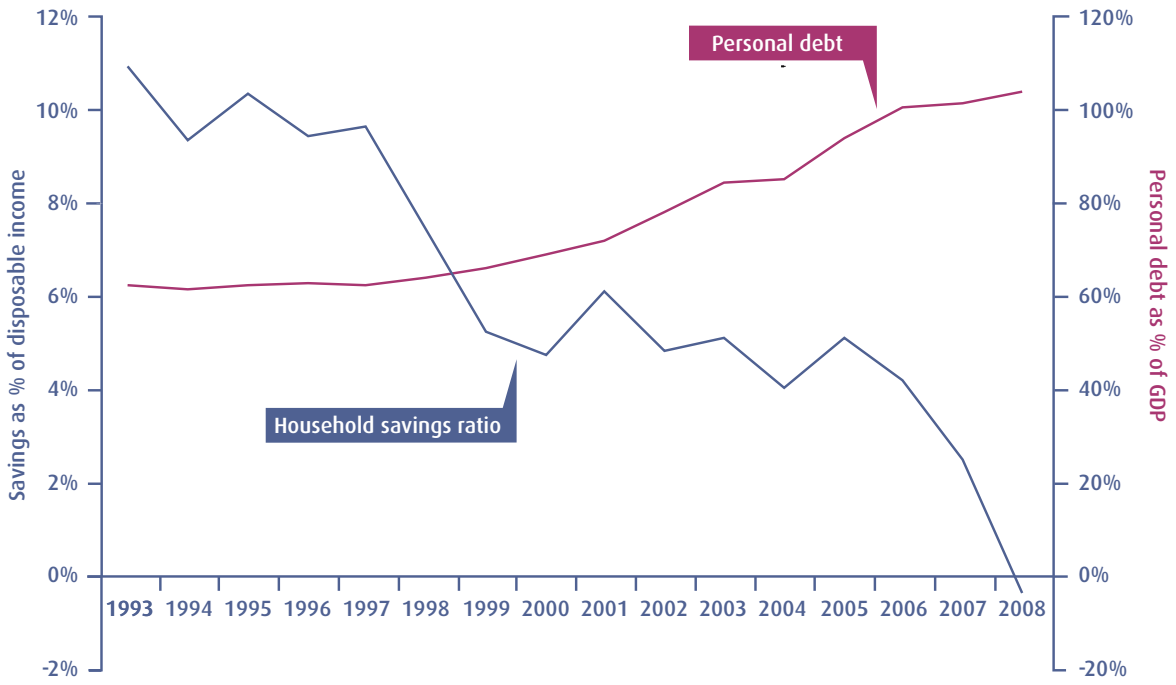
In fact, it is generally agreed that the unprecedented consumption growth between 1990 and 2007 was fuelled by a massive expansion of credit and increasing levels of debt (Box 2). One aspect of this was the rise and rise of consumer indebtedness. Over the course of more than a decade consumer debt served as a deliberate mechanism for freeing personal spending from wage income and allowing consumption to drive the dynamics of growth.

Not all economies were equally susceptible to this dynamic. Indeed it's a feature of the system of debt that for one part of the global economy to be highly indebted, another part must be saving hard. During the first decade of the 21st Century, the savers were largely in the emerging economies. The savings rate in China during 2008 was around 25% of disposable income, while in India it was even higher at 37%.

There were also clear differences between the so-called 'liberal' and 'coordinated' market economies', with the former typically showing higher levels of consumer indebtedness than the latter.[6] The UK and the US were particularly vulnerable to the problem.

Personal debt in the UK more than doubled in less than a decade. Even during 2008, as recession loomed, it was growing at the rate of £1m every 11 minutes. Though the rate of growth slowed down – as it tends to do in a recession – by the end of 2008, the cumulative personal debt still stood at almost £1.5 trillion, higher than the GDP for the second year running.[7] Savings, on the other hand, had plummeted. During the first quarter of 2008, the household savings ratio in the UK fell below zero for the first time in four decades (Figure 2).

Figure 2 **UK Consumer Debt and Household Savings 1993–2008**[8]



Box 2: Debt in Perspective

Lending and borrowing money is (in normal times at least) a fundamental feature of the modern economy (see Chapter 6). Households, companies and governments all participate both in lending (e.g. through savings and investments) and in borrowing (e.g. through loans, credit accounts and mortgages). Financial debts (sometimes called liabilities) are the accumulated money owed at any one point in time by a person, a firm, a government or indeed the nation as a whole.

A fundamental principle of capitalism is that these accumulated liabilities attract interest charges over time. Debt rises in two ways: firstly by borrowing more money (e.g. for increased public spending); and secondly through interest accumulated on the debt. For any given interest rate, a higher level of debt places a greater demand on people's income to pay off the interest and stop the debt accumulating.

Some of this requirement could be met from revenues generated by people's own financial 'assets' or savings. By participating in the economy both as savers and as borrowers, people can try and balance their financial liabilities (money borrowed) against their financial assets (money lent). The extent to which it 'matters' how much debt we hold depends (in part) on this balance between assets and liabilities. And as the current crisis has shown, on the financial reliability of the assets.

Three aspects of debt have attracted media and policy attention over the last decade: personal debt, the national debt and the gross external debt. Though all are concerned with money owed, these debts are quite different and have different policy implications. The following paragraphs set out the key elements of each and their relevance for economic sustainability.

Personal Debt

Personal (or consumer) debt is the amount of money owed by private citizens. It includes home loans, credit card debt and other forms of consumer borrowing. Personal debt in the UK is currently dominated by home loans, which at the end of 2008 comprised 84% of total. For as long as the value of homes continued to rise people's financial liabilities (home loans) were offset by the value of their physical assets (homes). Problems arise when house values collapse. Liabilities are no longer balanced by assets. When this is compounded (as in a recession) by falling incomes, debt – and the financial viability of households – becomes highly unstable. Like much of the growth economy (Chapters 4 and 6), financial stability turns out to be dependent in an unsustainable way on growth – in this case growth in the housing market.

National Debt

The national (or public sector) debt is the money that government owes to the private sector.[9] When a government continually runs a deficit (i.e. spends more than it receives in revenues) the national debt rises. Just as for households, reducing the debt is only possible when the public sector runs a surplus (i.e. it spends less than it receives). Increased debt is a common feature of public finances during recession. But servicing this debt – without compromising public services – depends heavily on future government revenues increasing. This can happen in only three ways. First, by achieving the desired aim of growth. Second, by increasing the tax rate. And third, by using the debt to invest in productive assets with positive returns to the public purse. A continually rising public debt in a shrinking economy is a recipe for disaster.

External debt

The total debt held outside the country by government, business and households is called the external debt. The sustainability of this debt depends on a complex mix of factors, including the extent to which it is balanced by external 'assets', the form of both assets and liabilities (including the currency in which they are held) and the relative strength of domestic currency on the international market. Particular pressure is placed on an economy when its economy is shrinking and its currency is losing value. In extreme circumstances, a country may find itself unable to attract investors willing to support its spending and unable to liquidate its assets to compensate for this. At this point the level of external debt relative to the GDP becomes critical. Calling in debts worth almost five times the national income (as in the UK) would be catastrophic.

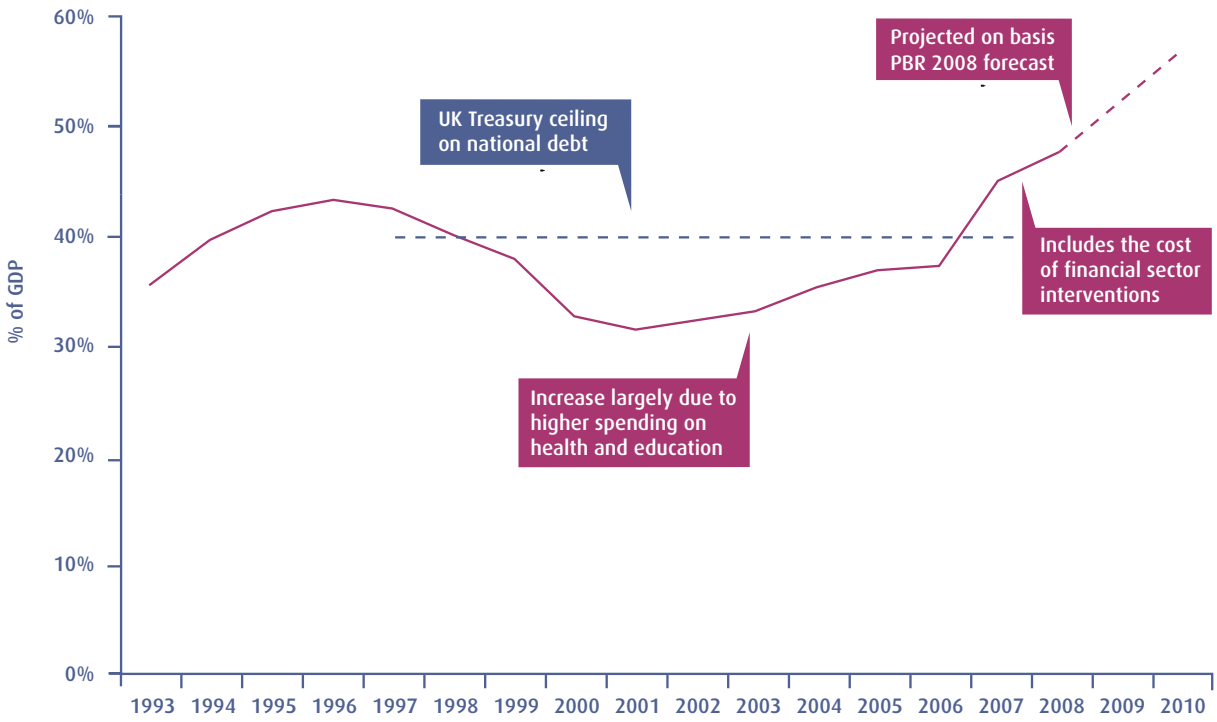
People are encouraged into debt by a complex mix of factors including (Chapter 6) the desire for social status and the drive to boost high street sales. But when this strategy becomes unstable – as it did during 2008 – it places large sections of the population at risk of lasting financial hardship. Inevitably, that risk falls mainly on those who are most vulnerable already – the lower income groups who profited less from the last two decades of growth.[10] Far from delivering prosperity, the culture of 'borrow and spend' ends up detracting from it.

The same vulnerability can afflict the nation as a whole. There are different kinds of indebtedness at the national level (Box 2). One of the key measures is the national – or public sector – debt which measures how much government owes to the private sector. This can vary widely across nations. France, Germany, Canada and the US all have public sector debts above 60% of GDP. Italy and Japan hold public sector debts that are higher than their GDP. Norway by contrast holds no public debt at all and on the contrary has enormous financial assets.

In the UK, public sector debt rose sharply through the financial crisis (Figure 3). This was in part a result of the increased borrowing needed to protect the banks and fund economic recovery. By the end of 2008, the national debt was already higher than at any time since the early 1980s, well above the Treasury's self-imposed ceiling of 40% of the GDP and rising fast. The UK Government's own calculations had public sector borrowing rising from 2.6% of GDP in 2008 to 8% within a year or so. And the Government accepted that this would push national debt to almost 60% of GDP by 2010. Crucially, this figure excluded the costs of purchasing equity in the part-nationalised banks.[11]

Public sector debt is not in itself a bad thing. It simply reflects the amount of money that government owes to the private sector. This includes money saved by its own citizens. And the idea that citizens hold a financial interest in the public sector has some clear advantages. It can be thought of as part of the 'social contract' between citizen and state. But when the household savings rate collapses (Figure 2) and the national debt rises (Figure 3), further borrowing increases what is called the external debt (Box 1) – the money a country borrows from outside its own boundaries. This inevitably exposes the nation to the volatility of international markets.

Figure 3 **The UK Net Public Sector Debt: 1993–20081**[2]



Some countries may be better placed than others to weather this volatility. External debt varied widely across nations (Figure 4) during 2007/8, from as little as 5% of GDP (in China and India for example) to over 900% of GDP (in Ireland). In the UK, the gross external debt increased seven and a half times in the space of just two decades. By the end of 2008, it was equivalent to almost five times the GDP and ranked as the second highest absolute level of external debt in the world after the US.

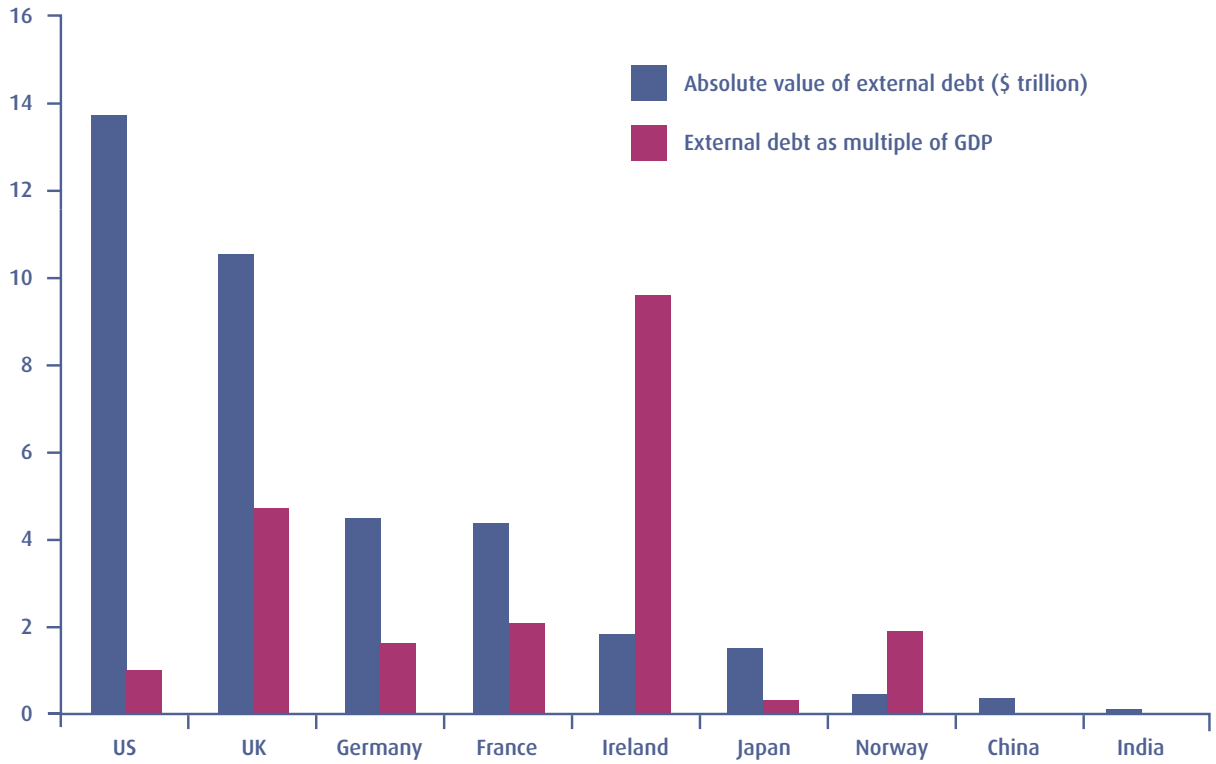
These external liabilities were set off – at least in part – by a higher than usual level of external assets. But in an unstable market this placed the UK in a vulnerable financial position. More to the point, as the International Monetary Fund points out, this position was deliberately courted by the UK in its role as an international centre of finance.

The architecture of financial recovery in the wake of the 2008 crisis – and in particular the role of the public sector as an equity-holder in the banks – owed much to the UK Prime Minister, Gordon Brown. In this respect, the UK Government attracted deserving praise for its response to the crisis. Part-nationalising the banks may have been suboptimal from a free market perspective but it was considerably more progressive than simply pumping in cash or guarantees to ensure liquidity. At least it allowed for the possibility of a financial return to the public purse.

At the same time, what became clear through the crisis was the extent to which economic policy over two decades had positioned the UK slap bang across an emerging fault line in the financial sector. High levels of consumer debt and the second highest level of external debt in the world were not just accidental features of economic life, but the result of specific policies to increase liquidity and boost spending. The one area of fiscal prudence in the UK – a relatively low level of public sector debt – became the first casualty of the collapse.

This is not to suggest that the UK is alone in facing the severity of the current crisis. On the contrary, in an increasingly globalised world, it was difficult for any country to escape this recession. Even those economies – like Germany, Japan and China – which retained strong manufacturing sectors, largely avoided consumer debt and delivered strong public sector surpluses – suffered. During the last quarter

Figure 4 **Gross External Debt across Nations (2007/8)**[13]



of 2008, Germany's economy sank faster than any other European nation, contracting by 2.1%.[14]

Ironically, these economies built their stability not on domestic consumption growth but on consumption growth abroad. Unable to persuade their own consumers to spend rather than save, they achieved growth by exporting to countries like the US and the UK where consumers were still prepared to spend rather than save. When credit collapsed and consumer spending slowed everywhere, there were knock-on impacts for everyone.

So the sense that economic policy consciously flirted with financial risk goes much wider than the UK's dalliance in the banking sector. In fact, the roots of the crisis lie at least in part in a concerted effort to free up credit for economic expansion across the world.

In *The New Paradigm for Financial Markets*, George Soros traces the emergence of what he calls a 'super-bubble' in global financial markets to a series of economic policies to increase liquidity as a way of stimulating demand. Loosening restraints on the US Federal Reserve, de-regulating financial markets and promoting the securitisation of debts through complex financial derivatives were also deliberate interventions. Their overriding aim was to promote economic growth.[15]

In other words, the market was not undone by isolated practices carried out by rogue individuals. Or even through the turning of a blind eye by less than vigilant regulators. It was undone by growth itself.

The enemy within

Securitisation of mortgage debts (for example) was championed at the highest level, spearheaded by Alan Greenspan, former chairman of the Federal Reserve. In *The Age of Turbulence*, Greenspan defends the practice explicitly, arguing that 'transferring risk away from... highly leveraged loan originators can be critical for economic stability, especially in a global environment.'[16]

In testimony to US Congress in late October 2008, Greenspan admitted to being 'shocked' that markets hadn't worked as expected.[17] But this only underlines the point that these interventions were deliberate. All along the way, decisions to increase liquidity were made with a view to expanding the economy. 'Amid the crisis of 2008', remarked an *Economist* leader article, 'it is easy to forget that liberalisation had good consequences as well: by making it easier for households and businesses to get credit, deregulation contributed to economic growth.'[18]

For over two decades, deregulation of financial markets was championed under monetarism as the best way to stimulate demand. The monetarists may have been reacting against the levels of public debt incurred by Keynesian spending programmes in the 1970s.[19] But a strategy that ended up replacing public debt with private debt was always a risky one. 'When the music stops, in terms of liquidity, things will be complicated,' the CEO of Citibank reportedly remarked, just before the bubble burst. 'But as long as the music is playing, you've got to get up and dance. We're still dancing.'[20]

By the end of 2008, Citibank was no longer dancing. No bank was. The music had clearly stopped – and things were definitely complicated.[21] Just how complicated was indicated by the sheer size of the international bail-out. And the fact that even an estimated $7 trillion of taxpayers' money proved insufficient to guarantee stability and avoid recession.

In short, the message from this chapter is that the 'age of irresponsibility' is not about casual oversight or individual greed. The economic crisis is not a consequence of isolated malpractice in selected parts of the banking sector. If there has been irresponsibility, it has been much more systemic, sanctioned from the top, and with one clear aim in mind: the continuation and protection of economic growth.

The realisation that the credit crisis and the ensuing recession were part of a systemic failure in the current economic paradigm is reinforced by an understanding of the resource and environmental implications of economic growth.

The commodity price 'bubble' that developed over several years and peaked in mid-2008 had clearly burst by the end of the year (Figure 1). It now seems likely that the very high prices attributed to key commodities in mid-2008 were in part the result

of speculation and in part the result of identifiable supply-side problems such as limited refinery capacity in the face of high demand.

But this short-term bubble sat on top of a rising trend in commodity prices that cannot entirely be explained away in these terms. Environmental factors, resource and land scarcities, also played a key part and will inevitably continue to do so as the economy recovers. Concerns around peak oil and gas are already gathering momentum. The natural rate of decline in established oil fields is now believed to be as high as 9% a year.[22]

Economic expansion in China and the emerging economies has accelerated the demand for fossil fuels, metals, and non-metallic minerals (see Chapter 5) and will inevitably reduce the reserve life of finite resources. The competition for land between food and biofuels clearly played a part in rising food prices. And these demands in their turn are intimately linked to accelerating environmental impacts: rising carbon emissions, declining biodiversity, rampant deforestation, collapsing fish stocks, declining water supplies and degraded soils.

The material and environmental impacts of growth were paramount in prompting this inquiry. The economic crisis may appear to be unrelated; but it is not. The age of irresponsibility demonstrates a long-term blindness to the limitations of the material world. This blindness is as evident in our inability to regulate financial markets as it is in our inability to protect natural resources and curtail ecological damage. Our ecological debts are as unstable as our financial debts. Neither is properly accounted for in the relentless pursuit of consumption growth.

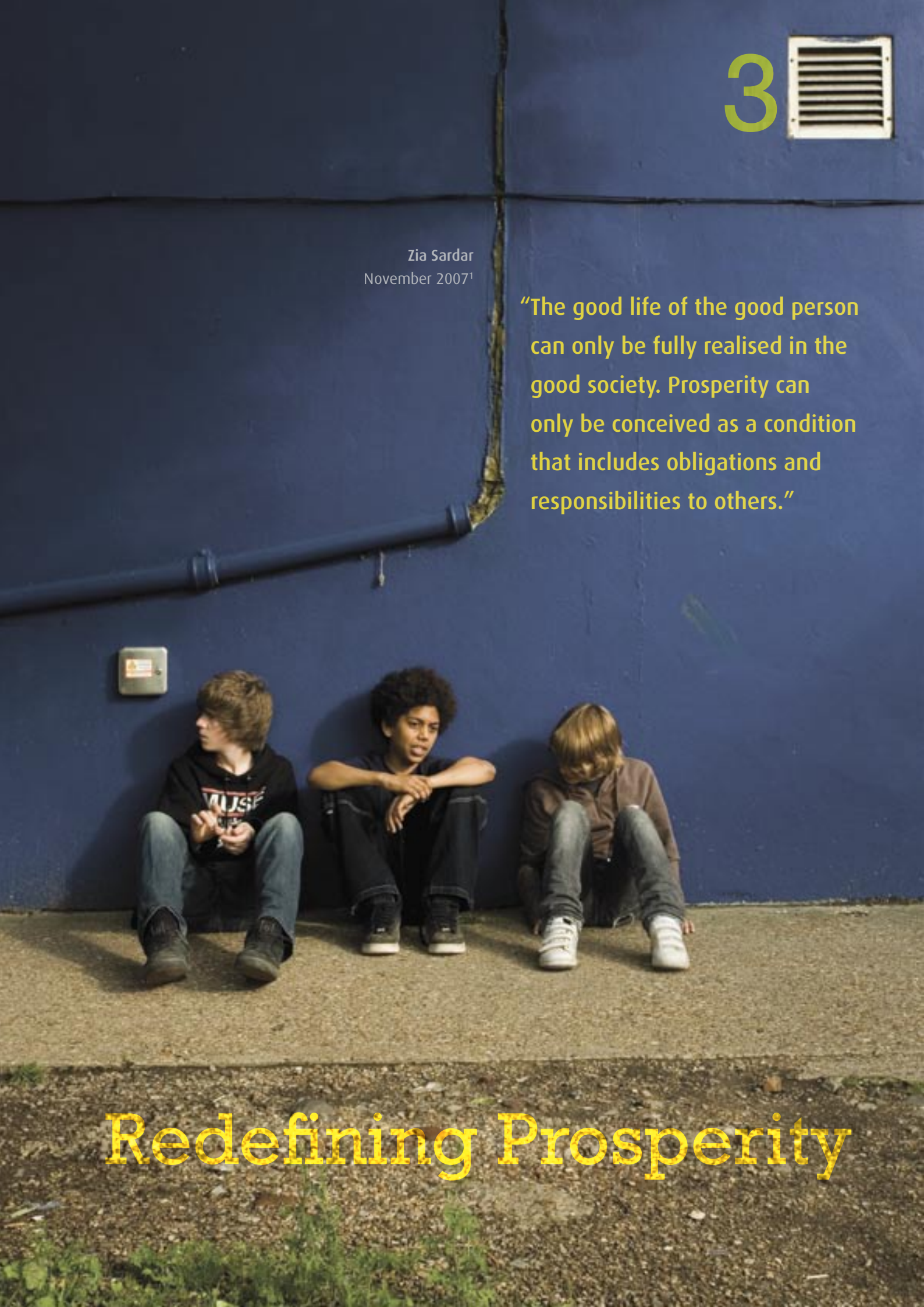
To protect economic growth we have been prepared to countenance – and have even courted – unwieldy financial and ecological liabilities, believing that these are necessary to deliver security and keep us from collapse. But this was never sustainable in the long-term. The financial crisis has shown us that it isn't even sustainable in the short-term.

The truth is that we have failed to get our economies working sustainably even in financial terms. For this reason, responses to the crisis which aim to restore the status quo are deeply misguided and doomed to failure. Prosperity today means nothing if it undermines the conditions on which prosperity tomorrow depends. And the single biggest message from the financial meltdown of 2008 is that tomorrow is already here.

3

Zia Sardar
November 2007[1]

"The good life of the good person can only be fully realised in the good society. Prosperity can only be conceived as a condition that includes obligations and responsibilities to others."



Redefining Prosperity

The prevailing vision of prosperity as a continually expanding economic paradise has come unravelled. Perhaps it worked better when economies were smaller and the world was less populated. But if it was ever fully fit for purpose, it certainly isn't now.

Climate change, ecological degradation and the spectre of resource scarcity compound the problems of failing financial markets and lengthening recession. Short-term fixes to prop up a bankrupt system aren't good enough. Something more is needed. An essential starting point is to set out a coherent notion of prosperity that doesn't rely on default assumptions about consumption growth.

Accordingly, this chapter searches for a different kind of vision for prosperity: one in which it is possible for humans beings to flourish, to achieve greater social cohesion, to find higher levels of wellbeing and yet still to reduce their material impact on the environment.

A part of the aim of the SDC's *Redefining Prosperity* study was to explore this possibility. A key finding from the study was that, beyond the narrow economic framing of the question, there are some strong competing visions of prosperity. Some of these visions hail from psychology and sociology; others from economic history. Some draw on secular or philosophical viewpoints; others from the religious or 'wisdom' traditions.[2]

There are differences between these approaches. But there are also some striking similarities. Many perspectives accept that prosperity has material dimensions. It is perverse to talk about things going well if you lack the basic material resources required to sustain yourself: food and water to be adequately nourished or materials for clothing and shelter. Security in achieving these aims is also important.

But from at least the time of Aristotle, it has been clear that something more than material security is needed for human beings to flourish. Prosperity has vital social and psychological dimensions. To do well is in part about the ability to give and receive love, to enjoy the respect of your peers, to contribute useful work, and to have a sense of belonging and trust in the community. In short, an important component of prosperity is the ability to participate freely in the life of society.[3]

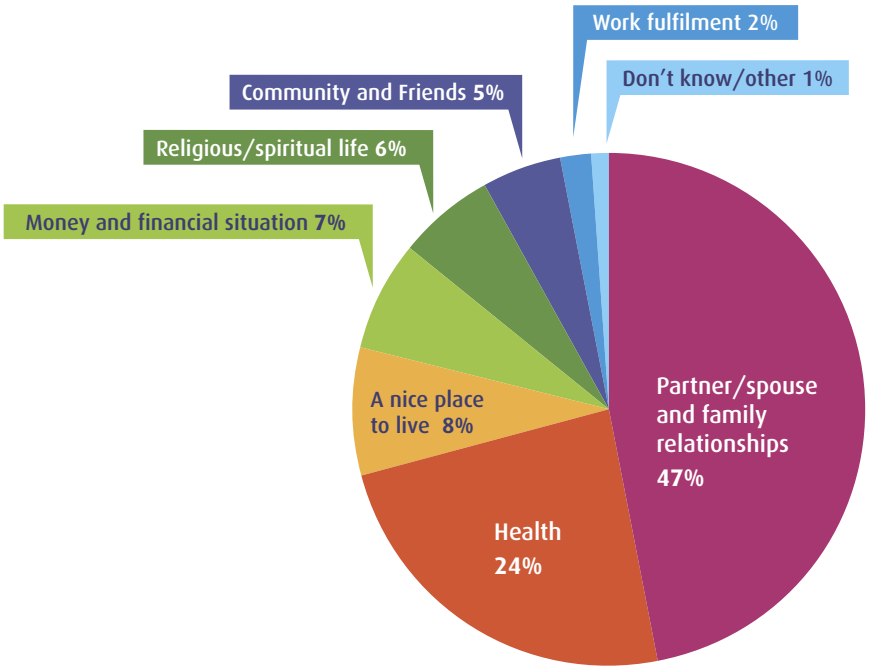
Some approaches suggest a 'transcendental' need in human beings. For the more religious perspectives this may entail belief in some higher power. But even secular understandings accept that the human psyche craves meaning and purpose in life.

Some perspectives – particularly from the wisdom traditions – add in an important moral or ethical component to prosperity. Islamic commentator Zia Sardar makes this point very clearly in his contribution to *Redefining Prosperity*. 'Prosperity can only be conceived,' he writes, 'as a condition that includes obligations and responsibilities to others'.[4] The same principle is enshrined in the Quaker's *Moral Economy Project*.[5] My prosperity hangs on the prosperity of those around me, these traditions suggest, as their's does on mine.

There is an interesting overlap between components of prosperity and the factors that are known to influence subjective wellbeing or 'happiness' (Figure 5). Indeed, to the extent that we are happy when things go well and unhappy when they don't, there is clearly some connection between prosperity and happiness. This doesn't necessarily mean that prosperity is the same thing as happiness. But the connection between the two provides a useful link into recent policy debates about happiness and subjective wellbeing.[6]

In fact, there are at least three different candidates on offer here as concepts of prosperity. It's useful to distinguish carefully between them. Perhaps the easiest way to do this is to borrow from Amartya Sen, who set out the distinctions very clearly in a landmark essay on 'the living standard' first published in 1984.[8] One of Sen's concepts was characterised by the term *opulence*; another, by the term *utility*; and a third through the idea of *capabilities for flourishing*.

Figure 5 **Factors influencing subjective wellbeing (happiness)**[7]



Prosperity as opulence

Broadly speaking, Sen's first concept – opulence – corresponds to a conventional understanding that prosperity is about material satisfactions. Opulence refers to the ready availability and steady throughput of material commodities. An increase in the volume flow of commodities represents an increase in prosperity. The more we have the better off we are, in this view.

The logic of abundance as the basis for doing well dates back to Adam Smith. In those days providing material commodities to meet the necessities of life was a priority. But it is pretty straightforward to see that this simple equation of quantity with quality, of more with better, is false in general. Even economic theory recognises this limitation. The 'diminishing marginal utility' of goods (indeed of income itself) reflects the fact that having more of something usually provides less additional satisfaction.

The sense that more can sometimes be less provides the beginnings of an understanding of the dissatisfactions of the consumer society (Chapter 9). It also offers a strong humanitarian argument for redistribution.

When you've had no food for months and the harvest has failed again, any food at all is a blessing. When the American style fridge-freezer is already stuffed with overwhelming choice, even a little extra might be considered a burden, particularly if you're tempted to eat it. Once my appetite for strawberries, say, is sated, more of them provide no further joy at all. On the contrary, they may even make me feel ill. And if I'm tempted to ignore these bodily feedback mechanisms against excess I will find myself on the road to obesity and ill-health: outcomes which it is nonsensical to describe as desirable or satisfying.

Prosperity as utility

Quantity is not the same thing as quality. Opulence is not the same thing as satisfaction. Sen's second characterisation of prosperity – as utility – recognises this. Rather than focusing on the sheer volume of commodities available to us, this second version relates prosperity to the satisfactions which commodities provide.[9]

Though it is easy enough to articulate this difference, it is more difficult to define exactly how commodities relate to satisfaction, as many people have noted.[10] The one thing that's pretty easy to figure out is that the relationship is highly non-linear. Even something

as basic as food doesn't follow a simple linear pattern in which more is always better.

There's a particularly important complexity here. Increasingly, the uses to which we put material commodities are social or psychological in nature rather than purely material.[11] In the immediate post-war years, it was a challenge to provide for basic necessities, even in the most affluent nations. Today, consumer goods and services increasingly furnish us with identity, experience, a sense of belonging, perhaps even meaning and a sense of hope (Chapter 6).

Measuring utility in these circumstances is even more difficult. What is the 'psychic satisfaction' from an i-Phone? A new bicycle? A holiday abroad? A birthday present for a lover? These questions are practically impossible to answer. Economics gets round the difficulty by assuming their value is equivalent to the price people are prepared to pay for them in freely functioning markets. It casts utility as the monetary value of market exchanges.

The GDP sums up all these market exchanges. Broadly speaking, it measures the total spending across the nation on all the commodities that flow through the economy. In this way, total spending is taken as a proxy for utility. And this, in a nutshell, is the case for believing that the GDP is a useful measure of wellbeing.

But the case is deeply problematic at best. There is a huge literature critiquing the value of GDP as a wellbeing measure.[12] Obvious limitations include its failure to account for non-market services (like household or voluntary labour) or negative utilities (externalities) like pollution. Critics point to the fact that the GDP counts both 'defensive' and 'positional' expenditures even though these don't contribute additionally to wellbeing.[13] And, perhaps most critically, the GDP fails to account properly for changes in the asset base which affect our future consumption possibilities.

Some have argued that the underlying concept of utility as exchange value is itself fundamentally flawed. A key finding here is the so-called happiness or life-satisfaction paradox. If GDP really does measure utility, it's a mystery to find that reported life satisfaction has remained more or less unchanged in most advanced economies over several decades in spite of significant economic growth. Real income per head has tripled in the US since 1950, but the percentage of people reporting themselves very happy has barely increased at all, and has declined since the mid-1970s. In Japan, there has been little change in life-satisfaction over several decades. In the UK the percentage reporting themselves 'very happy' declined from 52% in 1957 to 36% today, even though real incomes have more than doubled.[14]

Actually, as Figure 6 illustrates, the so-called life-satisfaction paradox is largely a malaise of the advanced economies. It is only after an income level of about $15,000 per capita, that the life-satisfaction score barely responds at all even to quite large increases in GDP. In fact the assumed relationship between income and life-satisfaction can be turned on its head here. Denmark, Sweden, Ireland and New Zealand all have higher levels of life-satisfaction than the USA, but significantly lower income levels.

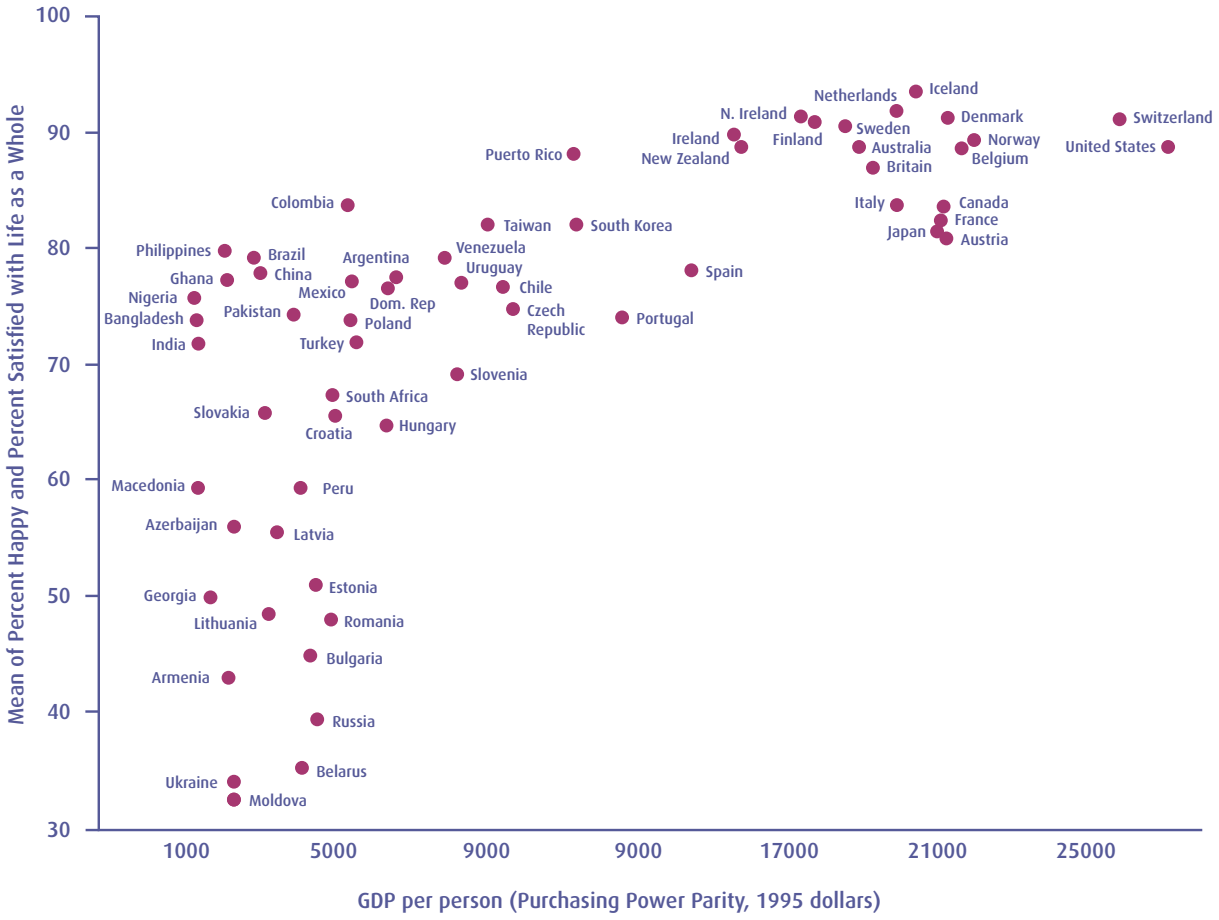
By contrast, at very low incomes there is a huge spread in terms of life satisfaction, but the general trend is a quite steeply rising curve. A small increase in GDP leads to a big rise in life satisfaction.

These data underline one of the key messages of this report. There is no case to abandon growth universally. But there is a strong case for the developed nations to make room for growth in poorer countries. It is in these poorer countries that growth really does make a difference. In richer countries the returns on further growth appear much more limited. In the language of economics, marginal utility (measured here as subjective wellbeing) diminishes rapidly at higher income levels.

More importantly, it becomes clear from this analysis that a happiness-based measure of utility and an expenditure-based measure of utility behave in very different ways. And since they both claim to measure utility we can conclude that there is a problem somewhere. One or other – perhaps both – of these measures appears not to be doing its job properly.

The wellbeing protagonists claim it's the GDP that's failing. But the self-report measures also have their critics. In their contributions to *Redefining Prosperity*, both Paul Ormerod and John O'Neill pointed to the

Figure 6 **Happiness and average annual income**[15]



fact that people are known to be inconsistent in assessments of their own happiness.[16]

Nobel-prize winner Daniel Kahneman has shown that if you 'add up' people's assessments of subjective wellbeing over time you don't get the same answer as you would if you 'take all things together'. This may partly be because people adapt quickly to any given level of satisfaction and this changes their future valuations. Even something simple like a change in the order of events can alter our assessment of how well things have gone overall.[17]

One of the difficulties in comparing the self-report measure against the GDP is that they are simply different kinds of scales. The GDP is (in principle at least) unbounded. It can (politicians hope) go on growing indefinitely. The life-satisfaction measure on the other hand is a bounded scale. You can only score from 0 to 10, how ever often you go on making the assessment. It is implicit in the definition of the self-report scale that utility itself is bounded.[18]

Here we come close to the crux of the matter. Obviously the two measures presume fundamentally different *concepts* of utility. In one interpretation there is no limit to the satisfaction that humans can achieve. The other is more circumspect in its view of the human psyche. Whatever else we may say about the relationship between GDP and life-satisfaction, it's clear they are *not* measuring the same kind of utility.

When it comes to finding a reliable concept of prosperity, we appear to be no further forwards. Arguably, there are as many reasons for not equating prosperity with happiness as there are for not equating prosperity with exchange values. For one thing, the overriding pursuit of immediate pleasure is a very good recipe for things not going well in the future. This was a point highlighted

clearly by Avner Offer's incisive contribution to the *Redefining Prosperity* project. 'True prosperity is a good balance between short-term arousal and long-term security,' he writes.[19]

Neither the GDP – which counts mainly present consumption – nor self-report measures which count mainly present happiness – provide an accurate reflection of this balance. Just because humans suffer from myopic choice and find it hard to make a sacrifice now even for the sake of something better later doesn't justify taking a view of prosperity based on more or less instantaneous gratification.[20]

More fundamentally, to equate prosperity with happiness goes against our experience of what it means to live well. People can be unhappy for all sorts of reasons, some of them genetic, even when things do go well. Equally, they may be undernourished, poorly housed, with no prospect of improvement and yet declare themselves (some might say foolishly) completely content with their lot.

Prosperity as capabilities for flourishing

Sen uses these distinctions to argue (with a nod to Aristotle) for a third concept of the living standard based on the *capabilities* that people have to *flourish*. The key questions we should be asking, he insists, are to do with how well people are able to function in any given context.

'Are they well nourished? Are they free from avoidable morbidity? Do they live long?' he asks. 'Can they take part in the life of the community? Can they appear in public without shame and without feeling disgraced? Can they find worthwhile jobs? Can they keep themselves warm? Can they use their school education? Can they visit friends and relations if they choose?'[21]

There is a clear resonance between Sen's questions and the dimensions of prosperity identified at the beginning of this chapter.[22] In fact, the functionings he cites in this extract – nutritional health, life expectancy, participation in society – coincide closely with constituents of prosperity identified from time immemorial in a wide range of writings.

In his later work, Sen stresses not so much the functionings themselves – whether people actually live long, have a worthwhile job or participate in the community – as the capabilities or freedoms they have to do so.[23] His point is that in a liberal society, people should have the right to choose whether or not to participate in society, to work in paid employment, and perhaps even whether to live a healthy life. It is the *capability* to flourish that is important.

Nonetheless, there are some clear reasons to retain the central importance of functionings themselves. In the first place, abstract capabilities are pretty uninformative. Any attempt to operationalise this idea of development ends up needing to specify what the important functionings are. This point is emphasised in a recent report to the Netherlands Environmental Assessment Agency on the feasibility of a capabilities approach within public policy. Even when it is the freedom to function that people value most, argues the report, this is largely because the functionings themselves are valued too.[24]

There is another reason not to take the focus on freedom too far. In a world of limits, certain kinds of freedoms are either impossible or immoral. The freedom endlessly to accumulate material goods is one of them. Freedoms to achieve social recognition at the expense of child labour in the supply chain, to find meaningful work at the expense of a collapse in biodiversity, or to participate in the life of the community at the expense of future generations may be others.

Bounded capabilities

This is the most important lesson that sustainability brings to any attempt to conceptualise prosperity. Capabilities for flourishing are a good starting point from which to define what it means to prosper. But this vision needs to be interpreted carefully: not as a set of disembodied freedoms, but as a range of 'bounded capabilities' to live well – within certain clearly defined limits.

These limits are established in relation to two critical factors. The first is the finite nature of the ecological resources within which life on earth is possible. These resources include the obvious material ones: fossil fuels, minerals, timber, water, land – and so on.

They also include the regenerative capacity of ecosystems, the diversity of species and the integrity of the atmosphere, the soils and the oceans.

None of these resources is infinite. Each stands in a complex relationship to the web of life on earth. We may not yet know exactly where all the limits lie. But we know enough to be absolutely sure that in most cases, even the current level of economic activity is destroying ecological integrity and threatening ecosystem functioning – perhaps irreversibly. To ignore these natural bounds to flourishing is to condemn our descendents – and our fellow creatures – to an impoverished planet.

The second limiting factor on our capability to live well is the scale of the global population. This is simple arithmetic. With a finite pie and any given level of technology, there is only so much in the way of resources and environmental space to go around. The bigger the global population the faster we hit the ecological buffers. The smaller the population the lower the pressure on ecological resources. This basic tenet of systems ecology is the reality of life for every other species on the planet. And for those in the poorest nations.

The point is that a fair and lasting prosperity cannot be isolated from these material conditions. Capabilities are bounded on the one hand by the scale of the global population and on the other by the finite ecology of the planet. In the presence of these ecological limits, flourishing itself becomes contingent on available resources, on the entitlements of those who share the planet with us, on the freedoms of future generations and other species. Prosperity in this sense has both intra-generational and inter-generational dimensions. As the wisdom traditions suggest, there is an irredeemably moral dimension to the good life.

A prosperous society can only be conceived as one in which people everywhere have the capability to flourish in certain basic ways.

Deciding on those basic 'entitlements' is not a trivial task. What does it mean for humans to flourish? What are the functionings that society should value and provide for? How much flourishing is sustainable in finite world?

Sen has tended to stop short of clear prescriptions, even though some are implicit in his writing. The philosopher Martha Nussbaum has gone furthest in this direction. Her list of 'central human capabilities' bears a striking resemblance to the components of prosperity identified in this chapter and includes:

- life (being able to live to the end of a human life of normal length); bodily health
- bodily integrity (to be secure against violent assault)
- having opportunities for sexual satisfaction and choice in matters of reproduction
- practical reason (being able to form a conception of the good life)
- affiliation (being able to live with and toward others)
- play, and control over one's environment.[25]

Ultimately, as the Dutch report cited above recognises, any such list needs to be negotiated in open dialogue before it can be taken as the basis of policy. But in practice, there is a surprisingly strong overlap between the components in such lists and the constituents of prosperity identified here.

Physical and mental health matter. Educational and democratic entitlements count in many societies. Trust, security and a sense of community are vital to social wellbeing. Relationships, meaningful employment, and the ability to participate in the life of society appear to be important almost everywhere. People suffer physically and mentally when these things are absent. Society itself is threatened when they decline.

The challenge for society is to create the conditions in which these basic entitlements are possible. This is likely to require a closer attention to the social, psychological and material conditions of living – for example, to people's psychological wellbeing and to the resilience of communities – than is familiar in free market societies.

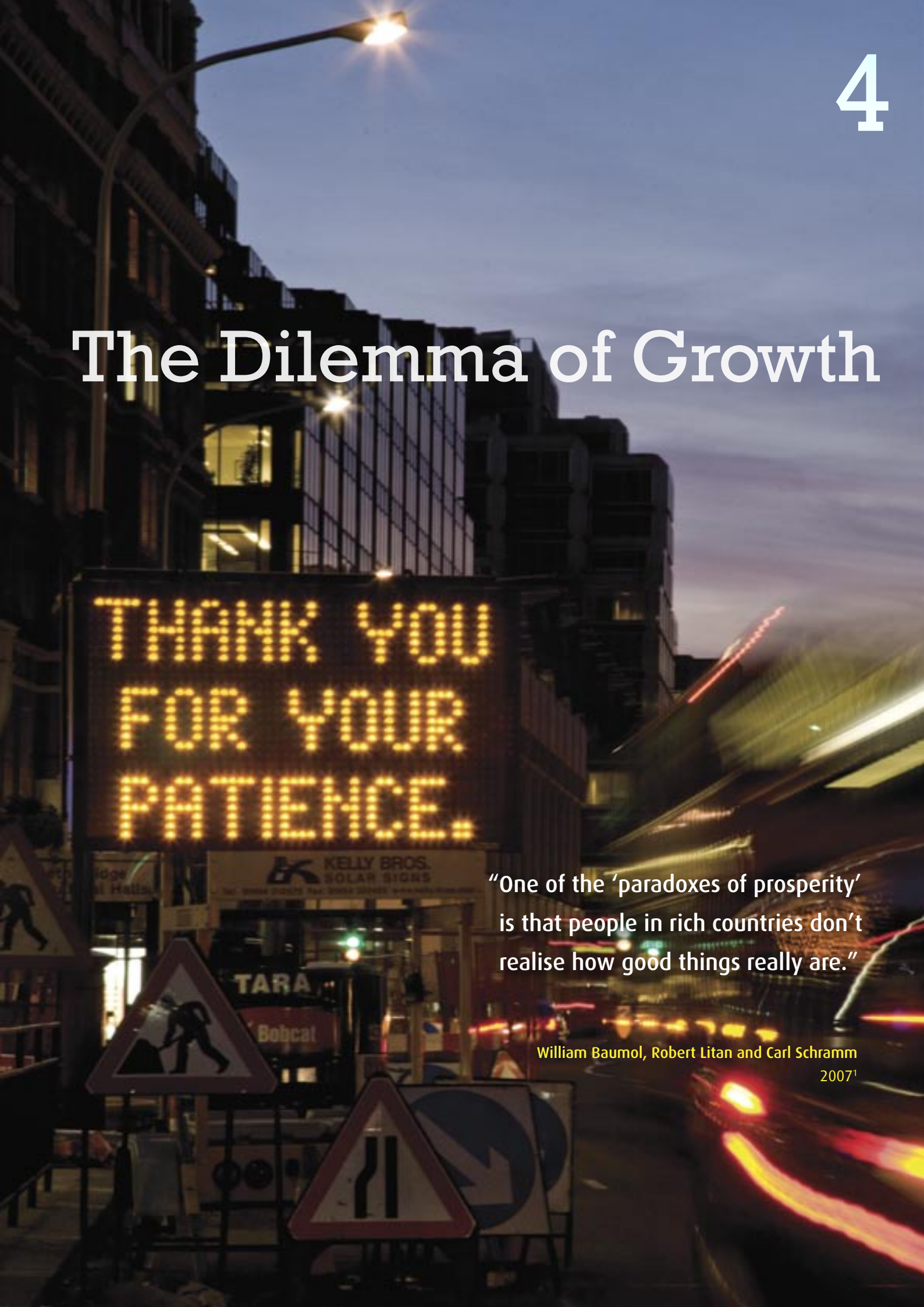
Crucially though, this doesn't mean settling for a vision of prosperity based on curtailment and sacrifice. Capabilities are inevitably bounded by material and social conditions. Some ways of functioning may even be forestalled completely, particularly where they rely heavily on material throughput. But social and psychological functionings are not in any case best served by materialism, as we shall see more

clearly in Chapter 9. As Tim Kasser highlighted in his contribution to *Redefining Prosperity*, this new vision of prosperity may serve us better than the narrow materialistic one that has ensnared us.

The possibility that humans can flourish, achieve greater social cohesion, find higher levels of wellbeing and still reduce their material impact on the environment is an intriguing one. It would be foolish to think that it is easy to achieve – for reasons that will be discussed in more detail in the next chapter. But it should not be given up lightly. It may well offer the best prospect we have for a lasting prosperity.

4

The Dilemma of Growth



"One of the 'paradoxes of prosperity' is that people in rich countries don't realise how good things really are."

William Baumol, Robert Litan and Carl Schramm
2007[1]

Prosperity is not just about income. That much is clear. Rising prosperity is not the same thing as economic growth. But this doesn't in itself ensure that prosperity without growth is possible. A distinct possibility remains that growth is functional for prosperity: that continued economic growth is a necessary condition for a lasting prosperity. And that without growth our ability to flourish diminishes substantially.

Evidence for this would certainly need to be taken seriously. Perhaps the growth model is, after all, as good as it gets in terms of delivering prosperity. Are we guilty, as Baumol and his colleagues claim in the quote on the previous page, of not realising how good things really are under free-market capitalism? This chapter explores that possibility.

It examines three closely related propositions in defence of economic growth. The first is that opulence – though not synonymous with prosperity – is a necessary condition for flourishing. The second is that economic growth is closely correlated with certain basic entitlements – for health or education, perhaps – that are essential to prosperity. The third is that growth is functional in maintaining economic and social stability.

Any of these propositions, if supported, could threaten our prospects for achieving prosperity without growth and would place us instead between the horns of a rather uncomfortable dilemma. On the one hand, continued growth looks ecologically unsustainable; on the other, it appears essential for lasting prosperity. Making progress against such an 'impossibility theorem' would be vital.

Material opulence as a condition of flourishing

At first sight it might seem odd to reopen the relationship between opulence and prosperity. Chapter 3 disposed of any simple linear relationship between material flow and flourishing. More isn't always better, even in something as basic as nutrition.

Admittedly, our ability to flourish declines rapidly if we don't have enough food to eat or adequate shelter. And this motivates a strong call for increasing incomes in poorer nations. But in the advanced economies, aside from some pernicious inequalities, we are largely past this point. Material needs are broadly met and disposable incomes are increasingly dedicated to different ends: leisure, social interaction, experience. Clearly though, this hasn't diminished our appetite for material consumption.

Why is it that material commodities continue to be so important to us, long past the point at which material needs are met? Are we really natural-born shoppers? Have we been genetically programmed, as the psychologist William James believed, with an 'instinct for acquisition'? What is it about consumer goods that continues to entrance us even beyond the point of usefulness?

The clue to the puzzle lies in our tendency to imbue material things with social and psychological meanings. A wealth of evidence from consumer research and anthropology now supports this point. And the insight is devastating. Consumer goods provide a symbolic language in which we communicate continually with each other, not just about raw stuff, but about what really matters to us: family, friendship, sense of belonging, community, identity, social status, meaning and purpose in life.[2]

And crucially, these social conversations provide, in part, the means to participate in the life of society. Prosperity itself, in other words, depends on them. 'The reality of the social world', argues sociologist Peter Berger, 'hangs on the thin thread of conversation.'[3] And this conversation hangs in turn on the language of material goods.

There's a lovely illustration of the power of this seductive relationship in a study led by consumer researcher Russ Belk. He and his colleagues explored the role of desire in consumer behaviour across three different cultures. Commenting on what fashion meant to them, one of Belk's respondents remarked: 'No one's gonna spot you across a crowded room and say "Wow! Nice personality!"'[4]

The goal of this respondent is immediately identifiable as a basic human desire to be noticed, to be included,

to be liked, to find friendship – possibly more (as the singles ads put it). All of these things are fundamental components of participating in the life of society, of flourishing.

It's tempting to think that this is a predominantly western (and relatively modern) phenomenon. Belk's study and numerous others suggest otherwise. The objective of the consumer, quite generally, according to anthropologist Mary Douglas, is 'to help create the social world and find a credible place in it.'[5] The symbolic role of material commodities has been identified, by anthropologists, in every single society for which records exist.

It is of course abundantly true in consumer society. Matter matters to us. And not just in material ways. But this is no longer unique to the West. 'One of the defining features of India's middle classes at the turn of the millennium,' argues anthropologist Emma Mawdsley, 'is their appetite for 'global' culture, and their pursuit of 'western' lifestyles, possessions and values.'[6] Very similar values and views are clearly discernible in China, in Latin America and even in parts of Africa.

The consumer society is now, to all intents and purposes, a global society. One in which, for sure, there are still 'islands of prosperity, oceans of poverty'. But in which the 'evocative power of things'[7] increasingly creates the social world and provides the dominant arbiter of personal and societal progress.

In short, the material and the non-material dimensions of prosperity are inextricably intertwined with each other through the language of goods. Though it is essentially a social rather than a material task, our ability to participate in the life of society depends on this language. Anyone who has ever felt – or watched their kids feel – the enormous pressure of the peer group to conform to the latest fashion will understand how access to the life of society is mediated by sheer stuff.

Little wonder then that people regard income as one of the factors important to their wellbeing (Figure 5).[8] Incomes after all provide the material means for flourishing.

Prosperity depends more on opulence, it would seem, than is obvious at first glance. But there is an important subtlety in this relationship. And this subtlety provides a vital clue as to how we might confront – and get beyond – our dependency on material things.

The importance of income in wellbeing is largely played out (within nations) through relative effects. What matters – more than the absolute level of income – is having more or less than those around us.[9] This is particularly true in highly unequal societies where income disparities signal significant differences in social status. Income levels speak directly of status; and sometimes of authority, power and class as well. But, in addition, as we now see, income provides access to the 'positional' or status goods that are so important in establishing our social standing.

And there is little doubt that at the individual level, social position counts. 'A positive social ranking produces an inner glow that is also matched with a clear advantage in life expectation and health,' argues economic historian Avner Offer.[10] And this claim is backed up by persuasive evidence on the pernicious health effects of income inequality. Healthy life expectancy for English females was 16 years higher for those in the top decile in the late 1990s than it was for those in the bottom decile.[11]

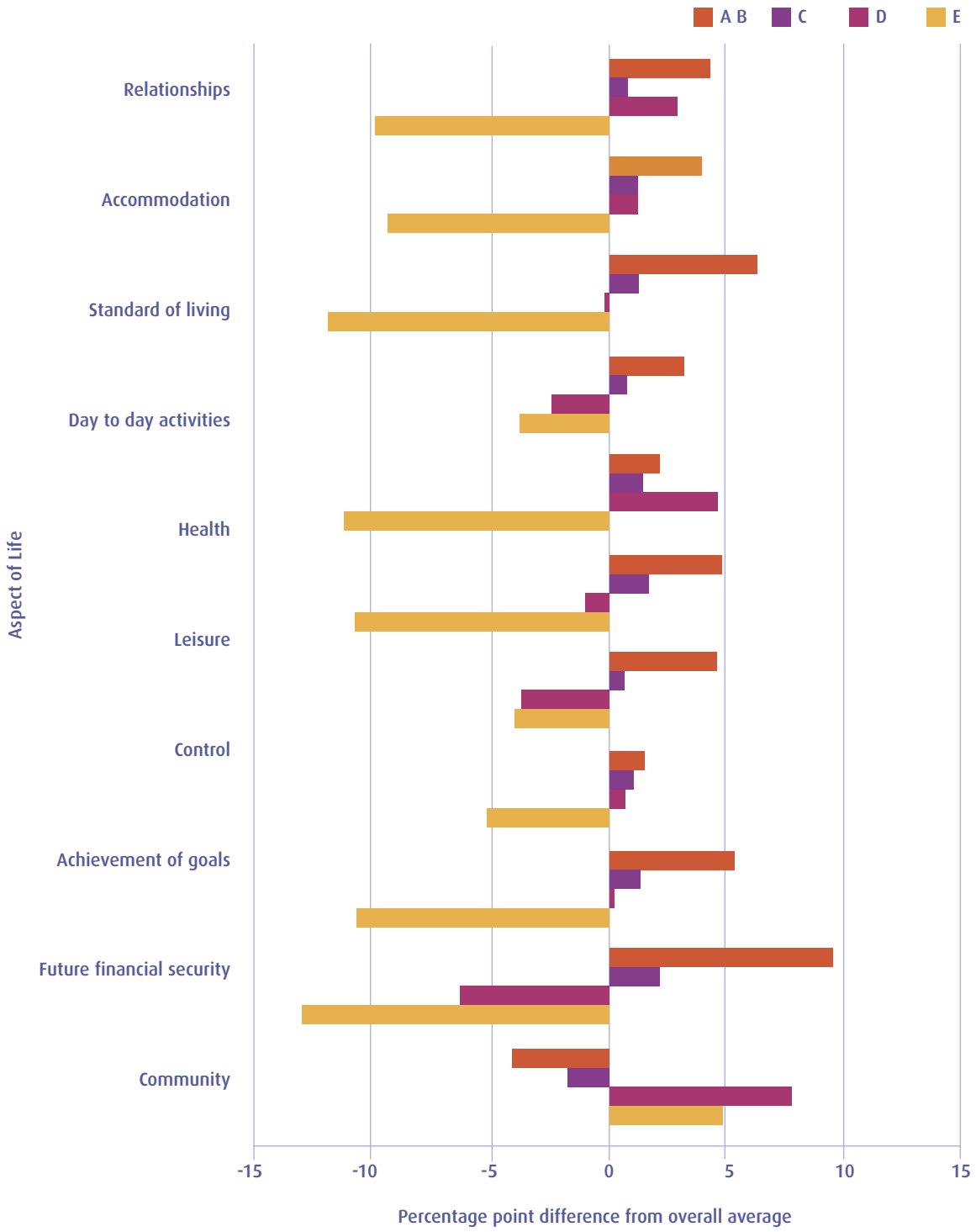
The importance of social position is reinforced by Defra's recent ground-breaking study of the distribution of subjective wellbeing in the UK. Figure 7 shows reported satisfactions with different life 'domains' across different 'social grades'. Those in the higher social grades tend to report significantly higher levels of satisfaction than those in the lower social grades.[12]

Being at or near the top of the pile matters, it seems, both in terms of health and in terms of happiness or subjective wellbeing.

At the societal level though, there is a clear danger that this positional race doesn't contribute much to overall prosperity. 'The stock of status, measured as positive advantages, showed a sustained increase in the post-war years,' acknowledges Offer. 'Much of the pay-off, however, was absorbed in positional competition.'[13]

This reasoning suggests that, at the level of society as a whole, income growth – and the associated material throughput – may be a 'zero-sum game'.

Figure 7 **Wellbeing Inequalities in England (2007)**[14]



Notes: Social grade is a classification based on occupation developed from the National Readership Survey

Examples of occupation in each grade include:

AB: doctor, solicitor, accountant, teacher, nurse, police oficer
C: Junior manager, student, clerical worker, foreman, plumber, bricklayer
D: Manual workers, shop workers, apprentices
E: Casual labourers, state pensioners, unemployed

Separate grades A and B and C1 and C2 have been joined (as AB and C) due to very similar distributions.
The results presented here show the difference between each group and the overall average.

The population as a whole gets richer. Some people are better off than others and positions in society may change. But overall this positional competition adds little or nothing to the levels of wellbeing in the nation. This is one of the arguments that has been used to explain the life satisfaction paradox (Chapter 3).[15]

If it's right it suggests the possibility that a different form of social organisation – perhaps a more equal society – in which social positioning is either less important or signalled differently – could change things. We would need to confront the social logic that conspires to lock people into positional competition (Chapter 6). We would also have to identify less materialistic ways for people to participate in the life of society (Chapter 9). But in principle, these strategies could allow us to distinguish prosperity from opulence and reduce our dependency on material growth. In other words, this particular aspect of the dilemma of growth may just turn out to be avoidable.

But relative (or distributional) effects don't exhaust the relationship between income and human flourishing. There remains a distinct possibility that rising levels of income are required in and of themselves to establish and maintain absolute levels of capability for functioning.

Income and basic entitlements

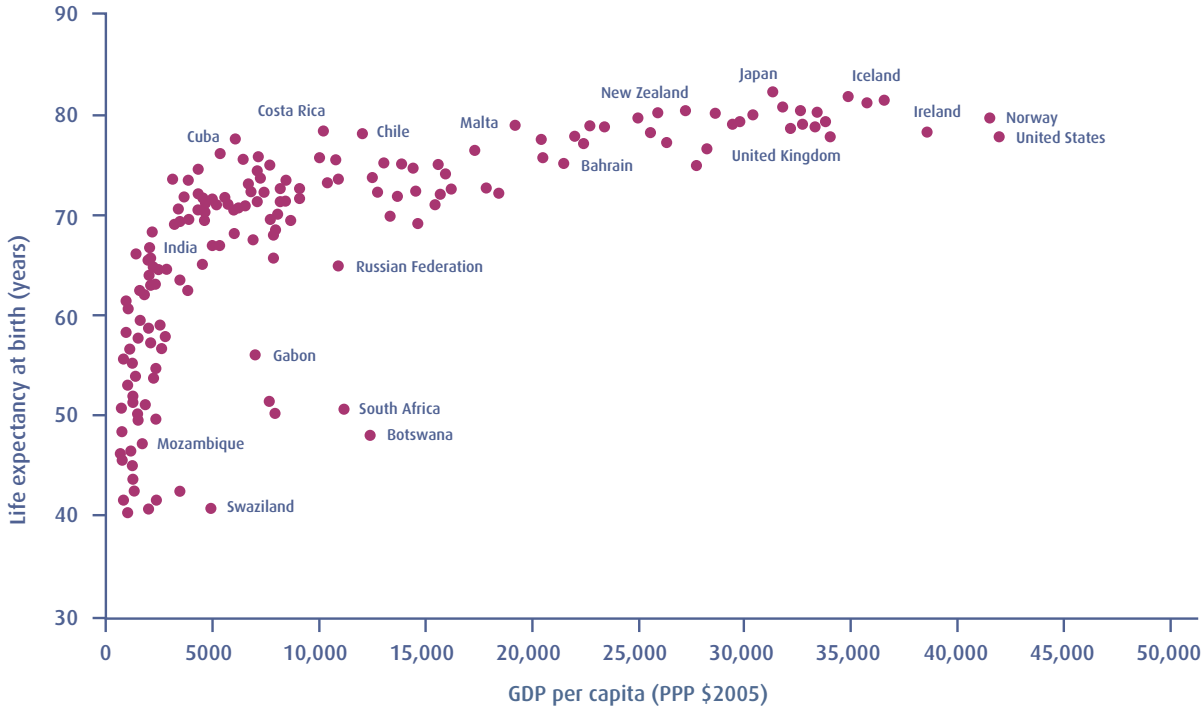
This is where the second proposition comes in. The possibility that certain basic entitlements – such as life expectancy, health and educational participation – rely inherently on rising income, would cast a serious doubt on our ability to flourish without growth.

The following graphs test this proposition using cross-country correlations between income and certain key components of human flourishing. The analysis uses data collected over several decades by the United Nations Development Programme. These data in themselves can neither prove nor disprove a causal link between income and prosperity. But they provide a useful starting point in understanding how important GDP might be in human flourishing.

Figure 8, for example, maps life expectancy against average annual income levels in 177 different nations. The pattern is similar to the one in Figure 6 (Chapter 3), which looked at the relationship between life satisfaction and income. But now the 'dependent variable' is life expectancy rather than satisfaction.

The difference between the poorest and the richest countries is striking, with life expectancies as low as 40 years in parts of Africa and almost double that in many developed nations. But the advantage of

Figure 8 **Life expectancy at birth vs average annual income**[16]



being richer as a nation shows diminishing returns. As income rises, the additional benefits in terms of increased life expectancy are reduced.

Some low-income countries have life expectancies that are on a par with developed nations. Chile (with an average annual income of $12,000) has a life expectancy of 78.3 years, greater than that of Denmark (whose average income is almost three times higher at $34,000). But it is also possible to find countries with incomes in the same range as Chile (South Africa and Botswana, for instance) where life expectancy is 30 years lower.

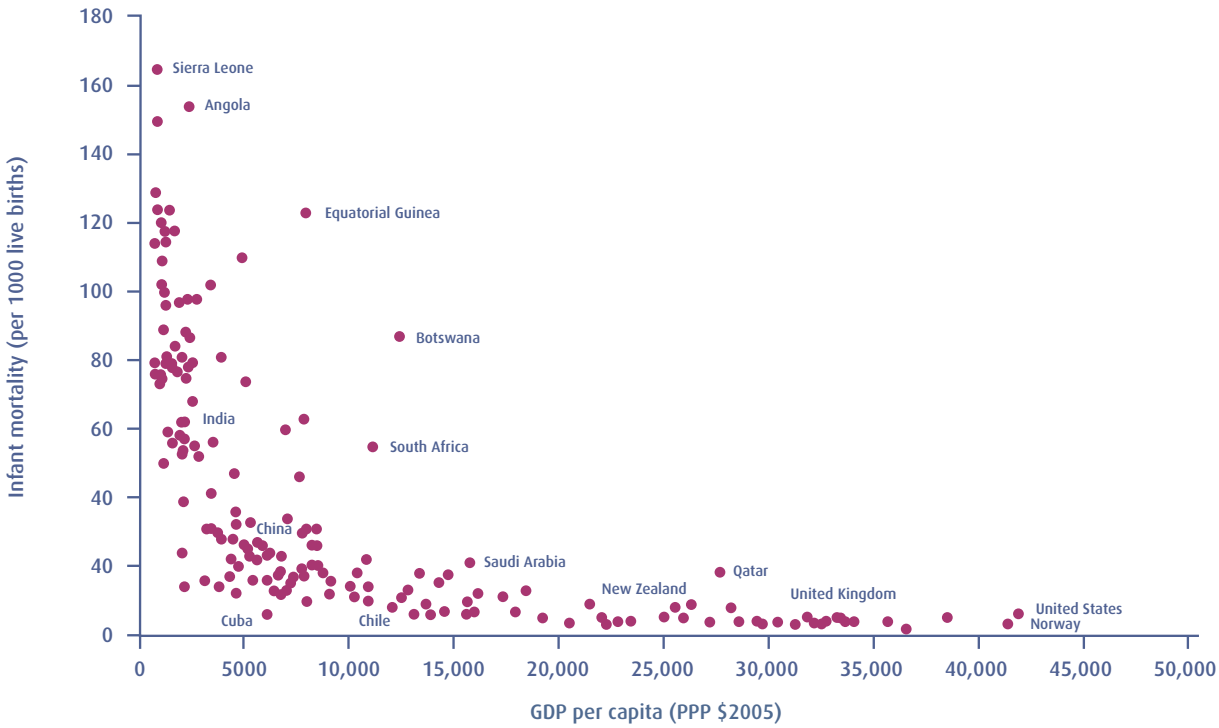
A similar story emerges from the data on infant mortality (Figure 9). In sub-Saharan Africa, 18% of children die before their fifth birthday, whereas in OECD countries, the proportion is 0.6%. But as incomes increase, the gains from growth again diminish quite rapidly. Infant mortality in Cuba is six deaths per 1000 live births, as low as it is in the US – even though Cubans, with an average per capita income of $6,000 enjoy less than 15% of the income enjoyed by Americans.

At the same time, it is possible to find countries with an average income somewhat higher than $6,000 per capita, whose infant mortality rates are much worse than those in Cuba. Equatorial Guinea is a striking example, with a per capita income of $8,000 and infant mortality of 123 deaths per 1000 live births.

The ambivalent relationship between income and health indicators is echoed in the relationship between income and education. The Human Development Report's Education Index – based on a composite of educational participation rates – illustrates the same disparity between the very poor and the very rich. It also shows the familiar pattern of diminishing returns with respect to income growth (Figure 10).

Once again, it is possible to find low income countries providing educational participation rates that are as high as the most developed nations. Kazakhstan, with in average income of less than $8,000, scores higher on the index than Japan, Switzerland or the US, countries with income levels four and five times higher. Equally though, it isn't hard to find countries with income levels of $8,000 whose educational participation rates are only two-thirds of those in most developed nations.

Figure 9 **Infant mortality vs per capita income**[17]



Interestingly, there is no hard and fast rule here on the relationship between income growth and improved flourishing. The poorest countries certainly suffer extraordinary deprivations in life expectancy, infant mortality and educational participation. But as incomes grow beyond about $15,000 per capita the returns to growth diminish substantially. Some countries achieve remarkable levels of flourishing with only a fraction of the income available to richer nations.

More exploration of these relationships is warranted. Understanding the structural dependencies between income and human flourishing is a vital subject for study.[19] One of the questions that needs answering is how things change over time, within countries. Figure 11 illustrates the importance of this question for changes in life expectancy.

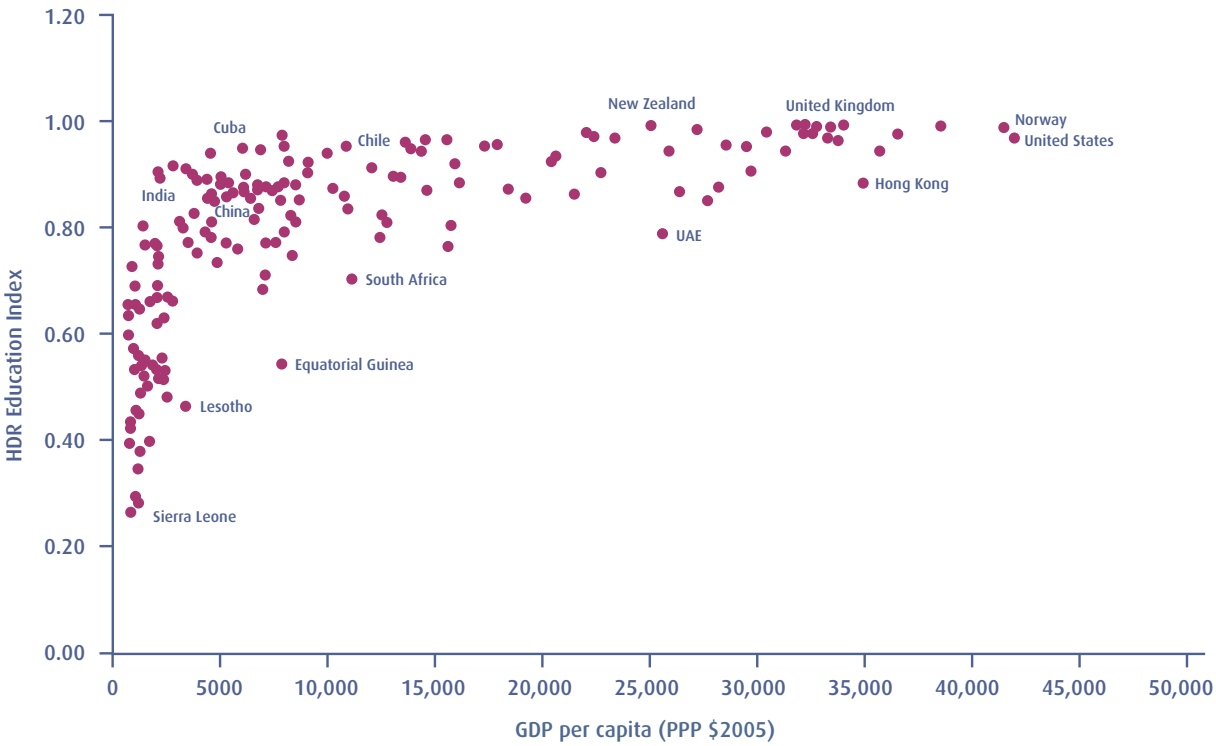
Again there is no single pattern. Three or four different modes of development emerge. One belongs to the developed nations – exemplified in Figure 11 by the UK and Japan. In these countries, there is a very strong but quite 'shallow' correlation between income growth and increased life expectancy. In the UK, for example, life expectancy has increased quite gradually but very consistently over the last few decades in spite of short periods of recession.[20]

Japan offers an even more interesting example. The country was hit quite severely during the Asian crisis in the late 1990s and suffered a prolonged period of economic turbulence. And yet life expectancy subsequently increased faster than at any time in the preceding two decades.

The ability to improve life expectancy despite a faltering economy is also in evidence in another group of countries, exemplified by Chile and Argentina in the graph. Here, rises in life expectancy appear much less dependent on income growth. In Argentina, in particular, economic output has been highly erratic over the last three decades, but the gains in life expectancy have been substantial and consistent.

Finally though, there are some countries (exemplified in Figure 11 by Russia and South Africa) which show significant declines in life expectancy when the economy falters. In fact, almost all the former Soviet bloc countries experienced reduced life expectancy in the post-Soviet era. In Russia itself, life expectancy

Figure 10 **Participation in education vs income per capita**[18]



remained more or less constant between 1970 and 1989 but fell by 6% following the collapse of the Soviet Union. Perhaps most strikingly, this decline continued, even after the economy started to recover.

The same phenomenon – decline in spite of economic recovery – is visible in the case of South Africa. Here, the context and the contributing factors are rather different. A striking feature of human development across Africa since 1990 is the collapse in life expectancy irrespective of growth rates. This is largely down to the devastating impact of Aids.

Clearly growth doesn't guarantee improved prosperity, even in such basic components of flourishing as life expectancy. Incremental improvements have been possible in most developed nations, alongside more or less continuous economic growth. But there are also examples where life expectancy has increased much faster than income and one or two where it has increased even in the face of prolonged or severe recession.

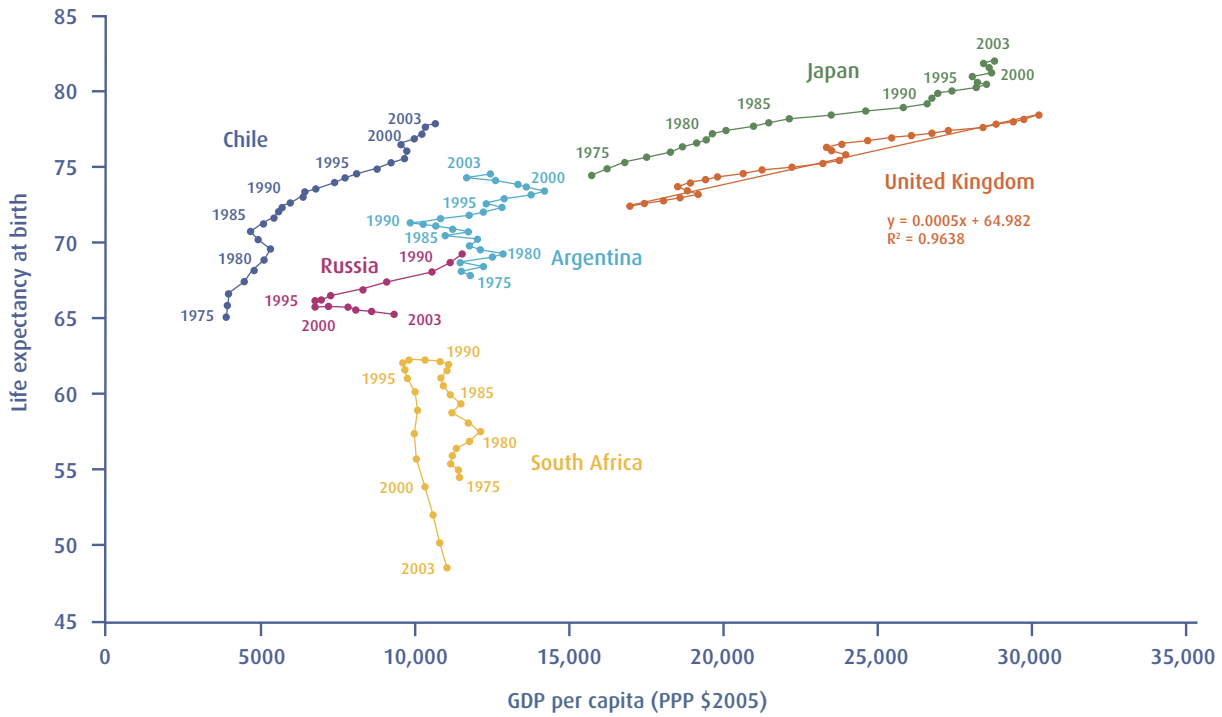
In Cuba (not shown in Figure 11), the formal economy (GDP) more or less collapsed after the breakup of the Soviet Union in 1989, partly because of the sudden removal of subsidised Soviet oil. But one recent study suggests that there were significant health improvements in the aftermath. Calorific intake was reduced by over a third. But obesity was halved and the percentage of physically active adults more than doubled. Between 1997 and 2002, 'there were declines in deaths attributed to diabetes (51%), coronary heart disease (35%) [and] stroke (20%)'.[22]

Income growth and economic stability

This brings us on to the third proposition identified above: that growth is functional in maintaining economic and social stability. It is clear from the evidence here that collapsing economies do present a risk of humanitarian loss. Economic stability or, at the very least, some form of social resilience, is important for prosperity.

Even so there are interesting differences between countries faced with economic hardship. Some countries – notably Cuba, Japan, Argentina – have been able to ride out quite severe economic turbulence and yet maintain or even enhance national health. Others have watched life expectancy tumble in the face of economic recession.

Figure 11 **Changes in average life-expectancy and income over time**[21]



Some of the explanation for these differences must lie in social structure. The transition of ex-Soviet states to a market economy was characterised by very profound changes in social structure, not the least of which was a collapse in state provision of health and social care. Little surprise, in these circumstances, that life expectancy faltered. In Cuba by contrast, continuing state-led social provision was almost certainly a contributing factor in the health improvements that followed the economic collapse.

Humanitarian loss in the face of economic turbulence, in other words, may be more dependent on social structure than on the degree of economic instability that is encountered. There are some interesting policy lessons here (Chapter 11) for the prospect of prosperity without growth.

But the risk of humanitarian collapse is enough to place something of a question mark over the possibility that we can simply halt economic growth. If halting growth leads to economic and social collapse, then times look hard indeed. If it can be achieved without collapse, prospects for maintaining prosperity are considerably better.

Critical here is the question of whether a growing economy is essential for economic stability. Is growth functional for stability? Do we need economic growth after all simply to keep the economy stable?

The conventional answer is certainly that we do. To see why, we need to explore a little further how such economies work. A detailed discussion of this is deferred to Chapter 6. But the broad idea is simple enough to convey.

Market economies place a high emphasis on technological efficiency. Continuous improvements in technology mean that more output can be produced for any given input of labour, capital and resources.[23] Efficiency improvement stimulates demand by driving down costs and contributes to a positive cycle of expansion. But crucially it also means that fewer people are needed to produce the same goods from one year to the next.

As long as the economy grows fast enough to offset this increase in 'labour productivity', there isn't a problem. But if it doesn't, then increased labour productivity means that someone loses their job.[24]

If the economy slows for any reason – whether through a decline in consumer confidence, through commodity price shocks, or through a managed attempt to reduce consumption – then the systemic trend towards improved labour productivity leads to unemployment. This in its turn, leads to diminished spending power, a loss of consumer confidence and further reduces demand for consumer goods.

From an environmental point of view this may be desirable if it leads to lower resource use and fewer polluting emissions. But it also means that retail falters and business revenues suffer. Incomes fall. Investment is cut back. Unemployment rises further and the economy begins to fall into a spiral of recession.

Recession has a critical impact on the public finances. Social costs rise with higher unemployment. But tax revenues decline as incomes fall and fewer goods are sold. Lowering spending risks real cuts to public services. Cutting spending affects people's capabilities for flourishing – a direct hit on prosperity.

Governments must borrow more not just to maintain public spending but to try and re-stimulate demand. But in doing so, they inevitably increase the national debt. Servicing this debt in a declining economy – as we noted in Chapter 2 – is problematic at best. Just maintaining interest payments takes up a larger proportion of the national income.

The best that can be hoped for here is that demand does recover and it's possible to begin paying off the debt. This could take decades. It took Britain almost half a century to pay off public debts accumulated through the Second World War. The Institute for Fiscal Studies has estimated that the 'debt overhang' from the current crisis could last into the 2030s.[25] On the other hand, if the debt accumulates and the economy fails to recover, the country is doomed to bankruptcy.

Crucially, there is little resilience within this system. Once the economy starts to falter, feedback mechanisms that had once contributed to expansion begin to work in the opposite direction, pushing the economy further into recession. With a growing (and aging) population these dangers are exacerbated. Higher levels of growth are required to protect the same level of average income and to provide sufficient revenues for (increased) health and social costs.

In short, modern economies are driven towards economic growth. For as long as the economy is growing, positive feedback mechanisms tend to push this system towards further growth. When consumption growth falters the system is driven towards a potentially damaging collapse with a knock-on impact on human flourishing. People's jobs and livelihoods suffer.

There is of course, something of an irony here. Because at the end of the day the answer to the question of whether growth is functional for stability is this: in a growth-based economy, growth is functional for stability. The capitalist model has no easy route to a steady-state position. Its natural dynamics push it towards one of two states: expansion or collapse.

Later (Chapter 8) we explore the possibilities for amending this conclusion. In the meantime, we appear to have returned to the dilemma with which this chapter started. Or at least to a more precise incarnation of it. Put in its simplest form the 'dilemma of growth' can now be stated in terms of two propositions:

- Growth is unsustainable – at least in its current form. Burgeoning resource consumption and rising environmental costs are compounding profound disparities in social wellbeing

- 'De-growth'[ii] is unstable – at least under present conditions. Declining consumer demand leads to rising unemployment, falling competitiveness and a spiral of recession.

This dilemma looks at first like an impossibility theorem for a lasting prosperity. But it cannot be avoided and has to be taken seriously. The failure to do so is the single biggest threat to sustainability that we face.

ii De-growth (décroissance in the French) is an emerging term for (planned) reductions in economic output.

5

The Myth of Decoupling

"From 1981 to 2005 the global economy more than doubled, but 60 percent of the world's ecosystems were either degraded or over-used."

United Nations Environment Programme
October 2008[1]

The conventional response to the dilemma of growth is to appeal to the concept of 'decoupling'. Production processes are reconfigured. Goods and services are redesigned. Economic output becomes progressively less dependent on material throughput. In this way, it is hoped, the economy can continue to grow without breaching ecological limits – or running out of resources.

It's vital here to distinguish between 'relative' and 'absolute' decoupling. Relative decoupling refers to a decline in the ecological intensity per unit of economic output. In this situation, resource impacts decline relative to the GDP. But they don't necessarily decline in absolute terms. Impacts may still increase, but do so at a slower pace than growth in the GDP.

The situation in which resource impacts decline in absolute terms is called 'absolute decoupling'. Needless to say, this latter situation is essential if economic activity is to remain within ecological limits. In the case of climate change, for instance, absolute reductions in global carbon emissions of 50-85% are required by 2050 in order to meet the IPCC's 450 ppm stabilisation target.[2]

The aim of this chapter is to explore the evidence for both relative and absolute decoupling. It concentrates in particular on trends in the consumption of finite resources and the emission of carbon. These examples don't exhaust the concerns associated with a continually growing economy. But they are already of immediate concern and illustrate clearly the scale of the problem.

How much decoupling has been achieved in these examples? How much needs to be achieved? Is it really possible for a strategy of 'growth with decoupling' to deliver ever-increasing incomes for a world of nine billion people and yet remain within ecological limits? These questions are central to this study.

Relative decoupling

Put very simply, relative decoupling is about doing more with less: more economic activity with less environmental damage; more goods and services with fewer resource inputs and fewer emissions. Decoupling is about doing things more efficiently. And since efficiency is one of the things that modern economies are good at, decoupling has a familiar logic and a clear appeal as a solution to the dilemma of growth.

Resource inputs represent a cost to producers. So the profit motive should stimulate a continuing search for efficiency improvement in industry to reduce input costs. Some evidence supports this hypothesis. For example, the amount of primary energy needed to produce each unit of the world's economic output has fallen more or less continuously over most of the last half century. The global 'energy intensity' is now 33% lower than it was in 1970.[3]

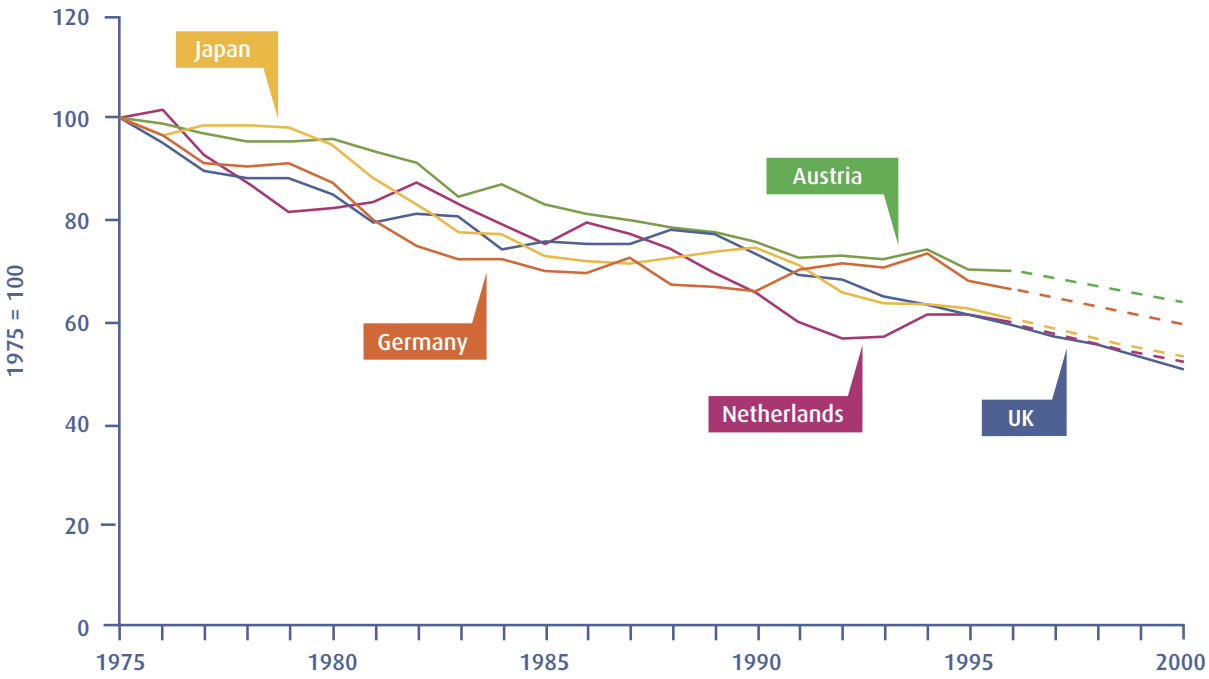
These gains have been most evident in the advanced economies. Energy intensities have declined three times faster in the OECD countries over the last 25 years than they have in non-OECD countries.[4] Energy intensity in both the US and the UK is some 40% lower today than it was in 1980.[5]

Outside the most advanced nations, the pattern has been much less clear. Even in some southern European countries (Greece, Turkey, Portugal e.g.) energy intensity has increased in the last twenty five years. And in emerging economies and developing nations, achievements have been very mixed. Across the Middle East, energy intensity more than doubled between 1980 and 2006; in India it increased at first but has declined slowly since the peak in 1993. In China, energy intensity fell by over 70% to the turn of the 21st Century but has now begun to climb again.[6]

Overall, however, energy intensities declined significantly during the last three decades, across the OECD countries in particular. The same is true of material intensities more generally. Figure 12 shows a measure of material intensity for five advanced nations, including the UK, over the final quarter of the 20th Century. The Figure shows clear evidence of 'relative decoupling'.

Not surprisingly, improved resource efficiency is also leading to declining emission intensities. Figure 13

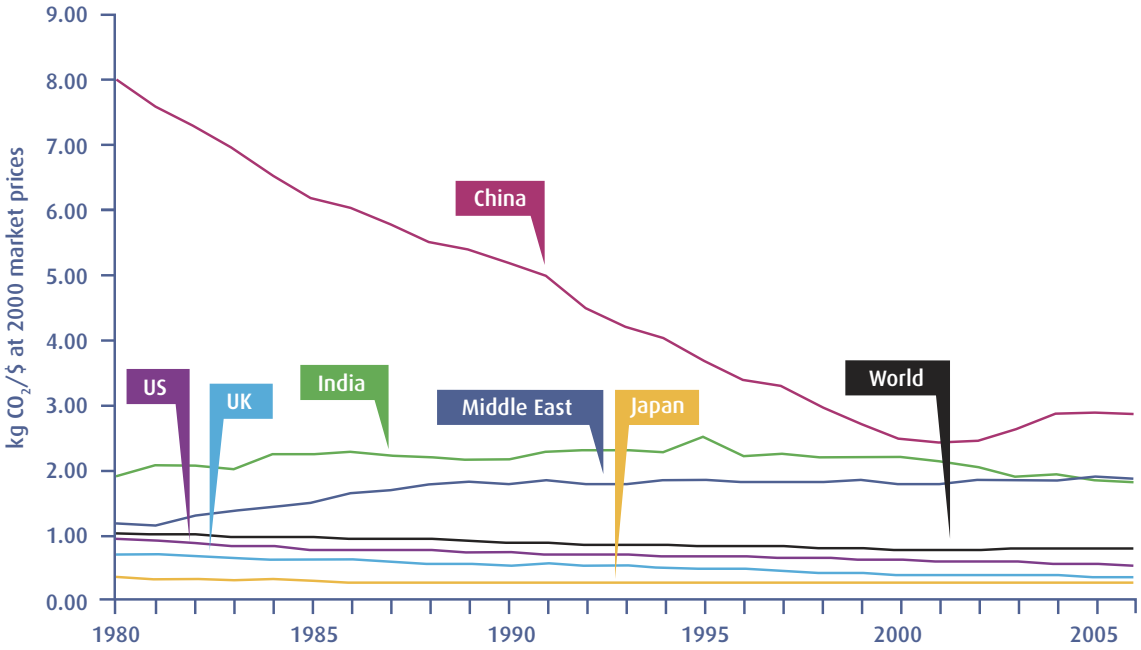
Figure 12 **Relative Decoupling in OECD countries 1975–2000**[7]



shows the changing carbon dioxide intensity of GDP over the last 25 years. The global carbon intensity declined by almost a quarter from just over 1 kilogram of carbon dioxide per US dollar ($kgCO_2/\$$) in 1980 to 770 grams of carbon dioxide per US dollar ($gCO_2/\$$) in 2006.

Again, steady improvements across the OECD countries were accompanied by a slightly more uneven pattern across non-OECD countries. Significant growth in carbon intensity occurred across the Middle East and during the earlier stages of development in India. China witnessed some

Figure 13 **CO_2 intensity of GDP across nations: 1980–2006**[7]



striking improvements early on. But these have been partly offset by increasing carbon intensity in recent years. Worryingly, the declining global trend in carbon intensity has also faltered in recent years, even increasing slightly since its low point in 2000.

Clearly, there is little room for complacency here. The efficiency with which the global economy uses fossil resources and generates carbon dioxide emissions is improving in some places. But overall we are making faltering progress at best.

To make matters worse, relative decoupling is barely half the story. It measures only the resource use (or emissions) per unit of economic output. For decoupling to offer a way out of the dilemma of growth, resource efficiencies must increase at least as fast as economic output does. And they must continue to improve as the economy grows, if overall burdens aren't to increase. To achieve this more difficult task, we need to demonstrate absolute decoupling. Evidence of this is much harder to find.

Absolute decoupling

Despite declining energy and carbon intensities carbon dioxide emissions from fossil fuels have increased by 80% since 1970. Emissions today are almost 40% higher than they were in 1990 – the Kyoto base year – and since the year 2000 they have been growing at over 3% per year (see Figure 14).

Figure 14 does illustrate some relative decoupling: the world GDP has risen faster than carbon dioxide emissions over the last eighteen years. But there is no absolute decoupling here. And a surge in world consumption of coal has increased the rate of growth in carbon dioxide emissions since the year 2000.

What's true for fossil resources and carbon emissions is true for material throughputs more generally. Figure 15 illustrates direct material consumption for the same five OECD countries shown in Figure 12. Despite very clear evidence of relative decoupling in the earlier figure, there is far less evidence here of an absolute decline in material consumption.

The best that can be observed – in only a couple of countries – is something of a stabilisation in resource requirements, particularly since the late 1980s. But even this finding is not entirely to be trusted. The problem is that it's difficult to pick up all the resources embedded in traded goods. The measure shown here – direct material consumption – does its best to identify traded

Figure 14 **Trends in Fossil Fuel Consumption and Related CO_2: 1980–2007**[9]

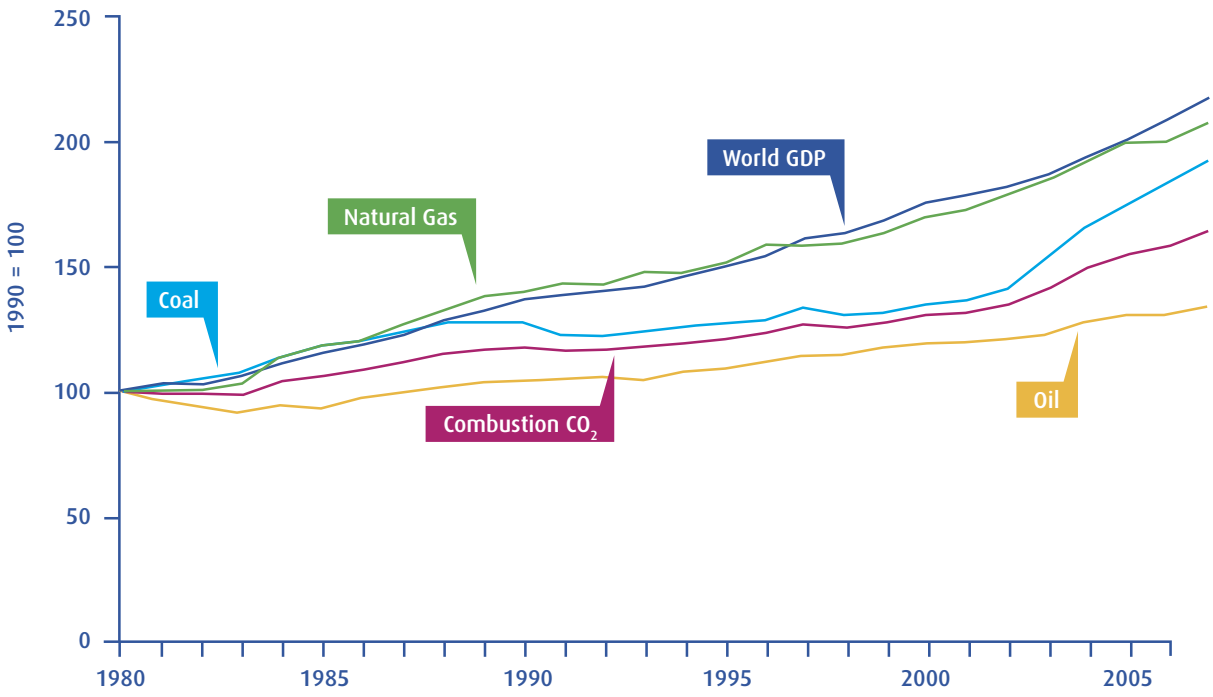
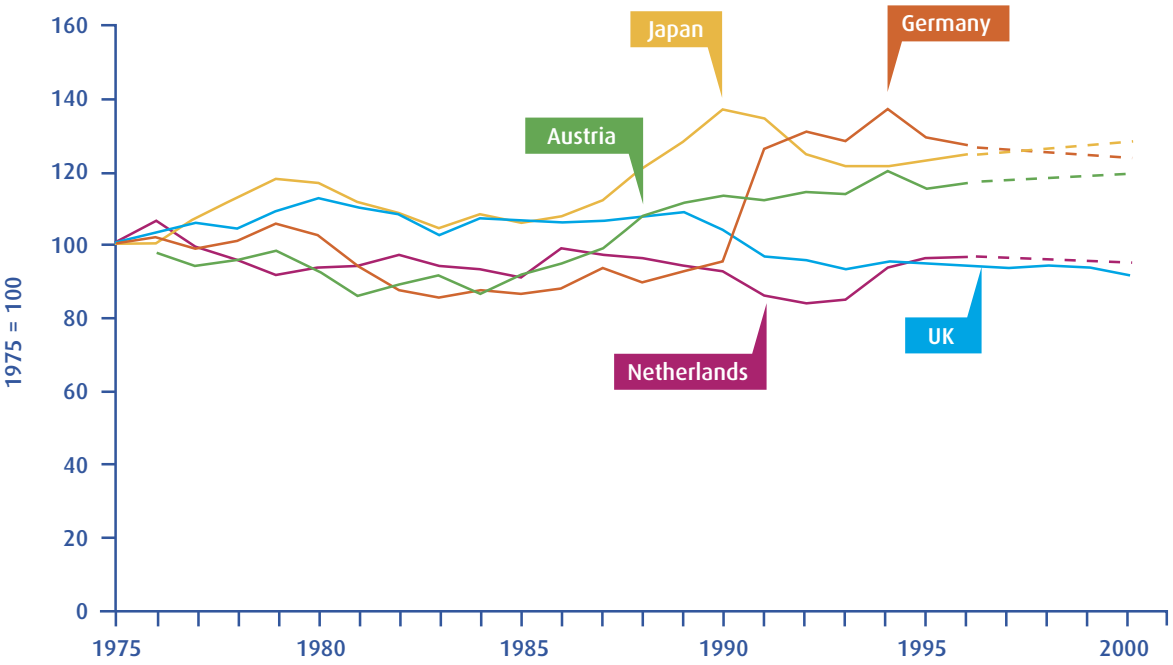


Figure 15 **Direct Material Consumption in OECD Countries: 1975–2000**[10]



flows of specific resources. But it misses out on the resources (and emissions) used to manufacture finished and semi-finished products abroad.

This question is important precisely because of the structure of modern developed economies, which have typically tended to move progressively away from domestic manufacturing. Unless the demand for consumer goods also declines, more and more finished and semi-finished goods need to be imported from abroad. And since concepts like direct material consumption omit such accounts, Figure 15 underestimates the resource requirements of developed economies.

Correcting this failing calls for more sophisticated resource and economic models than are currently available. In the case of carbon dioxide, however, several recent studies for the UK have confirmed that national accounts systematically fail to account for the 'carbon trade balance'. In other words, there are more (hidden) carbon emissions associated with UK consumption patterns than appear from the numbers we report to the United Nations under the Climate Change Convention.

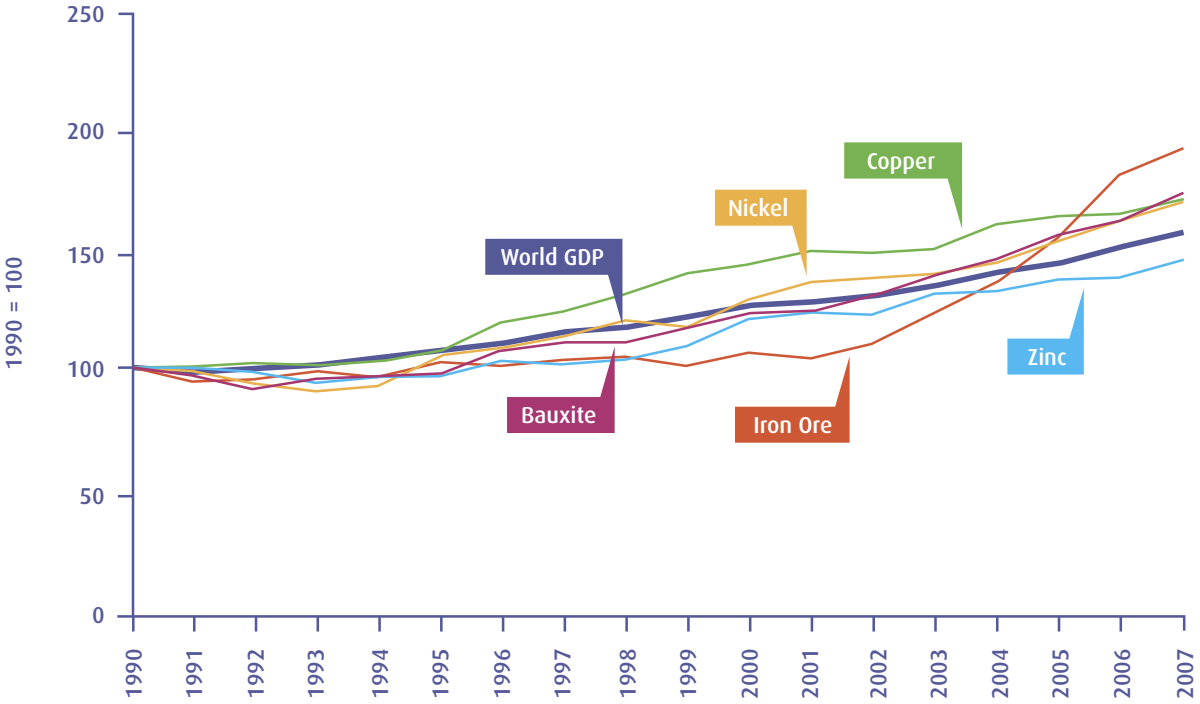
In fact, this difference is enough to undermine the progress made towards the UK's Kyoto targets. An apparent reduction in emissions of 6% between 1990 and 2004, as reported under UN FCCC guidelines is turned into an 11% increase in emissions, once emissions embedded in trade are taken into account.[11]

Without more detailed work, it's difficult to know whether this pattern is true more generally for material resources. But given the trend away from manufacturing, it's clearly wise to view Figure 15 with some caution. There is an outside chance that some stabilisation of resource consumption has occurred. But Figure 15 doesn't provide a lot of confidence in absolute decoupling, even within the advanced economies.

Ultimately, in any case, what count most in terms of global limits are worldwide statistics. Both climate change and resource scarcity are essentially global issues. So the final arbiter on the feasibility of absolute decoupling – and the possibilities for escaping the dilemma of growth – are worldwide trends. Figure 14 confirmed a rising global trend in fossil fuels and carbon emissions. Figure 16 shows the global trend in the extraction of another vital set of finite resources – metal ores.

What's striking from Figure 16 is not just the absence of absolute decoupling. There is little evidence of relative decoupling either. Some improved resource

Figure 16 **Global Trends in Primary Metal Extraction: 1990–2007**[12]



efficiency is evident in the earlier years, but this appears to have been eroded more recently. Particularly notable is the increased consumption of structural metals. Extraction of iron ore, bauxite, copper and nickel is now rising faster than world GDP.

Reasons for this are not particularly hard to find. China's hunger for iron ore is well-documented.[13] As the emerging economies build up their infrastructures, the rising demand for structural materials is one of the factors that put an upward pressure on commodity prices during 2007 and the first half of 2008 (see Chapter 2, Figure 1). The impact on certain non-metallic minerals is just as striking. Worldwide cement production has more than doubled since 1990, surpassing growth in world GDP by some 70 percentage points. Global resource intensities (the ratios of resource use to GDP), far from declining, have increased significantly across a range of non-fuel minerals. Resource efficiency is going in the wrong direction. Even relative decoupling just isn't happening.

It's clear from this that history provides little support for the plausibility of decoupling as a sufficient solution to the dilemma of growth. But neither does it rule out the possibility entirely. A massive technological shift; a significant policy effort; wholesale changes in patterns of consumer demand; a huge international drive for technology transfer to bring about substantial reductions in resource intensity right across the world: these changes are the least that will be needed to have a chance of remaining within environmental limits and avoiding an inevitable collapse in the resource base at some point in the (not too distant) future.

The message here is not that decoupling is unnecessary. On the contrary, absolute reductions in throughput are essential. The question is, how much is achievable? How much decoupling is technologically and economically viable? With the right political will, could relative decoupling really proceed fast enough to achieve real reductions in emissions and throughput, and allow for continued economic growth? These critical questions remain unanswered by those who propose decoupling as the solution to the dilemma of growth. More often than not, the crucial distinction between relative and absolute decoupling isn't even elucidated.

It's far too easy to get lost in general declarations of principle: growing economies tend to become more resource efficient; efficiency allows us to decouple emissions from growth; so the best way

to achieve targets is to keep growing the economy. This argument is not at all uncommon in the tangled debates about environmental quality and economic growth.

It contains some partial truths – for example, that some efficiency improvements occur in some advanced economies.[14] It draws some support from some limited evidence on air pollutants such as sulphur dioxide and particulates. These emissions sometimes show an inverted-U shaped relationship with economic growth: emissions grow in the early stage of growth but then peak and decline.[15]

But this relationship only holds, according to ecological economist Douglas Booth, for local, visible environmental effects like smoke, river water quality and acid pollutants. It isn't uniformly true even for these pollutants. And it simply doesn't exist at all for key indicators of environmental quality such as carbon emissions, resource extraction, municipal waste generation and species loss.[16]

As an escape from the dilemma of growth it is fundamentally flawed. Ever greater consumption of resources is a driver of growth. As industrial ecologist Robert Ayres has pointed out: 'consumption (leading to investment and technological progress) drives growth, just as growth and technological progress drives consumption.'[17] Protagonists of growth seldom compute the consequences of this relationship.

The Arithmetic of Growth

Arithmetic is key here. A very simple mathematical identity governs the relationship between relative and absolute decoupling. It was put forward almost forty years ago by Paul Ehrlich and John Holdren. The Ehrlich equation tells us quite simply that the impact (I) of human activity is the product of three factors: the size of the population (P), its level of affluence (A) expressed as income per person, and a technology factor (T), which measures the impact associated with each dollar we spend (Box 3).

For as long as the T factor is going down, then we are safe in the knowledge that we have relative decoupling. But for absolute decoupling we need I to go down as well. And that can only happen if T goes down fast enough to outrun the pace at which population (P) and income per capita (A) go up.
Over the last five decades this has been a tough ask. Both affluence and population have gone up substantially, each being about equally responsible for the overall five-fold growth in the economy. In recent years, the affluence factor has exceeded the population factor in driving growth. But both are clearly important, as Ehrlich himself clearly recognised.[18] And neither has proved particularly tractable to policy. Increasing affluence has been seen as synonymous with improved wellbeing. Advocating limits to population growth has been seen as contravening basic human liberties.

Ironically, both these preconceptions are wrong. Increasing incomes don't always guarantee wellbeing and sometimes detract from it. And the fastest population growth has occurred in the developing world – driven not by liberty but by a lack of education and inadequate access to contraception.[19]

Nonetheless, the intractability of addressing both population and income has tended to reinforce the idea that only technology can save us. Knowing that efficiency is key to economic progress, it is tempting to place our faith in the possibility that we can push relative decoupling fast enough that it leads in the end to absolute decoupling. But just how feasible is this?

There is a convenient 'rule of thumb' to figure out when relative decoupling will lead to absolute decoupling. In a growing population with an increasing average income, absolute decoupling will occur when the rate of relative decoupling is greater than the rates of increase in population and income combined.[20]

With this rule of thumb in mind, it's instructive to explore what's happened historically (and why) to global carbon dioxide emissions.

Carbon intensities have declined on average by 0.7% per year since 1990. That's good; but not good enough. Population has increased at a rate of 1.3% and average per capita income has increased by 1.4% each year (in real terms) over the same period. Efficiency hasn't even compensated for the growth in population, let alone the growth in incomes. Instead, carbon emissions have grown on average by 1.3 + 1.4 – 0.7 = 2% per year, leading over 17 years

Box 3: Unravelling the Arithmetic of Growth

The Ehrlich equation states that environmental (I) is a product of population (P) times affluence or income level (A) times the technological intensity (T) of economic output.

I = P x A x T

For carbon dioxide emissions from fuel combustion, for example, the total emissions are given by the product of population (P) times income (measured as dollars of GDP/person) times the carbon intensity of economic activity (measured as gCO_2/$):

C = P x $/person x gCO_2/$

Using this arithmetic for the year 2007, when the global population was about 6.6 billion, the average income level in constant 2000 dollars (at market prices) was $5,900, and the carbon intensity was 760 gCO_2/$, we find that the total carbon dioxide emissions C were:

6.6 x 5.9 x 0.77 = 30 billion tonnes of CO_2.

In 1990, when the population was only 5.3 billion and the average income was $4,700 but carbon intensity was 860 gCO_2/$, total carbon dioxide emissions C were given by:

5.3 x 4.7 x 0.87 = 21.7 billion tonnes of CO_2.

These numbers are confirmed against those reported in the Energy Information Administration's *International Energy Annual*. The cumulative growth in emissions between 1990 (the Kyoto base year) and 2007 was 39% (30/21.7 = 1.39) with an average growth rate in emissions (r_i) of almost 2% ($r_i = (1.39)^{1/17} - 1 = 1.96\%$).

to an almost 40% increase in emissions (Box 3).[21] The same rule of thumb allows us a quick check on the feasibility of decoupling carbon emissions from growth in the future. The IPCC's Fourth Assessment report suggests that achieving a 450 ppm stabilisation target means getting global carbon dioxide emissions down to below 4 billion tonnes per annum by 2050 or soon after. This would be equivalent to reducing annual emissions at an average rate of 4.9% per year between now and 2050.[22]

But income and global population are going in the opposite direction. According to the UN's mid-range estimate, the world's population is expected to reach nine billion people by 2050 – an average growth of 0.7% each year. Under business as usual conditions, the decline in carbon intensity just about balances the growth in population and carbon emissions will end up growing at about the same rate as the average income – 1.4% a year. It might not sound much, but by 2050, under these assumptions, carbon emissions are 80% *higher* than they are today. Not quite what the IPCC had in mind.

To achieve an average year-on-year reduction in emissions of 4.9% with 0.7% population growth and 1.4% income growth T has to improve by approximately 4.9 + 0.7 + 1.4 = 7% each year – almost ten times faster than it is doing right now. By 2050 the average carbon content of economic output would need to be less than 40 gCO_2/$, a 21-fold improvement on the current global average (Figure 17, Scenario 1).

In fact, things could get even worse than this. At the higher end of the UN's population estimates – in a world of almost 11 billion people – business as usual would more than double global carbon emissions over today's level. Achieving the 2050 target in these circumstances would put even more pressure on technological improvements, to drive the carbon intensity of output down to less than 30 gCO_2/$ (Figure 17, Scenario 2).[23]

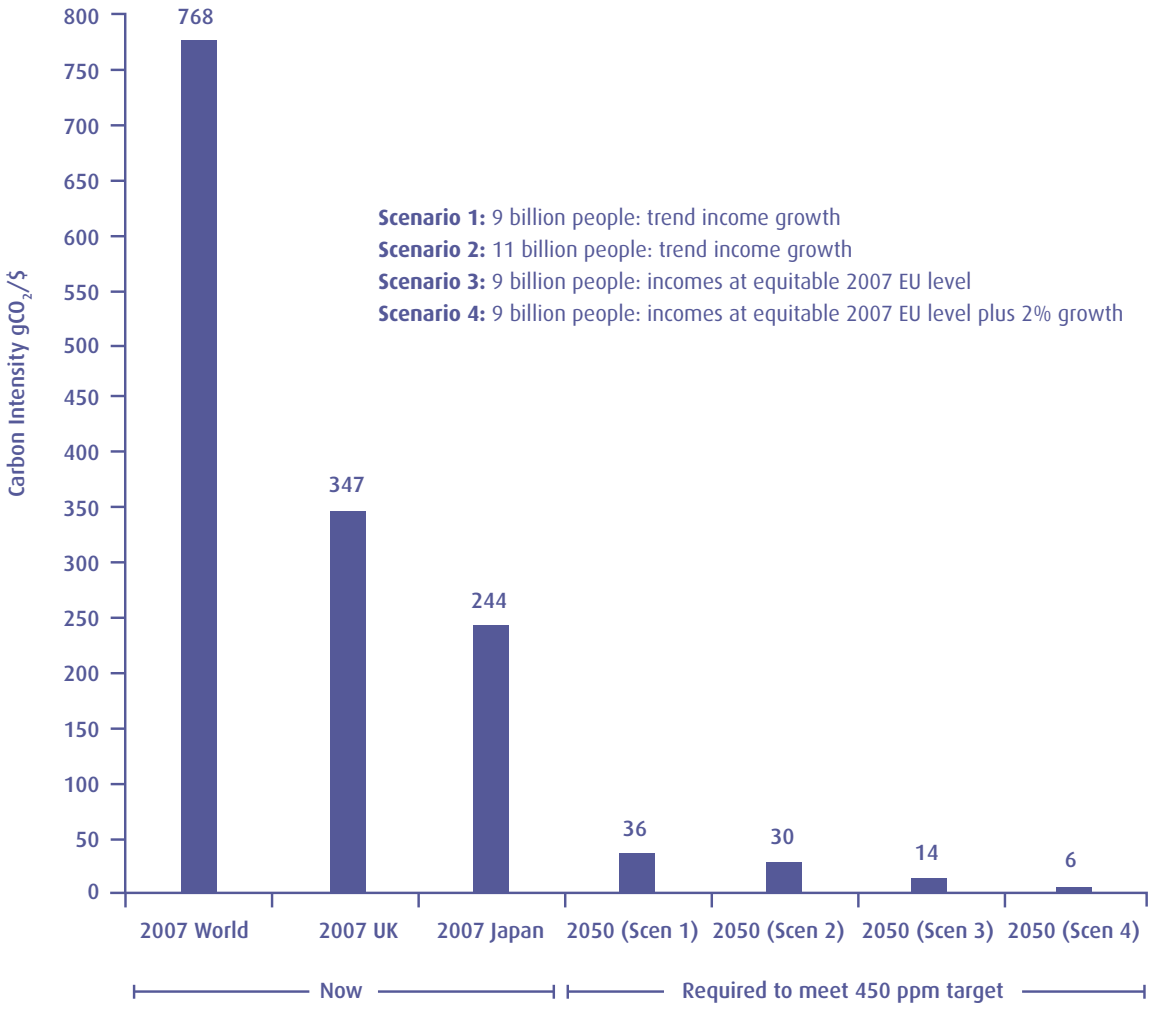
Notably, this would still be a deeply unequal world. Business-as-usual income growth is usually taken to mean a steady 2 or 3% growth rate in the most developed countries while the rest of the world does its best to catch up – China and India leaping ahead at 5-10% per annum at least for a while, with Africa, South America and parts of Asia languishing in the doldrums for decades to come. In most of these scenarios, both the incomes and the carbon footprints of the developed nations would be more than an order of magnitude higher by 2050 than those in the poorest nations.

If we were really serious about fairness and wanted the world's nine billion people all to enjoy an income comparable with EU citizens today, the economy would need to grow 6 times between now and 2050, with incomes growing at an average rate of 3.6% a year. Achieving the IPCC's emission target in this world means pushing down the carbon intensity of output by 9% every single year for the next forty or so years.[24] By 2050, the average carbon intensity would need to be 55 times lower than it is today at only 14 $gCO_2/\$$ (Figure 17, Scenario 3).

And this scenario still hasn't factored in income growth in the developed nations. Imagine a scenario in which incomes everywhere are commensurate with a 2% increase per annum in the current EU average income. The global economy grows almost 15 times in this scenario and carbon intensity must fall by over 11% every single year. By 2050 the carbon content of each dollar has to be no more than 6 $gCO_2/\$$. That's almost 130 times lower than the average carbon intensity today (Figure 17, Scenario 4).

Beyond 2050, of course, if growth is to continue, so must efficiency improvements. With growth at 2% a year from 2050 to the end of the century, the economy in 2100 is 40 times the size of today's economy. And to all intents and purposes, nothing

Figure 17 **Carbon Intensities Now and Required to Meet 450 ppm Target**[25]



less than a complete decarbonisation of every single dollar will do to achieve carbon targets. Needless to say, these numbers look even worse, if the higher UN population projections materialise. Although conversely, of course, more robust population policies would reduce the pressure on technology.

Stark choices

Playing with numbers may seem like dancing angels on the head of a pin. But simple arithmetic hides stark choices. Are we really committed to eradicating poverty? Are we serious about reducing carbon emissions? Do we genuinely care about resource scarcity, deforestation, biodiversity loss?[26] Or are we so blinded by conventional wisdom that we daren't do the sums for fear of revealing the truth?

One thing is clear. Business as usual is grossly inadequate, as even the International Energy Agency – the world's energy watchdog – now accepts. Their 'Reference' scenario has the demand for primary energy growing by 45% by 2030, on-track for the 80% hike in carbon emissions alluded to above.

The IEA's 'Stabilisation' scenario reveals the scale of the challenge. 'Our analysis shows that OECD countries alone cannot put the world onto a 450ppm trajectory, even if they were to reduce their emissions to zero', the World Energy Outlook 2008 admits.[27]

The report also highlights the scale of investment that is likely to be needed over the coming decades. Stabilising carbon emissions (and addressing problems of energy security) requires a whole-scale transition in global energy systems. Technological change is essential, with or without growth. Even a smaller economy would face this challenge: declining fossil energy requirements and substantially reduced carbon emissions are vital.

We can never entirely discount the possibility that some massive technological breakthrough is just round the corner. But it's clear that early progress towards carbon reduction will have to rely on options that are already on the table: enhanced energy efficiency, renewable energy and perhaps carbon capture and storage.[28]

Just how much decoupling could be achieved in this way is an open question. The truth is, we haven't yet tried that hard to achieve it. As Paul Ekins pointed out in his contribution to *Redefining Prosperity*, current policies barely scratch the surface of what could be done to deliver decoupling.[29] Substantial early investment in low carbon technologies is obviously essential.

The need for this kind of investment could transform the economics of the 21st Century. Its impact on global growth is far from certain. The Stern Review famously argued that 'the annual costs of achieving stabilisation...are around 1% of global GDP.'[30] But the stabilisation target was a less punishing one (550 ppm) than is now believed to be necessary.

Stern himself subsequently revised his cost estimate to 2% of GDP on the grounds that a stabilisation target of 500 ppm was now needed because climate change was proceeding faster than previously anticipated. The UK Climate Change Committee's first report published in December 2008 came up with costs consistent with Stern. Accountancy firm PriceWaterhouseCoopers estimated the costs of achieving a 50% reduction in global carbon emissions at 3% of global GDP.[31]

Though clearly substantial, even these numbers may underestimate the economic impact of addressing climate change. 'The easy compatibility between economic growth and climate change, which lies at the heart of the Stern Report, is an illusion,' claims energy economist Dieter Helm. Stern's microeconomic appraisals of cost suffer from serious 'appraisal optimism', he suggests, assuming that wholesale transformation of energy systems can be achieved by scaling up marginal cost estimates.[32]

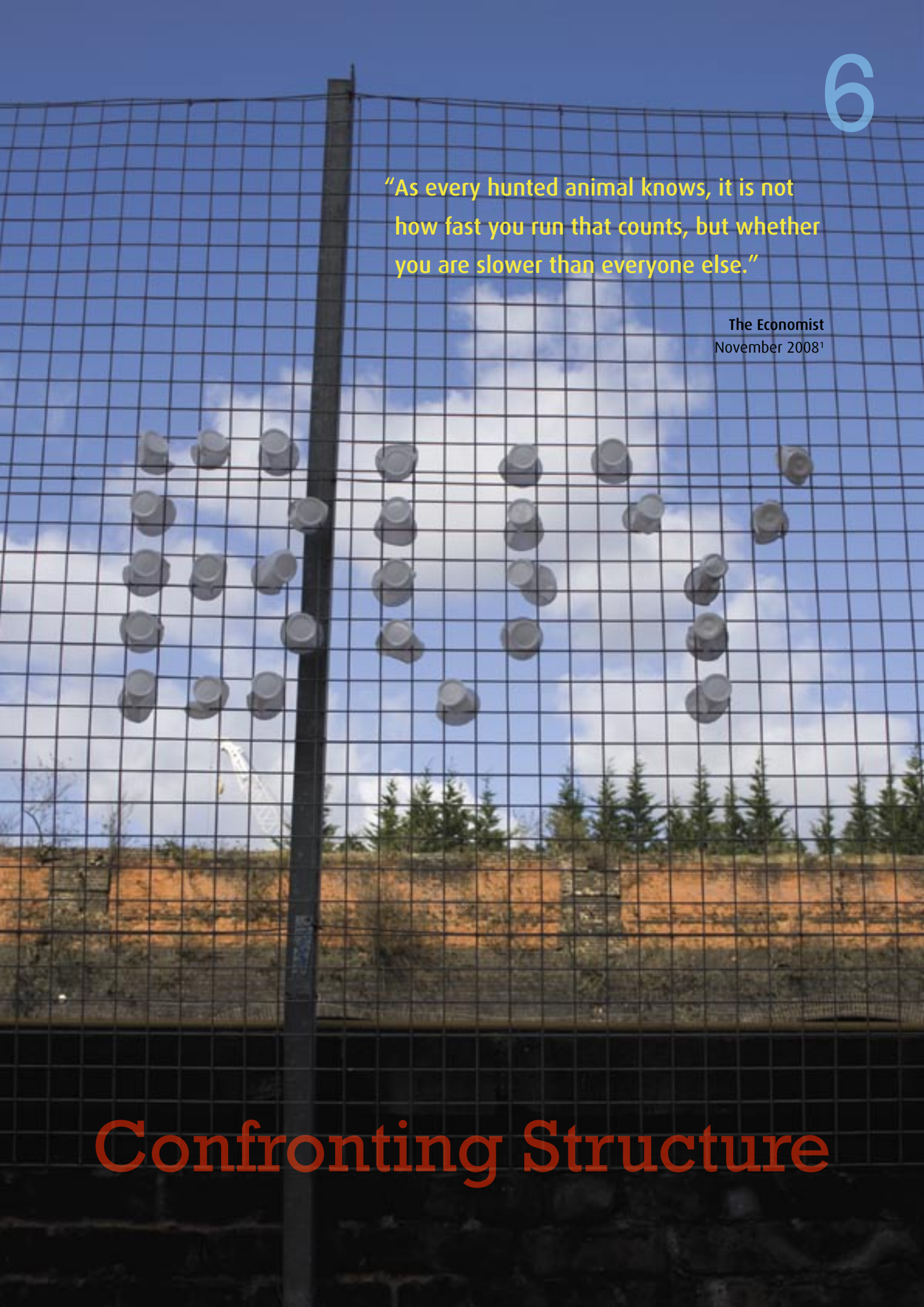
Helm also attacks the macro-economics of current stabilisation scenarios. Not only could carbon abatement policies interfere more seriously with productivity than many macro-economic assessments suggest, but early climate change impacts could themselves reduce potential growth. Assuming that economic growth simply rolls onwards in the face of high mitigation and adaptation costs is untenable, claims Helm.[33]

Besides all this, none of the existing stabilisation scenarios (including those in the Stern review) deliver global income parity. Income growth in the developed nations is taken as read. Parts of the

developing world are assumed to catch up a little with the richer nations. But no attempt is made to develop scenarios in which incomes are distributed equally across nations. Unless growth in the richer nations is curtailed or some kind of completely unforeseen technological breakthrough happens, the carbon implications of a truly shared prosperity are even more daunting to contemplate.

The truth is that there is as yet no credible, socially-just, ecologically-sustainable scenario of continually growing incomes for a world of nine billion people. In this context, simplistic assumptions that capitalism's propensity for efficiency will allow us to stabilise the climate or protect against resource scarcity are nothing short of delusional. Those who promote decoupling as an escape route from the dilemma of growth need to take a closer look at the historical evidence – and at the basic arithmetic of growth.

Resource efficiency, renewable energy and reductions in material throughput all have a vital role to play in ensuring the sustainability of economic activity. But the analysis in this chapter suggests that it is entirely fanciful to suppose that 'deep' emission and resource cuts can be achieved without confronting the structure of market economies.



6

"As every hunted animal knows, it is not how fast you run that counts, but whether you are slower than everyone else."

The Economist
November 2008[1]

Confronting Structure

A sense of anxiety pervades modern society. At times it tips over into visceral fear. The economic crisis of 2008 was such a time. Financial institutions became almost paralysed by fear. Banks refused to lend even to each other; consumers stopped spending because of it. Governments displayed signs of being totally bewildered, both by the speed of change and by the implications of failure.

Fear may not be all bad. The threat of imminent collapse may have been the only force strong enough to bring so many countries together in late 2008, with a pledge to 'achieve needed reforms in the world's financial systems'. Decisiveness in the face of fear won Gordon Brown his international plaudits during the early phase of financial recovery.

And yet the sense of a more fundamental, a more pervasive anxiety underlying the modern economy is an enduring one.[2] Could it really be the case, as *The Economist* suggests, that we are still behaving like hunted animals, even in the 21st Century, driven by the fine distinction between predator and prey? If we are, it would be good to recognise it. And to understand why. For without that understanding, solutions to the dilemmas we face will inevitably prove elusive.

Admittedly, the dilemma of growth isn't helping much, looking as it does like an impossibility theorem for lasting prosperity. Perhaps at some instinctive level, we have always understood this. Maybe we're haunted by subconscious fear that the 'good life' we aspire to is already deeply unfair and can't last forever. That realisation – even repressed – might easily be enough to taint casual joy with existential concern.

And of course the analysis in Chapter 5 doesn't allay those fears. It more or less closes down the most obvious escape from the dilemma of growth. Efficiency is a grand idea. And capitalism sometimes delivers it. But even as the engine of growth delivers productivity improvement, so it also drives forward the scale of throughput. Nowhere is there any evidence that efficiency can outrun – and continue to outrun – scale in the way it must do if growth is to be compatible with sustainability.

There is still a possibility that we just haven't tried hard enough. With a massive policy effort and huge technological advances, perhaps we could reduce resource intensities the two or three orders of magnitude necessary to allow growth to continue – at least for a while. And yet, the idea of running faster and faster to escape the damage we're already causing is itself a strategy that smacks of panic. So before we settle for it, a little reflection may be in order.

Accordingly, this chapter confronts the structure of modern economies head on. In particular, it explores two interrelated features of economic life that are central to the growth dynamic. On the one hand, the profit motive stimulates newer, better or cheaper products and services through a continual process of innovation and 'creative destruction'. At the same time, the market for these goods relies on an expanding consumer demand, driven by a complex social logic.

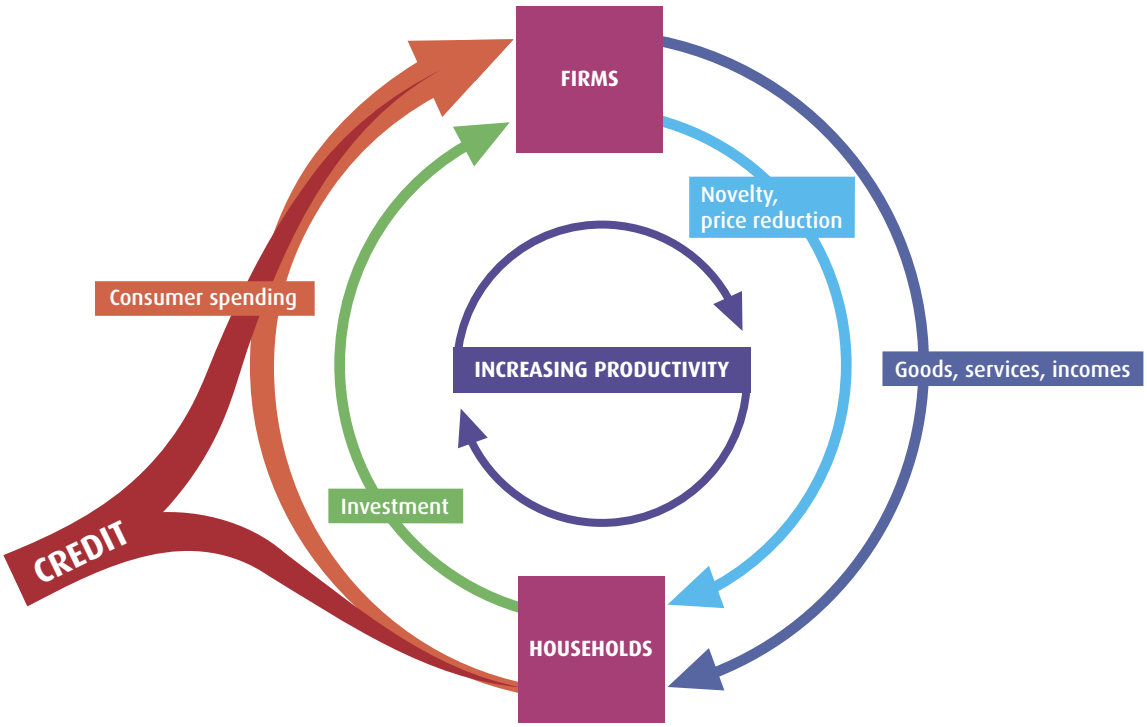
These two factors combine to drive 'the engine of growth' on which modern economies depend and lock us in to an 'iron cage' of consumerism.[3] It's essential to get a better handle on this twin dynamic, not least so that we can identify the potential to escape from it. The starting point is to unravel some of the workings of the modern economy.

Economic structure

At its outer frontier, consumer capitalism is a complex beast, generating whole new species of financial derivatives just to keep itself afloat. At its heart, it is strikingly simple (Figure 18).

In broad terms, firms employ labour (people) and capital (buildings and machinery) to produce the goods and services that households want and need. Households (people) offer up their labour and capital[iii] (savings) to firms in exchange for incomes. Revenue from the sale of goods and services is what allows firms to provide people with incomes. People spend some of this income on more consumer goods. But some of it they save. These savings are invested (directly or indirectly) back into firms.

Figure 18 **The 'Engine of Growth' in Market Economies**



This, in a nutshell, is the 'circular flow' of the economy.[4]

Missing from this over-simplified picture of the economy (and from Figure 18) are what's called the public sector (government), the foreign sector (overseas firms, households and governments) and the financial sector – which mediates the financial flows of the circular economy.

All of these are crucial. Partly because they introduce a whole new set of actors and a whole new set of possibilities: different ways of spending and producing, saving and investing. These offer some potential (as we shall see in Chapter 8) for reconfiguring the economy. But they also complicate the basic simplicity of Figure 18 enormously.

In one sense, the financial crisis emerged precisely out of the complexity generated by the evolution of a global financial sector. And as we saw in Chapter 2, that complexity was in part the result of trying to keeping the system going. Global credit markets facilitate one of the most fundamental features of capitalism: the dual role of saving and investment.

The basic functioning of this feature is pretty simple. Households give over part of their income to savings. These savings are invested – either directly or through an intermediary (a bank, building society or investment house, e.g.) in businesses to generate profits.

Profit is key to this system. Why would households give their savings to firms rather than simply

iii Oddly for a system which borrows its name from it, the term 'capital' is confusing in the sheer variety of meanings given to it within that system. Buildings and machinery are 'capital goods' sometimes called physical capital. Financial capital is used to refer to reserves of money (savings for instance), which of course can be used to invest in capital goods. And confusingly the term capital is also used to refer to the accumulation of wealth or assets – which include both financial and physical capital. In simple terms, capital simply means a stock of something. This broader meaning has been taken (Porritt 2005, e.g.) as the basis for arguing that there are things called natural capital (stocks of resources, say), human capital (stocks of skills) and social capital (stocks of community).

hanging on to them or spending the money on consumer goods? Only because they expect to receive a healthy 'return' on their capital at some point in the future. This return is created out of the stream of profits from the firms they invest in.

Firms themselves seek profit for several reasons. In the first place, it provides them with working capital (cash) to invest in maintenance and improvements themselves. Secondly, it's needed to pay off the company's creditors – people who've lent the firm money in expectation of a return. Thirdly, it's used to pay dividends to shareholders – people who've bought a share in the company.

A company that shows good returns attracts more investment. The value of the company will rise because people are prepared to pay more for shares in it. When share values are rising, more people will be keen to buy them. Creditors know they will get their money back with interest. Shareholders know that the value of their shares will rise. The company knows that it has sufficient resources to maintain its capital stock and invest in new processes and technologies.

This ability to re-invest is vital. At a basic level, it's needed to maintain quality. Without it, buildings and equipment inevitably get run down.[5] Product quality is lost. Sales decline. The company loses its competitive position and risks going out of business.

Investment is also needed continually to improve efficiency – in particular labour productivity. The role of efficiency in capitalism has already been noted (Chapter 5). The driver for efficiency is essentially the profit motive: the need to increase the difference between revenues from sales and the costs associated with the so-called factor inputs: capital, labour and material resources.

Cost minimisation becomes a core task for any firm. But it involves some inherent tradeoffs. Amongst these is that capital investment is needed, in addition to its role in maintenance, to achieve cost reduction in the other two factors: labour and materials.[6] Switching to more energy efficient appliances or less labour intensive processes requires capital. This continuing capital need both motivates the search for low-cost credit and highlights the dangers of credit drying up. It also explains why reducing capital costs indefinitely isn't an option.[7]

When it comes to choosing which of the other two factors to target, a lot depends on the relative price of labour and materials. In a growing economy, wages rise in real terms. Until very recently at least, material costs have been falling in real terms. So in practice, companies have invested preferentially in technologies that reduce labour costs even if this increases material costs: an obvious counter to the trend of resource productivity discussed in Chapter 5.[8]

For a company, then, higher labour productivity lowers the cost of its products and services. Foregoing that possibility runs the risk of the company finding itself at a disadvantage compared with national and international competitors. In this case, it would sell fewer goods, report lower profits to its shareholders, and risk capital flight from the company. At the national level, this dynamic plays out as the ability to compete in international markets.

In short, the general trend in capitalism is towards increasing labour productivity. Since this means producing the same quantity of goods and services with fewer people, the cycle creates a downward pressure on employment that's only relieved if output increases. At the national level, this means growing the economy. Labour productivity more than doubled in the UK between 1976 and 2005. But the GDP grew even faster (by 133%) and this allowed for the unemployment rate to fall by half a percentage point over the period.[9]

Efficiency drives growth forwards. By reducing labour (and resource) inputs, efficiency brings down the cost of goods over time. This has the effect of stimulating demand and promoting growth. Far from acting to reduce the throughput of goods, technological progress serves to increase production output by reducing factor costs.[10]

The phenomenon of 'rebound' attests to this.[11] Money saved through energy efficiency, for example, gets spent on other goods and services. These goods themselves have energy costs that offset the savings made through efficiency, and sometimes wipe them out entirely (a situation described as 'backfire'). Spending the savings from energy-efficient lighting (say) on a cheap short-haul flight is one sure-fire recipe for achieving this.

This somewhat counter-intuitive dynamic helps explain why simplistic appeals to efficiency will never be sufficient to achieve the levels of decoupling required for sustainability. In short, *relative* decoupling sometimes has the perverse potential to *decrease* the chances of *absolute* decoupling.

However, efficiency alone doesn't guarantee success in business. Making the same thing more and more efficiently doesn't work for a couple of reasons. The first is that there are physical limits to efficiency improvement in specific processes. At the basic level, these constraints are laid down by the laws of thermodynamics.[12] The second is that failing to diversify and innovate risks losing out to competitors producing newer and more exciting products.

The economist Joseph Schumpeter was the first to suggest that it is in fact novelty, the process of innovation, that is vital in driving economic growth.[13] Capitalism proceeds, he said, through a process of 'creative destruction'. New technologies and products continually emerge and overthrow existing technologies and products. Ultimately, this means that even successful companies cannot survive simply through cost-minimisation.[14]

The ability to adapt and to innovate – to design, produce and market not just cheaper products but newer and more exciting ones – is vital. Firms who fail in this process risk their own survival. The economy as a whole doesn't care if individual companies go to the wall. It does care if the process of creative destruction stops, because without it, economic activity eventually stops as well.[15]

The role of the entrepreneur – as visionary – is critical here. But so is the role of the investor. It is only through the continuing cycle of investment that creative destruction is possible. When credit dries up, so does innovation. And when innovation stalls, according to Schumpeter, so does the long-term potential for growth itself.

At this point, it's tempting to wonder what the connection is between this self-perpetuating but somewhat abstract vision of creative capitalism, and the needs and desires of ordinary human beings. The circular flow of production and consumption may once have been a useful way of organising human society to ensure that people's material needs are catered for. But what does this continual cycle of creative destruction have to do with human flourishing? Does the self-perpetuating system really contribute to prosperity, in any meaningful sense? Isn't there a point at which enough is enough and we should simply stop producing and consuming so much?

One of the things that prevents this happening, clearly, is the structural reliance of the system itself on continued growth. But proponents also point to the human benefits that this kind of entrepreneurship brings: advances in medical science, for example, which have contributed to increased longevity (Chapter 4); or the sheer variety of experience which now contributes to our modern quality of life.[16]

In fact, there is something even more deep-rooted at play here, conspiring to lock us firmly into the cycle of growth. The continual production of novelty would be of little value to firms if there were no market for the consumption of novelty in households. Recognising the existence, and understanding the nature, of this demand is essential.

Social logic

It is perhaps not surprising to discover that the desire for novelty is linked intimately to the symbolic role that consumer goods play in our lives. It's been noted already (Chapter 4) that material artefacts constitute a powerful 'language of goods' that we use to communicate with each other – not just about status, but also about identity, social affiliation, and even – through giving and receiving gifts for example – about our feelings for each other, our hopes for our family, and our dreams of the good life.[17]

This is not to deny that material goods are essential for our basic needs: food, shelter, protection. On the contrary, this role is critical to our physiological flourishing: health, life expectancy, vitality.

But stuff is not just stuff. Consumer artefacts play a role in our lives that goes way beyond their material functionality. Material processes and social needs are intimately linked together through commodities. Material things offer the ability to facilitate our participation in the life of society. And in so far as they achieve this, they contribute to our prosperity (Chapter 3).

One of the vital psychological processes here is what consumer researcher Russ Belk called *cathexis*: a process of attachment that leads us to think of (and even feel) material possessions as part of the 'extended self'.[18] This process is evident everywhere. Our relationships to our homes, our cars, our bicycles, our favourite clothes, our books, our CD or DVD collection, our photographs all have this character.

Our attachments to material things can sometimes be so strong that we even feel a sense of bereavement and loss when they are taken from us. 'Hollow hands clasp ludicrous possessions because they are links in the chain of life. Without them, we are truly lost.' claimed the marketing guru Ernest Dichter in *The Science of Desire*.[19]

Some of these attachments are fleeting. They burn with novelty momentarily and are extinguished as suddenly when something else attracts our attention. Others last a lifetime. Possessions sometimes offer a sanctuary for our most treasured memories and feelings. They allow us to identify what is sacred in our lives and distinguish it from the mundane.

This kind of materialism, flawed though it may be, even offers some kind of substitute for religious consolation. In a secular world, having something to hope for is particularly important when things are going badly. Retail therapy works for a reason.[20]

Novelty plays an absolutely central role in all this. In the first place, of course, novelty has always carried information about social status. As Thorstein Veblen pointed out over a century ago, 'conspicuous consumption' proceeds through novelty. Many of the latest consumer appliances and fashions are accessible at first only to the rich. New products are inherently expensive, because they are produced on a small scale. They may even be launched at premium prices deliberately to attract those who can afford to pay for social distinction.[21]

After distinction comes emulation. Social comparison – keeping up with the Joneses – rapidly expands the demand for successful products and facilitates mass production, making once luxury goods accessible to the many. And the sheer wealth and enormous variety of material goods has a democratising element to it. It allows more and more people to go about inventing and reinventing their social identities in the search for a credible place in society.

Arguably it is precisely this cornucopia of material goods and its role in the continual re-invention of the self that distinguishes consumer society from its predecessors. Material artefacts were always capable of carrying symbolic meaning. They were often used to establish social position. Only in modernity has this wealth of material artefacts been so deeply implicated in so many social and psychological processes.

According to some commentators, the symbolic role of goods is even appropriated in modern society to explore deep existential questions about who we are and what our lives are about. Novelty is seductive in its own right here. It offers variety and excitement; it allows us to dream and hope. It helps us explore our dreams and aspirations for the ideal life and escape the sometimes harsh reality of our lives.[22]

And it is precisely because material goods are flawed but somehow plausible proxies for our dreams and aspirations, that consumer culture seems on the surface to work so well. Consumer goods, suggests anthropologist Grant McCracken, provide us with a tangible bridge to our highest ideals. They fail, of course, to provide a genuine access to those ideals, but in failing they leave open the need for future bridges, and so stimulate our appetite for more goods. Consumer culture perpetuates itself here precisely because it succeeds so well at failure![23]

Again, it is important to remember that this dynamic doesn't by any means exhaust our relationship to material goods. Consumption is also vital to us in simple material ways. It is as much about ordinary everyday survival as it is about the continual processes of emulation, status competition and 'self-completion'. But it is this social dynamic, rather than physiological flourishing, which serves to explain why our desire for material goods appears so insatiable. And why novelty matters to us.

Novelty and anxiety

It's tempting to dismiss such a system as pathological. And in some senses it clearly is. Psychologist Philip Cushman has argued that the extended self is ultimately an 'empty self' which stands in continual

need of 'being "filled up" with food, consumer products, and celebrities'.[24]

But it is also vital to recognise that this pathology is not simply the result of some terminal quality in the human psyche. We are not by nature helpless dupes, too lazy or weak to resist the power of manipulative advertisers. On the contrary, human creativity, emotional intelligence and resilience in the face of adversity are visible everywhere, even in the face of an apparently pathological consumerism.

Rather, what emerges from this analysis is that the empty self is itself a product of powerful social forces and the specific institutions of modern society. Individuals are at the mercy of social comparison. Institutions are given over to the pursuit of consumerism. The economy is dependent on consumption for its very survival.

Perhaps the most telling point of all is the rather too perfect fit between the continual consumption of novelty by households and the continuous production of novelty in firms. The restless desire of the 'empty self' is the perfect complement for the restless innovation of the entrepreneur. The production of novelty through creative destruction drives (and is driven by) the appetite for novelty in consumers.

Taken together these two self-reinforcing processes are exactly what is needed to drive growth forwards. As the ecological economist Douglas Booth remarks: 'The novelty and status seeking consumer and the monopoly-seeking entrepreneur blend together to form the underpinning of long-run economic growth.'[25]

It's perhaps not surprising that this restlessness doesn't necessarily deliver genuine social progress. Sometimes (Chapter 4) it even undermines wellbeing and contributes to social recession. And there are some pretty clear reasons for that. Amongst them is that this is a system driven by anxiety.

The extended self is motivated by the angst of the empty self. Social comparison is driven by the anxiety to be situated favourably in society. Creative destruction is haunted by the fear of being left behind in the competition for consumer markets. Thrive or die is the maxim of the jungle. It's equally true in the consumer society. Nature and structure combine together here to lock us firmly into the iron cage of consumerism.

It's an anxious, and ultimately a pathological system. But at one level it works. The relentless pursuit of novelty may undermine wellbeing. But the system remains economically viable as long as liquidity is preserved and consumption rises. It collapses when either of these stalls.

These understandings provide us with our clearest insight yet into the enormity of the challenge implied in delivering a truly sustainable form of prosperity. Perhaps first and foremost, that challenge compels us to develop a different kind of economic structure (Chapters 7 and 8).

But it's clear that this task isn't sufficient. We also have to find a way through the institutional and social constraints that lock us into a failing system. In particular, we need to identify opportunities for change within society – changes in values, changes in lifestyles, changes in social structure – that will free us from the damaging social logic of consumerism (Chapter 9 and 10).

Only through such changes will it be possible to get ourselves 'unhooked' from growth, free ourselves from the relentless flow of novelty that drives material throughput and find instead a lasting prosperity – the potential to flourish, within ecological and social limits.

Keynesianism and the 'Green New Deal'

"The new, green economy would provide a new engine of growth, putting the world on the road to prosperity again. This is about growing the world economy in a more intelligent, sustainable way."

Achim Steiner
October 2008[1]

One of the most striking features of the global financial crisis that emerged during 2008 was the degree of consensus that the overriding priority was to re-invigorate economic growth. From the International Monetary Fund to the United Nations Environment Programme, from political parties across the political spectrum, and from within both liberal and coordinated market economies, the call was for mechanisms that would 'kick-start' economic growth again.

The reason for this consensus is obvious enough. It flows immediately from the structural reliance of the economy on growth to maintain full employment. When spending slows down, unemployment looms large. Firms find themselves out of business. People find themselves out of a job. And a government that fails to respond appropriately will soon find itself out of office. In the short-term, the moral imperative to protect jobs and prevent any further collapse is incontrovertible.

But what about the long-term vision? When the economy falters, the clarion call from every side is to get the economy 'back on the growth path'. And this call is not just to increase the GDP. It is, for the most part, to stimulate consumption growth: to restore consumer confidence and stimulate high street spending. It is, in effect, a more or less united call to re-inspire the dynamics described in Chapter 6. The dynamics that will continue to drive unsustainable throughput.

Those inclined to question the consensus wisdom are swiftly denounced as cynical revolutionaries or modern day luddites. 'We do not agree with the anti-capitalists who see the economic crisis as a chance to impose their utopia, whether of a socialist or eco-fundamentalist kind,' roared the Independent on Sunday late in 2008. 'Most of us in this country enjoy long and fulfilling lives thanks to liberal capitalism: we have no desire to live in a yurt under a workers' soviet.'[2]

With that confusingly-attired bogey-man looming over us, kick-starting consumer confidence to boost high street spending looks like a no-brainer. And internecine warfare is all saved for arguing over how this is to be achieved.

Kick-starting the economy

The whole point about a circular economy (Figure 18) is that there's no simple answer to this question. There are multiple points of intervention. But none of them is risk free. The three main contenders are: to stimulate credit to businesses and consumers (for example by cutting interest rates), to increase people's spending power (for example by cutting taxes) or to increase public spending on jobs and infrastructure.

The first option more or less characterises the way in which the consumer boom was built and protected for so long throughout the 1990s and early 2000s. There is a logic to it. Stimulating credit increases the availability of investment capital to firms and at the same time reduces the cost of debt to consumers. We've seen already how crucial both of these things are in keeping consumption going.

But making credit easier and cheaper also played a critical role (Chapter 2) in creating the global financial crisis of 2008. The danger for the UK – and for many other developed economies – is that we are already at the limits of consumer indebtedness and face a sharply rising public sector debt as well. Pushing these any further stretches the boundaries of financial prudence.

Reducing the interest rate also reduces the incentive to save, at a point when the savings rate has collapsed to virtually nothing (Figure 2). This route appears to be an encouragement away from economic prudence by firms and households.

Perversely, this may work in favour of recovery – at least in the short term. One of the dangers of the second option – putting more money in people's pockets – is that government doesn't have control over where it gets spent. People are more inclined to save during a recession. If your financial security looks threatened, it's not a bad idea to have something put away for the future. Ironically, more saving is the last thing that governments want in these circumstances, in spite of widespread concern over levels of consumer indebtedness.

This is what economist John Maynard Keynes called the 'paradox of thrift'. The normal rules of prudence are turned on their head. It's entirely rational for each individual (or firm) to save a bit more in a crisis. But it turns out to be bad for the economy – at least with the system designed the way it is right now. Increased saving reduces high street spending still further, deepening and lengthening the recession.[3]

This leaves option three, a classic Keynesian public spending programme. The most well-known example of this was Franklin D Roosevelt's New Deal in the 1930s, implemented as the world struggled to escape the great Depression. The New Deal entailed a massive investment in public sector works. It may not have had the short-term effect some claim for it. It didn't in fact achieve a full economic recovery within Roosevelt's first two terms in office. But its long-term impact was enormous.[4]

As Paul Krugman, winner of the 2008 Nobel Prize in economics, has pointed out: 'The New Deal famously placed millions of Americans on the public payroll via the Works Progress Administration [WPA]... To this day we drive on WPA-built roads and send our children to WPA-built schools.' [5] Not surprisingly, there was a lot of talk about the New Deal during the financial crisis. Krugman called for a Keynesian-type stimulus equivalent to 4% of the US GDP.[6]

Green New Deal

The most interesting variation on this theme was the call for a (global) Green New Deal. If the public sector is going to spend money to re-invigorate the economy, argued its advocates, wouldn't it be as well to spend it investing in the new technologies that we know we are going to need to address the environmental and resource challenges of the 21st Century?

'Investments will soon be pouring back into the economy,' suggested Pavan Sukdhev, the Deutsche Bank economist leading research on UNEP's Green Economy Initiative. 'The question is whether they go into the old extractive short-term economy of yesterday, or a new green economy that will deal with multiple challenges while generating multiple economic opportunities for the poor and the well-off alike.'[7]

By early 2009, a strong international consensus had emerged in support of a very simple idea. Economic recovery demands investment. Targeting that investment carefully towards energy security, low-carbon infrastructures and ecological protection offers multiple benefits. These benefits include:

- freeing up resources for household spending and productive investment by reducing energy and material costs
- reducing our reliance on imports and our exposure to the fragile geopolitics of energy supply
- providing a much-needed boost to jobs in the expanding 'environmental industries' sector[8]
- making progress towards the demanding carbon emission reduction targets needed to stabilise the global atmosphere
- protecting valuable ecological assets and improving the quality of our living environment for generations to come.

Consensus had also formed around the appropriate targets for a green stimulus package. As the UK Prime Minister pointed out in a speech to the World Economic Forum in Davos early in 2009, the 'contours of a resilient low-carbon recovery are becoming clear', not just from the proposals from a wide variety of observers but from plans being made on the ground in numerous countries.

During 2008, the UK-based Green New Deal group (which includes representatives from business, the media and NGOs) had suggested that stimulus spending should be focused on the twin challenges of climate change and energy security. The group put forward proposals for a low-carbon energy system that would make 'every building a power station' and the creation and training of 'a "carbon army" of workers to provide the human resources for a vast environmental reconstruction programme.'[9]

UNEP's global Green New Deal widened the remit of spending to include investment in natural infrastructure: sustainable agriculture and ecosystem protection. Ecosystems already provide tens of trillions of dollars worth of services to the world economy.[10] So protecting and enhancing ecosystems is vital to economic productivity in the future, UNEP pointed out. They also called for substantial investments in clean technologies, sustainable agriculture and sustainable cities.

The case for a stimulus focused on energy and carbon is very strong. Re-capitalising the world's energy systems for a low carbon world will be a major investment challenge over the next fifty years. The IEA has estimated that energy investment needs between 2010 and 2030 will be in excess of $35 trillion.[11] Bringing forward some of this investment and targeting it specifically at renewable energy, low-carbon technologies and energy efficiency could pay massive dividends later.[12]

In a report published towards the end of 2008, the Deutsche Bank identified a 'green sweet spot' for stimulus spending, consisting of investment in energy efficient buildings, the electricity grid, renewable energy and public transportation. 'One of the reasons that the "green sweet spot" is an attractive focus for an economic stimulus is the labor-intensity of many of its sectors,' claimed the Bank.[13]

A study by the University of Massachusetts Political Economy Research Institute supports that view. It identified six priority areas for investment: retrofitting buildings, mass transit/freight rail, smart grid, wind power, solar power and next generation biofuels. The authors calculated that spending $100 billion on these interventions over a two year period would create 2 million new jobs. By contrast, the same money directed at household spending would generate only 1.7 million jobs and directed at the oil industry fewer than 600,000 jobs.[14]

Strategies for job creation

If replicable elsewhere, these findings provide vital insights into the appropriate way to approach economic recovery. Job creation is one of the key aims of an economic stimulus programme. Not only are jobs essential for economic recovery. Meaningful employment is itself a key constituent in prosperity (Chapter 3).

Understanding how best to protect employment is vital. Several strategies are possible, including the direct creation of public sector jobs, financial support to boost employment in specific sectors, or indirect support for jobs through measures to stimulate demand.

Public sector employment was the route favoured in the Roosevelt's New Deal. Apart from the obvious social benefit in providing jobs, public sector employment seeks its return in several ways. Firstly, there are the benefits to the economy from investment in productive infrastructure (road-building, for example, in the New Deal). In addition, public sector jobs generate a part of what has been called the 'social wage' – a return to households from government spending in the form of wages, health and education benefits and social services.[15]

The stimulus packages to emerge from the 2008 crisis favoured a mixture of the other two strategies. Specific sectors received (or sought) direct support from government in a number of different countries. Most obviously of course, enormous sums of money were committed to the direct support of the financial sector. By the end of 2008, an estimated $7 trillion had been spent globally in underwriting toxic assets, recapitalising banks and attempting to restore confidence in the financial sector and stimulate lending (Chapter 2).

Direct recovery packages were also sought (and sometimes offered) in other sectors. Most notably, the car industry received direct support in both the UK and the US. The US government committed over $23 billion to bail out the ailing giants GM and Chrysler at the end of 2008.[16] Early in 2009, the UK Government promised to underwrite loans to the car industry totalling £2.3 billion.

Perhaps most bizarrely, representatives from the US porn industry approached US Congress for support, early in 2009, following the car industry bailout. 'Americans can do without cars and such, but they cannot do without sex,' argued Larry Flynt, the founder of *Hustler* magazine.[17] Surely more of a publicity stunt than a serious claim, the call nonetheless highlights the profound mess created by the financial crisis, with the vulnerable and not-so-vulnerable alike lobbying for direct support in the matter of their livelihoods.

Beyond direct support to specific sectors, broader fiscal recovery packages have also been established in many countries and at EU level. The employment aims of these packages are achieved by attempting to 'kick-start' growth through a mixture of tax cuts, social spending and public investment.

For example, the UK Pre-Budget Report (PBR) 2008 establoished a fiscal stimulus worth £20

billion, including an estimated £12.5 billion cut in the VAT and £3 billion of capital spending 'brought forward'.[18]

In the US, the Obama administration brought in a fiscal stimulus package equivalent to 5% of US GDP through the American Recovery and Reinvestment Act 2009 (ARRA). The $787 billion package comprised around $290 billion in tax cuts and almost $500 billion in 'thoughtful and carefully targeted priority investments'; its aim 'to create and save 3 to 4 million jobs, jumpstart our economy, and begin the process of transforming it for the 21st century'.[19]

The potential for 'green' recovery

In principle, each of these different approaches to economic recovery could contain a 'green stimulus' component. Public sector employment could be directed explicitly at 'green jobs'. Direct support for the financial sector could be allied with conditions or investment vehicles to ensure that lending is preferentially targeted at sustainable investments.[20] Sectoral bailouts like those afforded to the car industry could be made conditional on shifting towards greener manufacturing and low-carbon vehicles.[21]

In practice little of this happened in the early stages of the crisis. But by early 2009, the concept of a green stimulus was evident in recovery packages across the world in countries as varied as China, South Korea, Australia and Denmark, the UK and the US.

In the UK, for instance, a 'green stimulus' element was included in the 2008 Pre-Budget Report. In total, this only amounted to £535 million, less than 3% of the whole package, which was in its turn only a little over 1% of the GDP. £300 million of this was for accelerated replacement of new railway carriages. A small component (£25 million) was for flood defence and water infrastructure. Only about £200 million (just over 1% of the total package) was for energy efficiency (mostly brought forward investment) in people's homes.

By comparison the US ARRA explicitly identified about $130 billion of spending (16% of the total stimulus) in environmental investment. This figure included $32 billion investment in the electricity grid, $22 billion on energy and carbon saving in homes and a further $31 billion in the public estate, $19 billion in ecosystem maintenance and flood protection and $10 billion on public transport.

There are good grounds to question the scope and scale even of this relatively ambitious US plan. As we noted in Chapter 5, the likely annual investment needed to achieve a low carbon society could be as high as 3% of GDP per annum. For the US, this would be equivalent to a green stimulus worth around $400 billion, over three times the size of the environmental investment outlined in the ARRA.

In the case of the UK, the equivalent investment would be in the region of £45 billion a year, massively higher than anything proposed so far by the UK government.[22] The SDC has argued that there is considerable scope for a much higher level of green stimulus than is currently being considered and has identified a range of possible investment targets.[23] These include:

- an ambitious 20 year plan to retrofit the existing housing stock to high energy performance standards
- substantial investment in renewable energy to put the UK on track to meeting its target of 15% renewables by 2020.
- the reinforcement of the electricity grid to facilitate decentralised energy technologies, support renewable energy companies and improve control
- to reduce car use through a combination of better public transport, investment in walk-ability, cyclability and the roll-out of personal travel planning to encourage a modal shift
- massive investment in the energy efficiency of the public estate with the aim of delivering low carbon public services across the country.

Any recovery package raises the question of how it is to be paid for. One of the interesting features of green investment packages is that they offer the potential for direct financial returns to the economy. These returns take a variety of forms. Most obviously they arise in the form of fuel and resource savings. For instance, some simple measures to improve the energy efficiency of the domestic housing stock have payback times of less than two years.

Some are in the form of lower social costs and more efficient services. For instance, the UK Department for Transport has estimated that each £1 spent in reducing car use saves up to £10 in the economy

through a combination of fuel savings, reduced congestion costs, and lower pollution levels.

Beyond such easy wins, there are still challenges in raising the funds to invest in such measures, particularly in a harsh economic climate. The Deutsche Bank report argues that the best way to fund a green investment programme is through auctioning carbon permits under a cap and trade scheme. In other words by raising a new form of environmental taxation. At the same time the report accepts that the more likely option in the short term is deficit spending.

This was certainly the working assumption in most of the recovery packages put forward in the immediate response to the 2008 crisis. They were based on deficit spending over the short term in the hope of stimulating sufficiently robust growth that national debt can be reduced again in the longer term. It was estimated that the cost of the UK's PBR package could push the national debt to around 60% of GDP within a couple of years.[24] Paying this off would in itself be a long-term commitment.[25]

A further option would be to fund future spending through 'green bonds'. There is in any case more likelihood that people will save during a recession. Targetting that saving in funds which can achieve positive returns from investment in green recovery has a dual logic to it. On the one hand it provides a differentiated savings product when the propensity to save is high. On the other, it places investment funds directly into green recovery.

Finally, the possibility of innovative service structures which share the rewards from energy savings between households and investors have a clear rationale here. This 'energy services model' is usually assumed to proceed through private sector energy service companies. But the case for the public sector to reclaim some ownership in energy-related assets is also worth considering. There is a legitimate public claim on the return from public investment funds whereever those funds are directed. The energy sector case is at least as strong as the financial sector case.

In summary however, the broad assumption behind all these recovery packages is that they will be successful in stimulating consumption growth again. Credit will flow, consumers will spend, business will invest and innovate, productivity will return and the wheels of the machine will start turning. This is the logic of Keynesianism.[26]

Recovery here is taken to mean business as usual. Kick start the circular flow of the economy and watch it grow. The outcome (assuming it works) will be thoroughly predictable. Business innovation (creative destruction) and consumer demand (positional spending) will drive consumption forwards. And with employment depending on it, there's no means of anyone getting off the treadmill. We are right back at the structural impasse identified in Chapter 6.

Beyond recovery

Clearly, the Green New Deal advocates aren't proposing a return to the status quo. The UK group talks of 'a huge transformational programme'. UNEP also calls for 'transformational thinking'. But all recovery initiatives proposed so far assume that the ultimate goal of intervention is to restore economic growth. It's a different kind of growth, for sure; what Achim Steiner, Executive Director of UNEP, calls a 'green engine of growth'. But growth nonetheless. 'Any public spending should be targeted so that domestic companies benefit, and then the wages generated create further spending on consumer goods and services,' argues the UK group.[27]

Some kind of green stimulus makes perfect sense, both in protecting people's jobs and in making the transition to a low carbon economy. In circumstances where we know that public sector spending is needed to prevent the economy from collapsing, it is absolutely vital to target that spending properly. Massive investment is required to achieve sustainability. The current crisis is exactly the right time to commit to that investment. And the evidence suggests that the employment and resource saving benefits might be considerably better than for other kinds of spending.

Stimulus measures which support the least well-off are particularly to be welcomed. The poorest will inevitably be hardest hit through the recession and are already struggling with rising costs for food and fuel. Income inequality is higher in the UK today than it was in the mid-1980s.[28] Some modest progress has been made in recent years, but we do not yet live in the 'strong, healthy and just society' promised

in the UK's much-lauded Sustainable Development principles.

An unequal society is an anxious society, one given too readily to 'positional consumption' that adds little to overall happiness but contributes significantly to unsustainable resource throughput. A Green New Deal worthy of the name would signal clearly to the post-crisis world that we are serious about fighting climate change, preventing resource scarcity, and creating a fairer society.

And yet, it is difficult to escape the conclusion that in the longer term, we're going to need something more than this. Returning the economy to a condition of continual consumption growth is the default assumption of Keynesianism. But, for all the reasons highlighted in preceding chapters, this condition remains as unsustainable as ever.

There is no consistent vision of an economy founded on consumption growth that delivers absolute decoupling. And the systemic drivers of growth push us relentlessly towards ever more unsustainable resource throughput. A different way of ensuring stability and maintaining employment is essential. A different kind of economic structure is needed for an ecologically-constrained world. It is to this possibility that we now turn.

8

Macro-economics for Sustainability

"Under existing macro-economic arrangements, growth is the only real answer to unemployment – society is hooked on growth."

Douglas Booth
2004[1]

Put bluntly, the dilemma of growth has us caught between the desire to maintain economic stability and the need to reduce resource use and emissions. This dilemma arises because environmental impacts 'scale with' economic output: the more economic output there is, the greater the environmental impact – all other things being equal.

Of course, other things aren't equal. And the dominant attempt to escape the dilemma relies precisely on this fact. Things change as economies grow. One of these things is technological efficiency. It is now widely accepted that technological efficiency is both an outcome from, and a fundamental driver of, economic growth.

Proponents use this feature of capitalism to suggest that growth is not only compatible with environmental limits but necessary for it. Growth induces technological efficiency as well as increases in scale. All that's needed to achieve environmental goals is for efficiency to outrun (and continue to outrun) scale.

But historical evidence for the success of this strategy is unconvincing (Chapter 5). Global emissions and resource use are still rising. Apparent declines in carbon emissions in countries like the UK turn out on closer inspection to be due to accounting errors and cross-boundary trades. Much of the growth that is desperately needed in developing countries is inherently material in nature. And rebound effects from technological change push consumption even higher. In short, efficiency hasn't outrun scale and shows no signs of doing so.

That doesn't mean such a transition is impossible. On the contrary, we've already seen how little effort has truly been dedicated towards achieving it. And how the current economic crisis presents a unique window of opportunity to reconfigure our economies and invest in a sustainable future.

But it's abundantly clear that a different kind of macroeconomics is going to be needed. One in which stability no longer relies on ever-increasing consumption growth. One in which economic activity remains within ecological scale. Though these are unfamiliar goals for macro-economists, the aim of this chapter is to show that they are not only meaningful, but achievable.

Changing the 'Engine of Growth'

First, it's worth exploring whether a different 'engine of growth' would help us here, as Achim Steiner suggests. Similar proposals have been voiced for some years by ecological economists. Pointing out that 'ever greater consumption of resources is [in itself] a driver of growth' in the current paradigm, American academic Robert Ayres argues that 'in effect, a new growth engine is needed, based on non-polluting energy sources and selling non-material services, not polluting products'.[2]

Similar visions for business models based on product-service systems have been put forward elsewhere. The UK Business Taskforce on Sustainable Consumption and Production highlighted the potential for such models to reduce the requirement for personal ownership, improve the utilisation of capital resources and lower the material intensity of the economy.[3]

This is still essentially an appeal to decoupling. Growth continues, while resource throughput declines. But here at least is something in the way of a blueprint for what such an economy might look like. It gives us more idea what people are buying and what businesses are selling in this new economy. Its founding concept is the production and sale of de-materialised 'services', rather than material products.

It's vital to note that this cannot simply be the 'service-based economies' that have characterised development in advanced economies. For the most part, that has been achieved (as we saw in Chapter 5) by reducing manufacturing, continuing to import consumption goods from abroad and expanding the financial sector to pay for it.

Nor can it look much like anything that passes for service sector activity in modern economies at the present. When the impacts attributable to these are computed properly, most of them turn out to

be at least as resource hungry as the manufacturing sectors. The recreation and leisure sector ought to be a prime candidate for de-materialisation in principle. In practice, it's responsible for around 25% of all energy and carbon emissions attributable to UK consumers.[4]

So what exactly constitutes productive economic activity in this economy? It isn't immediately clear. Selling 'energy services', certainly, rather than energy supplies.[5] Selling mobility rather than cars. Recycling, re-using, leasing, maybe. Yoga lessons, perhaps, hairdressing, gardening: so long as these aren't carried out using buildings, don't involve the latest fashion and you don't need a car to get to them. The humble broom would need to be preferred to the diabolical 'leaf-blower', for instance.

The fundamental question is this: can you really make enough money from these activities to keep an economy growing?[6] And the truth is we just don't know. We have never at any point in history lived in such an economy. That doesn't mean we couldn't. But it sounds at the moment suspiciously like something the *Independent on Sunday* would instantly dismiss as a yurt-based economy – with increasingly expensive yurts.

The dynamics described in Chapter 6 just don't seem amenable to moderation of the kind envisaged. Social logic, questions of scale, and the laws of thermodynamics are still significant stumbling blocks to the changes hoped for by those with well-meaning intentions for continued growth with drastic reductions in material intensity.

'The idea of economic growth overcoming physical limits by angelizing GDP is equivalent to overcoming physical limits to population growth by reducing the throughput intensity or metabolism of human beings,' wrote ecological economist, Herman Daly, over thirty years ago. 'First pygmies, then Tom Thumbs, then big molecules, then pure spirits. Indeed, it would be necessary for us to become angels in order to subsist on angelized GDP.'[7]

On the other hand, doing without growth doesn't look attractive either. Modern economies are built explicitly around consumption growth. Politicians and economists may differ in their prescriptions for kick-starting growth in the event of a recession. But all of them assume a return to high street spending is what we're after. Apart from anything else, in the conventional view, structural stability relies on it.

And yet there's still something odd about our persistent refusal to countenance anything but growth at all costs. After all, John Stuart Mill, one of the founding fathers of economics, recognised both the necessity and the desirability of moving eventually towards a 'stationary state of capital and wealth', suggesting that it 'implies no stationary state of human improvement'. And though Keynes' macro-economics was largely concerned with the conditions of prudent growth, he also foresaw a time when the 'economic problem' would be solved and 'we prefer to devote our further energies to non-economic purposes'.[8]

All the more strange then, that virtually no attempt has been made to develop an economic model that doesn't rely on long-term growth. Herman Daly's pioneering work at least defined the ecological conditions of a steady state economy. For Daly, these can be expressed in terms of a constant stock of physical capital, capable of being maintained by a low rate of material throughput that lies within the regenerative and assimilative capacities of the ecosystem.[9]

What we still miss from this is the ability to establish economic stability under these conditions. We have no model for how common macro-economic 'aggregates' (production, consumption, investment, trade, capital stock, public spending, labour, money supply and so on) behave when capital doesn't accumulate. Nor do our models properly account for the dependency of macro-economic aggregates on ecological variables such as resource use, reserves, emissions and ecological integrity.

In short, there is no macro-economics for sustainability and there is an urgent need for one. In fact, this call – for a robust macro-economics of sustainability – is one of the most important messages from the analysis in this study. The following paragraphs explore the dimensions of this call in more detail.

Macro-economic basics

The main parameters can be set out easily enough. The principal macro-economic aggregate – the one

all the fuss is about, so to speak – is the GDP. Whether it deserves pride of place in a new macroeconomics for sustainability is an open question to which we return below. In the meantime, it's useful to set out briefly some of its economic characteristics.

There are three distinct ways of thinking about (and calculating) the GDP. In one view, it is the sum of all final expenditures on goods and services in the economy.[10] In another it measures the total output (or value added) of goods and services from all the productive enterprises within the nation. In a third view, it is the sum of all the incomes earned by people living in the country.[11]

The different calculations all come up with more or less the same total. In fact, they can be thought of, broadly speaking, as measuring the volume of the economic flow (at different points) around the circular economy.[12]

The expenditure-based GDP, also called 'aggregate demand' is made up from private consumer expenditure, public (government) expenditure, gross investment in fixed capital and net exports.[13] The economy is said to be in equilibrium when the aggregate demand matches the aggregate supply (sometimes called the national income).

In conventional macro-economics, the national income is estimated through a 'production function', which tells us how much (in monetary terms) an economy is capable of producing with any given input of the factors of production. Most often (as we saw in Chapter 6) the factors considered to drive the national income are capital, labour and technological efficiency.[14]

Ecological economists argue that this form of production function is unsatisfactory because it takes no explicit account of material resources and carries an implicit assumption that it's possible to substitute different factors of production indefinitely. One way of rectifying this would be to include energy (or other material resources) explicitly within the production function and also to constrain substitution possibilities.[15]

But the conventional macro-economic formulation contains no explicit reference to the material or ecological basis for the economy at all. Clearly both consumer goods and capital goods do embody material resources. So to some extent this is inherent in both the demand side and the supply side (in the production function). But these are measured only in monetary terms and don't usually carry any explicit reference to the material flows needed to create them.

A more general criticism of the GDP is its failure to account properly for changes in the asset base, even when it comes to financial assets. Gross fixed capital investment is measured. But depreciation of capital stocks goes unaccounted for and the GDP is almost completely blind to the levels of indebtedness identified in Chapter 2.[16]

No attention is paid in the GDP to the costs associated with the degradation of natural capital from economic activity, either through the impacts of environmental emissions or through the depletion of natural resources. And, by contrast, there are all kinds of things which are included in the GDP – the costs of congestion, oil spills, and clearing up after car accidents, for example – that should not really be counted as additional to human wellbeing.

These kinds of perversities have been the focus for long-standing critiques of conventional macro-economics by ecological economists and others. Numerous suggestions have been made for supplementing or adjusting the natural accounts to rectify the situation. For instance, there is a strong argument in favour of including some account of the flow of services provided by the natural environment and for subtracting so-called 'defensive' expenditures.[17]

We return to these policy suggestions in Chapter 11. The main aim here is to explore the principal macroeconomic variables and understand their relationships to each other. A key element in those relationships is the balance between supply and demand, and the importance of this balance for labour employment.

As we've already seen (Chapter 6), when demand falls, revenues to firms are reduced and this leads to job losses and reduced investment. Reduced investment leads to a lower capital stock which, together with a lower labour input, in turn reduces the productive capability of the economy. Output falls and with less money in the economy, public revenues also fall, debt is more difficult to service and

the system has a tendency to become unstable.

But does it have to work like this? Is it possible to configure the conventional macro-economic variables in such a way as to reduce the imperative for growth and yet maintain economic stability? One potential avenue of exploration is to attempt a stabilisation of economic output by altering the role or relative importance of key variables (such as consumption, investment, public spending and so on) within the basic macro-economic model.

In search of the low-growth economy

Astonishingly, there is almost no attempt at this task in the literature at all. The most notable exception is a study carried out by Canadian economist, Peter Victor, which was presented and discussed in detail at two workshops held by the SDC during the course of the *Redefining Prosperity* project.[18]

The study used an interactive systems model to explore the potential for achieving a stable, but non-growing economy. The model is calibrated against statistical data relating to the key macro-economic variables in the Canadian economy: output, consumption, public spending, investment, employment, trade and so on. On the basis of these, and specific assumptions about the future, Victor's model estimates the national income, computes the fiscal balance and tracks the national debt over a 30 year period to 2035. The model also keeps an account of unemployment, greenhouse gas emissions, and poverty levels.[19]

By changing key input variables – particularly those which are known to be drivers of growth, such as labour participation and investment rates – the model can be used to develop different scenarios for the future of the Canadian economy. It can also illustrate the environmental and social implications of those scenarios. Figure 19 shows one such attempt.

This scenario certainly achieves a stabilisation in the GDP. Under business as usual, income levels might be expected to grow by up to 80% over 30 years. In Figure 19, income per person is barely 10% higher in 2035 than it was in 2005. Greenhouse gas emissions come down slightly, mainly because output falls. But this reduction falls considerably short of what might be needed for a 450 ppm stabilisation scenario.

What's more worrying is that income stabilisation has only been achieved at the cost of spiralling unemployment, rising poverty and escalating public sector debt. In short, this scenario represents the unpalatable form of social (and economic) collapse that politicians fear the most.

Figure 19 **A Low-Growth Scenario for Canada: Collapse**

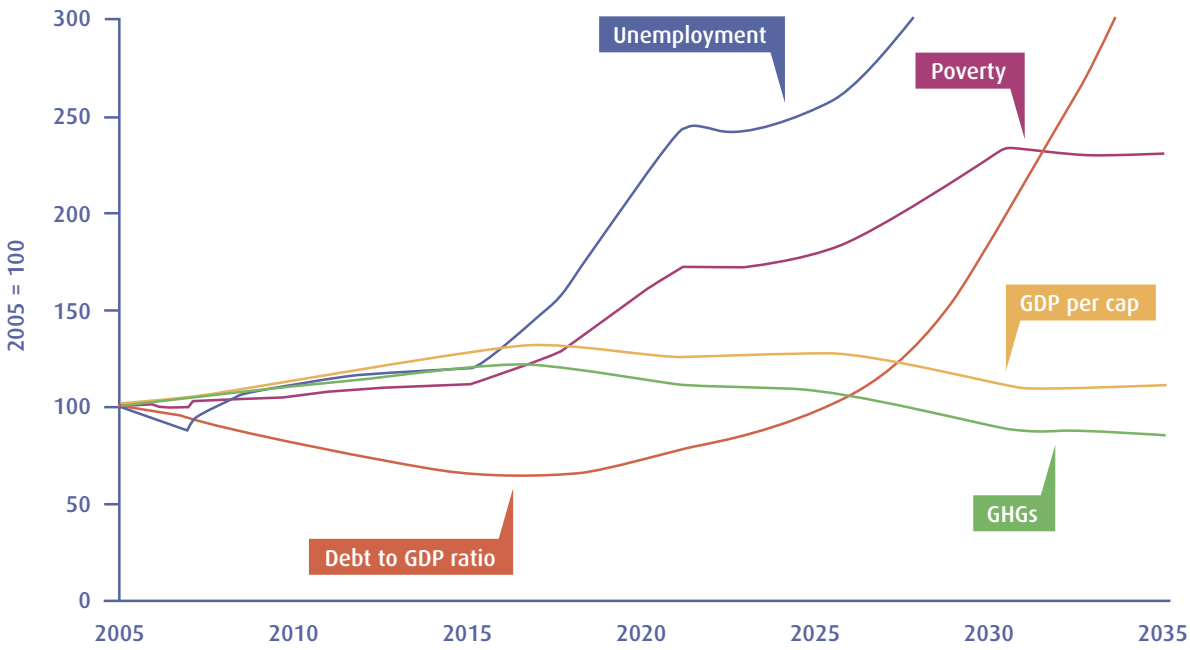


Figure 20 illustrates a more successful attempt to stabilise the economy. This time income is stabilised at a higher level. GDP per capita is around 70% higher in 2035 than it was in 2005. But most of the growth occurs in the first 20 years of the scenario. As economic stabilisation comes into effect, income growth is gradually reduced from 1.8% a year to less than 0.1% a year. During the final years, the national income is effectively stabilised.

Notably though, this has been achieved without compromising wider economic and social resilience. Unemployment and poverty have both been halved. The debt to GDP ratio has been slashed by 75%. Though it falls some way short of achieving a 450 ppm stabilisation target, Canada has achieved (25 years too late!) its 'Toronto target' of a 20% cut in greenhouse gas emissions.[20]

The difference in outcome in the two scenarios is striking. But what kinds of assumptions and policy interventions distinguish the 'Collapse' scenario in Figure 19 from the 'Resilience' scenario in Figure 20? How is the collapse shown in Figure 19 averted in Figure 20?

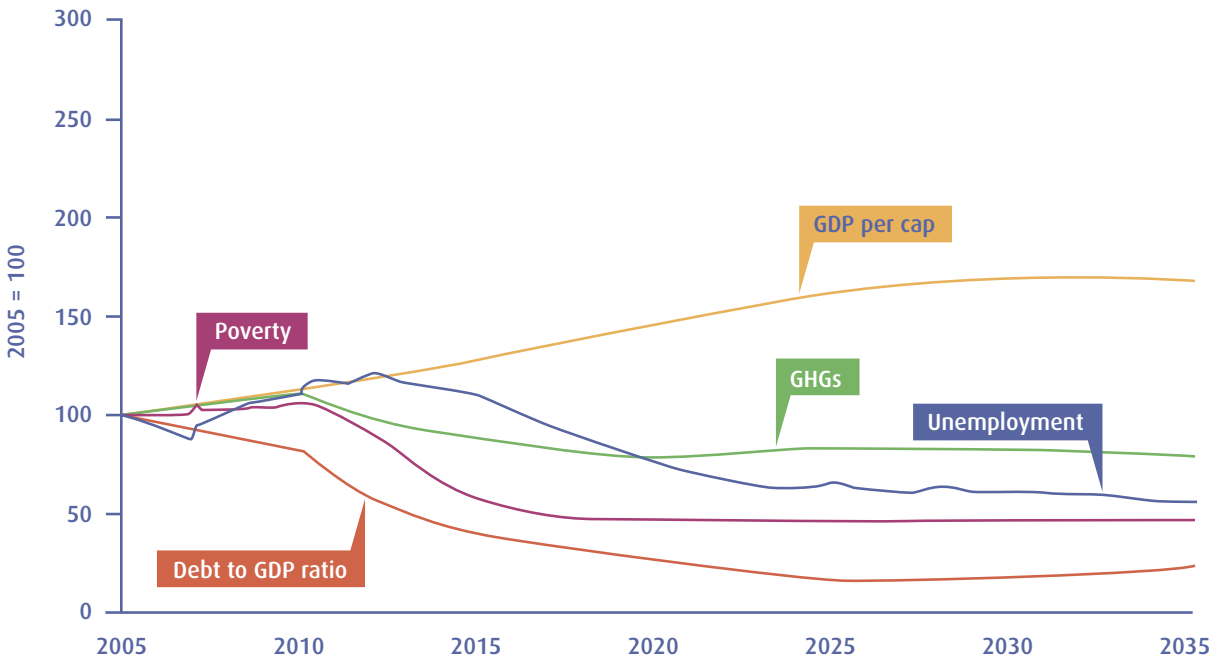
The most influential factors are changes to investment and the structure of the labour market. Net business investment is reduced in the Resilience scenario, and there has been a shift in investment from private to public goods, implemented through changes in taxation and public spending. The labour force has been stabilised, partly through demographic change and partly through policies aimed at stabilising the overall population.

Perhaps most importantly, unemployment is avoided in the Resilience scenario by reducing both the total and the average number of working hours. Labour productivity is assumed to increase. And this normally leads, through the logic discussed already (Chapter 6), to a reduction in the available work. But here unemployment is averted by sharing the work more equally across the available workforce.

This is an important outcome. It is possible to avoid the damaging unemployment that follows from recession by sharing work more equally amongst the population.

Reducing the working week is the simplest and most often cited structural solution to the challenge of maintaining full employment with non-increasing output. And there is some precedent for it, for example, from labour policies in certain European nations.[21] But it's worth noting that there are some other more radical suggestions for reorganising work to ensure equity and to encourage creative participation in society. These include the introduction of a basic (or citizen's) income.[22]

Figure 20 **A Low Growth Scenario for Canada: Resilience**



One of the strengths of Peter Victor's model is that it looks and behaves remarkably like a conventional macro-economy. In fact, aggregate demand is still dominated by consumption (although not driven by consumption growth). Consumer expenditure is close to 60% of GDP in both the base year (2004) and the final year (2035). However, the balance between other demand side variables is changed. Specifically, business investment falls from just under 20% of GDP in 2004 to only 12% in 2035. Public spending and net exports both rise.[23]

In other words, what Victor demonstrates is that there may be more room than commonly supposed, even within the conventional framework, to stabilise economic output. This is not to suggest that such changes are easy to implement.[24] Achieving reduced working hours, for example, requires careful policy and only tends to succeed under certain conditions. 'One of the fundamental preconditions for the working time policy pursued in Germany and Denmark' writes sociologist Gerhard Bosch, 'was a stable and relatively equal earning distribution.'[25] The same may be said for policies which restructure investment or shift taxation.

But the point here is that – even within a relatively conventional macro-economic framework – different configurations of the key variables are possible. And these configurations deliver different outcomes. When our goal is both to achieve economic stability and remain within ecological and resource limits, this is an absolutely critical finding.

Another of the contributions to *Redefining Prosperity* illustrates the same point. Using a hypothetical simulation model, Italian economists Simone d'Alessandro and Tommaso Luzzati explored the challenge associated with the transition from fossil fuels to renewable energy.[26]

As already noted (Chapter 7) this transition will require substantial new investment.[27] But there's a balance to be struck. If we invest too slowly, we run out of resources before alternatives are in place. Fuel prices soar and economies crash. If we invest too fast, there's a risk of slowing down the economy to the extent that the resources required for further investment aren't available. The upshot, according to d'Alessandro and his colleagues, is that there is a narrow 'sustainability window' through which the economy must pass if it is successfully to make the transition to a non-fossil world.

Crucially though, this 'sustainability window' is widened if the balance between consumption and investment in the economy is changed. Specifically, if the savings ratio is increased and more of the national income is allocated to investment, the flexibility to achieve the transition is higher, according to this analysis.[28]

Beyond the consumption-driven economy

Again, this is a really important insight. The default assumption is that consumption is not just the primary purpose but the principal driver of growth. Investment is crucial too. But its role is largely seen as being to stimulate the innovation necessary to increase consumption flows in the future. Public sector spending is often regarded as a 'necessary evil' – there to correct for failures in the market and provide a basic safety net for the least well-off.

It's easy to see how we've ended up with this very specific and rather narrow vision of the macro-economy: at first because of the close correspondence between consumption growth and the living standard; and then later because of structural and social lock-in (Chapter 6).

But the vision has failed. Consumption growth is damaging the basis for future wellbeing and isn't even well-aligned with current wellbeing. Investment is needed now more than ever. Not to stimulate ever higher levels of consumption in the future, but to build new infrastructures, to effect the transition to renewable energy and to deliver key environmental and social goals. And the public sector, far from being a 'distortion' of the free market, has an absolutely crucial role to play in the transition.

The state has clearly emerged as a vital 'first resort' when markets fail, as they did spectacularly during 2008. But, as the analysis in this chapter shows, the public sector also has an active role to play in protecting macro-economic stability, delivering public goods, investing in and managing long-term infrastructure assets, and co-creating the climate for sustainable consumption (Chapter 10).[29]

In short, the assumptions embedded in the conventional macro-economics stand in urgent need of revision. And the potential to explore this possibility clearly exists. Promisingly, we can already make a decent guess at some of the characteristics of a new macro-economics for sustainability.

The fundamental macro-economic variables will still pertain. People will still spend and they will still save. Enterprise will still produce goods and services. Government will still raise revenues and spend them in the public interest. Both private and public sector will both still invest in stocks of physical, human and social capital.

But new macro-economic variables will need to be brought explicitly into play. These will almost certainly include variables to reflect the energy and resource dependency of the economy. They may also include variables to reflect the value of environmental services or stocks of natural capital. [30]

And there are likely to be key differences even in the way that conventional variables play out. The balance between consumption and investment, the balance between public and private sector, the role of different sectors, the nature of productivity improvement, the conditions of profitability. All of these are likely to be up for renegotiation.

Investment is certainly going to play an absolutely vital role. If debt is to be kept under control this suggests that a different savings ratio will be needed. And that a different balance between consumption and investment in the aggregate demand function is likely. In addition, the level and nature of this investment almost certainly calls for a different balance between public and private sector investment.

It's worth exploring this last point further. The traditional function of investment (Chapter 6) is framed around labour productivity. This role is likely to diminish in importance. Innovation will still be vital, but it will need to be targeted more carefully towards sustainability goals. Specifically, investments will need to focus on resource productivity, renewable energy, clean technology, green business, climate adaptation and ecosystem maintenance and protection. These are some of the things to emerge from the consensus around a global Green New Deal (Chapter 7).

What we don't yet know is how to make the nature and scale of this investment work. Keynesianism assumes that investment has a 'multiplier' effect because it stimulates further consumption.[31] This is true of conventionally-focused business investment. But the nature and scale of investment for sustainability is very different.

Investment in resource productivity won't always bring preferential returns unless the relative price of labour and materials changes substantially. Some investments in renewable energy will only bring returns over much longer time frames than traditional financial markets expect. And investments in ecosystem protection and maintenance might not bring conventional financial returns at all, even though they are protecting vital ecosystem services for the future and may also be contributing to employment.

Simplistic prescriptions in which investment contributes to future productivity won't work here. The nature and conditions of investment will themselves have to change. Investment in long-term infrastructures and public goods will have to be judged against different criteria. Appendix 2 sketches the outline for a new macro-economic investment framework that builds on these points.

Particular attention is drawn in Appendix 2 to the challenge of matching supply with demand under these new conditions. Investments in ecosystem maintenance (for example) contribute to aggregate demand, but make no direct contribution to aggregate supply – at least under the assumptions of a conventional production function. They may be vital in protecting environmental integrity. And this is in its turn vital for sustaining production at all over the long-term. But in the short-term, they appear to 'soak up' income without increasing economic output.[32]

In a conventional growth-based economy this is problematic. In a sustainable economy this kind of investment needs to be seen as an essential component of macro-economic structure. And yet, at the moment, the tools to analyse this dynamic properly don't exist, even if the political will to implement such a strategy were in place. We return to the policy implications of this in Chapter 11.

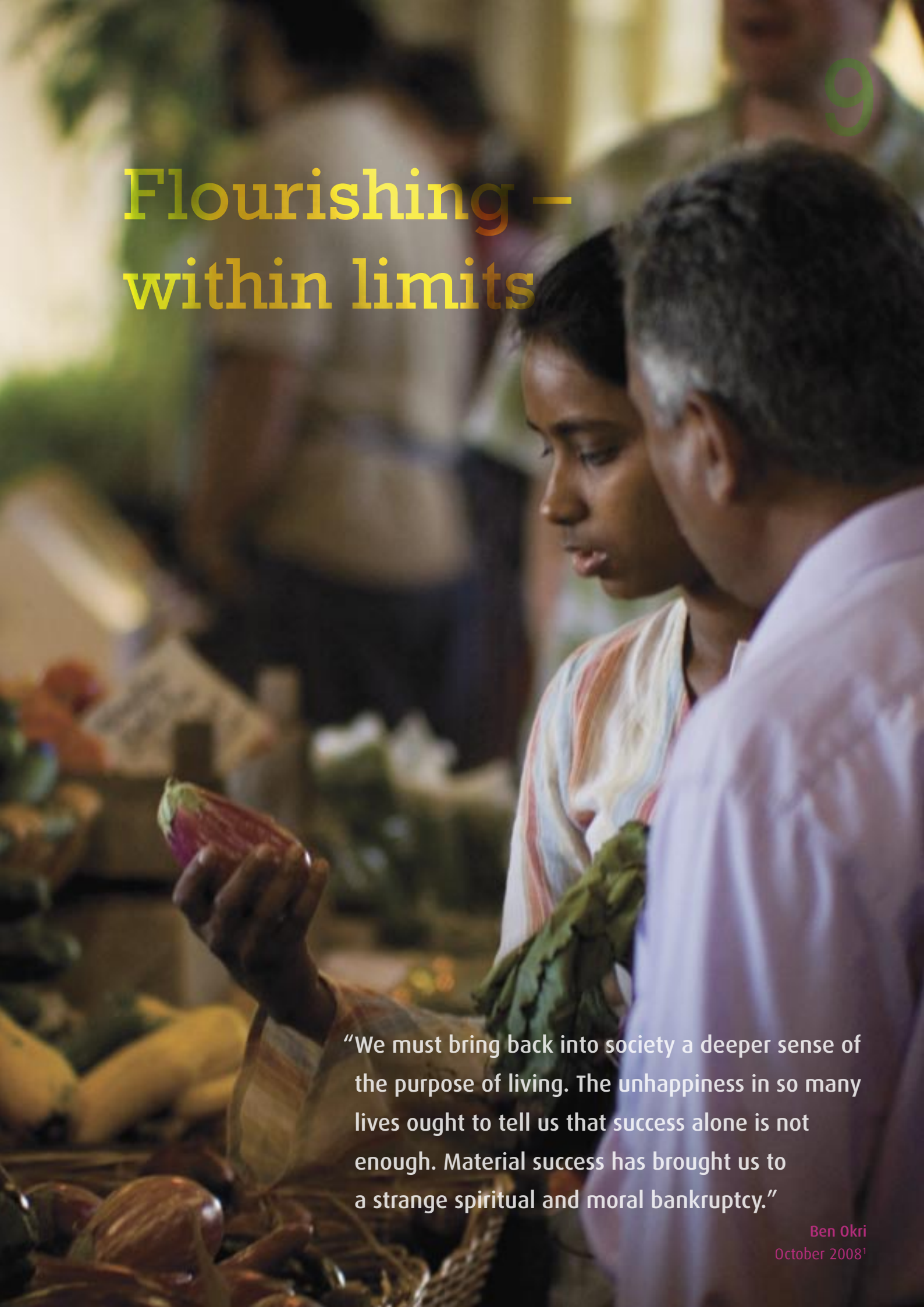
In the meantime, the aim of this chapter has been to show that a new macro-economics for sustainability is not only essential, but possible. The starting point must be to relax our presumption of perpetual consumption growth as the only possible basis for stability and to identify clearly the conditions that define a sustainable economy.

These conditions will still include a strong requirement for economic stability. Or perhaps 'resilience' would be a better word for what is required here. A sustainable economy must be capable of resisting the exogenous shocks and avoid the internal contradictions which have caused chaos in the last year.

But the requirement for resilience will need to be augmented by conditions that address distributional equity, impose sustainable levels of resource throughput, and provide for the protection of critical natural capital.

In operational terms, this new macro-economy will require enhanced investment in public infrastructures, in sustainable technologies and in ecosystem maintenance. It is likely to demand a different balance between public and private goods. It will require us to reframe our concepts of productivity and profitability. Above all, a new macro-economics for sustainability will be ecologically and socially literate, ending the folly of separating economy from society and environment.

Flourishing – within limits



"We must bring back into society a deeper sense of the purpose of living. The unhappiness in so many lives ought to tell us that success alone is not enough. Material success has brought us to a strange spiritual and moral bankruptcy."

Ben Okri
October 2008[1]

Fixing the economy is only part of the problem. Addressing the social logic of consumerism is also vital. This task is far from simple – mainly because of the way in which material goods are so deeply implicated in the fabric of our lives.

Prosperity is not synonymous with material wealth. And the requirements of prosperity go beyond material sustenance. Rather, prosperity has to do with our ability to flourish: physically, psychologically and socially. Beyond sheer subsistence or survival, prosperity hangs on our ability to participate meaningfully in the life of society.

This task is as much social and psychological as it is material. But the appealing idea that (once our material needs are satisfied) we could do away with material things flounders on a simple but powerful fact: material goods provide a vital language through which we communicate with each other about the things that really matter: family, identity, friendship, community, purpose in life.

There is clearly a puzzle here. If participation is really what matters, and material goods provide a language to facilitate that, then richer societies ought to show more evidence of it. In fact, the opposite appears to be the case. Robert Putnam's groundbreaking book *Bowling Alone* provided extensive evidence of the collapse of community across the USA.[2]

Social Recession

Modern western society appears to be in the grip of a 'social recession'. There is a surprising agreement on this from across the political spectrum. Jonathan Rutherford (from the political left) and Jesse Norman (from the political right) both presented evidence on it to *Redefining Prosperity*. Rutherford pointed to rising rates of anxiety and clinical depression, increased alcoholism and binge drinking, and a decline in morale at work. Norman highlighted the breakdown of community, a loss of trust across society and rising political apathy.[3]

The two authors disagree on the causes of social recession. For Rutherford, the main culprit is the increasing commoditisation of public goods and the rising social inequalities that are engendered by capitalism itself. For Norman it is the over-bearing influence of 'big' government in people's lives. Their prescriptions for solving the problem differ accordingly. But on the existence of a social recession there is much less disagreement.

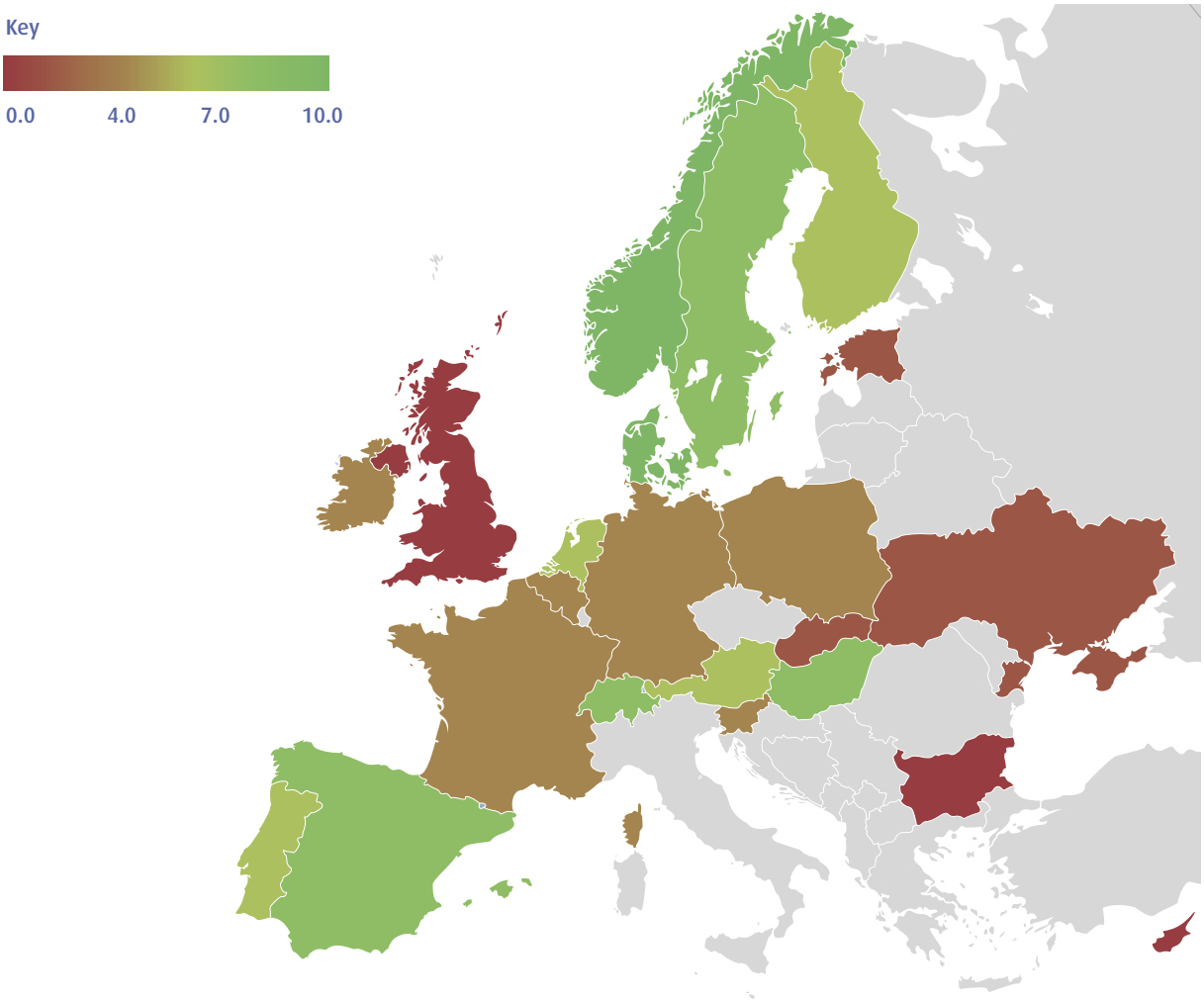
The extent of this phenomenon clearly differs across different nations. Data from a recent module in the European Social Survey designed to measure social wellbeing illustrate this point. Figure 21 shows the different levels of trust and belonging experienced by respondents across 22 European nations. Those with the highest scores (e.g. Norway) experience far greater levels of trust and belonging than those with lower scores (e.g. the UK).

It's commonly agreed that some at least of the reasons for the breakdown in trust lie in the erosion of geographical community. A study by Sheffield University for the BBC confirms this trend in the UK. Using an index to measure geographical community in different BBC regions, the study revealed a remarkable change in British society since the early 1970s. Incomes doubled on average over the 30 year period. But the Sheffield 'loneliness index'[4] increased in every single region measured. In fact, according to one of the report's authors 'even the weakest communities in 1971 were stronger than any community now'.[5]

The increasing number of people living on their own has a number of different causes, including a substantial hike in the divorce rate between 1971 and 2001.[6] The study's authors link the changes over time largely to mobility. 'Increased wealth and improved access to transport has made it easier for people to move for work, for retirement, for schools, for a new life', reports the BBC. They might also have mentioned that the mobility of labour is one of the requirements for higher productivity in the growth economy.[7]

In other words, some degree of responsibility for the change appears to be attributable to growth itself. As evidence for flourishing it doesn't look good. And it becomes even more puzzling why rich societies continue to pursue material growth.

Figure 21 **Trust and Belonging in 22 European Nations**[8]



A Life without Shame

Interestingly, Sen came close to addressing this puzzle in his early work on the 'living standard'. There he argued that the material requirements for physiological flourishing tend to be fairly similar in all societies. After all, the basic human metabolism doesn't change so much across the species. Crucially, however, Sen claimed that the material requirements associated with social and psychological capabilities can vary widely between different societies.

His argument harks back to Adam Smith's insight on the importance of shame in social life. 'A linen shirt, for example, is, strictly speaking, not a necessary of life,' wrote Smith in *The Wealth of Nations*. 'But in the present times, through the greater part of Europe, a creditable day labourer would be ashamed to appear in public without a linen shirt, the want of which would be supposed to denote that disgraceful degree of poverty which, it is presumed, no body can well fall into without extreme bad conduct.'[9]

Sen broadens this argument to a wider range of goods, and a deeper sense of flourishing. To lead a 'life without shame,' he claimed in *The Living Standard*, 'to be able to visit and entertain one's friends, to keep track of what is going on and what others are talking about, and so on, requires a more expensive bundle of goods and services in a society that is generally richer and in which most people already have, say, means of transport, affluent clothing, radios or television sets, and so on.' In short, he suggested, 'the same absolute level of capabilities may thus have a greater relative need for incomes (and commodities)'.[10]

Putting aside for a moment the fact that higher incomes have – in the same token – been partly responsible for diminished flourishing, there is an

even more striking point to be noted here. If we take for granted the importance of material commodities for social functioning, *there is never any point at which we will be able to claim that enough is enough.* This is the logic of Sen's argument. The baseline for social functioning is always the current level of commodities. And the avoidance of shame – a key feature of social flourishing – will drive material demand forward relentlessly.

This is in effect a different framing of the social logic explored in Chapter 6. But the social trap is now even clearer. At the individual level it makes perfect sense to avoid shame. It is essential to social (and psychological) flourishing. But the mechanism for doing so in the consumer society is inherently flawed. At the societal level it can only lead to fragmentation and anomie. And in doing so it undermines the best intentions of the individual as well. It looks suspiciously like the language of goods just isn't doing its job properly. All that's left is an undignified scrap to try and ensure that we're somewhere near the top of the pile.

Most worrying of all is that there is no escape from this social trap within the existing paradigm. While social progress depends on the self-reinforcing cycle of novelty and anxiety, the problem can only get worse. Material throughput will inevitably grow. And the prospects for flourishing within ecological limits evaporate. Prosperity itself – in any meaningful sense of the word – is under threat. Not from the current economic recession, but from the continuing surge of materialism, and from the economic model that perpetuates it.

Alternative hedonism

Change is essential. And some mandate for this change already exists. There is cross-party concern over the social recession. And alarm at evidence like the Sheffield study. Politicians struggle for solutions. Small scale initiatives aimed at addressing the pernicious impacts of social recession are springing up across the country, led by local authorities or community groups.[11]

The philosopher Kate Soper points to a growing appetite for 'alternative hedonism' – sources of satisfaction that lie outside the conventional market. In her contribution to *Redefining Prosperity* she describes a widespread disenchantment with modern life – what she refers to as a 'structure of feeling' – that consumer society has passed some kind of critical point, where materialism is now actively detracting from human wellbeing. [12]

Anxious to escape the work and spend cycle, we are suffering from a 'fatigue with the clutter and waste of modern life' and yearn for certain forms of human interaction that have been eroded. We would welcome interventions to correct the balance, according to Soper. A shift towards alternative hedonism would lead to a more ecologically sustainable life that is also more satisfying and would leave us happier.[13]

Some statistical evidence supports this view. Psychologist Tim Kasser has highlighted what he calls the high price of materialism. In his contribution to *Redefining Prosperity*, he shows how materialistic values such as popularity, image and financial success are psychologically opposed to 'intrinsic' values like self-acceptance, affiliation, a sense of belonging in the community.[14]

Even more striking is Kasser's evidence that people with higher intrinsic values are both happier and have higher levels of environmental responsibility than those with materialistic values. This finding is extraordinary because it suggests there really is a kind of double or triple dividend in a less materialistic life: people are both happier and live more sustainably when they favour intrinsic goals that embed them in family and community. Flourishing within limits is a real possibility, according to this evidence.

It's a possibility that has already been explored to some extent from within modern society. Against the surge of consumerism, there are already those who have resisted the exhortation to 'go out shopping', preferring instead to devote time to less materialistic pursuits (gardening, walking, enjoying music or reading, for example) or to the care of others. Some people (up to a quarter of the sample in a recent study) have even accepted a lower income so that they could achieve these goals.[15]

Beyond this 'quiet revolution', there have also been a series of more radical initiatives aimed at living a simpler and more sustainable life.[16] 'Voluntary simplicity' is at one level an entire philosophy for life. It draws extensively on the teachings of

the Indian cultural leader Mahatma Gandhi who encouraged people to 'live simply, that others might simply live'. In 1936, a student of Gandhi's described voluntary simplicity in terms of an 'avoidance of exterior clutter' and the 'deliberate organisation of life for a purpose'.[17]

Former Stanford scientist Duane Elgin picked up this theme of a way of life that is 'outwardly simple, yet inwardly rich' as the basis for revisioning human progress.[18] More recently, psychologist Mihalyi Csikszentmihalyi has offered a scientific basis for the hypothesis that our lives can be more satisfying when engaged in activities which are both purposive and materially light.[19]

Some of these so-called 'intentional' initiatives, such as the Findhorn community in northern Scotland, emerged initially as spiritual communities, attempting to create space in which it was possible to reclaim the contemplative dimension of our lives that used to be captured by religious institutions. Findhorn's character as an eco-village developed more recently, building on principles of justice and respect for nature.[20]

Another modern example is Plum Village, the 'mindfulness' community established by the exiled Vietnamese monk Thich Nhat Hahn in the Dordogne area of France, which now provides a retreat for over 2,000 people. These initiatives are modern equivalents of more traditional religious communities like those of the Amish in North America or the network of Buddhist monasteries in Thailand – in which every young male is expected to spend some time before going out into professional life.[21]

Not all networks have this explicit spiritual character. The Simplicity Forum, for example, launched in North America in 2001, is a loose secular network of 'simplicity leaders' who are committed to 'achieving and honoring simple, just and sustainable ways of life.' Downshifting Downunder is an even more recent initiative, launched off the back of an international conference on downshifting held in Sydney during 2005; its aim is to 'catalyze and co-ordinate a downshifting movement in Australia that will significantly impact sustainability and social capital'.[22]

The downshifting movement now has a surprising degree of allegiance across a number of developed economies. A recent survey on downshifting in Australia found that 23% of respondents had engaged in some form of downshifting in the five years prior to the study. A staggering 83% felt that Australians are too materialistic. An earlier study in the US found that 28% had taken some steps to simplify and 62% expressed a willingness to do so. Very similar results have been found in Europe.[23]

Research on the success of these initiatives is quite limited. But the findings from studies that do exist are interesting. In the first place, the evidence confirms that 'simplifiers' appear to be happier. Consuming less, voluntarily, can improve subjective wellbeing – completely contrary to the conventional model.[24]

At the same time, intentional communities remain marginal. The spiritual basis for them doesn't appeal to everyone, and the secular versions seem less resistant to the incursions of consumerism. Some of these initiatives depend heavily on having sufficient personal assets to provide the economic security needed to pursue a simpler lifestyle.

More importantly, even those in the vanguard of social change turn out to be haunted by conflict – internal and external.[25] External conflicts arise because people are trying to live quite literally in opposition to the structures and values that dominate society. In the normal course of events, these structures and values shape and constrain how people behave. They have a profound influence on how easy or hard it is to behave sustainably.[26]

The role of structural change

Examples of the perverse effect of dominant structures are legion: private transport is incentivised over public transport; motorists are prioritised over pedestrians; energy supply is subsidised and protected, while demand management is often chaotic and expensive; waste disposal is cheap, economically and behaviourally; recycling demands time and effort: 'bring centres' are few and far between and often overflowing with waste.

Equally important are the subtle but damaging signals sent by government, regulatory frameworks, financial institutions, the media, and our education systems: business salaries are higher than those

in the public sector, particularly at the top; nurses and those in the caring professions are consistently lower paid; private investment is written down at high discount rates making long-term costs invisible; success is counted in terms of material status (salary, house size etc); children are brought up as a 'shopping generation' – hooked on brand, celebrity and status.[27]

Policy and media messages about the recession underline this point. Opening the huge new Westfield Shopping Centre in White City in October 2008, London Mayor Boris Johnson spoke of persuading people to come out and spend their money, despite the credit crunch. Londoners had made a 'prudent decision to give Thursday morning a miss and come shopping', he said of the huge crowds who attended the opening.[28]

Little wonder that people trying to live more sustainably find themselves in conflict. These kinds of asymmetry represent a culture of consumption that sends all the wrong signals, penalising pro-environmental behaviour, and making it all but impossible even for highly-motivated people to act sustainably without personal sacrifice.

It's really important to take this evidence seriously. As laboratories for social change, intentional households and communities are vital in pointing to the possibilities for flourishing within ecological limits. But they are also critical in highlighting the limits of voluntarism.

Simplistic exhortations for people to resist consumerism are destined to failure. Particularly when the messages flowing from government are so painfully inconsistent. People readily identify this inconsistency and perceive it as hypocrisy. Or something worse. Under current conditions, it's tantamount to asking people to give up key capabilities and freedoms as social beings. Far from being irrational to resist these demands, it would be irrational not to, in our society.

Several lessons flow from this. The first is the obvious need for government to get its message straight. Urging people to *Act on* CO_2, to insulate their homes, turn down their thermostat, put on a jumper, drive a little less, walk a little more, holiday at home, buy locally produced goods (and so on) will either go unheard or be rejected as manipulation for as long as all the messages about high street consumption point in the opposite direction.[29]

Equally, it's clear that changing the social logic of consumption cannot simply be relegated to the realm of individual choice. In spite of a growing desire for change, it's almost impossible for people to simply *choose* sustainable lifestyles, however much they'd like to. Even highly-motivated individuals experience conflict as they attempt to escape consumerism. And the chances of extending this behaviour across society are negligible without changes in the social structure.

Conversely, of course, social structures can and do shift people's values and behaviours. Structural changes of two kinds must lie at the heart of any strategy to address the social logic of consumerism. The first will be to dismantle or correct the perverse incentives for unsustainable (and unproductive) status competition. The second must be to establish new structures that provide capabilities for people to flourish, and particularly to participate fully in the life of society, in less materialistic ways.

What this second avenue means in practice is something that requires a more detailed exploration than is possible here. It will certainly require a keener policy attention to what flourishing means, particularly when it comes to questions of community, social participation and psychological flourishing. But these outcomes cannot be delivered in instrumental, *ad hoc* ways. Policy must pay closer attention to the structural causes of social alienation and anomie. It must have the goal of providing capabilities for flourishing at its heart.

This idea has some resonances with the concept of a service-based economy (Chapter 8). Specifically, the strategy suggested here replaces the centrality of material commodities as the basis for profitability with the idea of an economy designed explicitly around delivering the capabilities for human flourishing.

More than this, of course, these capabilities will have to be delivered with considerably less material input. We will need to call on the creativity of the entrepreneur in a different way than in the past. Social innovation is going to be vital in achieving change. But so too is a closer attention to the question of limits. Creating continuity and cohesion

must be balanced against stimulating change.

A core element in this strategy must be the reduction of social inequality. Unproductive status competition increases material throughput and creates distress. In his book *Affluenza*, clinical psychologist Oliver James presents evidence that more unequal societies systematically report higher levels of distress than more equal societies.[30]

A key point of influence here will lie in the structure of wages. This balance has consistently rewarded competitive and materialistic outcomes even when these are socially detrimental – as the lessons from the financial crisis made clear. Reducing the huge income disparities that result from this would send a powerful signal about what is valued in society. Better recognition for those engaged in child-care, care for the elderly or disabled and volunteer work would shift the balance of incentives away from status competition and towards a more cooperative, and potentially more altruistic society.

Increased investment in public goods and social infrastructure is another vital point of influence. This has already been identified as an essential component in the macro-economics of sustainability (Chapter 8). In addition to its role in ensuring economic resilience, it sends a powerful signal about the balance between private interests and the public good.

In summary, we are faced with an unavoidable challenge. A limited form of flourishing through material success has kept our economies going for half a century or more. But it is completely unsustainable and is now undermining the conditions for a shared prosperity. This materialistic vision of prosperity has to be dismantled.

The idea of an economy whose task is to provide capabilities for flourishing within ecological limits offers the most credible vision to put in its place. But this can only happen through changes that support social behaviours and reduce the structural incentives to unproductive status competition.

The rewards from these changes are likely to be significant. A less materialistic society will be a happier one. A more equal society will be a less anxious one. Greater attention to community and to participation in the life of society will reduce the loneliness and anomie that has undermined wellbeing in the modern economy. Enhanced investment in public goods will provide lasting returns to the nation's prosperity.

Peter Hall
October 2008[1]

"The current financial crisis has also become a political crisis that is reconfiguring the role of government in the economy and conventional wisdom about the appropriate relationship between the public and the private sector."

Governance for Prosperity

Achieving a lasting prosperity relies on providing capabilities for people to flourish - within certain limits. Those limits are established not by us, but by the ecology and resources of a finite planet. Unbounded freedom to expand our material appetites just isn't sustainable. Change is essential.

Two specific components of change have been identified. The first (Chapter 8) is the need to develop a new macro-economics for sustainability. This new macro-economics will have to become more ecologically literate. It will also need to reduce the structural reliance on consumption growth and find a different mechanism to achieve underlying stability.

The existing mechanism, in any case, has failed us. A resilient economy – capable of resisting external shocks, maintaining people's livelihoods, and living within our ecological means – is the goal we should be aiming for here.

The second component of change lies in shifting the social logic of consumerism (Chapter 9). This change has to proceed through the provision of real, credible alternatives through which people can flourish. And these alternatives must go beyond making basic systems of provision (in food, housing and transport, for example) more sustainable. They must also provide capabilities for people to participate fully in the life of society, without recourse to unsustainable material accumulation and unproductive status competition.

Making these changes may well be the biggest challenge ever faced by human society. Inevitably it raises the question of governance – in the broadest sense of the word. How is a shared prosperity to be achieved in a pluralistic society? How is the interest of the individual to be balanced against the common good? What are the mechanisms for achieving this balance? These are some of the questions raised by this challenge. Specifically, of course, such changes raise questions about the nature and role of government itself.

The role of government

Debates over whether we need more state or less state have been fiercely fought at times and have complex roots in history.[2] But some striking shifts in this debate occurred as a result of the economic recession. The financial crisis of 2008 rewrote the boundary between the public and the private sector and changed profoundly the landscape of 21st Century politics.

Part-nationalisation of financial sector institutions was an almost shocking turn of events, particularly from a free market perspective in which government is broadly seen as a distortion of the market. And yet there was little disagreement anywhere about the role of the state in times of crisis. On the contrary, the only possible response when the economy failed was for governments to intervene. Even the die-hards agreed on this. 'Finance is inherently unstable,' acknowledged *The Economist* in the early days of the crisis. 'So the state has to play a big role in making it safer by lending in a crisis in return for regulation and oversight.'[3]

Extending this responsibility to the task of building a credible and robust macroeconomics for sustainability seems entirely reasonable. It is admittedly a more complex task than anything faced in conventional macro-economics; in part because it has to depart from the well-worn formula of laissez-faire consumption growth as the basis for stability; and in part because it requires a closer attention to key ecological variables. For these reasons, progress will depend on engaging a wider community of advice than conventional approaches do. But the responsibility for taking it forwards lies unequivocally with government.

Beyond this quite specific responsibility, there are vital questions about the role of government – and the mechanisms for governance – in a much broader sense. Where, for example, does responsibility lie for the other key task identified here: redressing the social logic of consumerism? Policy-makers are (perhaps rightly) uncomfortable with the idea that they have a role in influencing people's values and aspirations. But the truth is that governments intervene constantly in the social context, whether they like it or not.

A myriad different signals are sent out, for example, by the way in which education is structured, by the importance accorded to economic indicators, by public sector performance indicators, by procurement policies, by the impact of planning guidelines on public and social spaces, by the influence of wage policy on the work-life balance, by the impact of employment policy on economic mobility (and hence on family structure and stability), by the effect of trading standards on consumer behaviour, by the degree of regulation of advertising and the media, and by the support offered to community initiatives and faith groups.

In all these arenas, policy shapes and co-creates the social world. So the idea that it is not only legitimate but possible for the state to intervene in changing the social logic of consumerism is far less problematic than is often portrayed. A critical task is to identify (and correct) those aspects of this complex social structure which provide perverse incentives in favour of a materialistic individualism and undermine the potential for a shared prosperity.

At one level, this task is as old as the hills. It is, in part at least, the task of balancing individual freedoms against the social good. It relies crucially on being able to make prudent choices – both at the individual and at the social level – between the present and the future. In fact, rampant individualism which seeks short-term material gratification ends up undermining prosperity – not just for society as a whole, but at the individual level as well.

Oxford economic historian Avner Offer addresses exactly this problem in *The Challenge of Affluence*.[4] Left to our own devices, argues Offer, individual choices tend to be irredeemably myopic. We favour today too much over tomorrow, in ways which, to an economist, appear entirely inexplicable under any rational rate of discounting of the future. Economists call this the problem of 'hyperbolic' discounting. It's not unfamiliar in itself. Offer's unique contribution is to suggest that this fallibility has (or has in the past had) a social solution.

To prevent ourselves from trading away our long-term wellbeing for the sake of short-term pleasures, society has evolved a whole set of 'commitment devices': social and institutional mechanisms which moderate the balance of choice away from the present and in favour of the future.

Savings accounts, marriage, norms for social behaviour, government itself in some sense: all these can be regarded as commitment devices. Mechanisms which make it a little easier for us to curtail our appetite for immediate arousal and protect our own future interests. And indeed – although this is less obvious in Offer's exposition – the interests of affected others, including future generations.

The trouble is, as Offer demonstrates, affluence itself is eroding and undermining these commitment devices. The increase in family breakdown and the decline in trust have already been noted (Chapter 9). Parenthood has come under attack in developed countries. The financial crisis is in part a product of the erosion of economic commitment. And the hollowing out of government has left us ill-prepared to deal with the 'crisis of commitment'.[5]

Strikingly, Offer places a key responsibility for this erosion on the relentless pursuit of novelty in modern society. This dynamic has been addressed already in structural terms (Chapter 6). Novelty keeps us buying more stuff. Buying more stuff keeps the economy going. The end result is a society 'locked in' to consumption growth by forces outside the control of individuals.

Physical infrastructure and social architecture conspire against us. Lured by our evolutionary roots, bombarded with persuasion, and seduced by novelty: we are like children in the sweet shop, knowing that sugar is bad for us; unable to resist the temptation.

These insights are damning for the prospects of laissez-faire individualism being a sufficient governance mechanism for a lasting prosperity. Left to our own individual devices, it seems, there is not much hope that people will spontaneously behave sustainably. As evolutionary biologist Richard Dawkins has concluded, sustainability just 'doesn't come naturally' to us.

Selfishness and altruism

At the same time it is mistaken to assume that human motivations are all selfish. Evolution doesn't preclude moral, social and altruistic behaviours. On the contrary, social behaviours evolved in humans precisely because they offer selective advantages

to the species. All of us are torn to some extent between selfishness and altruism.

The psychologist Shalom Schwartz and his colleagues have formalised this insight in terms of underlying human values. Using a scale that has now been tested in over 50 countries, Schwartz suggests that our values are structured around two distinct tensions within the psychological make-up of human beings. One is the tension between selfishness (self-enhancement, in Schwartz's scheme) and altruism (self-transcendence) noted above. The other is between openness to change and conservation – or in other words between novelty and the maintenance of tradition.[6]

Schwartz provided an evolutionary explanation for these tensions. As society evolved in groups, people were caught between the needs of the individual and the needs of the group. And as they struggled for survival in sometimes hostile environments, people were caught between the need to adapt and to innovate and the need for stability. In other words, both individualism and the pursuit of novelty have played an adaptive role in our common survival. But so have altruism and conservation or tradition.

The important point here is that each society strikes the balance between altruism and selfishness (and also between novelty and tradition) in different places.[7] And where this balance is struck depends crucially on social structure. When technologies, infrastructures, institutions, social norms reward self-enhancement and novelty, then selfish sensation-seeking behaviours prevail over more considered, altruistic ones. Where social structures favour altruism and tradition, self-transcending behaviours are rewarded and selfish behaviour may even be penalised.[8]

This finding suggests that we must ask searching questions about the balance of the institutions that characterise modern society. Do they promote competition or cooperation? Do they reward self-serving behaviour or people who sacrifice their own gain to serve others? What signals do government, schools, the media, religious and community institutions send out to people? Which behaviours are supported by public investments and infrastructures and which are discouraged?

Increasingly, it seems, the institutions of consumer society are designed to favour a particularly materialistic individualism and to encourage the relentless pursuit of consumer novelty.

Government plays a crucial role in this, partly because it bears a responsibility for the stability of the macro-economy. The individualistic pursuit of novelty is a key requirement in consumption growth and economic stability depends on consumption growth. Little surprise then that the drift of policy is in these directions. The erosion of commitment, in Offer's terms, is a structural requirement for growth as well as a structural consequence of affluence.

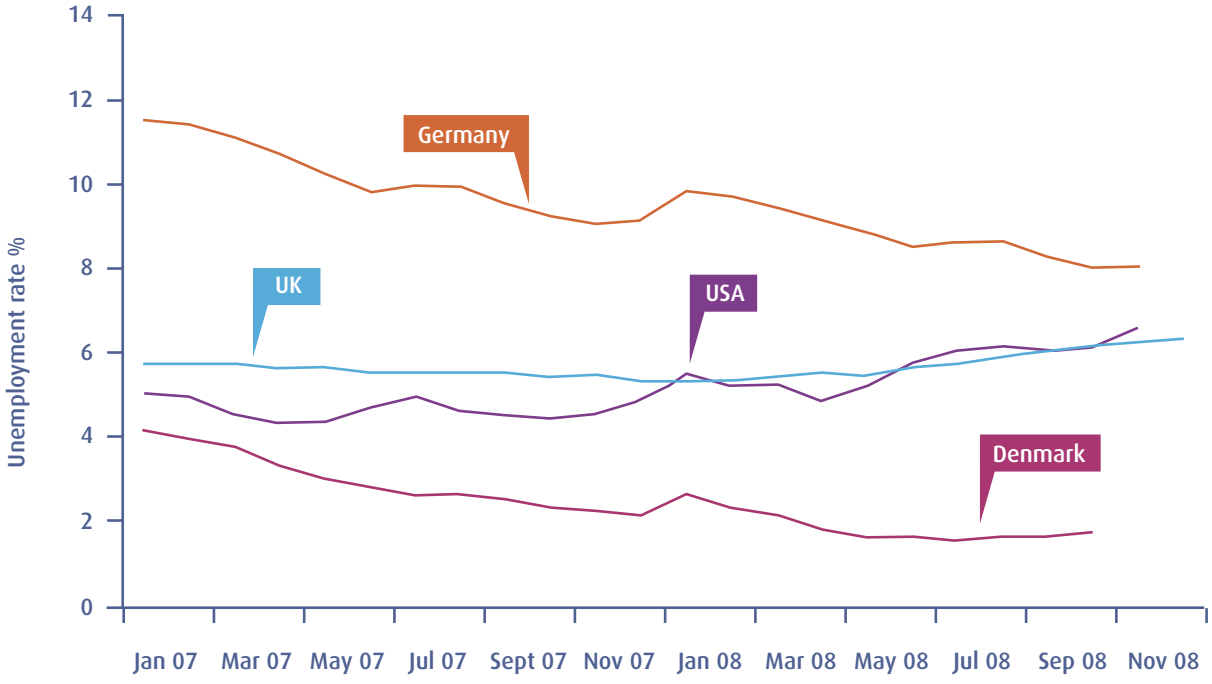
Varieties of capitalism

This drift has not been uniform across all nations. Harvard historian Peter Hall and Oxford economist David Soskice have made an extensive study of the different 'varieties of capitalism'. They distinguish two main types of capitalism across the advanced nations. Liberal market economies (specifically the UK, the USA, Canada and Australia) led the march towards competition and deregulation, particularly during the 1980s and 1990s. Coordinated market economies (such as Japan, Germany, Austria and the Scandinavian countries) depend more heavily on strategic interactions between firms – rather than competition – to coordinate economic behaviour.[9]

There are some clear differences between the different kinds of economy. For example, inequality tends to be higher in liberalised market economies than in coordinated market economies. And it is mainly in the liberalised market economies that savings rates have fallen so dramatically in recent years and consumer debt has soared. In Germany, the government has had the opposite problem over the last decade, finding it hard to persuade its citizens to save less and consume more.

Some other interesting differences emerge. Figure 22 shows the indexed unemployment rates during the run-up to the economic crisis in two liberalised market economies (the UK and the US) and two coordinated market economies (Germany and Denmark). Though starting from a much higher base, unemployment in Germany fell by almost 20% over the period from mid-2007 to the end of 2008.[10] In Denmark, where unemployment was already low, the fall was even greater (35%) over

Figure 22 **Unemployment Rates in Four OECD Countries 2007–8**[11]



the period. In the UK, by contrast, unemployment rose by 11% in the last half of 2008, while the US saw unemployment increase by over a third since July 2007.

Recent work suggests that the different varieties of capitalism also perform differently in relation to ecological impacts, opportunities for skills training and various aspects of social capital.[12] Tim Kasser and his colleagues show that people in liberalised market economies tend to have higher per capita carbon emissions, higher infant mortality, higher teenage pregnancies and a greater percentage of people reporting that they 'feel like an outsider'.[13]

Not all these findings are replicated consistently across all liberalised market economies and all coordinated market economies.[14] Indeed there is some suggestion that the distinctions between liberalised and coordinated market economies are not as profound as they were through the 1980s and 1990s when Hall and Soskice carried out their analysis.

Ironically, as we saw in Chapter 2, Germany suffered more during the early months of the financial crisis from building its economy on exports, than the UK did from building its economy on domestic consumption. Both economies, ultimately, were predicated on a materialistic consumerism fuelled by debt. And it's too early to tell which one will emerge stronger in the end. In a recent article for the *Huffington Post*, Peter Hall argues that Germany's domestic prudence and strong manufacturing base will make it more resilient in long run.[15]

But the truth is that none of the varieties of capitalism is immune from the increasingly global recession. All of them are to a greater or lesser extent bound up in the pursuit of economic growth. Differences in social and economic organisation are differences in degree rather than fundamental differences in kind. And a key element in the political economy of all capitalist nations appears to be the role of government in protecting and stimulating economic growth.

The conflicted state

Governance mechanisms emerged in human society to protect social behaviours.[16] The principal role of government is to ensure that long-term public goods are not undermined by short-term private interests. It seems ironic then, that governments across the world – and in particular in the liberal market economies – have been so active in championing the pursuit of individual freedoms, often elevating consumer sovereignty above social goals and

actively encouraging the expansion of the market into different areas of people's lives.

It is particularly odd to see this tendency going hand in hand with the desire to protect social and ecological goals. It's notable for example that the UK, one of the most fiercely liberal market economies, has also been a vociferous champion of sustainability, social justice and climate change policy. The UK's 2005 Sustainable Development Strategy received wide spread international praise. Its 2008 Climate Change Act is a world-leading piece of legislation.

There is a real sense here of policy-makers struggling with competing goals. On the one hand government is bound to the pursuit of economic growth. On the other, it finds itself having to intervene to protect the common good from the incursions of the market. The state itself appears deeply conflicted, striving on the one hand to encourage consumer freedoms that lead to growth and on the other to protect social goods and defend ecological limits.[17]

The reason for this conflict is clear once we recognise the critical role that growth plays in macro-economic stability. With a vital responsibility to protect jobs and to ensure stability, the state is bound (under current conditions) to prioritise economic growth. And it is locked into this task, even as it seeks to promote sustainability and the common good. Government itself, in other words, is caught in the dilemma of growth.

Overcoming this dilemma is absolutely vital. The lessons from this study make it clear that without strong leadership, change will be impossible. Individuals are too exposed to social signals and status competition. Businesses operate under market conditions. A transition from narrow self-interest to social behaviours, or from relentless novelty to a considered conservation of things that matter, can only proceed through changes in underlying structure. Changes that strengthen commitment and encourage social behaviour. And these changes require governments to act.

The trouble is that the thrust of policy over the last half century – particularly in the liberalised market economies – has been going in almost exactly the opposite direction. Governments have systematically promoted materialistic individualism and encouraged the pursuit of consumer novelty. This trend has been perpetrated, mostly deliberately, under the assumption that this form of consumerism serves economic growth, protects jobs and maintains stability. And as a result, the state has become caught up in a belief that growth should trump all other policy goals.

But this narrow pursuit of growth represents a horrible distortion of the common good and of our underlying human values. It also undermines the legitimate role of government itself. At the end of the day, the state is society's commitment device, *par excellence*, and the principal agent in protecting our shared prosperity. A new vision of governance that embraces this role is critical.

Of course, such a vision requires a democratic mandate. 'Political change comes from leadership and popular mobilisation. And you need both of them,' argued UK Climate Change Secretary Ed Miliband in December 2008.[18] Authoritarianism is damaging to human wellbeing in its own right.[19] And in any case it is unlikely to succeed in modern pluralistic societies. Governance for prosperity must engage actively with citizens both in establishing the mandate and delivering the change.

But this doesn't absolve government from its own vital responsibility in ensuring a lasting prosperity. The role of government is to provide the capabilities for its citizens to flourish – within ecological limits. The analysis here suggests that, at this point in time, that responsibility entails shifting the balance of existing institutions and structures away from materialistic individualism and providing instead real opportunities for people to pursue intrinsic goals of family, friendship and community.

Unfortunately, for as long as macro-economic stability depends on economic growth, there will be a tendency for governments to support social structures that reinforce materialistic, novelty-seeking individualism.

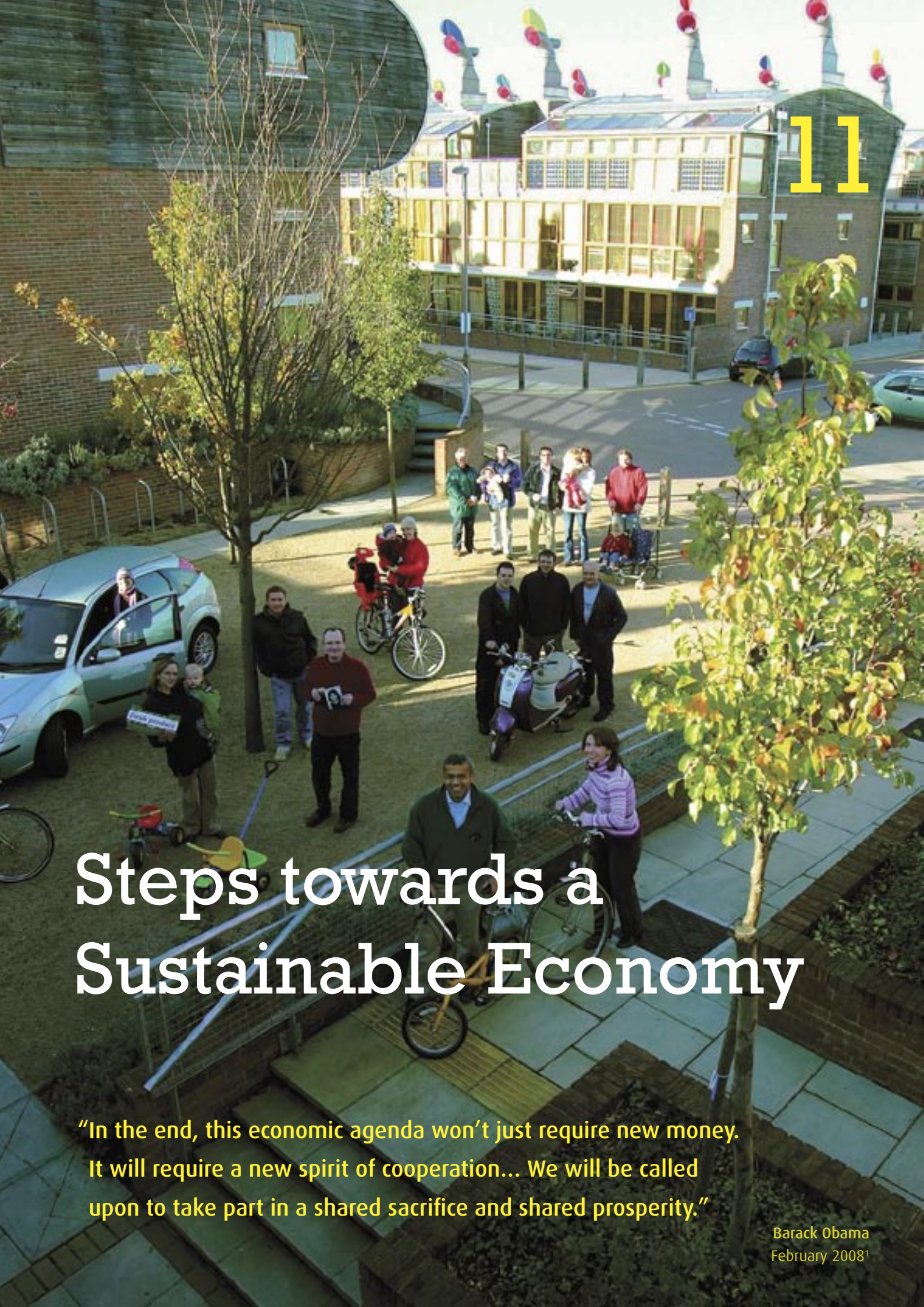
But it doesn't have to be like this. Freeing the macro-economy from the structural requirement for consumption growth will simultaneously free government to play its proper role in delivering social and environmental goods and protecting long-term interests. The same goal that was identified as essential for a macro-economics of sustainability is essential to a governance for

prosperity. The conflicted state is itself a casualty of an unsustainable macroeconomics. And in rescuing the macro-economy it has a chance of rescuing itself.

In summary, it emerges that governments must now engage urgently in several interrelated tasks:

1) develop and apply a robust macro-economics for sustainability
2) redress the damaging and unsustainable social logic of consumerism
3) establish and impose meaningful resource and environmental limits on economic activity.

The precise policy directions implied by these goals must ultimately be a matter for public discourse and it lies beyond the scope of this study to address them in detail. But in the final chapter, some potential policy directions are suggested under each of these themes.



11

Steps towards a Sustainable Economy

"In the end, this economic agenda won't just require new money. It will require a new spirit of cooperation... We will be called upon to take part in a shared sacrifice and shared prosperity."

Barack Obama
February 2008[1]

For the last five decades the pursuit of growth has been the single most important policy goal across the world. The global economy is almost five times the size it was half a century ago. If it continues to grow at the same rate the economy will be 80 times that size by the year 2100.

This extraordinary ramping up of global economic activity is without historical precedent. It appears to be totally at odds with our scientific knowledge of the finite resource base and the fragile ecology on which we depend for survival. And it has already been accompanied by the degradation of an estimated 60% of the world's ecosystems.

For the most part, we tend to avoid the stark reality of these numbers. The default assumption is that – financial crises aside – growth will continue indefinitely. Not just for the poorest countries, where a better quality of life is essential, but even for the richest nations where material wealth adds little further to people's quality of life and may even threaten the foundations of our wellbeing.

The reasons for this collective blindness are easy enough to find. The modern economy is structurally reliant on economic growth for its stability. When growth falters, as it has done recently, politicians panic. Businesses struggle to survive. People lose their jobs and sometimes their homes. A spiral of recession looms. Questioning growth is deemed to be the act of lunatics, idealists and revolutionaries.

In short, society is faced with a profound dilemma. To resist growth is to risk economic and social collapse. To pursue it is to endanger the ecosystems on which we depend for long-term survival.

For the most part, this dilemma goes unrecognised in mainstream policy or in public debate. When reality begins to impinge on the collective consciousness, the best suggestion to hand is that we can somehow 'decouple' growth from its material impacts.

Never mind that decoupling isn't happening. Never mind that no such economy has ever existed. Never mind that all our institutions and incentive structures continually point in the opposite direction. The dilemma, once recognised, looms so dangerously over our future that we are desperate to believe in miracles. Technology will save us. Capitalism is good at technology. So let's just keep the show on the road and hope for the best.

We can't entirely dismiss the potential for technological breakthroughs. In fact we already have at our disposal a range of technologies that could begin to deliver effective change. But the idea that these will emerge spontaneously by giving free reign to the competitive market is patently false.

This delusional strategy has reached its limits. We stand in urgent need of a clearer vision, more honest policy-making, something more robust in the way of a strategy with which to confront the dilemma of growth.

The starting place must be to confront the structures that keep us in damaging denial. The analysis in this study suggests that nature and structure conspire together here. The endless creativity of capitalism and our own relentless striving for social status have locked us into an iron cage of consumerism. Affluence itself has betrayed us.

Affluence breeds – and indeed relies on – the continual production and consumption of consumer novelty. But relentless novelty seeds social anxiety and weakens our ability to protect long-term social goals. In doing so it ends up undermining our own wellbeing and that of others. And somewhere along the way, we lose the sense of shared prosperity that we sought in the first place.

For at the end of the day, prosperity goes beyond fleeting material pleasures. It transcends material concerns. It resides in the quality of our lives and in the health and happiness of our families. It is present in the strength of our relationships and our trust in the community. It is evidenced by our satisfaction at work and our sense of shared meaning and purpose. It hangs on our potential to participate fully in the life of society. Prosperity consists in our ability to flourish as human beings – within the ecological limits of a finite planet.

Delivering these goals is not an entirely unfamiliar task to policy-makers. Governments care about health provision. And the recent focus on wellbeing has extended that concern to psychological health. At the same time these goals too often take second place to economic growth. The role of the state is too narrowly framed by a misguided vision of unbounded consumer freedoms. Governance itself stands in urgent need of renewal.

But the current economic crisis presents a unique opportunity to invest in change. To sweep away the short-term thinking that has plagued society for decades. To replace it with considered policy-making capable of addressing the enormous challenge of delivering a lasting prosperity.

The policy demands of this task are considerable. Specifying them with any degree of precision is beyond the scope of this or any other single document. First and foremost, they call for a concerted and committed effort on the part of government to establish a detailed set of viable and effective policies for a sustainable economy. This is a challenge that governments can no longer afford to ignore. Beyond that need, it is possible to identify a range of broad policy recommendations on which the transition to a sustainable economy could be built.

In the following paragraphs, these recommendations are grouped into three main themes that flow directly from the analysis in this report. Specifically these themes are:

- Building a macro-economics for sustainability
- Protecting capabilities for social flourishing; and
- Respecting ecological limits

Inevitably, there is some overlap between these groupings. Undoubtedly there are things missing from the range of policies suggested here. Not all of them can be achieved immediately. Not all of them can be achieved unilaterally. But taken together they offer the foundation from which to build meaningful and lasting change.

12 STEPS TO A SUSTAINABLE ECONOMY

A

Building a Sustainable Macro-Economy

A macro-economy predicated on continual expansion of debt-driven materialistic consumption is unsustainable ecologically, problematic socially, and unstable economically (Chapters 2, 5, 6). The time is now ripe to develop a new macro-economics for sustainability (Chapters 7 & 8) that does not rely for its stability on relentless growth and expanding material throughput. This theme includes four specific policy areas to help achieve this goal.

1

Developing macro-economic capability

There is an urgent need to develop the capabilities required to build a new macro-economics for sustainability. This will include developing tools to explore different configurations of the key macro-economic variables and to map the interactions between these and ecological variables. Particular challenges include 1) exploring the investment demands associated with a sustainable economy; 2) investigating the economic implications of strict resource or emission caps; and 3) evaluating the impact of changes in natural assets and ecosystem functioning on economic stability.

Examples/precedents: Canadian LowGrow model; climate-economy models (cf. IPCC, Stern Review); Cambridge Econometrics' MDM-E3 model; the EU's TEEB study, the Millennium Ecosystem Assessment.[2]

2

Investing in jobs, assets and infrastructures
Investment in jobs, assets and infrastructures emerges as a key component – not just of economic recovery – but of a new macroeconomics for sustainability. Targets for this include: public sector jobs in building and maintaining public assets; investments in renewable energy, public transport infrastructure, and public spaces; retrofitting the existing building stock with energy- and carbon-saving measures; investing in ecosystem maintenance and protection; and providing fiscal support and training for green businesses, clean technologies and resource efficiency.

Examples/precedents: the American Recovery and Reinvestment Act (ARRA); UK Pre-Budget Report 'green stimulus'; UNEP's global Green New Deal; Deutsche Bank 'Green Investment'; SDC Sustainable New Deal.

3

Increasing financial and fiscal prudence
Debt-driven materialistic consumption has propped up economic growth for over a decade. But maintaining it has destabilised the macro-economy and contributed to the global economic crisis. A new era of financial and fiscal prudence needs to be ushered in to: reform the regulation of national and international financial markets; increase public control of the money supply; incentivise domestic savings, for example through secure (green) national or community-based bonds; outlaw unscrupulous and destabilising market practices (such as short-selling); and provide greater protection against consumer debt.

Examples/precedents: G20 statement on regulation of finance and currency markets (Nov 2008); Tobin tax; Obama Administration plan to protect borrowers.

4

Improving macro-economic accounting
The shortfalls of conventional output or consumption-based measures of the GDP are now well-established. There is an urgent need to develop more robust measures of economic wellbeing that correct for the most obvious drawbacks in using the GDP. These new measures will need: to account more systematically for changes in the asset base; to incorporate welfare losses from inequality in the distribution of incomes; to adjust for the depletion of material resources and other forms of natural capital, to account for the social costs of carbon emissions and other external environmental and social costs; and to correct for positional consumption and defensive expenditures.

Examples/precedents: longstanding critiques in the economic literature; the World Bank's Adjusted Net Savings measure; RDA policies on Regional-ISEW; Sen/Stiglitz recommendations from the French Commission on the Measurement of Economic Performance and Social Progress.

B

Protecting Capabilities for Flourishing

The social logic that locks people into materialistic consumerism as the basis for participating in the life of society is extremely powerful, but detrimental ecologically and psychologically (Chapters 4-6). An essential prerequisite for a lasting prosperity is to free people from this damaging dynamic and provide opportunities for sustainable and fulfilling lives (Chapter 9). We offer five policy areas to help achieve this task.

5

Sharing the work and improving the work-life balance[3]

In a declining or non-increasing economy, working time policies are essential for two main reasons: 1) to achieve macro-economic stability; 2) to protect people's jobs and livelihoods. But in addition, reduced working hours can increase flourishing by improving the work-life balance. Specific policies need to include: reductions in working hours; greater choice for employees on working time; measures to combat discrimination against part-time work as regards grading, promotion, training, security of employment, rate of pay and so on; better incentives to employees (and flexibility for employers) for family time, parental leave, and sabbatical breaks.

Examples/precedents: French, German and Danish work-time policies; TUC Green and Decent Work seminar.[4]

6

Tackling systemic inequality

Systemic income inequalities drive positional consumption, increase anxiety, undermine social capital and expose lower income households to higher morbidity and lower life satisfaction. Too little has been done to reverse the long-term trend towards income inequality. But redistributive mechanisms and policies are well-established and could include: revised income tax structures; minimum and maximum income levels; improved access to good quality education; anti-discrimination legislation; implementing anti-crime measures and improving the local environment in deprived areas; addressing the impact of immigration on urban and rural poverty.

Examples/precedents: proposals for higher income tax on higher rate earners in PBR 08; restrictions on bonuses in the financial sector; Obama 'shared prosperity' plan; history of redistributive taxation, in many countries.

7

Measuring prosperity

The suggestion that prosperity is not adequately captured by conventional measures of economic output or consumption leaves open the need to define an appropriate measurement framework for a lasting prosperity. Specifically this would entail the assessment of people's capabilities for flourishing in different sections of the population and across the nation as a whole. Developing national accounts of wellbeing (or of flourishing) could proceed through the measurement of outcome variables such as healthy life expectancy, educational participation, social wellbeing, trust in the community, social capital and so on. A further requirement here is to adjust existing economic measurement frameworks to account systematically for ecological and social factors.

Examples/precedents: Defra SD indicator No 68; Dutch capabilities index; nef's national wellbeing accounts; the Government Economic Service project on sustainability and Green Book.

8

Strengthening human and social capital

Understanding that prosperity consists in part in our capabilities to participate in the life of society demands that attention is paid to the underlying human and social resources required for this task. Creating resilient social communities is particularly important in the face of economic shocks. Specific policies are needed to: create and protect shared public spaces; strengthen community-based sustainability initiatives; reduce geographical labour mobility; provide training for green jobs; offer better access to lifelong learning and skills; place more responsibility for planning in the hands of local communities; and protect public service broadcasting, museum funding, public libraries, parks and green spaces.

Examples/precedents: Cabinet Office study on social capital; Foresight study on wellbeing and intellectual capital; Transition Town movement; Environmental Action Fund; Young Foundation's Local Wellbeing Project; the 'Capital Growth' project.

9

Reversing the culture of consumerism
The culture of consumerism has developed in part at least as a means of protecting consumption-driven economic growth. But it has had damaging psychological and social impacts on people's wellbeing. There is a need systematically to dismantle incentives towards materialistic consumption and unproductive status competition. This recommendation will require: stronger regulation in relation to the commercial media; enhanced support for public sector broadcasting; more effective trading standards and stronger consumer protection – particularly on questions of product durability, sustainability and fair trade. Other measures might include: banning advertising to children, the establishment of commercial-free zones and times, and a funded right of reply to advertisers' claims.

Examples/precedents: Scandinavian advertising policies; public transport 'quiet zones'; Brazil's *Lei Cuidade Limpa*.

C

Respecting Ecological Limits

The material profligacy of consumer society is depleting key natural resources and placing unsustainable burdens on the planet's ecosystems (Chapter 5). Establishing clear resource and environmental limits and integrating these limits into both economic functioning (Chapter 8 and Appendix 2) and social functioning (Chapter 9) is essential. The following three policy suggestions contribute to that task.

10

Imposing clearly defined resource/emissions caps
A lasting prosperity requires a much closer attention to the ecological limits of economic activity. Identifying and imposing strict resource and emission caps is vital for a sustainable economy. The contraction and convergence model developed for climate-related emissions should be applied more generally. Declining caps on throughput should be established for all non-renewable resources. Sustainable yields should be identified for renewable resources. Limits should be established for per capita emissions and wastes. Effective mechanisms for imposing caps on these material flows should be set in place. Once established, these limits need to be built into the macro-economic frameworks developed in 1 above.

Example/precedent: UK climate change budgets; the Supplier Obligation; rationing – post-war and Cuba; contraction & convergence proposals; Kyoto and post-Kyoto negotiations; concept of ecological space.

11

Fiscal Reform for Sustainability
The argument for an ecological tax reform – a shift in the burden of taxation from economic goods (e.g. incomes) to ecological bads (e.g. pollution) – has been broadly accepted for at least a decade and has been implemented in varying degrees across Europe. But progress towards this goal has been painfully slow. In the UK the proportion of taxation from green taxes is now lower than it was in 1997. There's an urgent need to achieve an order of magnitude step-change in the structure of taxation. A sustained effort by government is now required to design appropriate mechanisms for shifting the burden of taxation from incomes onto resources and emissions.

Example/precedent: UK Government 1997 Statement of Intent on Environmental Taxation; Danish, German experience in Ecological Tax Reforms; the UK Green Fiscal Commission (reporting 2009).

12

Promoting Technology Transfer and Ecosystem Protection

A key motivation for redefining the basis of prosperity in advanced economies is to make room for much-needed growth in poorer nations. But as these economies expand there will also be an urgent need to ensure that development is sustainable and remains within ecological limits. International policy will be required to establish a global technology fund to invest in renewable energy, energy efficiency, carbon reduction, and the protection of 'carbon sinks' (e.g. forests) and biodiversity in developing countries. This could be funded through a carbon/resource levy (payable by importers) on imports from developing countries, or through a Tobin tax on international currency transfers.

Example/precedent: Global Environmental Facility, Clean Development Mechanism; Development Aid targets; funding provisions of the UN Biodiversity Convention.

In summary, these 12 steps offer the foundations for a comprehensive policy programme to make the transition to a sustainable economy. There is a unique opportunity here for government to demonstrate economic leadership and champion international action on sustainability. But it's also essential to develop financial and ecological prudence at home. And we must also begin to redress the perverse incentives and damaging social logic that lock us into unproductive status competition and materialistic consumerism.

Above all, there is an urgent need to develop a new ecologically-literate macro-economics capable of offering meaningful guidance for a lasting prosperity: a prosperity that for now at least will have to do without growth; and may eventually be able to replace it altogether.

Appendix 1

The SDC *Redefining Prosperity* Project

Prosperity without Growth? represents the culmination of an extensive inquiry by the UK Sustainable Development Commission into the relationship between sustainability and economic growth. That inquiry was launched in 2003, when the Commission published its landmark report – *Redefining Prosperity* – which challenged Government 'fundamentally to rethink the dominance of economic growth as the driving force in the modern political economy, and to be far more rigorous in distinguishing between the kind of economic growth that is compatible with the transition to a genuinely sustainable society and the kind that absolutely isn't'.[1]

That earlier report summarised evidence of a 'mismatch' between economic growth, environmental sustainability and human wellbeing, and called on politicians, policy experts, commentators, business people, religious leaders and NGOs to 'put these issues on their must-get-to-grips-with agenda, rather than defer them endlessly as tomorrow's issues'. The Commission itself kick-started that process with a series of stakeholder workshops (held during the latter part of 2003) to discuss the report's findings.

During 2004 and early 2005, SDC worked closely with government to renew the UK Sustainable Development Strategy. In particular, the Commission itself led the engagement process that resulted in the five Sustainable Development 'principles'. A key element in these principles is the recognition that – rather than being an end in itself – a 'sustainable economy' should be regarded as the means to reaching the more fundamental goal of a 'strong, healthy and just society' that is 'living within environmental limits'.[2]

Following the launch of the new Strategy, the Commission helped Government meet its commitment in *Securing the Future* to explore the concept of wellbeing and develop new wellbeing indicators for the UK. In particular, SDC convened a web-based consultation involving several hundred respondents to explore people's perceptions of the relationship between wellbeing and economic progress.[3]

A key finding from the consultation was that the conventional measure of economic output – the Gross Domestic Product (GDP) – is widely regarded as an inadequate measure of sustainable wellbeing, and that there is a need to 'open out political space' within which to address the shortcomings of conventional approaches to prosperity.

In the spirit of 'opening out space', SDC launched a new programme of work on prosperity during 2007. The programme involved a series of workshops – held between November 2007 and April 2008. The workshops entailed intensive discussions based around invited 'think-pieces' on different aspects of prosperity from senior academics, policy-makers, business and NGOs. The essays and the workshops were organised around four related themes.

- **Visions of Prosperity**: identified a variety of different perspectives (historical, economic, psychological, religious) on the meaning and interpretation of prosperity

- **Economy 'Lite'**: examined international evidence concerning the feasibility of 'decoupling' economic progress from material throughput and environmental impact

- **Confronting Structure**: addressed the structural drivers associated with continued economic growth and explored the impediments to a 'stationary state economy'

- **Living Well**: explored the links between prosperity, economic progress and the recent surge of policy and media interest in happiness and wellbeing.

It is intended to publish the seminar contributions as an edited collection.[4] In the meantime, draft versions of these papers can be found on the SDC website at: www.sd-commission.org.uk/pages/redefining-prosperity.html. Together with 'background' reports prepared by SDC staff (and interns) and the extensive literature on growth and sustainability, these essays provide a part of the 'evidence base' from which this study has drawn.

However, this report is not intended to be a commentary on the *Redefining Prosperity* workshops. Nor can it really do justice to the wealth of input and advice that we received from those who attended the workshops and contributed thinkpieces to them. Rather, *Prosperity without Growth?* aims to convey a coherent position on questions of sustainability and economic growth; and to offer some clear recommendations to policy-makers struggling to take concrete steps towards a sustainable economy.

Appendix 2
Towards a Sustainable Macro-Economy

This annex addresses the broad goal of developing a macro-economics for sustainability (Chapter 8). Explicitly, it sets out some of the features of a potential macro-economic simulation model for the UK that would be capable of testing the relationship between the economy and the demands of sustainability. Specific aims of such a model would be:

- to test the stability of different macro-economies under exogenously defined carbon emission and energy resource constraints
- to explore the potential for macro-economies with high investment to consumption ratios
- to explore the potential for macro-economies with high public sector expenditure and investment
- to explore the stability of macro-economies with low or no consumption growth
- to explore the stability of macro-economies with low or no aggregate demand growth.

The rationale for exploring different investment-to-consumption ratios and different public-to-private ratios follows from the discussion in Chapter 8. In the first case, it is assumed that changes in investment structure are a prerequisite for sustainability. In particular, there will be a need to shift investment substantially towards resource productivity, energy efficiency, and low carbon (e.g. renewable) technologies. Secondly, some of this investment may need to be led by the public sector – because of the nature of the required projects. This requirement is discussed in more detail below.

Model Development

A simple approach to developing a macro-economic simulation for the UK economy would be to take a broadly Keynesian model in which an aggregate demand (*AD*) function of the form:

1) $AD \equiv C + G + I + \bar{X}$

(where C = private consumption, G = government expenditure, I = investment and $\bar{X}$ = net exports) is coupled with some form of production function. The simplest (and commonest) such production function is a two-factor Cobb-Douglas function of the form:

2) $Y \equiv Y(K,L) = a.K^{\alpha}.L^{(1-\alpha)}$

where K is capital, L is labour, a is an efficiency factor and $0 < \alpha < 1$. The fundamental macro-economic identity is then given by the equation:[1]

3) $Y(K,L) = C + G + I + \bar{X}$

This form of production function has been subject to two main criticisms by ecological economists: first, that it includes no explicit reference to material resources; and second, that it assumes perfect substitutability between factors. For these reasons, we may want to adopt a production function that has explicit reference to (say) energy resources (E):

4) $Y \equiv Y(K,E,L)$

where the energy variable $E \equiv E(F,R)$ accounts separately for fossil resources F and renewable resources R, and the level of renewable resources R in any given year is a function of investment I^R in renewables capacity.

5) $R_t \equiv R_t(R_{t-1}, I^R_{t-1})$

We may also want to use a production function where the elasticity of substitution is constant but less than 1. The general form of three factor constant elasticity of substitution (CES) production function is given by:

6) $Y \equiv a.(\alpha K^{\rho} + \beta L^{\rho} + \gamma E^{\rho})^{1/\rho}$

where a is an efficiency factor, $\alpha + \beta + \gamma = 1$ and $\rho = (s - 1)/s$ where s is the elasticity of substitution.

Finally, we might want the production function to be able to 'pick out' improvements in resource productivity, separately from total factor productivity. Our initial requirements for a suitable production function are therefore as follows:

- includes explicit account of energy resources
- allows for incomplete substitutability between factors

- accounts for resource productivity improvements.

Additionally, we are likely to want our model to reflect the more detailed account of investment structure that lies at the heart of our exploration of alternative macroeconomic structures. In fact, this feature of our model could be regarded as the single most important innovation over conventional macro-economic models and is worth setting out in more detail here.

Specifically, we want to distinguish between different forms of investment in two distinct 'dimensions': 1) the *target* for investment and 2) the *conditions* of investment.

Firstly, we are likely to want to identify different technological targets for investment. For instance, we might want to separate investment dedicated to reducing the demand for resources from conventional business investments aimed at the recapitalisation of productive capacity. Energy demand-reducing investments themselves could be of two main types, some devoted to improvements in energy efficiency; some devoted to substitution of renewables (say) for fossil-fuelled technologies. We may also want to consider investments dedicated to improving ecosystem functioning; or investments targeted at climate adaptation.

Our second 'dimension' of investment structure follows on from this consideration of investment demands in different categories. Specifically, we need to identify different conditions of investment. For example, investment focused on technological efficiency might well be viewed straightforwardly as a conventional business sector investment. However, investment in ecosystem function or adaptation might more realistically be envisaged as requiring significant public investment. Somewhere between these extremes we might want to consider categories of infrastructure investment which typically require some public sector involvement. The Severn Tidal Barrage may be one potential investment in this category.

Perhaps the most significant difference between different investment conditions is the required rate (and period) of financial return. Whereas typically, models of this kind would assume a single rate of return consistent with current commercial conditions, a part of the hypothetical exercise set out here would be to explore the potential for different kinds of investment conditions, which might be more suited to the long-term public sector investments needed to mitigate or adapt to climate change or to restore ecosystem integrity. Taken together, these two dimensions suggest a 'matrix' of investment types, something like the following:[2]

	Business sector – commercial rate of return	Public sector – quasi commercial	Public sector – social rate of return
Energy efficiency	I^{E}_{B}	I^{E}_{P}	I^{E}_{S}
Renewable supply	I^{R}_{B}	I^{R}_{P}	I^{R}_{S}
Other capacity	I^{O}_{B}	I^{O}_{P}	I^{O}_{S}
Climate adaptation	I^{A}_{B}	I^{A}_{P}	I^{A}_{S}
Ecosystem maintenance	I^{M}_{B}	I^{M}_{P}	I^{M}_{S}

Table 1: **Potential Investment Dimensions in the Model**

The next consideration in developing a model along the lines outlined here would be to connect these different investment types to the production function. In principle, investments should add to capital stocks, and the augmented capital stocks will then lead – via the production function – to increased output. In practice, however, connections between our different types of investment and the production function might be of different kinds. For example, energy efficiency investments might lead specifically to changes in the efficiency factor in the production function.

Investments in ecosystem maintenance may have no direct impact on the production function at all. They are 'non-productive' in conventional economic terms – whatever their importance for sustainability. On the other hand, they 'soak up' income and have to be included in the model.

Investments in renewable energy (as indicated above) might contribute directly to the E factor in the production function. Some may be less productive (in conventional terms) than others. The Tidal Barrage is an example of such an investment

– its value is difficult to capture at commercial rates of return, in part because of the longevity of the investment.

This is not to denigrate these relatively 'unproductive' investments. They may be essential to reduce carbon emissions, to protect ecosystems or to guarantee long-term energy security. The point is that we need to be able to distinguish different categories of investment in terms of three key parameters: 1) their contribution to emission limits or resource caps; 2) their contribution to aggregate demand; and 3) their impact on the productive capacity of the economy. While 1) and 2) are relatively straightforward to handle exogenously, 3) requires us to establish (within the model) a relationship between the schedule of investments determined by Table 1 and the production function.

At the moment, it isn't entirely clear how this is to be achieved. Several possibilities exist. One would be to assume that different forms of investment augment different categories of capital, each of which has a different productivity factor. Another would be to separate out (energy) resources specifically in the production function and relate investment to changes in the availability of those resources. A further avenue would be to aggregate capital into (say) two categories in the production function, with different productivity assumptions associated with each.

Broadly speaking, the development of an appropriate production function emerges as one of the key tasks inherent in taking this work forward. One of the difficulties in achieving this lies in the calibration of the model. It isn't clear that we have enough econometric data, for example, to estimate productivities separately for each of the capital stocks implied by Table 1. This may not necessarily matter for a simulation model, but at some level we will want to ensure that business as usual can be calibrated consistently with current trends.

A further aspect that would need to be developed in the model is the ability to map the carbon emission and/or resource implications of different levels and compositions of aggregate demand. The most immediate way to take this forward would be to expand or disaggregate the subcategories of the aggregate demand function (C, G, I, X) and to use an Environmental Input-Output (EIO) model[3] to attribute the carbon emissions and/or energy resource requirements associated with the different demand categories using known carbon intensities. In principle, this attribution exercise could also be used to develop different scenarios with different carbon/resource implications, subject to some obvious caveats about the limitations of the underlying EIO data.[4]

In summary, this brief overview serves to establish the outlines for a macro-economic model that could be used to explore further some of the arguments made in this study. In particular, the enhanced capability to explore different targets of, and conditions for, investment is key. It will be essential in understanding how to build a different kind of macro-economics, one in which stability is no longer predicated on increasing consumption growth, but emerges through strategic investment in jobs, social infrastructures, sustainable technologies and the maintenance and protection of ecosystems.

References

Abdallah, Saamah, Sam Thompson and Nic Marks 2008. *Estimating worldwide life satisfaction.* Ecological Economics 65 (1), 35–47.

Ahiakpor, James 2001. *On the Mythology of the Keynesian Multiplier.* American Journal of Economics and Sociology 60: 745–73.

Anderson, Victor 1991. *Alternative Economic Indicators.* London: Routledge.

Anderton, Alain 2000. *Economics* (3rd Edition), Ormskirk, UK: Causeway Press.

APPG 2007. *Return of the Population Growth Factor – its impact on millennium development goals.* Report of Hearings by the All Party Parliamentary Group on Population, Development and Reproductive Health, London: Population Sustainability Network.

Armstrong, Alison and Tim Jackson 2008. *Tied up in 'nots': an exploration of the link between consumption and spirituality.* Paper presented to the European Sociological Association conference in Helsinki, August 2008.

Arndt, Jamie, Sheldon Solomon, Tim Kasser and Kay Sheldon 2004. *The Urge to Splurge: a terror management account of materialism and consumer behaviour.* Journal of Consumer Psychology 14(3), 198-212.

Axelrod, Robert 1984. *The Evolution of Cooperation*. Reprinted 2006. London: Basic Books.

Ayres, Robert 2008. *Sustainability Economics: where do we stand?* Ecological Economics 67: 281-310.

Ayres, Robert and Jeroen van den Bergh 2005. *A theory of economic growth with material/energy resources and dematerialisation: interaction of three growth mechanisms.* Ecological Economics 55: 96-118.

Baudrillard, Jean 1970. *The Consumer Society – myths and structures.* Reprinted 1998. London: Sage Publications.

Bauman, Zygmunt 2007. *Consuming Life.* Cambridge: Polity Press.

Baumol, William, Robert Litan and Carl Schramm 2007. *Good Capitalism, Bad Capitalism, and the economics of growth and prosperity*. Newhaven and London: Yale University Press.

Bedford, Tracey 2007. *Ethical consumerism: everyday negotiations in the construction of an ethical self.* Seminar Presentation, RESOLVE, University of Surrey 15th February 2007. Online at: www.surrey.ac.uk/resolve/seminars/Tracey%20Bedford%20Slides.pdf

Begg, David, Stanley Fischer and Rudiger Dornbusch 2003. *Economics* (7th Edition), Maidenhead: McGraw-Hill.

Beinhocker, Eric 2007. *The Origin of Wealth: Evolution, Complexity, and the Radical Remaking of Economics.* London: Random House.

Belk, Russ, Guliz Ger and Søren Askegaard 2003. *The fire of desire – a multi-sited inquiry into consumer passion.* Journal of Consumer Research 30, 325-351.

Belk, Russell, Melanie Wallendorf and John F Sherry 1989. *The Sacred and the Profane in Consumer Behavior: Theodicy on the Odyssey*, Journal of Consumer Research, 16, 1-38.

Belk, Russell 1988. *Possessions and the Extended Self.* Journal of Consumer Research, 15, 139-168.

Berger, Peter 1969. *The Sacred Canopy – Elements of a Sociological Theory of Religion*. New York: Anchor Books.

BERR 2008. *Smart Business – sustainable solutions for changing times.* Report of the UK Government's Business Taskforce on Sustainable Consumption and Production. London: Dept for Business, Enterprise and Regulatory Reform.

Booth, Douglas 2004. *Hooked on Growth – economic addictions and the environment*. New York: Rowman and Littlefield.

Bosch, Gerhard 2000. Working *Time Reductions, Employment Consequences and Lessons from Europe.* In Golden L and D Figart (eds) 2000.

Bouder, Frederic 2008. *Can Decoupling Work?* Thinkpiece contributed to the SDC Workshop 'Economy Lite – can decoupling work?' February 2008. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

Bourdieu, Pierre 1984. *Distinction—A social critique of the judgement of taste*. London: Routledge and Kegan Paul.

Bradley, S 2006. *In Greed We Trust: Capitalism gone wrong*. Victoria, BC: Trafford.

Brown, Lester 2008. *Plan B 3.0 – mobilizing to save civilization*. New York: W W Norton & Co.

Brown, Peter and Geoffrey Garver 2008. *Right Relationship – building a whole earth economy*. San Francisco: Berrett-Koehler Publishers Inc.

Brown, Kirk and Tim Kasser 2005. *Are Psychological and Ecological Well-being Compatible? The Role of Values, Mindfulness, and Lifestyle.* Social Indicators Research 74(2), 349-368.

Bunting, Madeleine 2005. *Willing Slaves: how the overwork culture is ruining our lives*. London: Harper.

Campbell, Colin 2004. *I shop therefore (I know that) I am. The Metaphysical Foundations of Modern Consumerism.* In Karin Ekstrom and Helen Brembeck (eds.), *Elusive Consumption.* Oxford: Berg.

Campbell, Colin 2005. *The Romantic Ethic and the Spirit of Modern Consumerism*. Oxford: Basil Blackwell.

Carbon Trust 2006. *The carbon emissions in all that we consume*. London: Carbon Trust.

CCC 2008. *Building a Low-Carbon Economy – the UK's contribution to tackling climate change.* 1st Report of the Climate Change Committee. London: TSO.

Common, Michael and Sigrid Stagl 2005. *Ecological Economics – an introduction*. Cambridge: Cambridge University Press.

Costanza, Robert et al. 1997. *The Value of the World's Ecosystem Services and Natural Capital,* Nature 387: 256, Table 2.

Crocker, David and Toby Linden (eds) 1998. *The Ethics of Consumption*, New York: Rowman and Littlefield.

Csikszentmihalyi, Mihaly 2000. The Costs and Benefits of Consuming. *Journal of Consumer Research* 27(2), 262-272. Reprinted as Chapter 24 in Jackson 2006.

Csikszentmihalyi, Mihalyi 2003. *Materialism and the evolution of consciousness.* Chapter 6 in Kasser, T and Kanner, A (eds) 'Psychology and Consumer Culture' – the struggle for a good life in a material world. Washington DC: American Psychological Association.

Csikszentmihalyi, Mihaly and Eugene Rochberg-Halton 1981. *The Meaning of Things – domestic symbols and the self*, Cambridge and New York: Cambridge University Press.

Culpepper, Pepper 2001. *Employers, Public Policy and the Politics of Decentralised Cooperation in France and Germany*. Chapter 8 in Hall and Soskice (eds) 2001.

Cushman, Philip. 1990. *Why the Self is Empty: toward a historically situated psychology*. American Psychologist 45: 599-611.

D'Alessandro, Simone, Tommaso Luzzati and Mario Morroni 2008. *Feasible Transition Paths towards a Renewable Energy Economy: Investment Composition, Consumption and Growth.* Thinkpiece presented to the SDC Seminar: 'Confronting Structure' April 2008. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

Daly, Herman 1996. *Beyond Growth.* Washington, DC: Beacon Press.

Daly, Herman 1972. *The Steady State Economy.* London: W H Freeman and Co Ltd.

DB 2008. *Economic Stimulus: The Case for 'Green' Infrastructure, Energy Security and 'Green' Jobs*. Deutsche Bank Advisors. New York: Deutsche Bank.

De Botton, Alain 2004. *Status Anxiety*. Oxford: Oxford University Press.

Defra 2008. *Development of an Embedded Emissions Indicator.* Report to the Department for the Environment, Food and Rural Affairs by the Stockholm Environment Institute and University of Syney. London: Defra. Online at: http://randd.defra.gov.uk/Document.aspx?Document=EV02033_7331_FRP.pdf

Defra 2007. *Sustainable Development Indicators in Your Pocket*. London: TSO.

Defra 2005. *Securing the Future. UK Sustainable Development Strategy*. London: Department for Environment, Food and Rural Affairs.

Dittmar, Helga 1992. *The Social Psychology of Material Possessions – to have is to be*, New York: St Martin's Press.

Dolan, Paul, Tessa Peasgood and Matthew White 2008. *Do we really know what makes us happy?* A review of the economic literature on the factors associated with subjective well-being. Journal of Economic Psychology*, 29, 94-122.*

Dolan, Paul, Tessa Peasgood and Matthew White 2006. *Review of research on the influences on personal well-being and application to policy making*. Report to Defra. London: Defra.

Douglas, Mary 2006 (1976). *Relative Poverty, Relative Communication*, in Halsey, A. (ed), Traditions of Social Policy, Oxford: Basil Blackwell; reprinted as Chapter 21 in Jackson 2006a.

Douglas, Mary and Baron Isherwood 1996. *The World of Goods*. 2nd Edition. London: Routledge.

Douthwaite, Richard 1999. *The Growth Illusion – how economic growth has enriched the few, impoverished the many and endangered the planet.* Totnes, Devon: Green Books.

Doyal, Len and Ian Gough 1991. *A Theory of Human Needs*. Basingstoke: Palgrave Macmillan.

Druckman, Angela and Tim Jackson 2009. *The carbon footprint of UK households 1990-2004: a socio-economically disaggregated, quasi-multi-regional input-output model.* Ecological Economics. In press.

Druckman, Angela and Tim Jackson 2008. *The Surrey Environmental Lifestyle Mapping (SELMA) Framework – development and key results to date.* RESOLVE Working Paper 08-08. Guildford: University of Surrey. Online at: www.surrey.ac.uk/resolve/Docs/WorkingPapers/RESOLVE_WP_08-08.pdf

Druckman, Angela, Pete Bradley, Eleni Papathanasopoulou and Tim Jackson 2008. *Measuring progress towards carbon reduction in the UK*. Ecological Economics 66(4): 594-604.

Durkheim, Emile 1903. *Suicide.* Reprinted (2002) in Routledge Classics. London: Routledge.

Easterlin, Richard 1995. Will raising the incomes of all increase the happiness of all? *Journal of Economic Behaviour and Organization*, 27, 35–47.

Easterlin, Richard 1972. *Does economic growth improve the human lot? Some empirical evidence*. In: D. David and M. Reder, eds. Nations and households in economic growth. Stanford: Stanford University Press.

Ehrlich, Paul 1968. *The Population Bomb.* Reprinted (1995). New York: Buccaneer Books.

EIA 2008. *International Energy Annual 2006*. Washington, DC: Energy Information Administration. Online at: www.eia.doe.gov/emeu/iea

Ekins, Paul 2008. *Policies for Decoupling*. Thinkpiece contributed to the SDC workshop 'Decoupling Lite – can decoupling work?' February 2008. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

Ekins, Paul 2000. *Economic Growth and Environmental Sustainability*. London: Routledge.

Ekins, Paul and Manfred Max-Neef (Eds.) 1992. *Real-life economics: Understanding wealth creation*. London: Routledge.

Elgin, Duane 1981. *Voluntary Simplicity – towards a way of life that is outwardly simple, inwardly rich*. Reprinted 1993. New York: William Morrow.

Estevez-Abe, Margarita, Torben Ivesen and David Soskice. 2001. *Social Protection and the Formation of Skills*. Chapter 4 in Hall and Soskice (eds) 2001.

Etzioni, Amitai 1998 [2006] *Voluntary Simplicity: Characterisation, Select Psychological Implications and Societal Consequences.* Journal of Economic Psychology 19(5), 619 – 643. Reprinted as Chapter 12 in Jackson 2006.

Evans, David and Wokje Abrahamse 2008. *Beyond Rhetoric: the Possibilities of and for 'Sustainable Lifestyles'*. RESOLVE Working Paper Series 06-08. Guildford: University of Surrey.

Franco, Manuel, Pedro Orduñez, Benjamín Caballero, José A. Tapia Granados, Mariana Lazo, José Luís Bernal, Eliseo Guallar and Richard S. Cooper 2007. *Impact of Energy Intake, Physical Activity, and Population-wide Weight Loss on Cardiovascular Disease and Diabetes Mortality in Cuba*, 1980–2005. Journal of Epidemiology 166: 1374-1380.

Freeman, Richard and Kathryn Shaw 2009. *International Differences in the Business Practices and Productivity of Firms.* Proceedings of a Conference held at the National Bureau of Economic Research 2006. Chicago: University of Chicago Press (forthcoming). Online at: http://www.nber.org/books/free07-1.

Gadjil, Madhav and Ramachandra Guha 1995. *Ecology and Equity— The Use and Abuse of Nature in Contemporary India.* New York: Routledge, p35.

Gatersleben, Birgitta, Jesse Meadows, Wokje Abrahamse and Tim Jackson 2008 *Materialistic and environmental values of young volunteers in nature conservation projects.* RESOLVE Working Paper 07-08. Guildford: University of Surrey.

Georgescu-Roegen, Nicholas 1972. *The Entropy Law and the Economic Process*. Cambridge, Mass: Harvard University Press.

GND 2008. *A Green New Deal: joined up policies to solve the triple crunch of the credit crisis, climate change and high oil prices.* The first report of the Green New Deal Group. London: nef.

Golden, L and D Figart 2000. *Working Time: international trends, theory and policy perspectives.* London and New York: Routledge.

Gorz, André 1999. *Reclaiming Work – beyond the wage-based society.* London: Polity Press.

Greenspan, Alan 2008. *The Age of Turbulence: adventures in a new world*. London: Penguin.

Grossman, Gene and Alan Krueger 1995. *Economic Growth and the Environment*. Quarterly Journal of Economics 110: 353:378.

Haidt, Jonathan 2007. *The Happiness Hypothesis – finding modern truth in ancient wisdom.* New York: Basic Books.

Hall, Peter, and David Soskice 2001. *Varieties of Capitalism: the institutional foundations of competitive advantage*. Oxford: Oxford University Press.

Hall, Robert and David Papell 2005. *Macroeconomics: economic growth, fluctuations and policy*. New York: W.W.Norton.

Helliwell, John 2003. *How's life? Combining individual and national variables to explain subjective wellbeing.* Economic Modelling 20 (2), 331–360.

Hamilton, Clive 2003. *Downshifting in Britain. A sea-change in the pursuit of happiness.* Discussion Paper No 58. Canberra: The Australia Institute.

Hamilton, Clive and L Mail 2003. *Downshifting in Australia: A sea-change in the pursuit of happiness,* Discussion Paper No. 50. Canberra: The Australia Institute.

Hayden, Anders 1999. *Sharing the Work, Sparing the Planet – work time, consumption and ecology*. London: Zed Books.

Helm, Dieter 2008a. *Too Good to be True*. Online at www.dieterhelm.co.uk

Helm, Dieter 2008b. *Climate-change policy: why has so little been achieved?* Oxford Review of Economic Policy 24(20): 211–238.

Hirsch, Fred 1977. *Social Limits to Growth*. Revised edition (1995), London and New York: Routledge.

HMT 2008. Facing *Global Challenges: supporting people through difficult times.* Pre-Budget Report 2008. London: HM Treasury.

Hobson, K., 2006. *Competing discourses of sustainable consumption: does the rationalisation of lifestyles make sense?* In Jackson 2006a, 305–327.

Huneke, M 2005. *The Face of the Un-consumer: an empirical examination of the practice of voluntary simplicity in the United States*. Psychology and Marketing 22(7), 527-550.

IEA 2008. *World Energy Outlook 2008*. Paris: International Energy Agency.

IFS 2009. *The IFS Green Budget January 2009*. London: Institute for Fiscal Studies.

IMF 2008. *World Economic Outlook 2008*. Washington DC: International Monetary Fund.

Inglehart, Ronald and Klingemann, H-D 2000. *Genes, culture and happiness*. Boston: MIT Press.

IPCC 2007. *Climate change 2007: Mitigation*. Contribution of Working group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press.

ITPOES 2008. The Oil Crunch: securing the UK's energy future. First report of the Industry Taskforce on Peak Oil and Energy Security. London: ITPOES.

Jackson, Tim 2008a. *Where is the wellbeing dividend? Nature, Structure and Consumption Inequalities*. Local Environment 13(8): 703-723.

Jackson, Tim 2008b. *The Challenge of Sustainable Lifestyles*. Chapter 4 in *State of the World 2008 – Innovations for a Sustainable Economy*. Washington DC: WorldWatch Institute.

Jackson, Tim (ed) 2006a. *Earthscan Reader in Sustainable Consumption*. London: Earthscan.

Jackson, Tim 2006b. *Consuming Paradise? Towards a social and cultural psychology of sustainable consumption*. Chapter 25 in Jackson (ed) 2006a.

Jackson, Tim 2005a. *Motivating Sustainable Consumption – a review of evidence on consumer behaviour and behavioural change*. London: Sustainable Development Research Network.

Jackson, Tim 2005b. *Live better by consuming less? Is there a double dividend in sustainable consumption.* Journal of Industrial Ecology 9(1-2), 19-36.

Jackson, Tim and Victor Anderson 2009. *Redefining Prosperity – essays in pursuit of a sustainable economy.* London: Earthscan/SDC, forthcoming.

Jackson, Tim 1996. *Material Concerns: pollution, profit and quality of life*. London: Routledge.

Jackson, Tim and Michael Jacobs 1991. *Carbon Taxes and the Assumptions of Environmental Economics. In Barker, T* (ed) Green Futures for Economic Growth. Cambridge: Cambridge Econometrics, 49-68.

Jackson, Tim, Wander Jager and Sigrid Stagl 2004. *Beyond Insatiability – needs theory and sustainable consumption,* in L Reisch and I Røpke (eds) Consumption – perspectives from ecological economics. Cheltenham: Edward Elgar.

Jackson, Tim and Nic Marks 1999. *Consumption, Sustainable Welfare and Human Needs - with reference to UK expenditure patterns 1954-1994,* Ecological Economics 28(3), 421-442.

Jackson, T and N McBride 2005. *Measuring Progress? A review of adjusted measures of economic welfare in Europe.* Report for the European Environment Agency. Guildford: University of Surrey.

Jackson, Tim and Miriam Pepper 2009. *Consumerism as theodicy: an exploration of secular and religious meaning functions in consumer society*. In Thomas, Lynn *Consumerism: religious and secular perspectives*. London: Palgrave.

Jackson, Tim and Eleni Papathanasopoulou 2008. *Luxury or Lock-in? – an exploration of unsustainable consumption in the UK 1968 – 2000*. Ecological Economics 68: 80-95.

Jackson, Tim, Eleni Papathanasopoulou, Pete Bradley and Angela Druckman 2006. *Attributing Carbon Emissions to Functional Household Needs*: *a pilot framework for the UK. International Conference on Regional and Urban Modelling, Brussels,* Belgium. 1-2 June 2006.

Jackson, Tim, Eleni Papathanasopoulou, Pete Bradley and Angela Druckman 2007. *Attributing UK Carbon Emissions to Functional Consumer Needs: methodology and pilot results*. RESOLVE Working Paper 01-07, University of Surrey. Online at: www.surrey.ac.uk/resolve/Docs/WorkingPapers/RESOLVE_WP_01-07.pdf

Jacobs, Michael 1991. *The Green Economy*. London: Pluto Press.

James, Oliver 1998. *Britain on the couch: why we're unhappier compared to 1950 despite being richer*. London: Arrow Books.

James, Oliver 2007. *Affluenza.* London: Vermillion.

Kahneman, Daniel and Robert Sugden. 2005 *Experienced Utility as a Standard of Policy Evaluation.* Environmental & Resource Economics 32: 161–181.

Kasser, Tim 2007. *A Vision of Prosperity*. Thinkpiece for the SDC's *Redefining Prosperity* project. London: SDC.

Kasser, Tim 2002. *The High Price of Materialism*. Cambridge, Mass: MIT Press.

Keynes, John Maynard 1930. *Economic Possibilities for our Grandchildren. Essays in Persuasion.* New York: W W Norton & Co.

Kierkegaard, Søren 1844. *The Concept of Anxiety: A Simple Psychologically Orienting Deliberation on the Dogmatic Issue of Hereditary Sin*. Reprinted as Volume VIII, Kierkegaard's Writings. Princeton: Princeton University Press.

Lancaster, Kelvin 1966. *A new approach to consumer theory*. Journal of Political Economy 174, 132-157.

Layard, Richard 2005. *Happiness*. London: Penguin.

Lewis, David and Darren Bridger 2001. *The soul of the new consumer: Authenticity – what we buy and why in the new economy.* London: Nicholas Brealey.

Lientz, Bennet and Kathryn Rea 2001. *The 2001 Professional's Guide to Process Improvement: Maximizing Profit, Efficiency, and Growth.* Colorado: Aspen Publishers Inc.

Lord, Clive 2003. *A Citizen's Income – a foundation for a sustainable world.* Charlbury, Oxford: Jon Carpenter Publishing.

Lynas Mark 2004. *High Tide.* London: Flamingo.

Maddison, Angus 2007. *Contours of the World Economy 1 – 2030: essays in macro-economic history*. Oxford: Oxford University Press.

Marmot, Michael 2005. *Status Syndrome – how your social standing directly affects your health.* London: Bloomsbury.

Marmot, Michael and Richard Wilkinson (eds) 2006. *Social Determinants of Health*. 2nd Edition. Oxford: Oxford University Press.

Mawdesley, Emma 2004. *India's Middle Classes and the Environment*. Development and Change 35(1), 79-103.

Max-Neef, Manfred 1992. *Human-scale development: conception, application and further reflection*. London: Apex Press.

McCracken, Grant 1990. *Culture and Consumption*, Indiana University Press, Bloomington and Indianapolis.

McKibben, Bill 2007. *Deep Economy – the wealth of communities and the durable future.* New York: Henry Holt & Co.

MEA 2005. *Ecosystems and Human Wellbeing: Current States and Trends.* Washington DC: Island Press.

Meadows, Donella, Jorgen Randers and Dennis Meadows 2004. *Limits to Growth – the 30 year update.* London: Earthscan.

Monbiot, George 2006. *Heat – how we can stop the planet burning.* London: Penguin.

NCC 2006. *Shopping Generation*. London: National Consumer Council.

nef 2009. *National Accounts of Wellbeing – bringing real wealth into the balance sheet*. London: New Economics Foundation.

nef 2006. *A Wellbeing Manifesto*. London: New Economics Foundation.

Nordhaus, William 2007. *A Review of The Stern Review on the Economics of Climate Change*', Journal of Economic Literature, **45**(3), September.

Norman, Jesse, Kitty Ussher and Danny Alexander 2007. *From here to fraternity: perspectives on social responsibility*. London: CentreForum.

Northcott, Michael 2007. *A Moral Climate – the ethics of global warming*. London: Darton, Longman and Todd.

Nussbaum, Martha 2006. *Frontiers of Justice: disability, nationality and policy design.* Cambridge: Cambridge University Press.

OECD 2008. *Growing Unequal? Income Inequality and Poverty in OECD countries*. Paris: Organization for Economic Cooperation and Development.

OECD 2006. *International Comparisons of Labour Productivity Levels*. Paris: OECD. Online at: www.oecd.org/dataoecd/31/7/29880166.pdf

OECD 2002. *Towards Sustainable Consumption: an economic conceptual framework* Paris: Organization for Economic Cooperation and Development.

Offer, A 2007. *A Vision of Prosperity*. Thinkpiece to the SDC workshop: Visions of Prosperity. November 2007. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

Offer, Avner 2006. *The Challenge of Affluence*. Oxford: Oxford University Press.

O'Neill, John 2008. *Living Well – within Limits: wellbeing, time and sustainability*. Thinkpiece for the SDC seminar: Living Well – within Limits, April 2008. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

Ormerod, Paul 2008. Is the concept of 'wellbeing' useful for policy making? Thinkpiece for the SDC seminar Living Well – within Limits, April 2008. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

Oulton, Nicholas 1996. *Competition and the Dispersion of Labour Productivity amongst UK Companies.* NIESR Paper no 103. London: National Institute of Economic and Social Research.

Pepper, Miriam, Tim Jackson and David Uzzell 2009. *Values and Sustainable Consumer Behaviours.* International Journal of Consumer Studies. Special issue on Sustainable Consumption. Forthcoming.

Perez, Carlota 2002. *Technological Revolutions and Financial Capital, The Dynamics of Bubbles and Golden Ages.* Cheltenham: Edward Elgar, 2002.

PERI 2008. *Green Recovery: A Program to Create Good Jobs and Start Building a Low-Carbon Economy*. A report by the Political Economy Research Institute, University of Massachusetts, Amherst, September 2008. Washington, DC: Center for American Progress.

Polanyi, Karl 1942. *Great Transformation – the political and economic origins of our time.* Reprinted 2002. Uckfield: Beacon Press.

Porritt, Jonathon 2005. *Capitalism – as if the world matters*. London: Earthscan.

Putnam, Robert 2001. *Bowling Alone: the collapse and revival of American community*. New York: Simon and Schuster.

Rapp, Hilde 2007. *Fulfillment and Prosperity: a neo-Gandhian vision*. Thinkpiece to the SDC seminar: 'Visions of Prosperity', November 2007. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

Reay, David, Colin Ramshaw and Adam Harvey 2008. *Process Intensification: Engineering for Efficiency, Sustainability and Flexibility.* Oxford: Butterworth-Heinemann.

Ritzer, George 2004. *The McDonaldization of Society*. New York: Pine Forge Press.

Robeyns, Ingrid and Robert van der Veen 2007. *Sustainable Quality of Life – conceptual analysis for a policy-relevant empirical specification.* MNP report 550031006/2007. Bilthoven: Netherlands Environmental Assessment Agency.

Rothman, Dale 1998. *Environmental Kuznets Curves – real progress or passing the buck? A case for consumption-based approaches*. Ecological Economics 25(2): 177-194.

Rutherford, Jonathan 2008. *Wellbeing, Economic Growth and Recession*. Thinkpiece for the SDC workshop: Living Well – within limits, March 2008. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

Sardar, Zia 2007. *Prosperity: a transmodern analysis*. Thinkpiece to the SDC seminar: Visions of Prosperity, November 2007. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

Schwartz, Shalom 2006. *Value orientations: Measurement, antecedents and consequences across nations.* In R. Jowell, C. Roberts, R. Fitzgerald, & G. Eva (Eds.), *Measuring attitudes cross-nationally - lessons from the European Social Survey*. London: Sage.

Schwartz, Shalom 1999. *A theory of cultural values and some implications for work*. Applied Psychology 48(1): 23-47.

Schor, Juliet 1998. *The Overspent American: upscaling, downshifting and the new consumer.* New York: Basic Books.

Schumpeter, Joseph 1934. *The Theory of Economic Development*. Reprinted in 2008. London: Transaction Publishers.

Schumpeter, Joseph 1950. *Capitalism, Socialism and Democracy*. Reprinted in 1994. London: Routledge.

Schumpeter, Joseph 1954. *History of Economic Analysis.* Reprinted in 1994. London: Routledge.

Scitovsky, Tibor 1976. *The Joyless Economy*. Oxford: Oxford University Press.

SDC 2009. *A Sustainable New Deal – a stimulus package for economic, social and ecological recovery*. London: Sustainable Development Commission.

SDC 2006a. *Redefining Progress. Report of the SD Panel consultation on Progress*. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/publications/downloads/RedefiningProgressv2.pdf

SDC 2006b. *The Role of Nuclear Power in a Low-Carbon Economy*. London: Sustainable Development Commission.

SDC 2006c. *I Will If You Will*. Report of the UK Sustainable Consumption Round Table. London: Sustainable Development Commission/National Consumer Council.

SDC 2003. *Redefining Prosperity: resource productivity, economic growth and sustainable development*. London: Sustainable Development Commission. Online at: http://tinyurl.com/ckuurl

Sen, Amartya 1999. *Development as Freedom*. Oxford: Oxford University Press.

Sen, Amartya 1998. *The Living Standard*. Chapter 16 in Crocker and Linden (eds) 1998, 287-311.

Sen, Amartya 1984. *The Living Standard.* Oxford Economic Papers 36, 74-90.

Sen, Amartya 1985. *Commodities and Capabilities*. Amsterdam: Elsevier.

Sheerin, Caroline 2002. *UK Material Flow Accounting*. Economic Trends No. 583 June 2002, 53-61.

Shelton, Beth Anne 1987. *Variations in Divorce Rate by Community Size: a test of the social integration explanation.* Journal of Marriage and the Family 49: 827-832.

Smith, Adam 1937 (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations* (reprinted 1937). New York: Modern Library.

Sober, E and D Wilson 1998. *Unto Others—The Evolution and Psychology of Unselfish Behaviour.* Harvard University Press, Cambridge, MA.

Solow, Robert 1956. *A Contribution to the Theory of Economic Growth*. Quarterly Journal of Economics 70(1): 65-94.

Soper, Kate 2008. *Exploring the relationship between growth and wellbeing.* Thinkpiece for the SDC Seminar: Living Well – within Limits, February 2008. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

Soros, George 2008. *The New Paradigm for Financial Markets. the credit crisis of 2008 and what it means*. London: Public Affairs.

Sorrell, Steve 2007. *The Rebound Effect: an assessment of the evidence for economy-wide energy savings from improved energy efficiency*. A report by the Sussex Energy Group for the UK Energy Research Centre. London: UK Energy Research Group.

Stern 2007. *The Economics of Climate Change: the Stern Review*. Cambridge: Cambridge University Press.

Swan, Alan 1956. *Economic Growth and Capital Accumulation*. Economic Record 32: 344-361.

Townsend, Peter 1979. *Poverty in the United Kingdom – a survey of household resources and standards of living*. London: Penguin.

UN 2007. *World Population Prospects: the 2006 Revision*, Highlights. Working Paper No ESA/P/WP 202. UN Department of Economic and Social Affairs. New York: United Nations. Online at: www.un.org/esa/population/publications/wpp2006/WPP2006_Highlights_rev.pdf

UNDP 2005. *Human Development Report*. Oxford: Oxford University Press.

Veblen, Thorstein 1898. *The Theory of the Leisure Class*. Reprinted 1998. Great Minds Series. London: Prometheus Books.

Victor, Peter 2008a *Managing without Growth – slower by design not disaster.* Cheltenham: Edward Elgar.

Victor, Peter 2008b *Managing without Growth*. Thinkpiece for the SDC workshop 'Confronting Structure'. April 2008. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

von Weizsäcker, Ernst, Amory Lovins, L Hunter Lovins 1998. *Factor Four: halving resource use, doubling wealth.* London: Earthscan.

Wachtel, Paul 1983. *The Poverty of Affluence – a psychological portrait of the American Way of Life.* New York: The Free Press.

Wall, Derek 2008. *Prosperity without Growth*. Thinkpiece for the SDC workshop: Confronting Structure. April 2008. London: Sustainable Development Commission. Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

Weber, Max 1958. *The Protestant Ethic and the Spirit of Capitalism*. Translated by Talcott Parsons. New York: Charles Scribner's Sons.

WHO 2004. *Prevalence, severity and unmet need for treatment of mental disorders*. Journal of the American Medical Association 291, 2581-89.

Wilkinson, R., 2005. *The impact of inequality: how to make sick societies healthier.* London: Routledge.

WRI 2000. *The Weight of Nations – material outflows from industrial economies*. Washington, DC: World Resources Institute.

Wright, Robert 1994. *The Moral Animal – why we are the way we are*. London: Abacus.

Endnotes

1 Introduction

1 9.2 billion people is the mid-range projection for global population by 2050 according to the United Nations Department of Economic and Social Affairs latest projections (UN 2007). The lower end of the range is 7.8 billion while the higher end is 10.8 billion.

2 UNDP 2005. The richest 20% by comparison earn 74% of the world's income.

3 'Be moderate in prosperity, prudent in adversity', advised Periander, the ruler of Corinth in 600BC; 'Prosperity tries the fortunate; adversity the great,' claimed Rose Kennedy, mother of JFK and RFK.

4 For useful summaries of these impacts see for example Brown 2008 (Chapter 2-6), Victor 2008a, McKibben 2007 (Chapter 1), Northcott 2007, Monbiot 2006, Porritt 2005 (Chapter 3), Booth 2004 (Chapters 4 & 5), Stern 2007, Lynas 2004, IEA 2008, GND 2008 and ITPOES 2008 amongst many others, including of course the SDC's own report on *Redefining Prosperity* (SDC 2003) and the very useful Millennium Ecosystem Assessment (MEA 2005);

5 The most widely cited statistic from Stern's influential report on the economics of climate change (Stern 2007) is that an annual investment of 1% of global GDP could avert an estimated cost from climate change of 25% of global GDP.

6 The G20 group warned of the threat of rising oil prices to global economic stability as early as 2005 (www.independent.co.uk/news/business/news/g20-warns-of-oil-price-threat-to-global-economic-stability-511293.html). The fears peaked in July 2008 when oil prices reached $147 a barrel. Though they fell sharply in the following months, the long term concern is widely acknowledged. See for example the IEA's World Energy Outlook (IEA 2008) and the report of the Industry Taskforce on Peak Oil and Energy Security (ITPOES 2008).

7 On income inequality in developed nations see OECD 2008; on global disparities see UNDP 2005. On the effects of income inequality see Marmot 2005, Wilkinson 2005. Marmot and Wilkinson 2005.

8 See for example: Layard 2005, nef 2006, Haidt 2007, Abdallah et al 2008. On 'social recession' see Rutherford 2008, Norman 2007. On wellbeing and inequality see Jackson 2008a.

9 This evocative phrase comes from the Indian ecologist Madhav Gadjil (Gadjil and Guha 1995)

10 Soros 2008, p159.

11 See http://news.bbc.co.uk/1/hi/business/7493298.stm

12 Victor 2008a&b.

2 The Age of Irresponsibility

1 Taken from a speech by the UK Prime Minister to the United Nations in New York, Friday 26th September 2008. See: www.ft.com/cms/s/0/42cc6040-8bea-11dd-8a4c-0000779fd18c.html

2 On IMF prediction, see World Economic Outlook (IMF 2008), p *xiv*; for OECD see http://news.bbc.co.uk/1/hi/business/7430616.stm ; on 'financial markets' see Soros 2008; on 'stagflation' see http://news.bbc.co.uk/1/hi/business/127516.stm ; on food riots see (for example) http://news.bbc.co.uk/1/hi/world/7384701.stm

3 Robert Peston, 'The £5,000 bn bailout'. BBC Online: www.bbc.co.uk/blogs/thereporters/robertpeston/2008/10/the_5000bn_bailout.html

4 Source data are from *The Economist* dollar-based Commodity Price Index (accessed at www.economist.com)

5 See for example: www.guardian.co.uk/business/2008/dec/17/goldmansachs-executivesalaries

6 In *Varieties of Capitalism* Peter Hall and David Soskice (2001) define two main types of capitalist economy in the developed world: 'liberal market economies' and 'coordinated market economies'. It's instructive up to a point to reflect on some of the differences between these economies in approaching recession. We revisit this point in Chapter 10.

7 Most recent statistics on UK consumer debt taken from 'Debt Facts and Figures – Compiled 1st February 2009' published by Credit Action. Online at: www.creditaction.org.uk/debt-statistics.html

8 Source data are from the Office for National Statistics (accessed at www.statistics.gov.uk).

9 Formally known as the public sector net debt, the national debt measures the 'financial liabilities issued by the public sector less its holdings of liquid financial assets, such as bank deposits'. (See for example the ONS factsheet on Government and Public Sector Debt Measures. Online at: www.statistics.gov.uk/about/methodology_by_theme/public_sector_accounts/downloads/debt_history.pdf

10 On rising inequality and increasing relative poverty in the UK – and in other developed nations – see OECD 2008. The report notes that 'The gap between rich and poor and the number of people below the poverty line have both grown over the past two decades. The increase is widespread, affecting three-quarters of OECD countries. The scale of the change is moderate but significant.' In the first five years of the 21st century, however, the report reveals that income inequality fell in the UK.

11 Pre-Budget Report 2008 (HMT 2008, p 190).

12 Source data for 1993-2007 are from the Office for National Statistics (accessed at www.statistics.gov.uk). Data for 2008 are estimated on the basis of National Statistics data to end Sept 2008 (online at: www.statistics.gov.uk/cci/nugget.asp?id=206) with an addition of £37bn made for public money already contributed to the most recent bank bailout. Historical data before 1993 are available from Table B26 in the 2000 Pre-Budget Report available at www.hm-treasury.gov.uk/4124.htm

13 See the CIA World Factbook. Online at: https://www.cia.gov/library/publications/the-world-factbook/rankorder/2079rank.html See also IMF data available online at: www.statistics.gov.uk/IMF

14 See *The Economist*, Race to the Bottom, February 13th 2009. Online at: www.economist.com/daily/news/displaystory.cfm?story_id=13129949

15 Soros 2008, p 81 et seq.

16 See Greenspan 2008.

17 In particular, Greenspan himself and several other free market economists believed that self-interest would restrain financial institutions from taking excessive risks!

18 *The Economist*, A short history of modern finance, 18th October 2008, p98.

19 Barack Obama (amongst others) has offered a convincing historical perspective on this trend. See, for example, the speech at Cooper Union, New York on March 27th 2008. Online at: www.barackobama.com/2008/03/27/remarks_of_senator_barack_obam_54.php

20 Citibank quote is from the *Financial Times* July 10, 2007.

21 Citigroup had to be rescued by the US government on 23rd November 2008, with an injection of $20 billion and the underwriting of more than $300 billion in risky assets.

22 FT.com 28/10/2008 'World Will Struggle to Meet Oil Demand'. Online at: www.ft.com/cms/s/0/e5e78778-a53f-11dd-b4f5-000077b07658.html

3 Redefining Prosperity

1 From Zia Sardar's 'thinkpiece' for the Sustainable Development Commission (Sardar 2007).

2 See in particular the 'think-piece' contributions to the SDC project from Tim Kasser (2007), John O'Neill (2008), Avner Offer (2007), Hilde Rapp (2007), Zia Sardar (2007) and Kate Soper (2008). Online at: www.sd-commission.org.uk/pages/redefining-prosperity.html

3 There are strong resonances here with Mary Douglas' (1976) understanding of consumers as attempting to 'create the social world and find a creditable place in it'; and also with Peter Townsend's groundbreaking analysis of poverty, in which he argued that people can be said to be poor when their resources are 'so seriously below those commanded by the average individual or family that they are, in effect, excluded from ordinary living patterns, customs and activities' (Townsend 1979, p 31). Rather than being about money or material possessions as such, Townsend claimed, poverty is about the inability to participate actively in society.

4 Sardar 2007.

5 Brown and Garver 2008.

6 See for example Layard 2005, Dolan et al 2006 & 2008, Jackson 2008a.

7 From a poll undertaken for the BBC by GfK NOP during October 2005. Results available at: http://news.bbc.co.uk/nol/shared/bsp/hi/pdfs/29_03_06_happiness_gfkpoll.pdf

8 *The Living Standard* (Sen 1984) was originally published in Oxford Economic Papers, an economics journal, but is usefully reproduced (Sen 1998) along with excerpts from some of Sen's later essays on the subject in Crocker and Linden (1998). See also Sen 1985, 1999.

9 Actually there is some disagreement as to whether the concept of utility is about the 'satisfactions' received from commodities or the desires for them (Sen 1998, 290), but this distinction need not concern us here.

10 This distinction led the economist Kelvin Lancaster (1966) to develop a sophisticated theory of 'attributes' which attempted to get round the difficulty that commodities are not the same as satisfactions. There is also an extensive and useful discussion of the relationship between satisfaction and material commodities in modern needs theories; see for example: Doyal and Gough 1991, Max Neef 1991, Ekins and Max Neef 1992, Jackson et al 2004.

11 For a discussion of trends over time in the UK see Jackson and Marks 1999, Jackson and Papathanasopoulou 2008.

12 See Anderson 1991 for a concise analysis of the limitations of GDP and a discussion of alternative economic indicators. See Jackson and McBride 2005 (e.g.) for a survey of the literature on adjusted economic indicators – or green GDP. More recently, this issue has been addressed in depth by the Sen/Stiglitz Commission on the Measurement of Economic Performance and Social Progress set up by President Sarkozy and due to report shortly (CMEPSP 2008).

13 Defensive expenditures are those incurred as a result of the need to 'defend' against activity elsewhere in the economy. The costs of car accidents and cleaning up oil spills have this character. Positional expenditures can be seen as a special case, in which expenditures – on positional goods – are necessary mainly to defend our social position. Though these expenditures makes sense at an individual level it is perverse to count them cumulatively as an addition to wellbeing.

14 Data on each of these countries can be found in Ruut Veenhoven's 'World Happiness Database' available on the web at: www2.eur.nl/fsw/research/happiness.

15 Source: Worldwatch Institute, State of the World 2008, Fig 4.1 Redrawn from data in Inglehart and Klingeman 2000.

16 See Ormerod 2008; O'Neill 2008.

17 Kahnemann and Sugden 2005.

18 Statisticians say the two scales have different 'orders of integration'. For a more detailed discussion of this issue see Ormerod 2008.

19 Offer 2007, 2006.

20 Although this insight into a particular human frailty does have interesting lessons for government policy which I shall return to later.

21 Sen 1998, p 295.

22 And also with Townsend's (1979) concept of poverty.

23 In *Development as Freedom* (Sen 1999) for example, he argues explicitly that freedom is both the means and the end of development.

24 Robeyns and van der Veen 2007.

25 Nussbaum 2006.

4 The Dilemma of Growth

1 Baumol et al 2007, p 23.

2 For more insight on the symbolic role of consumer goods see (eg): Bauman 2007; Douglas and Isherwood 1996; Dittmar 1992; Baudrillard, J 1998; McCracken 1990. On its relevance for sustainable consumption see Jackson in particular 2005a&b, 2006b, 2008b.

3 Berger 1969.

4 Belk et al 2003.

5 Douglas 2006.

6 For a more detailed exploration of Indian attitudes to the environment, see for example Mawdsley, E 2004.

7 As anthropologist Grant McCracken (1990) describes it.

8 Support for the relevance of income as a factor in wellbeing also emerged from Defra's recent wellbeing survey (Defra 2007). Though not the most important influence, income clearly emerged as a contributing factor in the survey.

9 Evidence of the importance of relative income was first highlighted by Richard Easterlin (1972). For more recent confirmation see Easterlin 1995, Dolan et al 2006 & 2008.

10 Offer 2006.

11 Data from the Health Survey for England, Madhavi Bajekal, National Centre for Social Research, cited in Marmot 2005. See also Wilkinson 2005, Marmot and Wilkinson 2005.

12 The most notable exception to the rule that higher social grades show higher satisfaction is in the domain of community, where the lower social grades profess themselves more satisfied on average than the higher grades.

13 Offer 2006, op cit. Some have used this argument to explain the life satisfaction paradox mentioned in Chapter 3.

14 Source Defra 2007; Defra, Personal Communication.

15 See for example Layard 2005, nef 2006, James 2007.

16 Data are taken from statistics compiled for the Human Development Report, available online at the UNDP website: http://hdr.undp.org/en/statistics/

17 Data are taken from statistics compiled for the Human Development Report, available online at the UNDP website: http://hdr.undp.org/en/statistics/

18 Data are taken from statistics compiled for the Human Development Report, available online at the UNDP website: http://hdr.undp.org/en/statistics/

19 There are some notable recent attempts to develop this field of study, in particular Hans Rosling's interactive GAPMINDER project. Online at www.gapminder.org

20 There is a strong correlation (the R^2 value on the graph) between per capita GDP and life expectancy; but a relatively weak dependency (the x-coefficient) on income growth.

21 Data are taken from statistics compiled for the Human Development Report, available online at the UNDP website: http://hdr.undp.org/en/statistics/

22 Franco et al 2007, 1374.

23 In the conventional model, resources are often excluded from the equation and the main dependencies are thought to be on labour, capital and technological innovation.

24 For more detail on (and critique of) this underlying model see for example: Booth 2004, Common and Stagl 2005, Ayres 2008, Victor 2008b.

25 IFS 2009.

5 The Myth of Decoupling

1 UNEP Press Release on the launch of the Green Economy Initiative, London, 22nd October 2008.

2 IPCC 2007, Table SPM.6.

3 IPCC 2007 p4.

4 See Figure 25 in EIA 2008.

5 Data from Table E1G in the *International Energy Annual 2006* (EIA 2008).

6 Data from Table E1G in the *International Energy Annual 2006* (EIA 2008).

7 Measured as Direct Material Consumption (DMC) per unit of GDP, indexed to 1975. Data for Austria, Germany, Japan and the Netherlands taken from WRI 2000, Annex 2. Points for 1997-2000 estimated using linear extrapolations (over the period 1975-1996). Data for the UK from Sheerin 2002. DMC takes domestically extracted resources, adds in resource imports and subtracts resource exports. It doesn't account for the resources 'embedded' in finished and semi-finished goods.

8 Source data for individual nations taken from EIA 2008, Table H1GCO2, 'World Carbon Dioxide Emissions from the Combustion and Flaring of Fossil Fuels per Thousand Dollars of Gross Domestic Product Using Market Exchange Rates.' World carbon intensity is calculated using total emissions data in Table H1CO2 in the EIA database and world GDP data (at constant 2000 prices, market exchange rates) taken from IMF (2008) data available online at: www.imf.org/external/pubs/ft/weo/2008/02/weodata/index.aspx

9 Source data for the period 1980-2006 for fossil fuels taken from EIA 2008, Table 1.8; data for 2007 estimated using linear extrapolation over the period 2000-2006. Data for CO_2 emissions taken from EIA 2008, Table H1CO2.

10 Source data as for Figure 12, note 6, except that linear extrapolations for Germany are based on a shorter period: 1991-1996.

11 These numbers are taken from Druckman and Jackson 2008, based on results from the Surrey Environmental Lifestyle MApping (SELMA) framework. Similar results for the UK have been reported from other studies including Carbon Trust 2006, Jackson et al 2006, Jackson et al 2007, Defra 2008, Helm 2008a.

12 Source data from the US Geological Survey Statistical Summaries. Online since 2000 at http://minerals.usgs.gov/minerals/pubs/commodity/statistical_summary/index.html#myb Available from the US Bureau of Mines data archive for earlier years: http://minerals.usgs.gov/minerals/pubs/usbmmyb.html

13 See for example: 'Digging for victory', *The Economist*, 15th Nov 2008, p69.

14 It's also true that efficiency (technological progress) is itself a driver of economic growth. The problem of 'rebound' is discussed further in Chapter 6.

15 This relationship is sometimes called the Environmental Kuznets Curve after the

economist Simon Kuznets who proposed that a similar inverted U-shaped relationship exists between incomes and income inequality. Evidence of the income Kuznets curve is also difficult to find (OECD 2008). For more discussion of the Environmental Kuznets Curve hypothesis, see (eg) Grossman and Krueger 1995, Jackson 1996, Rothman 1998.

16 Booth 2004, page 73 et seq.

17 Ayres 2008, p292.

18 See Ehrlich 1968.

19 See for example: APPG 2007.

20 It follows from the IPAT equation that the average annual growth in emissions r_i over any given period satisfies the equation: $1+r_i = (1+r_p) \times (1+r_a) \times (1+r_t)$, where r_p is the average population growth rate, r_a is the average growth in per capita income and r_t is the average growth (or decline) in carbon intensity. Multiplying out the factors on the right hand side of the equation gives the approximate 'rule of thumb': $r_i \approx r_p + r_a + r_t$. This approximation works very well for small percentage changes (a few per cent per annum). It needs more care in application when the rates of change exceed this. It can also be shown that when per capita income and population rates are positive, the estimated technology improvement rate is always slightly higher than the actual rate. So the rule of thumb provides a robust indication of a sufficient rate of improvement to achieve target reductions.

21 The error term in calculating the technological improvement rate using the rule of thumb in this case is less than 0.001%. Rates of change for r_a were calculated using world GDP data (at constant 2000 prices, market exchange rates) taken from IMF (2008), available online at: www.imf.org/external/pubs/ft/weo/2008/02/weodata/index.aspx

22 IPCC estimates (Table SPM.6) that to stabilise atmospheric carbon at between 445 and 490ppm (resulting in an estimate global temperature 2 to 2.4°C above the pre-industrial average) emissions would need to peak before 2015, with 50 - 85% reductions on 2000 levels by 2050. The equivalent (pro rata) target range for carbon dioxide emissions in 2050 would be somewhere between 3,560 and 11,880 $MtCO_2$. Here it is assumed that global emissions today are around 30,000 $MtCO_2$ and that we would want to achieve something towards the lower end of that range, say 4,000 $MtCO_2$ – partly because the target is to get down to the lower end of the range of atmospheric concentrations, and partly because we might need reductions in CO_2 to do more work, particularly at the margin, than reductions in other greenhouse gases.

23 The UN low, middle and high estimates for population in 2050 are 7.8 billion, 9.2 billion and 10.8 billion (UN 2007).

24 The rule of thumb here gives: 4.9 + 0.7 + 3.6 = 9.2%, but the error term is slightly larger (0.4%). The actual value is a little over 8.8%.

25 Source: calculations for this study, using data from EIA 2008, IMF 2008 , UN 2007 and targets from IPCC 2007.

26 Though the numbers here refer to carbon emissions, the same basic arithmetic applies when considering finite resource throughputs, scarce forestry resources or biodiversity impacts.

27 IEA 2008. Executive summary available online at: www.iea.org/WEO2008

28 Nuclear power could certainly be added to this theoretical list. But even if the issues around waste disposal and decommissioning could adequately be addressed, its contribution would be severely limited by resource constraints in the context of a continually expanding global demand (SDC 2006b).

29 Ekins 2008. See also Ekins 2000, Jackson 1996, von Weizsacker et al 1996.

30 Stern 2007, pxvi.

31 See the Climate Change Committee's first report (CCC 2008). On Stern's revised estimate see: 'Cost of tackling global climate change doubles, warns Stern', Guardian 26th June 2008, online at: www.guardian.co.uk/environment/2008/jun/26/climatechange.scienceofclimatechange For PwC estimate see 'Time for deeds not words' Guardian 3rd July 2008, online at: www.guardian.co.uk/environment/2008/jul/03/carbonemissions.climatechange

32 Helm 2008b, 225-8. See also Nordhaus 2007.

33 A critical issue here is the extent to which climate change investments do or do not enhance economic productivity. Whilst investments which improve resource productivity (for example) may offer positive returns, and investments in renewables could be cost-saving, particularly as fossil fuel costs rise, enhanced early investments in renewables, in CCS and in ecosystem

protection may not always be productive in a narrow economic sense (see Chapter 8 and Appendix 1).

6 The Iron Cage of Consumerism

1 Extract from 'Pack behaviour' an article about the vulnerability of banking giant Santander, *The Economist*, Nov 15th 2008, p96.

2 Numerous commentators over the course of the last century or more have picked up on this anxiety, both as an epidemiological fact and as a systemic aspect of modern life. Notable contributions include: Alain de Botton 2004, Emile Durkheim 1903, Fred Hirsch 1977, Oliver James 1998, 2007, Kierkegaard 1844, Jonathon Rutherford 2008, Tibor Scitovski 1976.

3 The term 'iron cage' was first coined by Max Weber (1958) in *The Protestant Ethic and the Spirit of Capitalism* to refer to the bureaucracy that he saw emerging as a constraint on individual freedoms in capitalism. But there are also elements in Weber's work where he uses the same concept to characterise consumerism itself as the following quote shows: 'In Baxter's view, the care for external goods should only lie on the shoulders of the "saint like a light cloak, which can be thrown aside at any moment". But fate decreed that the cloak should become an iron cage.' (op cit, p181). This theme has been picked up and applied to consumerism more explicitly by sociologist George Ritzer (2004).

4 For a more formal exposition of the basic economics here see for example Begg et al 2003, Anderton 2000, Hall and Papell 2005. For its relevance to the environment see Jacobs 1991, Daly 1996, Booth 2004, Victor 2008b.

5 This is probably the one place where the standard economic model pays any attention to the physical reality of keeping activity going. The gradual degradation of capital goods is foreseen explicitly by the laws of thermodynamics.

6 It's important to note that capital is not the only requirement here. Management practice, organisational changes and training are also criticial in increasing productivity in the firm (Freeman and Shaw 2009, eg).

7 The commonest way to increase capital productivity has been to increase the capital utilisation factor, making sure that machinery and buildings are fully utilised, for example through continuous batch processing and other process design changes (see for example Lientz and Rea 2001, Reay et al 2008).

8 For an exploration of national trends in labour productivity and their impact on growth see Maddison 2007, p 304 et seq. For a discussion on productivity at firm level see Freeman and Shaw (2009) and for UK firms see Oulton 1996.

9 Numbers cited in Victor 2008a.

10 The hypothesis that technological change is a key driver of growth is a key component of the so-called Solow-Swan growth model. Production output depends on three so-called 'factors of production': labour, capital and materials. Early growth theories suggested that growth could be predicted mainly on the basis of how much labour and capital was available. But these models failed to account for the 'residual' growth after expansions in capital and labour had been factored in. In 1956, economists Robert Solow and Trevor Swan independently argued that this residual could be explained by technological progress (Solow 1956, Swan 1956).

11 See Sorrell 2007 for an in-depth discussion of the rebound effect.

12 See Jackson 1996, Chapter 1 for a more detailed discussion of this point; see also Georgescu-Roegen 1972; Daly 1996.

13 See Schumpeter 1934, 1950, 1954. For more detailed discussion of the relevance of Schumpeter's work in this debate see Rutherford 2008, Wall 2008, Bouder 2008, Booth 2004.

14 Carlota Perez describes how creative destruction has given rise to successive 'epochs of capitalism'. Each technological revolution 'brings with it, not only a full revamping of the productive structure, but eventually a transformation of the institutions of governance, of society, and even of ideology and culture' (Perez 2001: 25).

15 For an extensive recent treatment of creative innovation as the 'origin of wealth' see Beinhocker 2007.

16 Lewis and Bridger 2001, eg.

17 For more empirical evidence see, eg Czsikszentmihalyi and Rochberg-Halton 1981.

18 Belk 1988.

19 Dichter 1964.

20 See Belk et al 1989, Jackson and Pepper 2009, Armstrong and Jackson 2008; Arndt et al 2004, eg.

21 Veblen 1898; Hirsch 1977. See also Bourdieu 1984; Baudrillard 1970.

22 Campbell 2004, 2005.

23 McCracken 1990, Chapter 7.

24 Cushman 1990, p599.

25 Booth 2004, Chapter 2.

7 Keynesianism and the Green New Deal

1 Achim Steiner, Executive Director of UNEP commenting on the launch of UNEP's Green Economy Initiative in the Independent on Sunday, 12th October 2008.

2 'The green lining to this chaos', leading article in the *Independent on Sunday*, 12th October 2008.

3 This is why the UK Government opted for a reduction in VAT rather than in income tax in the fiscal stimulus package set out in the 2008 Pre-Budget Report (HMT 2008). Increases in income tax are more likely to be put away as savings than reductions in tax on consumables. Even so, the Treasury estimated that up to a half of the £12.5 billion stimulus through reduced VAT might end up as a reduction in credit card bills rather than an increase in spending.

4 In a definitive study of 1930s fiscal policy, US economist Cary Brown argues that this was largely because the federal public spending stimulus was undermined by spending cuts and tax hikes at local and state level.

5 Paul Krugman, 'Franklin Delano Obama?', New York Times November 10th 2008.

6 'Finding a way out of the Economic Crisis', 14th November 2008. BBC reporter Nick Robinson's newslog and interview with Paul Krugman is online at: www.bbc.co.uk/blogs/nickrobinson/2008/11/finding_a_way_out_of_the_economic_crisis.html

7 Cited in 'Global Green New Deal – UNEP Green Economy Initiative'. Press Release at London Launch, 22nd October 2008. Online at: www.unep.org/Documents.Multilingual/Default.asp?DocumentID=548&ArticleID=5957&l=en

8 Globally, environmental industries are worth $4 trillion dollars already and are likely to expand by at least 50% in the next decade.

9 GND 2008, p3.

10 In a paper published in 1997, ecological economists Robert Costanza and his colleagues estimated that the value of global ecosystem services amounted to around $33 trillion per year. At the time, the global GDP was only $18 trillion per year (Costanza et al 1997).

11 World Energy Outlook 2008 www.iea.org/Textbase/npsum/WEO2008SUM.pdf Reference scenario (business as usual) investment is $26 trillion. Achieving a 550 ppm stabilisation would cost $4.1 trillion more that this, and achieving a 450 ppm stabilisation would be add another $5.1 trillion to this cost.

12 Nicholas Stern's (2007) review on the economics of climate change, famously argued that for as little as 1% of GDP we could save ourselves costs as high as 25% of GDP later on.

13 DB 2009, p4.

14 PERI 2008, p10.

15 See Gough 1979, Chapter 6 and Appendix A.2.

16 See eg, *The Guardian*, 30th December 2008. Online at: www.guardian.co.uk/business/2008/dec/30/general-motors-gmac

17 'US Porn Industry seeks multi-billion dollar bailout'. *Telegraph*, 8th January 2009. Online at: www.telegraph.co.uk/news/newstopics/howaboutthat/4165049/US-porn-industry-seeks-multi-billion-dollar-bailout.html

18 'Facing Global Challenges: supporting people through difficult times'. Pre-Budget Report 2008. London: HM Treasury.

19 The American Recovery and Reinvestment Act of 2009 – Discussion Draft. Online at: http://appropriations.house.gov/pdf/RecoveryReport01-15-09.pdf

20 This could include the establishment of 'green bonds' to promote sustainable investment, as proposed by Climate Change Capital and others.

21 Both the US and the UK car industry support packages have elements of this. £1 billion of the UK package is for investment in the development of green vehicles. See for example: http://news.bbc.co.uk/1/hi/uk_politics/7853149.stm

22 The scale of the investment needs to achieve UK carbon reduction targets was spelled out in the Climate Change Committee's first report (CCC 2008) published in the same week as the PBR.

23 SDC 2009.

24 HMT 2008.

25 IFS 2009.

26 Though most people associate Keynes' name with using public sector money to stimulate economic demand in times of crisis, his influence on today's macroeconomics runs much deeper than that and provides the basis for the idea that high street spending is the key to economic stability. As James Ahiakpor (2001) points out: 'Fundamental to Keynes's development of the multiplier concept.. is the view that insufficient consumption spending is the principal limitation on the growth of aggregate demand, hence, income and employment creation.'

27 GND 2008, p27.

28 OECD 2008.

8 Macroeconomics for Sustainability

1 Booth 2004, p153.

2 Ayres 2008, 292.

3 BERR 2008. See also Jackson 1996.

4 Jackson et al 2007, Druckman and Jackson 2008.

5 This idea has a long pedigree (Jackson and Jacobs 1991, e.g.), and was the motivation for the UK Government's call in the 2006 Energy White paper for a 'Supplier Obligation' – a mechanism for capping carbon emissions associated with sales from energy suppliers.

6 Actually there's another fundamental question here which is, even if you can, should you make money from all these things? Does the increasing commercialisation of the simpler, more creative bits of our lives change the nature of the activities themselves for the worse? There are certainly some who argue that it does. Jonathan Rutherford's (2008) thinkpiece for the SDC cites Paulo Virno's argument that post–Fordist economic activity is focused on the 'life of the mind'.

7 Daly 1972, p119.

8 Mill 1857, cited in Daly 1996, Chapter 1. Keynes 1930.

9 Daly 1973.

10 To make the sums add up, the expenditure method of accounting for GDP also includes net exports (i.e. exports minus imports) of traded goods.

11 The national accounts (where GDP is computed annually) tend to 'force' an equilibrium between the different GDP measures by making adjustments for stocks and inventories held by firms. This is also of course the practical means by which supply and demand are balanced. If demand falls below supply in a given year, companies hold more in stocks and set these off against future demand. If demand rises above supply they draw down stocks and build them up next year.

12 This is illustrated in slightly more complexity in Appendix 2.

13 Net exports are the sum of exports minus imports. Note that the flows contributing to GDP_1 as shown in Appendix 2 omit net exports, since the diagram doesn't show the foreign sector.

14 This form of production function is called a Cobb-Douglas production function.

15 The d'Alessandro model discussed later in the chapter has this form. For other attempts see Ayres and van den Bergh 2005, Common and Stagl 2005, Chapters 6 and 7.

16 This is one of the reasons why it was so easy not to see the financial crisis of 2008 coming. Growth in the GDP was stronger than forecast for 2006 and 2007.

17 See Common and Stagl 2005, Daly 1996, Ekins 2000, Costanza 1991, Lawn 1999. For an overview see Jackson and McBride 2005. See also the interim report of President Sarkozy's newly established Commission on the Measurement of Economic Performance and Social Progress (CMEPSP 2008).

18 The model is described in more detail in a think-piece he prepared for us (Victor 2008a) and in his recent book (Victor 2008b).

19 Poverty is tracked using the United Nation's Human Poverty Index. The model simulates the ability to affect this index through redistributive policies and through health spending. The model also contains a forestry submodel, which looks at changes in forestation. Since this is less relevant for the UK, it is not discussed further here.

20 The Toronto Agreement signed in 1989 was an informal precursor to the Kyoto Protocol. It set a target for reducing carbon emissions in developed countries by 20% before 2005. Not a single signatory achieved the target.

21 See for example Bosch 2000, Hayden 1999, Golden and Figart 2000.

22 Gorz 1999; Lord 2007, e.g.

23 For comparison, UK consumption was 64% of GDP in 2007. Public spending was 20%, gross investment was 18% and net exports were -3%.

24 France has now more or less abandoned its 35-hour week policy (Bouder 2008).

25 Bosch 2000, p 185.

26 See d'Alessandro et al 2008. A key feature of this model is the production function which includes explicit reference to both energy resources and the capital stock. It also assumes non-substitutability between these two.

27 See Chapter 5 and IEA 2008.

28 As with all modelling exercises, it is wise to view the results of these studies with caution. Both models have some limitations. The main limitation of the d'Alessandro study is that it is not calibrated against historical data. For this reason, the exact size of the 'sustainability window' is difficult to ascertain. The Victor study is calibrated against Canadian econometric data, but also has some limitations, principally the absence of a monetary sector in the model. 'For simplicity it is assumed that the Bank of Canada, Canada's central bank, regulates the money supply to keep inflation at or near the target level of 2% per year.' Victor (2008a, Chapter 3).

29 In addition, as we show in Chapter 10, the state is an absolutely vital 'commitment device' for achieving sustainability.

30 See Costanza et al 1997, UNEP 2008, Defra 2007.

31 This claim is made explicitly in the UK GND Group report (GND 2008, p27).

32 Interestingly, this problem has the same basic structure as the problem of funding public sector spending in a welfare economy. Investment in social goods may less productive in the short-term and makes no direct contribution in a conventional production function (except perhaps in maintaining the labour supply), but is nonetheless essential for social welfare and indeed the for the long-term sustainability of the economy (Gough 1979, see especially Chapter 6 and Appendix A.2).

9 Flourishing – within limits

1 Ben Okri, 'Our false oracles have failed. We need a new vision to live by.' *The Times*, 30th October 2008.

2 Putnam 2001.

3 Rutherford 2008. Norman et al 2007. Jonathan Rutherford is from the leftwing thinktank Compass, Jesse Norman from the rightwing thinktank Policy Exchange.

4 Strictly, speaking this is an index of 'aloneness' rather than 'loneliness'. But as an indicator of the degree of fragmentation of communities it is a useful tool.

5 Dorling et al 2008. Mark Easton's BBC report (including Prof Dorling's quote) is at http://news.bbc.co.uk/1/hi/uk/7755641.stm The index measures a weighted average of the numbers of non-married adults, one-person households, recent inhabitants (people who have moved to their current address within the last year) and people renting privately.

6 Increased divorce rates have themselves been linked to declining social integration. See (e.g.) Shelton 1987.

7 On mobility and labour productivity, see: 'Lack of labour mobility hurts EU productivity'. *New Europe* 697. 30th September 2006. Online at: www.neurope.eu/articles/65450.php

8 See nef 2009.

9 Smith 1937 (1776) p 821.

10 Sen 1998 (1984), p 298.

11 See for example the groundbreaking work of the Young Foundation's Local Wellbeing project. www.youngfoundation.org.uk/home/themes/local-wellbeing

12 Soper 2008.

13 See also Bunting 2005 on work-life balance.

14 Kasser 2007, 2002.

15 See Hamilton 2003.

16 On downshifting and voluntary simplicity see Etzioni (2006), Elgin (1991), Hamilton (2003), Schor (1998), Wachtel (1983) amongst many others; for a detailed examination of the pros and cons of the idea of living better by consuming less see Jackson (2005b); for social psychological evidence see Kasser (2007, 2002).

17 Richard Gregg (Gandhi's student) originally published his paper on 'Voluntary Simplicity' in the Indian Journal Visva Bharati Quarterly.

18 Elgin 1981.

19 Csikszentmihalyi 2000, 2003.

20 See the Findhorn Foundation 2006 Vision in Action. Annual Report 2006 available online at: www.findhorn.org/about_us/annualreport06.pdf

21 On Plum Village see www.plumvillage.org

22 On the Simplicity Forum, see: www.simplicityforum.org/index.html on Downshifting Downunder see: http://downshifting.naturalinnovation.org/index.html

23 Australian data from Hamilton and Mail 2003. US data from the Merck Family Fund poll (1995); See also Huneke 2005, Hamilton 2003, Schor 1998.

24 See Kasser 2007, Brown and Kasser 2005, Gatersleben et al 2008.

25 See for example: Armstrong and Jackson 2008, Bedford 2007, Evans and Abrahamse 2008, Pepper et al 2009, Hobson 2006.

26 Jackson 2005b. SDC 2006c.

27 On wage disparities see, for example Bradley 2006. On discounted long-term costs see Stern 2007. On signalling status see Schor 1998, Bunting 2005. On the 'shopping generation' see: NCC 2006.

28 'Enormous shopping complex opens'. BBC news, 30th September 2008. Online at: http://news.bbc.co.uk/1/hi/england/london/7699209.stm

29 Of course it is difficult for government to do this, while economic stability relies on increasing consumption! Government itself is deeply conflicted here and can only resolve this by addressing the macroeconomics of sustainability.

30 James 2007, Appendix 1 and 2.

10 Governance for Prosperity

1 From an article for the Huffington Post by Peter Hall – Professor of European Studies at Harvard and co-author of Varieties of Capitalism. Online at: www.huffingtonpost.com/2008/10/13/global-economic-crisis-li_n_134393.html

2 This question was evident for example in the clash during one of the *Redefining Prosperity* workshops between Jonathan Rutherford (from the political left) arguing for more state and Jesse Norman (from the political right) arguing for less state. For a useful – and still relevant – discussion of the ambivalent political economy of the welfare state see Gough 1979.

3 'Redesigning global finance', *The Economist* leader, November 15th 2008, p13.

4 See Offer 2006.

5 On parenthood, see Offer 2006, Chapter 14; on savings rates see 'Saving in the World: Stylized Facts'. Washington DC: World Bank; available online at: www.worldbank.org/research/projects/savings/savinwld.htm On consumer debt, see: Credit Card Industry Facts and Personal Debt Statistics (2006-2007), online at: www.creditcards.com/statistics/credit-card-industry-facts-and-personal-debt-statistics.php

6 Schwartz 2006, 1999.

7 It also strikes the balance between novelty and tradition differently.

8 This finding was first demonstrated formally by the game theorist Robert Axelrod (1984).

9 See Hall and Soskice 2001. The authors also identified a group of countries which clustered together in a form they called Mediterranean capitalism.

10 Absolute levels of unemployment in Germany are considerably higher than in the UK, and have been since German reunification; although they have been coming down steadily over the last decade.

11 Data for USA, Germany and Denmark from the ILO online statistical database at: http://laborsta.ilo.org/ The UK data on the ILO database (as in several other international databases) is woefully out-of-date. Trends for the UK are calculated using Labour Force Statistics. Online at: www.statistics.gov.uk/STATBASE

12 See e.g. Estevez-Abe et al 2001; Culpepper 2001.

13 See Kasser's presentation to a RESOLVE seminar at the University of Surrey, November 2007. Online at: www.surrey.ac.uk/RESOLVE

14 For example, the unemployment rate in Canada (a liberalised market economy) has fallen slightly, at least until the end of the period while unemployment in Sweden (a coordinated market economy) has risen by almost a quarter.

15 Online at: www.huffingtonpost.com/2008/10/13/global-economic-crisis-li_n_134393.html

16 For background on the evolution of social behaviours see Wright 1994, Sober and Wilson 1998, Axelrod 1984 .

17 This tension is what the historian Polanyi (1942) called the 'double movement' of society.

18 'People power vital to climate deal'. Guardian, 8th December 2008. Online at: www.guardian.co.uk/environment/2008/dec/08/ed-miliband-climate-politics-environment

19 See for example, Doyal and Gough 1991; Helliwell 2003, Layard 2005.

11 Transition to a sustainable economy

1 From a speech on 'shared prosperity' that Obama made in Janesville, Wisconsin, February 13th 2008. www.barackobama.com/2008/02/13/remarks_of_senator_barack_obam_50.php

2 See, eg, www.camecon.com/suite_economic_models/mdme3.htm

3 Sharing the work is also an essential pre-requisite for building a sustainable macro-economy (see Chapter 8).

4 See for instance: TUC Seminar report. Online at: www.tuc.org.uk/the_tuc/tuc-15673-f0.cfm?regional=8/

Appendix 1
The SDC *Redefining Prosperity* Project

1 *Redefining Prosperity* (SDC 2003) is available on the SDC website: www.sd-commission.org.uk

2 *Securing the Future* (Defra 2005) is available on the Government's sustainable development website: www.sustainable_development.gov.uk

3 A report on this work – *Redefining Progress* (SDC 2006a) – is also available on the SDC website: www.sd-commission.org.uk

4 Jackson and Anderson 2009.

Appendix 2
Towards a Sustainable Macro-Economy

1 This is similar to the basic form of the macro-economic model in Peter Victor's (2008a) study of the Canadian economy, although he does not constrain the production function indices to sum to 1.

2 Investment is shown in the table in each target and condition dimension. In practice, it is most likely that some targets (ecosystem maintenance eg) will only be undertaken under specific conditions (e.g. public sector, social).

3 For example, the Surrey Environmental Lifestyle Mapping (SELMA) framework is an environmental input-output model that can be used to attribute the carbon emissions (and/or resources) associated with different final demand categories (Druckman et al 2008, Druckman and Jackson 2008, Jackson et al 2007).

4 The paucity of basic UK IO statistics is now well-known. Official analytical tables for the UK have not been produced since 1995, in spite of a commitment by the Labour Government to produce them annually from 2000, and a requirement in EU legislation to submit updated analytical tables to Eurostat on at least a five-yearly basis. Like the absence of up-to-date unemployment statistics in the ILO database, this failure of the UK Government to take essential social and environmental indicators seriously is positively embarrassing given its claims for international leadership in sustainability.

Published by the **Sustainable Development Commission** © March 2009

Art Direction **Andy Long**, Design **Positive 2** and **Andy Long**

Photography © **Jerome Dutton** (Cover and pages 15, 19, 29, 37, 67, 85, 93)
Andy Long © **SDC** (pages 47, 59, 75)
© **Marcus Lyon/BioRegional** (page 101)