

Complex economies embedded in the biosphere with the commons restored

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How can we construct an economics consistent with the biophysical limits to economic growth? First, we can consider the kind of economies and economics that can support human societies healthily into the indefinite future. Then we may consider what drives unlimited growth in the present regime and how pathological growth may be not only limited but excluded from healthy economies.

A science of human economies must start from the knowledge that we human beings are part of the natural living world, the biosphere of planet Earth. We and our societies are intimately embedded within the biosphere. An economy in turn is embedded within a society: it is the way a society collectively provides for its material needs.

Living systems are complex self-organising systems¹. An economy is necessarily also a complex self-organising system because many of its components are living (people, food plants, food animals, and so on). An economy would be complex anyway because of the large energy flow through it and its many nonlinear interactions. A modern economy is a far-from-equilibrium system.

Thus to adequately study an economy we must understand complexity. The behaviour of a complex system is fundamentally determined by the nature of its internal interactions. In a modern economy there are two main kinds of interaction: social and exchange, the latter largely mediated by money. Thus we must understand money and social interactions.

The social behaviour of human beings is neither wholly competitive nor wholly cooperative, but a subtle balancing of the two, from which the richness of human experience arises. This co-existence of cooperation and competition occurs pervasively in the living world.

Understanding money requires clarity on the nature of modern token money and on the roles of central banks and commercial banks. Token money involves debt, which links the future to the present, as Keynes observed (quoted by Keen², p. 293-4). It thus exerts a powerful influence on the dynamics of an economy, the way the economy unfolds into the future. Because the future is unknowable, debt also introduces risk. Token money is powerful but dangerous. Like fire, it must be handled with great care.

The purpose of an economy is to support the society of which it is a part. This support must encompass not only the welfare of the society's members, but the continuation of the society in a

form that its members desire. It must also encompass the continuing health of the biosphere within which the society is embedded.

The management of an economy requires proper balance-sheet accounting, not just a crude tally like Gross Domestic Product. The accounting must encompass the material provisioning of the society, the health of the society, and the state of the biosphere. Triple-bottom-line accounting, covering the economy, society and the environment, attempts to do this, and it can be extended and refined.

A key requirement of economic management is to ensure a fair flow of wealth to all members of society. All wealth is generated collectively. Any enterprise draws on our inherited culture, and the vast accumulation of knowledge that is part of that inheritance. Any enterprise also requires an ordered society and many functioning institutions in order to conduct its business. Thus no-one has exclusive claim on any new wealth generation, and everyone has some claim, by virtue of their common inheritance.

Wealth distribution would be best managed at the source, through appropriate forms of collective ownership, such as cooperatives involving employees, managers and possibly other stakeholders. In this way wealth would flow automatically to all those directly involved, and the flows could be adjusted to ensure fair shares for all parties. Some collective forms, such as sociocracy³, go further and effectively distribute management to all parties in an enterprise.

The main current form of collective ownership, corporations, is pathological, in that wealth can be managed to flow predominantly to managers and shareholders, at the expense of employees. Competitive markets also induce pathology by encouraging corporations to be exploitative and extractive: rather than generating new wealth it is often easier to extract existing wealth from people, societies and the environment, thus further unbalancing the flow of wealth.

If appropriate forms of ownership are not sufficient to ensure fair flows of wealth then retroactive actions, such as progressive income taxes, government services, welfare payments or a universal basic income, could also be implemented or continued. However retroactive actions are more cumbersome, less efficient and more likely to be resented, making them more prone to abuse.

Land, in the sense of an area of the Earth's surface, requires special consideration. There are two key aspects. One is that land is part of our common inheritance: it is just there, no-one makes it. There is thus no cost of production that might anchor the price of land. In a sense the 'price' is arbitrary, and this makes it especially prone to speculation. It would better reflect its nature if land was leased⁴. It could be managed, for example, by community land trusts, in effect acting on behalf of our collective inheritance.

The other important aspect of land is that part of its value arises from what is adjacent to it. A hectare of vacant land in a city is worth more, in terms of its potential benefit to an owner, than a hectare in a sparsely populated desert. This value should not belong to the owner, because it arises from the actions of the community around the land. Because this value emerges as the community develops, I have called it the emergent community value of the land, though it was a central but much-repressed insight of Henry George⁵. This component of wealth ought therefore to flow back to the community, which could be accomplished also through a community land trust.

Analogous considerations apply to natural resources. Non-living or mineral resources are part of our common inheritance, and wealth derived from them ought to flow widely to the society in whose territory they occur – or perhaps even to all of humanity. Non-renewable resources of course ought to be managed frugally, whereas at present they are extracted profligately. Living, renewable resources are part of the biosphere and their health and continuance ought to be an automatic part of the management of an economy, as already described.

The kind of economy briefly outlined here is developed more fully in *Economy, Society, Nature*⁶. It is radically different from the presently dominant regime, but it needs to be because the present system is so pathological it threatens to destroy our modern civilisation, along with much of the human and non-human population of the planet. Unrestrained growth of the GDP is but one source of its pathology.

A healthy economy will also involve many more details than are mentioned here, but this outline can indicate both its broad character and how it might be managed.

To address the pathological growth of modern industrial economies we must first of all carefully define what we mean, and what we want. Not all kinds of ‘growth’ are undesirable. We need then to identify the underlying driver of undesirable growth before we can attempt to change or stop it.

Much of the current debate about economic growth, de-growth or steady state fails to specify what it is that is growing⁷. Usually it is the Gross Domestic Product that is implied to be growing, or not. But GDP is not directly the culprit. The culprit is the ever-rising throughput of materials – the extraction, manufacture, use and dumping of ever-more stuff. It is that material throughput that causes resource depletion and the planet-wide harmful pollution that is degrading our living planet, our life support system.

GDP is in any case an inappropriate measure of the good health or ill health of an economy and its society, as its originator, Simon Kuznets, warned. GDP is in effect a tally of the net monetary worth of all those activities that involve money. No account is taken of whether an activity is useful, useless or harmful, or in the present context healthy or unhealthy. Many important activities that do not involve money are ignored. It happens that in the present regime GDP correlates with increasing material throughput, and harm to ourselves and the planet, but that correlation will shift if we focus where we need to – on whether our activities are healthy or harmful. In any case the magnitude of the GDP becomes irrelevant if we focus on the real culprit.

Another, and key, distinction to be made is between quantity and quality. It is commonly argued by the defenders of the present regime that it has lifted millions of people out of poverty, although that claim overlooks the many who have been allowed to remain in poverty or dropped back into poverty. The implication being made in this claim is that the quality of the lives of many people has been improved as material wealth has increased. Up to a point that is true, but gain this implication must be qualified, because excessive accumulation of ‘wealth’ can reduce quality of life, or fail to improve it. The point here is that it is really quality of life most people would hope to improve through sensible economic activity.

Turning to quantity, our present regime is extremely profligate with materials⁸. This profligacy can be reduced in three ways: by using materials more efficiently, by reducing our demand for stuff,

and by recycling materials so they do not become pollution and we do not need to draw more resources from the Earth. Food waste has become widely remarked, but there are many identified examples where use of materials can be made more efficient. The more wasteful is present usage, the easier it is to reduce waste. 'Demand' is greatly inflated within our consumer-capitalist system by marketing and advertising. These have become very sophisticated in inducing us to buy much more stuff than we need for a good quality of life. Finally the potential of recycling is to perennially recycle most materials, either through the organic world if they are organic, or through an extended industrial system if they are not. The living world recycles all materials, and we should seek to emulate it, so as to become part of it again. Products need to be redesigned so they are easily disassembled and so their materials can be easily recovered and remanufactured. This has been called cradle-to-cradle design – products are designed not just for cradle-to-grave use, but to be reborn again as new products⁹. Already in the 1990s Interface Carpet Inc. was able to greatly reduce its materials use through this approach while increasing profits¹⁰.

We can now define a goal to reduce quantity while increasing quality: to reduce the quantity of stuff we use at the same time as we increase the quality of our lives.

This gives us a clear objective while freeing us from pointless and confused semantic debates about whether 'growth', ill-defined, is good or necessary. Growth of quality is good. Reduction of quantity is good because it allows us to tread more lightly on the Earth, and also because it can allow us to focus our lives more on the things that bring us real satisfaction.

Incidentally 'happiness' is not necessarily a sensible goal. A good life involves joy and pain, inevitably. It is not healthy to try to be 'happy' all the time, we need to allow sadness and grief to run their course as well. What counts is how we navigate the ups and downs and whether we come out the other side of challenging experiences embittered or more robust and wiser. A better goal would be fulfilment.

We need also to distinguish healthy organic growth from unlimited or uncontrolled growth. Multicellular organisms long-since developed internal controls on their growth, so they do not use up all available resources and then starve, and so they do not grow beyond an optimum size and become ungainly and incapable. Traditional human cultures also managed themselves to avoid excessive growth, so their descendants could continue to live good lives indefinitely into the future. They lived by the ethic of leaving their world in a condition at least as good as it was passed to them by their ancestors. This must be our goal if our descendants are (eventually) able to establish lifestyles that can continue indefinitely into the future.

We come then to the question of why our present industrial civilisation so relentlessly increases its throughput of materials, why it always grows. More specifically, what is the mechanism that keeps growth going?

We are a materialist society, compared with many past and traditional societies, and the materialism has been raised to new heights by the deliberate cultivation of selfishness and greed. Selfishness is explicit in the neoliberal ideology, which has arisen from the neoclassical stream of economic theory. That theory is pseudo-science: it bears little resemblance to real modern economies and is highly misleading^{2,11}.

The political emphasis on selfishness is also quite misguided because abundant experience and evidence shows we are a highly social and highly cooperative species¹² – why else would we have developed our sophisticated capacity for language? Human behaviour is a potent mixture of cooperation and competition, and the challenge and richness of our lives arises from our having to balance the two tendencies – the *yin* and *yang* of Taoist philosophy.

Greed is clearly a factor in driving material economic growth, yet there is more to it than just greed. The feudal lords were selfish and greedy too, and the lower orders suffered because of them, but feudal society did not grow inexorably, to consume itself and the world.

There have been many societies in which greed was constrained¹³, if it existed at all, so we need not resort to the dead-end explanation that greed is just part of human nature. Greed is cultivated in our societies, and consumerist marketing is a major mechanism.

In the neoliberal ideology a person's 'labor' is just another commodity, to be traded or discarded at will. As a result livelihoods have become very insecure, by design. In our insecurity we are prone to turning on each other. We have become fractious and divided. Those divisions in turn are exploited by the holders and seekers of power. The conflict consumes our 'social capital', the fund of trust required to keep our society functioning.

So selfishness and greed do great damage to the quality of our lives and our societies. Yet they still do not fully explain the perilous situation we are in. Something facilitates or magnifies the effects of greed so it turns our societies into malevolent systems.

A feature of our modern governance is to ensure there is never quite enough of something essential. A prime example at present is employment. For a time, postwar, employment in the developed nations was maintained close to a sufficient level, and our societies prospered. However for decades now employment has been deliberately kept insufficient, under the bogus guise of combating inflation. So we compete for livelihoods and accept less than we might deserve out of desperation. This keeps us on a treadmill that serves the greedy. The treadmill has been operating for centuries, probably since the land enclosures of late Mediaeval times. This practice of limiting the availability of something essential has been called artificial scarcity by Jason Hickel⁷.

Competitive financial markets ensure investment funds are also scarce. Managers of large corporations are required to maintain a high price for shares in the corporation, and high dividends to shareholders. The benchmarks must be met every calendar quarter, or shareholders might withdraw their funds and invest them elsewhere. In this competitive environment one of the best assurances is to be bigger than the competition, so there is a strong incentive to keep the company

growing, by any means available. If all enterprises are striving to grow in this way, then the whole economy will tend to grow. Thus the scarcity of investment funds drives growth.

Politicians are also incentivised to maintain overall growth of the economy. As economies are presently mis-managed, if growth slows unemployment is likely to rise. Rising unemployment is a politician's worst nightmare.

Our modern greed is thus fostered and implemented in a way that requires ever more 'economic growth', and that growth requires ever more of everything: materials, people, land, water, crops, poisons, products, devices and so on. We have built a machine with unlimited demands. There is ever less room for anything else on the planet. Nor is there time to stop and enjoy the sunset, to have surprise and poetry in our lives.

It is possible to manage an economy differently. In the decades after World War II unemployment in the OECD was maintained around 3% or less without excessive inflation^{11,14}. This approach could be supplemented, for example, with a job guarantee and a buffer-stock of potential employees who could be drawn back into the larger economy as required¹⁵.

More broadly, we could stop and reverse the enclosure of the modern commons, as Hickel urges. More and more of our activities are enclosed and commodified. Even our entertainments must be 'streamed' from one of the giant global entertainment corporations.

Reclaiming the commons requires being able to step off the treadmill and live in our own way at our own pace. This requires that we have the means for a sufficient livelihood. A substantial rise in minimum wages, and all wages, would facilitate this and stimulate the economy¹⁶. Restoration of many government services that have been removed over the past four decades would help to support people living more independently. A universal basic income would directly create a modern equivalent of the commons. The developed economies are wealthy and can well afford such policies if the wealth is so directed.

Implementing such measures would require a major change in our political cultures, but they have in any case become constricting, corrupt and toxic. A significant shift towards a more democratic politics occurred in Australia in 2022, with the election of a cohort of independents. On the other hand the growing urgencies can lead to shifts towards fascism led by 'strong men', as has also happened in a number of countries.

Stopping and reversing growth in material throughput is an essential step towards an economy that is embedded in a healthy biosphere. Such a healthy economy would ensure growth is of the healthy kind, renewing and provisioning in a circular system with minimal extraction and waste of resources. Any political difficulty in realising such a system is simply a challenge to be met, because there is no other way we can offer our descendants healthy lives into the indefinite future.

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