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Societal transformations for a sustainable economy

Tim Jackson

Abstract

This paper explores some social aspects of the transition to a sustainable economy. Starting from basic premises of ecological limits and social justice, the author examines the complex relationship between income and human well-being and argues that the rich world has a responsibility to "make room for growth" where it matters most in terms of improved well-being; that is, in the poorest nations. The paper argues that this cannot be achieved simply through efficiency improvements or material "decoupling". A simple scenario analysis is used to illustrate the heroic nature of the assumptions that decoupling can achieve global carbon targets. Even if such assumptions are technically justifiable, economic incentives and social logic conspire against technological improvements of this magnitude. Instead, there is a need for profound transformation of the economic system itself, for which the rich nations must take a primary responsibility. This transformation has implications for incentive structures, ownership patterns, investment portfolios, the organisation of financial markets, and the structure of economic activities and for expectations of economic growth. It also demands a new economics, informed by a broader — and more realistic — vision of human nature.

Keywords: Sustainable development; limits to growth; social transformation; lifestyle change; green economy.

1. Introduction

The principal argument in this paper is that economic transformation is crucial to the project of sustainable development. The underlying philosophical and social foundations for a sustainable economy depart significantly from the foundations of the conventional economy.

Sustainable development has contested meanings. Some see sustainable development as a new framing concept, a potentially radical philosophy for redefining progress. Others see it as a practical tool for achieving incremental improvements in social justice and in environmental protection. Others again have argued that sustainable development is a conservative project, flawed by the aim of trying to protect an economic paradigm which is itself the cause of so many environmental and social problems.

Progress towards the goals of sustainable development in the 20 years since the Rio Conference on Environment and Development — and indeed in the 40 years since the Stockholm Conference on Human Development — might appear to support this view. In certain key respects, environmental and social progress has been going in the wrong direction. Carbon emissions have increased, biodiversity has diminished, resource extraction has not slowed down, and in some key areas has accelerated. Inequalities — even in OECD nations — are higher than they were two decades ago (OECD, 2008). And the global financial system, which seemed secure 20 years ago, is still reeling from a crisis that engendered near collapse.

Yet the visionary potential of sustainable development remains intact: its insistence on the importance of human needs, its sense of social justice, its unequivocal support for future generations, its identification of human dependency on the environment, its characterisation of limits. The challenge of sustainability is somehow to "live well" — to create "strong, healthy and just societies", and yet remain within the ecological limits of a finite planet (Figure 1). This vision still provides a guiding framework for social progress.

Nor is there any doubt that a strong and resilient economy is a vital prerequisite in this task. When economies collapse bad things can happen. Economic success brings social stability. Indeed, as Keynes once argued, the principal task of economics is to ensure social stability. Economics in the service of human well-being is an idea with a long pedigree and is worth hanging onto.

That, at least, is the premise of this paper. Starting from this basic understanding, the paper aims to sketch the philosophical, social and psychological aspects of a transformation of the global economy towards

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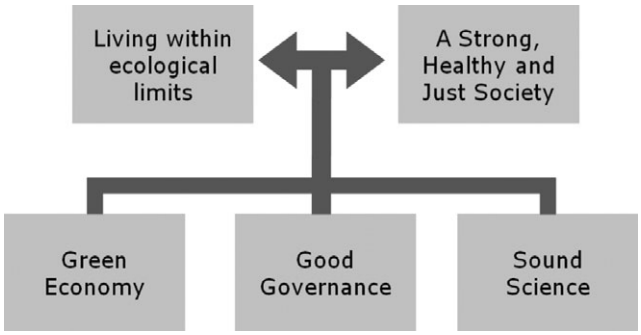

Figure 1. Principles for sustainable development.
Source: DEFRA (2005).

sustainability. Further, it elaborates the elements on which a new economy must focus if it is to provide a useful underpinning for the task of transformation.

2. Making room for growth

Among the charges against the conventional economic paradigm is that it has delivered its benefits, at best, unequally. A fifth of the world's population earns just 2% of global income. The richest 20% by contrast earn 74% of the world's income. Huge disparities — real differences in prosperity by anyone's standards — characterize the difference between rich and poor. Basic aspects of human flourishing, such as life expectancy, still vary widely between the richest and the poorest nations (Figure 2).

The difference between the poorest and the richest countries in Figure 2 is striking, with life expectancies as low as 40 years in parts of Africa and almost double that in many developed nations. Such disparities are unacceptable from even the most basic humanitarian point of view. They also generate rising social tensions: real hardships in the most disadvantaged communities which have a spill-over effect on society as a whole (Marmot and Wilkinson, 2005; UNDP, 2005; Wilkinson and Pickett, 2009).

The conventional growth-based paradigm suggests that the best way to address this problem is through growth itself. As the world economy grows, according to this conventional view, it will inevitably lift the poorest out of poverty and perhaps even become more equal as it does so. Simon Kuznets famously hypothesized that inequalities grow at first as nations develop, but after a while a peak of inequality is reached and then inequalities begin to decline.

It has to be said that evidence in support of this hypothesis is hard to find. Even within the advanced economies, inequality is higher than it was 20 years ago (OECD, 2008). Middle-class incomes in Western countries were stagnant in real terms long before the 2008/2009 recession and still show little sign of recovery. Far from raising the living standard for those who most needed it, growth let much of the world's population down over the last fifty years.

But the question of ecological limits raises another more fundamental challenge to this conventional viewpoint. Continuing to grow the economy pushes inexorably against ecological limits. If the economy continues to grow at the same rate that it has done in the last fifty years, it will be 80 times bigger in 2100 than it was in 1950 (Jackson, 2009, p. 13).

A world in which things simply go on as usual is already inconceivable. But what about a world in which 9 billion people all achieve the level of affluence expected in the OECD nations, with incomes still growing at 2% per year? Such an economy would need to be 15 times the size of today's economy by 2050 (75 times what it was in 1950) and 40 times bigger than today's (200 times bigger than in

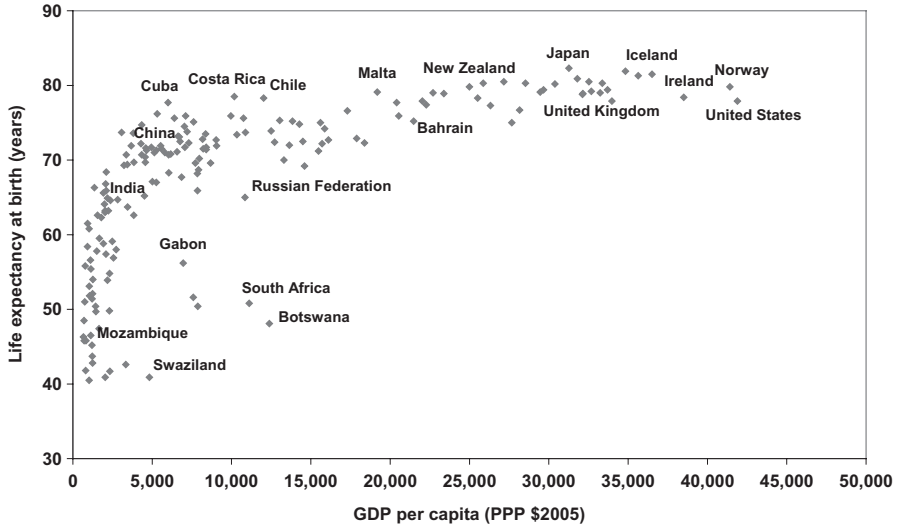

Figure 2. Life expectancy at birth vs. average annual income.
Source: Jackson (2009, p. 56).

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1950) by the end of the century (Jackson, 2009, p. 14). The resource and environmental implications of such an economy are simply staggering.

The only possible answer to this conundrum would be to achieve substantial technological improvements in the efficiency with which material resources are converted into economic output. In a later section of this paper, we will explore the potential for such a technological "decoupling" of economic growth from material throughput in more detail. But for now, it is clear that the question of limits fundamentally changes the moral dimensions of social progress.

In a world without limits, it would be acceptable (if not particularly efficient) to lift the poorest out of poverty by growing the entire economy. But the existence of ecological or resource limits poses a more pressing moral question. How much of the world's resources does any one nation or individual have a right to in the pursuit of human well-being?

Alongside this moral question lies a prudential one, raised by a consideration of the relationship between income per capita and human development outcomes such as life-expectancy (Figure 2). Beyond a certain point at least, continued pursuit of economic growth does not appear to advance human well-being. The advantage of being richer as a nation shows diminishing returns. As incomes rise, the additional benefits in terms of increased life expectancy (for example) are markedly reduced. Very similar patterns can be found in relation to infant mortality, participation in education and even happiness or life satisfaction.

This sense of diminishing returns from growth clearly heightens the moral question raised above. If the returns to growth in the richest nations are lower than they are in the poorest nations, the best way to improve human well-being overall would clearly be to re-distribute growth from the richest to the poorest part of the population. Or in other words, there is a moral pressure on the rich nations to make room for growth in the poorer parts of the world.

To the extent that they can achieve this through technological efficiency, the conventional paradigm might attempt to defend continued growth even in the richest nations. But if there are limits to this technological capacity, then the moral imperative on the rich is to curtail further increases in levels of economic throughput, particularly where these imply material throughput which already exceeds an equal per capita allocation.

Beyond this moral imperative lies a kind of a puzzle that will need to be solved if any moral progress is to be made in terms of distributing limited economic output to places where it is needed most. Why is it that rich countries continue to pursue economic growth, even after the point at which material needs are satisfied? Particularly, if there are fast diminishing returns in terms of human development outcomes.

It is clear that a meaningful approach to a sustainable economy must certainly address the plight of the two and a half billion people across the world still chronically undernourished, living on less than $2 a day. But does the same logic hold for the richer nations, where subsistence needs are largely met, human development outcomes (life expectancy for instance) are already high and increases in availability of consumer goods add little to and may even impede social well-being? Talk of a growing "social recession" in advanced economies has accompanied the relative economic success of the last decade (Layard, 2005; NEF, 2006; Rutherford, 2008; Norman, 2010).

In spite of these apparent costs from "uneconomic growth", it appears to be impossible simply to halt the growth process. Why does enough never seem to be enough? Is it that human needs are somehow insatiable after all? Or is it something to do with the structure of economies that forces them to grow? To answer these questions, we must explore a little further the underlying dynamics of the modern economy.

3. The dilemma of growth

Capitalist economies place a strong emphasis on the efficiency with which inputs to production (labour, capital, resources) are utilized. Continuous improvements in technology mean that more output can be produced for any given input. 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 is not a problem. But if it does not, then increased labour productivity means that someone somewhere loses their job (Booth, 2004; Victor, 2008; Jackson, 2009; Friedman, 2011).

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 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 because 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 well-being.

Governments must borrow more not just to maintain public spending but to try and re-stimulate demand. But in

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doing so, they inevitably increase the national debt. Servicing this debt in a declining economy 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 will be possible to begin paying off the debt. This could take decades. It took Western nations almost half a century to pay off public debts accumulated through the Second World War. It has been estimated that the "debt overhang" from the financial crisis of 2008 could last into the 2030s (IFS, 2009). 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. It is important to qualify this claim with the recognition that short-run fluctuations in the growth rate are an expected feature of growth-based economies and there are some feedback mechanisms which do bring the economy back into equilibrium. For instance, as unemployment rises, wages fall and labour becomes cheaper. This encourages employees to employ more people and increases output again. But increasing labour productivity without increasing output does not have this characteristic.

On the other hand, with a growing (and aging) population the dangers of long-run productivity growth 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.

This constitutes the "productivity trap" (Jackson and Victor, 2011) that underlies the dilemma of growth. Labour productivity growth appears to offer us a means to higher efficiencies in delivering economic output, but by the same token it requires us to grow our economies if we are to maintain full employment. In the language of over-anxious politicians, growth equals jobs. And any attempt to stabilize or reduce economic output — as a means of reducing resource throughput or environmental impact, for example — is viewed as a direct threat to people's livelihoods. At the end of the day, 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.

What emerges from this is that doing without growth is deeply unpalatable for all sorts of reasons. As a result, society is faced with a profound dilemma. To resist growth is to risk economic and social collapse. To pursue it relentlessly is to endanger the ecosystems on which we depend for long-term survival. This dilemma looks at first like an impossibility theorem for sustainable development. 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.

4. The arithmetic of growth

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 is 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 do not 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 450 ppm stabilization target (IPCC, 2007, Table SPM.6).

The prevailing wisdom suggests that decoupling will allow us to increase economic activity indefinitely and at the same time stay within planetary boundaries. But the evidence is far from convincing. Efficiency gains abound. For example, global primary energy efficiency has increased by a third since 1980. The carbon intensity of each dollar of economic output has fallen by about the same amount. But absolute reductions in impact have been singularly elusive. Global primary energy use, carbon emissions, biodiversity loss, nutrient loadings, deforestation and global fossil water extraction are all still increasing. Carbon dioxide emissions from fossil fuel consumption increased by 40% between 1990 and 2009.

Massive investments in new technology and rapid improvements in resource productivity could, in theory, redress this situation. But the sheer scale of the challenge is daunting. 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 Ehrlich and Holdren (1971). 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.

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.

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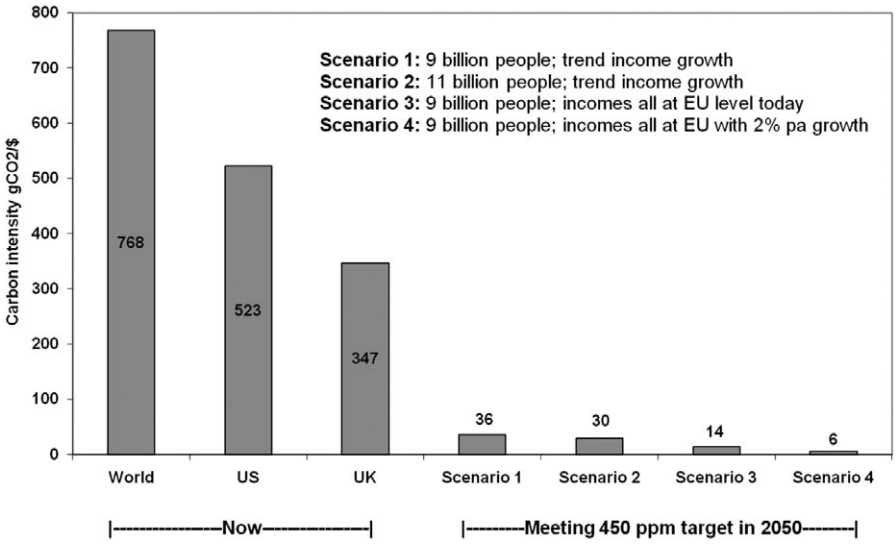

Figure 3. Carbon intensities now and required to meet 450 ppm target.
Source: Jackson (2009, p. 81).

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 recognized (Ehrlich, 1968). And neither has proved particularly tractable to policy. Increasing affluence has been seen as synonymous with improved well-being. Advocating limits to population growth has been seen as contravening basic human liberties.

Ironically, both these pre-conceptions are wrong. Increasing incomes do not always guarantee well-being 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 (APPG, 2007).

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?

Carbon intensities have declined on average by 0.7% per year since 1990. 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 has not even compensated for the growth in population, let alone the growth in incomes. Instead, carbon dioxide emissions have grown on average by 2% per year, leading over 17 years to an almost 40% increase in emissions.

The IPCC Fourth Assessment report suggests that achieving a 450 ppm stabilization 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.[1]

But income and global population are going in the opposite direction. According to the United Nations 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 dioxide emissions will end up growing at about the same rate as the average income — 1.4% a year. It might not sound like much, but by 2050, under these assumptions, carbon dioxide emissions would be 80% higher than they are today.

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 3, Scenario 1).

Notably, this would still be a deeply unequal world. Business-as-usual income growth is usually taken to mean a

[1] IPCC estimates (2007, Table SPM.6) that to stabilize atmospheric carbon at between 445 and 490 ppm (resulting in an estimate global temperature 2 to 2.4ºC 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.

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steady 2% 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 are really serious about fairness and want the world's nine billion people all to enjoy an income comparable with European Union (EU) citizens today, the economy would need to grow six times between now and 2050, with incomes growing at an average rate of 3.6% a year. Achieving the IPCC emission target in this world means pushing down the carbon intensity of output by 9% every single year for the next 40 or so years. By 2050, the average carbon intensity would need to be 55 times lower than it is today at only 14 gCO_2/$ (Figure 3, 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 3, Scenario 4).

Beyond 2050, 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 would be 40 times the size of today's economy. And to all intents and purposes, nothing less than a complete decarbonization of every single dollar will do to achieve carbon targets. Under some more stringent stabilization scenarios, by 2100 we will need to be taking carbon out of the atmosphere. The carbon intensity of each dollar of economic output will have to be less than zero. Or in other words, each dollar of global economic activity will on average need to be taking carbon out of the atmosphere, rather than adding carbon to it.

This may not be strictly impossible, in purely technical terms. But it clearly implies a transformation well beyond the scale or speed of dematerialization achieved during the history of industrial society. A critical question here is whether this scale of transformation is feasible within the economic and social dynamics of modern society. Does this kind of economy really allow for levels of dematerialization an order of magnitude greater than anything witnessed hitherto? What about the social dynamics of the consumer society? Is this kind of society capable of delivering radical reductions in carbon intensive consumption?

5. The dynamics of transformation

To rely on heroic beliefs about technological or behavioural change without exploring these questions is to default to a kind of magical thinking about the future. It would be fanciful to suppose that "deep" resource and emission cuts could be achieved without confronting the structure of market economies. In particular, it is essential to understand two inter-related features of economic life that together drive the dynamic of modern capitalist economies.

In the first place, 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 (1934), is a fundamental feature of capitalism, driving economic growth forward. 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. Recognizing 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 (Jackson, 2005; 2009). This "language of goods" (Douglas and Isherwood, 1979) 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 that there is an almost perfect fit between the continual consumption of novelty by households and the continuous production of novelty in firms. The restless desire of the consumer is the perfect complement for the restless innovation of the entrepreneur.

Despite this desire, the relentless pursuit of novelty (along with our increasing indebtedness) creates an anxiety that can undermine social well-being. People find themselves locked into consumerist modes of living and being and encouraged to behave in that way, precisely because that is what the system needs in order to ensure economic stability. The economic system remains viable as long as liquidity is preserved and consumption rises. It collapses when either of these stall.

An understanding of the social logic of consumerism suggests that it is a mistake to assume that human motivations are all selfish. Evolution does not 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 formalized this insight into a theory of underlying human values. Using a scale that has now been tested in

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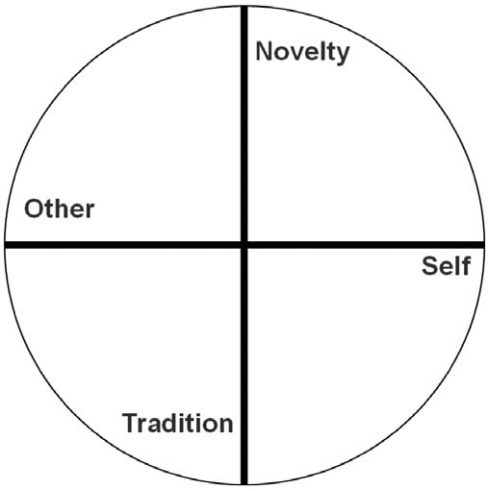

Figure 4. Evolutionary tensions in the human psyche.
Source: Author's elaboration after Schwartz (1999).

over 50 countries, Schwartz suggests that our values are structured around two distinct tensions in our psychological make-up (Figure 4). One is the tension between selfishness (self-enhancement, in Schwartz's scheme) and altruism (self-transcendence). The other is a tension between openness to change and conservation — or in other words between novelty and the maintenance of tradition (Schwartz, 1999).

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, 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 penalized (Axelrod, 1984).

This finding suggests that we must ask searching questions about the balance of the institutions that characterize 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 because this is exactly what is needed to keep the economy going.

The erosion of commitment is a structural requirement for growth as well as a structural consequence of affluence. Modern structures of consumerism call on us to be myopic, individualistic, novelty seekers, because that is exactly what is needed to perpetuate the economic system. And at the same time, affluence accelerates this transition by undermining the commitment devices that support more altruistic and more conservative values.

It is clear that in these circumstances, 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 is 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 modern society.

Equally, 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 is almost impossible for people to simply choose sustainable lifestyles, however much they would 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 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 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.

Specifically, the strategy suggested here rejects the centrality of material commodities as the basis for profitability. It replaces them 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

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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 key point of influence 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. As discussed in more detail below, a different role for investment is an essential component of an ecological macro-economics. In addition to its role in ensuring economic resilience, social investment 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.

6. Steps towards a sustainable economy

The policy demands of this analysis are significant but relatively clear. Moreover, the financial crisis presents a unique opportunity to re-build our economies on a more resilient basis and to put sustainability at the heart of them.

First and foremost, there is a need for a concerted and committed effort on the part of governments to establish a detailed set of viable and effective policies for a sustainable economy. Specifically, it is possible to identify a set of strategic recommendations on which a new economy could be built: a series of steps that governments can take now to initiate the transition have been outlined. These steps can be grouped under three main themes that flow directly from the analysis above: to establish and impose meaningful resource and environmental limits on economic activity; to develop and apply a robust macro-economics for sustainability; and to redress the damaging and unsustainable social logic of consumerism. The following subsections describe these three themes in broad terms.

Table 1. Steps towards a sustainable economy

Establish the limits
1. Resource use and emissions caps and reduction targets
2. Fiscal reform for sustainability
3. Promoting technology transfer and ecosystem protection
Re-designing the economic model
4. Developing macro-economic capability
5. Investing in jobs, assets and infrastructures
6. Increasing financial and fiscal prudence
7. Improving macro-economic accounting
Changing the social logic of consumerism
8. Sharing the work and improving the work-life balance
9. Tackling systemic inequality
10. Measuring prosperity
11. Strengthening human and social capital
12. Reversing the culture of consumerism

Source: Jackson (2009, Chapter 11).

Table 1 summarizes a series of policy steps based around these three themes that national governments could take now in beginning to design a green economy (Jackson, 2009, Chapter 11). The following subsections describe these three themes in broad terms.

6.1. Establishing ecological limits

The material profligacy of consumer society is depleting key natural resources and placing unsustainable burdens on the planet's ecosystems. Establishing clear resource and environmental limits and integrating these limits into both economic structure and social functioning is essential. This means paying a much closer attention to the ecological limits of economic activity. Identifying clear resource and emission caps and establishing reduction targets under those caps is vital for a green economy. To the extent that they have been implemented, the stabilization targets and emission budgets established for carbon provide an exemplar here (IPCC, 2007; CCC, 2010).

The conditions of equity and ecological limits, taken together, suggest a key role for the model known as "contraction and convergence" in which equal per capita allowances are established under an ecological cap that converges towards a sustainable level (Meyer 2004). This approach has been applied, to some extent, for carbon. Similar caps should be established for the extraction of scarce non-renewable resources, for the emission of wastes (particularly toxic and hazardous wastes), for the drawing down of "fossil" groundwater sources and for the rate of harvesting of renewable resources.

Effective mechanisms for achieving targets under these caps need to be set in place. Once established, these limits also need to be integrated into a convincing economic framework.

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6.2. Ecological macro-economics

For the richest nations, there is an urgent need to develop a new ecological macro-economics in which long-term stability no longer relies on relentless consumption growth. A macro-economy predicated on the continual expansion of a debt-driven, materialistic consumerism is ecologically unsustainable, socially divisive, and financially unstable.

A new macro-economics will require changes in the configuration of key macro-economic variables. Consumption, state spending, investment, employment will all still matter in the new economy. But there will be differences in the balance between consumption and investment, the role of public, community and private sectors, the nature of productivity growth, the conditions of profitability. All of these are likely to shift as ecological and social goals come into play, and 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 and the limits on carbon. They will also include variables to reflect the value of ecosystem services and the stocks of critical natural capital.

The role of investment is vital. In conventional economics, investment stimulates consumption growth through the continual pursuit of productivity improvement and the expansion of consumer markets. In the new economy, investment must be focused on the long-term protection of the assets on which basic economic services depend. The new targets of investment will be low-carbon technologies and infrastructures, resource productivity improvements, the protection of ecological assets, maintaining public spaces, building and enhancing social capital.

This new portfolio demands a different financial landscape from the one that led to the collapse of 2008. Long-term security has to be prioritized over short-term gain and social and ecological returns must become as important as conventional financial returns. Reforming capital markets and legislating against destabilizing financial practices are not just the most obvious responses to the financial crisis; they are also an essential foundation for a new sustainable macro-economy.

There are, broadly speaking, two avenues of intervention through which it might be possible to escape the productivity trap mentioned above (Jackson and Victor, 2011). One is to accept productivity growth in the economy and reap the rewards in terms of reduced hours worked per employee — or in other words to share the available work among the workforce to retain equitable employment opportunities. The second strategy is to shift the structural composition of the economy to sectors that have lower labour productivity and lower (possibly even negative) labour productivity growth. Interestingly, both these avenues have some precedence in economic thought. But there remains a need to integrate them into a convincing macroeconomic policy framework.

Above all, the new macro-economics will need to be ecologically and socially literate, ending the folly of separating economy from society and environment. A first step in achieving this must be an urgent reform of the national accounting system so that what we measure is brought more in line with what really matters. The integration of ecological variables into the national accounts and an end to the "fetishism" of GDP are essential.

6.3. Changing the social logic

The social logic that locks people into materialistic consumerism as the basis for participating in the life of society is extremely powerful. But it is also detrimental ecologically and psychologically. An essential prerequisite for lasting prosperity is to free people from this damaging dynamic and provide opportunities for sustainable and fulfilling lives.

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 particularly to participate meaningfully in the life of society — in less materialistic ways.

Achieving this means finding new ways for meeting the desires and aspirations that are now met through commoditized materialistic consumption. One way to achieve this is through investment in public amenities and spaces that create opportunities for leisure and self-development. An equally important, complementary strategy lies in strengthening communities and building strong social ties that enrich human life without enlarging our ecological footprint.

Even more important is the question of developing non-consumerist ways of understanding and being in the world. These ways, which can draw on a variety of traditions that have always opposed consumerism, will in turn be strengthened by a retreat from market-driven growth, which inevitably inculcates values, beliefs, and ways of being that favour success in the market environment.

Consumerism has been a major driver of materialism, and advertising is the most obvious attribute of the consumer society. Although advertising provides information, it is primarily a means of persuasion, one that is particularly pernicious in limiting people's mental and spiritual universe. A non-consumerist economy will limit advertising and allied forms of manipulating people, as one step among many in the re-orientation of the economy of the North away from consumerism.

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

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in public goods will provide lasting returns to national prosperity.

7. Conclusion: Economy and sustainable development

A resilient economy in which low-carbon enterprises can thrive and people can find meaningful employment and flourish is a necessary precondition for sustainable development. But the structural drivers of the conventional economy are not sufficient to deliver this. On the contrary, without structural change it seems unlikely that either businesses or individuals or governments will engage in the necessary transformation to a "green economy".

Enterprise is constrained by performance against short-term investment conditions. People are constrained by a powerful social logic that locks them into consumerism. Government itself is conflicted. For as long as economic stability depends on consumption growth, even in the richest nations, governments will tend to favour conditions that promote increased consumerism over sustainability.

Conversely, it is possible to identify both the general conditions and specific strategies that could transform economies and patterns of consumption. Interestingly, the foundations for such a transition draw something at least from the philosophical foundations for the industrial economy. Yet none of these foundations survives entirely intact.

The utilitarian roots of modern economies fail to capture the deeper and broader notions of human well-being. The libertarian focus on individual freedoms misses the broader social nature of human beings. Institutional structures of the market, the legal forms of enterprise, the structure of ownership and profit-making have all tended to focus too narrowly on individual self-interest.

The vision of sustainable development in terms of a strong, healthy and just society able to flourish within the ecological limits of a finite planet calls for a broadening of the social dimensions of human behaviour, a strengthening of the institutions that reinforce and encourage social behaviours, and long-term investment in the structures and infrastructures that support these behaviours.

Ultimately, if the economy is to support sustainable development, it must replace the incomplete vision of self-interested hedonism that haunts conventional economics with something more closely aligned with our broader nature as social beings.

Most crucially, the idea that the pursuit of individual interest can by itself lead to social progress is flawed; and useless to the pursuit of sustainable development. The institutions of the new economy must start from our interconnectedness to each other, to our shared past, to our common future and to the environment on which we depend for life.

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