

Why do capitalist economies need to grow?

“For some people, growth and capitalism go together. Growth is functional for capitalism. It's a necessary condition for a capitalistic economy. And for this reason, the idea of doing without growth is seen as tantamount to doing away with capitalism.”

This is Tim Jackson, professor of sustainable development at the University of Surrey, and a former sustainable economics adviser to the UK Government.¹ He's a prominent advocate of what's been called steady state economics, a theory which states that economic activity must be limited to a scale of resource use which is sustainable over the very long term. First advanced by the likes of Herman Daly in the early Seventies, this is a school of thought which has enjoyed a renaissance in recent years. It's still a marginal view, but not without its influence. Jackson's book *Prosperity Without Growth* (2009) comes complete with forwards from environmentalist royalty, in the form of Daly and Bill McKibben, and the real thing, in that of HRH The Prince of Wales.

As Jackson writes, there is a difference of opinion among environmentalists as to whether an end to growth must also mean an end to capitalism. In this essay I will refer to the first group, those who are agnostic about whether a post-growth economy could remain capitalist, as the “steady staters”; the others, those who agree that growth must be halted but say that capitalism would have to be ended with it, I will call the “ecosocialists”. There is also another set of environmentalists, ones who don't even agree that growth could or should be ended, let alone that capitalism should be abolished—but I will not deal with them here. My starting assumption for this essay is that the underlying belief uniting steady staters and ecosocialists is correct: growth does need to be halted—and urgently—in order to give humanity a chance of staying within crucial environmental limits.²

The question is, then: is growth essential or merely accidental to capitalism? If essential, then those who accept that growth must be stopped must also accept the same of capitalism—that green must necessarily be red.

Surprisingly, this is not a question which has received very much attention. Steady staters tend to duck it, while ecosocialists tend simply to assert that capitalism requires growth, without probing too deeply into the matter.

Among steady staters Tim Jackson is a case in point. Responding to the ecosocialist position that capitalism depends on growth, he argues that “we've already seen that this presumption is false in general.” His support for this comes from a book by William Baumol *et al*, entitled *Good Capitalism, Bad Capitalism*:

As William Baumol and his colleagues have pointed out, not all varieties of capitalism are equal in terms of growth. Admittedly, the ones that don't grow are 'bad' in Baumol's eyes. But the point is that capitalist economies that don't grow can and do exist.³

Sadly, anyone who consults the Baumol book in the hunt for such examples of non-growing capitalism is in for a disappointment. All that Baumol *et al* say is that there are differing models of capitalism, ranging from the high-tech entrepreneurialism of the United States to the corrupt kleptocracies of the developing world, and that these have differing rates of growth.⁴ Crucially, nowhere do they suggest that the global economic system, within which all national economies are enmeshed, does not depend on continual growth.

One of the problems with Jackson's treatment of this question is his definition of capitalism. Following Baumol *et al*, he defines it as "where ownership and control of the means of production lies in private hands, rather than with the state." He then speculates that a post-growth world would see a mixture of ownership models, with plenty of worker-run co-operatives, all of which would tend to render classification of the economy a moot point. Or as he puts it: "Is it still capitalism? Does it really matter? For those for whom it does matter, perhaps we could just paraphrase Star Trek's Spock and agree that it's 'capitalism, Jim. But not as we know it.'"⁵

Jackson is far from alone in adopting a definition of capitalism based on the ownership of the means of production. The difficulty with such a definition is that in itself it captures nothing of the dynamics of capitalism as a system—i.e. the internal logic of the system, what it requires in order to perpetuate itself. By missing this out, one risks overlooking the factors which would make growth essential to capitalism. Indeed, we often find steady staters describing the economy's imperative to grow not in systemic terms, but as a personal characteristic of those who live within it. Bill McKibben, in his forward to Jackson's book, describes growth as a "spell" which has enchanted us, but which we now need to break. Andrew Simms and Victoria Johnson, in their *Growth Isn't Possible* (2010), say that economies grow because we are "addicted" to it. Douglas Booth, similarly, says we are "hooked" on growth. For Clive Hamilton, growth is a "fetish".

The problem with such language is that it obscures the need for systemic change, suggesting meanwhile that we can make a difference as individuals simply by changing our attitudes. This translates into an often naïve, other-worldly quality to the writings of steady staters, lending them the air of political eunuchs.

An example is the Centre for the Advancement of Steady State Economics. CASSE's institutional milquetoastism is well summed up by remarks made by then executive director, Rob Dietz, on addressing a question to a White House

economist at a conference in 2010. After unsuccessfully trying to persuade someone else to ask a question about steady state economics for him, he reluctantly agrees—“with a pounding heart”—to ask one himself. Unfortunately, the speaker’s response “indicated that she didn’t understand the question—she used phrases like ‘sustainable growth, steady state growth, and balanced growth’”. However, he managed to get himself an invite the next week to make a “mini-presentation to an economist with a direct pipeline to the President”, about which he was clearly very proud but which, equally clearly, went absolutely nowhere. The lesson he passed on to followers of CASSE? “Sometimes it’s necessary to step outside your comfort zone to realize an opportunity”.⁶ It’s hard to work out which is the more extraordinary—making such a big deal about asking a question at a conference, or thinking that being briefly humoured by a government economist would make any practical difference.

The extent of this abstraction from politics within steady state thought was fully exposed by a memorable exchange between Herman Daly and the ecosocialist Richard Smith, in the pages of *Real World Economics Review* in 2010. While paying handsome tribute to his writing, Smith quoted Daly as arguing that steady state proposals for a new economy were based “on impeccably respectable premises: private property, the free market, opposition to welfare bureaucracies and centralized control.” Smith’s take on this was that what the steady staters were actually proposing was a continuation of capitalism, but one in which its negative aspects were treated as merely optional features which could be discarded, leaving the system intact. For Smith, steady staters’ blueprint for society, in which expert bodies would set quotas to limit the use of natural resources, with the market then operating as normal within those limits, was a technocratic vision without any sense of political conflict over the division of a shrinking social wealth. Smith attempted to bring the steady staters down to earth: “Do we need to limit production of meat, coal, oil, synthetic chemicals? How about Starbucks’ frappuccinos, SUVs, Flat screen TVs? Ikea kitchens, jet flights to Europe, 12,000 square foot homes? Daly doesn’t tell us.”⁷ Daly’s only response was to criticise Smith for failing to present a detailed case for how a socialist alternative might function efficiently. “Instead of markets”, Daly asked, “should we not have another go at centralized rationing of goods and resources, collectivization of agriculture, abolition of exchange and money?”—the implication being that such proposals were self-evidentially hopeless.⁸

Indeed the overall tone of steady staters’ writing on whether a post-growth economy would be capitalist makes clear they treat this question as an irrelevancy—something of interest only to ecosocialists, whose political beliefs as a whole they treat as irrelevant, as being archaic relics of a discredited past. Now, to be fair there’s a certain dogmatism to much ecosocialism, a streak of opportunism in the way environmental limits are often enlisted as a back up argument for why capitalism is unsustainable—the Left in general having

rejected earlier Marxist arguments that capitalism was doomed to collapse (and should thus be pre-emptively abolished) on purely economic grounds. And many ecosocialists largely just assert that capitalism requires continuous growth as a self-evident truth. Take, for example, the “Ecosocialist Manifesto” written by Joel Kovel and Michael Lowry, which refers simply to capitalism as having an “imperative to constantly expand production”, and “being predicated upon the rule: Grow or Die!”.⁹ Even the most sophisticated articulations of ecosocialism tend to describe why capitalism economies are very likely in practice to depend on growth, but not necessarily why they *must* under any conceivable events.¹⁰

What is needed is a systematic attempt to show why capitalism intrinsically *depends* on unending growth. Seldom done, it’s what I attempt in the rest of this essay. The main novel feature in this attempted explanation is the way it takes advantage of a new understanding of the arguments made by Rosa Luxemburg, one of the leading socialist thinkers of the early twentieth century, about the economic unsustainability of capitalism. While her arguments were largely rejected in the last century, more recent understandings of the role of money and debt within the economy can be used to supplement her theory, and thereby show how capitalism is founded on a principle of requiring continuous expansion.

To preview these arguments, capitalism requires continual growth in profits. Ultimately this has to be generated by continual increases in the production and sale of commodities. Increases in production in turn require upfront monetary investment which must exceed past income. The system is thus dependent on spiralling levels of money debt, which demand unending economic expansion in order to continue to be repaid.

Why do capitalist economies have to grow?

This analysis breaks down into several parts. Let’s begin with the simplest, overriding factor.

(i) It’s capitalism, stupid

There is one primary reason, above and before everything else, why capitalist economies have to grow. It’s the entirely obvious one. As James Fulcher puts it in his *Capitalism: A very short guide*, “the investment of money in order to make a profit [is] the essential feature of capitalism”. This is, indeed, the difference between money and capital: money becomes capital when it is amassed not to be spent on the things one desires, nor to be hoarded as savings, but primarily as a fund for ongoing investment, designed to increase itself. Now, as Fulcher says, advancing money to realise a profit has been the practice of merchants since time immemorial—thus capitalists existed long before capitalism proper. What turns the use of capital into the system known as capitalism is when “the whole economy becomes dependent on the investment of capital and this occurs when it is not just trade that is financed

in this way but production as well.”¹¹ In capitalist societies the production of goods and services is done primarily to generate money profit to be reinvested in further production. Marx famously expressed this dynamic with the schematic M-C-M', whereby money (M) is invested in producing commodities (C), which are in turn sold for more money (M').

Here we find the overwhelming driving force behind growth: that's the entire point of it. Business is in business to make money. There are plenty of charities, and small businesses which are happy simply to tick along in a steady state and pay themselves a steady wage. But on a large scale and across the economy as a whole, the point of economic production is to make more money than you started out with; and not just to do that once and get out, but to do so on a continuing basis. Given businesses as a whole want to do this, then the economy as a whole has to keep growing.

By necessity, this means the environmental impacts caused by capitalism will keep mounting. In the long run a growth in money wealth has to be backed up by a growth in the volume and overall value of goods and services to be exchanged for it, in order for it to represent a real increase in wealth. And as countless sustainability theorists have shown, no matter how efficient and virtual you can make a commodity, it always has a material basis—you can't angelicise GDP, as Herman Daly has put it.¹² So, by definition, capitalist economies have to grow, both in financial terms and in terms of impacts on the planet.

(ii) Competition

If this is the overarching reason—the *final* cause, if you like—why the economy must grow in our current system, there are other essential dynamics of the system in operation—the *efficient* causes—which compel it likewise.

In the classic Marxist account, it is competition among capitalists which is the fundamental driver of continual expansion. The sense of being subject to forces of competition beyond one's control is another essential feature of capitalism, related to the transition from feudalism to what Polanyi famously analysed as the “market society”. This is a world in which there is no more important, socially organising principle than the market. Here, no one is safe from being outflanked, undercut; capitalist society is intrinsically insecure, and in such a situation economic agents react by getting their retaliation in first, by continually seeking ways to lower their costs and increase their sales.

Now, this situation has been overridden from time to time; think of the extent to which society was organised by state bureaucracies, according to principles of social utility and national defence, during the Second World War. And there was a long period in the post-war West, described variously as an age of welfare or monopoly capitalism, where large companies managed to restrict competition, and state authorities insulated large sections of the economy from

competitive pressures. But this began to break down in the Seventies, partly due to international competition from lower-cost producers in the East. And this is something which has only snowballed since, accompanied by a rising insecurity and pressure to grow in all sectors of the economy in the developed world, including state sectors.¹³

(iii) Soaking up unemployment, smoothing over inequality

The effects of competition create another reason why the system needs to grow. Under pressure of competition firms seek to increase their productivity and lower their costs; the essential story here is one of making workers, and their niches within the economy, redundant. There is thus a need for the economy as a whole to grow continuously over time, creating new jobs and lines of work, to soak up the unemployment which growth in productivity creates.

As an aside, there is also another factor we should remember—simple growth in population. Where the working-age population is rising, this itself needs to be matched by a growth in jobs if it is not to lead to a rise in unemployment. In this situation there are also additional consumption needs, and if production does not expand in step then there will be a fall in the social standards of living.

Of course, it's in the interests of capital for there to be a certain level of unemployment. This "reserve army of labour" helps to keep those in jobs on their toes and in their place. If they get too demanding they can always be replaced—that's the constant threat, implied or otherwise. Just look at how docile workers have been while their wages and conditions have been cut since the financial crisis broke in 2008; fear of unemployment has kept people quiet.

So unemployment restrains wage demands, boosting profits for employers. It also provides capitalists with the flexibility to expand relatively cheaply whenever they want to. But at the same time, unemployment can't get out of hand. Partly this has been a *political* consideration of the ruling classes, who have been concerned about the prospect of socialist unrest should capitalism fail too large a section of society.

More widely on this theme, capitalists have long recognised that economic growth has helped to secure the buy-in of workers to the system by, as Douglas Dowd puts it, "camouflage[ing] the necessary inequities and inequalities of income, wealth, and power that are intrinsic to the system."¹⁴ In other words, as the cake has grown, so workers have been able to enjoy a bigger slice in absolute terms, without having to take anything away from the bosses and thus enjoy a bigger share of the whole.

Irrespective of any concerns over social unrest, fundamentally there is an *economic* reason why a certain amount of unemployment must continually be soaked up by growth in production. It is simply that otherwise growth in

productivity becomes self-defeating: make too many workers redundant, and you reduce the effective demand for your products, leading to an economic crash. The capitalist economy needs to grow in order to catch up with itself.

(iv) Dependence on credit

Pressure of competition might be the classic Marxist account of the need of the capitalist system to grow, and the need to soak up unemployment and bolster demand might be the classic social democratic account. But there is another, less heralded, left-wing analysis which comes from Rosa Luxemburg. Luxemburg's analysis of the dynamics of capitalism was brilliant, and still much misunderstood.

Luxemburg asked a simple question: where does the money come from to enable capitalists to earn a profit and the economy to grow? She made it perfectly clear that it could not come from the workers (and Marx was equally clear on this): since workers receive all their income from wages, then when they spend their money on goods and services, capitalists as a whole are only getting back what they have already paid out. The same thing applies to capitalists' purchases from each other (be that for personal consumption or business investment); by definition, as a whole capitalists receive from each other only as much as they spend on each other. What is entirely mysterious, Luxemburg pointed out, was where does the extra money come into the system, to allow capitalists to receive more than they have already paid, and the economy to grow? Although she didn't put it this way, we could rephrase her question as: where does the ' come from, in Marx's M-C-M'? The mystery is this: in order for capitalism to work, capitalists must *already* be in possession of M' in order to buy goods at costs-plus before they can receive it in sales income!

Luxemburg's answer to this conundrum was that the extra income had to come from exports to economies that had not yet been brought within the capitalist system. Her theory was that this was economically unsustainable: in order to pay for these goods, such economies would end up being converted to capitalism, meaning they would dry up as sources of additional income from outside the system—leading to its inevitable collapse.

Luxemburg's theory has been subject to numerous criticisms, which partly explains why it has remained neglected for so long. But recently her ideas have begun to enjoy a renaissance, thanks to a generation of critics who are drawing on newer understandings of the macroeconomic roles of money and credit. Elsewhere, I have shown how Luxemburg herself stated it was credit from Western banks which was the ultimate answer to that fundamental question she posed. It is credit which provides the additional income which allows capitalists to receive more than they have already paid and the economy as a whole to grow.¹⁵

Credit is not just what *allows* the economy to grow; it is also what *compels* it to do so. It is credit which bridges the gap between production cost and purchasing power. This provides the increment over the income generated by a previous round of sales to enable businesses and consumers to purchase an expanded value of commodities, over and above that for which they had previously been paid.

Another way of looking at this is to see that credit provides the bridge between the income from a previous round of sales and the additional costs of expanding production. In expanding production, businesses—whether new start-ups; or existing firms increasing their output, or launching a new line—incur costs in advance of sales. These costs—staff wages, purchases of equipment from other firms, etc.—represent additional purchasing power, additional income for workers and businesses, which has not been earned, but instead has been provided by the banks.

Why does this *compel* the system to grow? It is this. As is increasingly well understood, banks create credit essentially out of thin air.¹⁶ By providing loans and overdrafts they inject new money into the economy. On its own this would lead to an increase in inflation only. In order for it to lead to an increase in wealth—the reason, let's not forget, why business is in business, why it seeks finance for its production in the first place, and why banks give it to them—there needs to be an expansion in the overall value of goods and services that can be exchanged for money. If capitalist production begins in money debt, it is always, therefore, a game of catch-up; every loan is made with the promise of additional sales income returning as a result. Across the economy as a whole, this promise has to be delivered for there to be a loan the next time, and the next time, and so on. If the entire economy is in net debt, then necessarily the entire economy has to get bigger before it can afford to pay it back.

There is a further factor in this: the banks' charging of interest on the credit they create. What exactly influences the interest rate is a subject of much debate. But leaving aside the arguments over what determines the actual interest rate, the fundamental reason for charging any interest is simple. Once again, banks are businesses, and businesses are in business to make money. Charging interest is the main way for banks to make more money than they started out with.

Once again, where does the additional money come from to enable businesses as a whole to pay back the interest—i.e. for them to pay back more money than they have received in loans from the banks, and for the banks to receive back more than they have already paid out? It comes from an expansion in effective demand which is overwhelmingly financed by yet more credit, by banks making more loans. In effect, the banks are paying each other with yet more money they have created from nothing. In order for this to be

more than a bad joke involving funny money, it has to stimulate an expansion in real production and consumption. Interest payments can only be made by the economy going into yet more debt. It is an endless game of catch-up; which means it is an endless game of growth.

In passing, we might observe that the only alternatives to endless growth in this situation are either massive scale defaults, or governments printing money on such a scale it sets off hyper-inflation, allowing existing debts to be paid back with ease. Of course, you can have one then the other, with the second an attempted remedy for the first; Weimar Germany providing the most obvious cautionary tale. Either way would mean the capitalist economic system effectively ceasing to function.

We should note one further aspect of credit and its relationship to growth. In recent decades, the capitalist practice of lowering costs under pressure of competition has entered a new phase. The link between corporate income and wages has been broken, with the share allotted to wages going down year on year. As previously observed, when competition proceeds too far it becomes self-defeating for the capitalist: cut workers' overall purchasing power, and you drive down effective demand—the economy as a whole begins to tank. But capitalism has managed to get away with this, through the privatisation of debt finance. Once it was solely firms which took out loans in order to pay the wages of their workers in advance of receiving sales income. Now, in addition, it has been the workers who have been running up credit card debts, borrowing against the value of their houses, and taking out payday loans in order to supplement their inadequate wages and keep the economy growing. This process has been accelerated by the entrance onto the world market of successive waves of new, low-cost workers in Asia. This phenomenon has helped to lower the cost of products, amplifying the purchasing power of Western workers. But at the same time, this competition from low-cost workers has helped to depress Western wages, in turn applying a downward pressure on purchasing power, and increasing dependence on private credit. Growth in private credit then contributes strongly to the need for the economy to grow. This can be seen most visibly in the property market, which must keep going up in order to repay the debts taken out to buy property and to borrow against it.

(v) Mass production for an anonymous market

The next reason why our current economic system has to grow relates to one of the essential characteristics of the modern economy: mass production for an anonymous market. By modern, by the way, I mean everything since the Industrial Revolution. This is, indeed, what made it revolutionary. There's something miraculous about the modern economy. It's what has transformed the world, making life in "developed economies" so qualitatively different to all past ages of human history.

This miraculous factor is the application of the Scientific Revolution to increase productivity via the use of technology. This yields the DNA of the capitalist system: by investing in production, you produce more goods at a lower unit cost. This leads to a growth in social wealth, as, via money transactions, businesses exchange higher volumes and values of goods with each other, with consumers receiving higher volumes and values of goods in return for their working time. As productivity goes up across the economy as a whole, so does purchasing power. There's more you can buy because there's more to sell. The whole economy pulls itself up by its bootstraps. It's like magic. It's called growth. No wonder we're obsessed with it.

The issue is, in order for this magic to become real, for the benefits of productivity growth to be realised, business have to produce—and sell—at high volumes. Let's leave small and bespoke producers out of this; they still remain in a modern economy, but their income is derivative from the social wealth which depends on mass production. The very concept of unit cost (production cost per unit sold, as opposed to the absolute costs of production) implies the need to sell at or above a target volume. The magic only works if:

- a) goods can be produced at sufficient volume that you can set their price low enough for them
- b) to be bought at sufficient volume that, even though the price for each is relatively low, your aggregate income is still sufficient to more than cover your investment costs of
- c) the machinery and other inputs required to produce goods at this volume.

Capitalism is, by essence, a mass production, mass consumption system. And the way it works to increase wealth is to increase productivity, which means that the masses of commodities made and sold *have* to increase.

Now, another aspect of this is that such mass production is inevitably wasteful. And not just wasteful in the sense often remarked of by radical economists—that it is essential to capitalism to persuade people to continually buy things they don't need or that are deliberately made not to last, and that in doing so it wastes precious natural resources; an argument brilliantly summed up in just four words by Douglas Dowd in the title of his book *The Waste of Nations*.

No, in addition to that argument, I am talking here about the intrinsic *economic* wastefulness of mass production. That's to say, mass production has to involve relatively large fixed, upfront costs. And production for an anonymous market is inherently uncertain. This means that producers have to incur significant costs before they know whether their products will be a success. Not everything is going to be a success. This itself is inevitable, given that production for an anonymous market means that no one can be sure in advance which products will be successful. Combined with the capitalist

principle of competition, this encourages more producers to enter the market, each with hopes of their individual success, than the market can bear. Production is always tending in excess of demand. Certainly, the overall aim of capitalism is, by producing more, and through intensification of the sales effort, to expand consumption. But there will always be casualties in this process, products and producers that fall by the wayside.

Given the relative magnitude of the upfront costs involved in mass production, this means the losses incurred by the inevitable litany of economic failures will be very sizeable in aggregate. All these losses must be paid for if the system is to continue. Who pays for them? Well, the producers themselves incur debts which mean they will lose money and assets. But where did they get the money from in the first place, and who is thus out of pocket when they default? Overwhelmingly, it is the banks. And how do the banks get this money back? On the level of the overall economy, they will price these losses into the rates of interest they charge to provide the finance which facilitates all upfront investment. This will then be reflected in all sales prices. Which means that all economically successful products have to subsidise the economically unsuccessful ones. This, in turn, means again that the economy as a whole has to keep growing. In practice, it means that the successful producers are saddled with the outstanding debts of the unsuccessful ones. (More precisely, since all existing producers are successful—in the sense of making debt repayments—until they disappear, we should say that *all* business—both new and ongoing concerns—are saddled with the debts of those which have gone belly up.) Given they have, in effect, to recover not just their own upfront costs but those of their unsuccessful competitors, this means that, overall, there has to be a continually increasing value of sales made by successful producers.

This economic wastefulness described here is on one level, it must be said, capitalism's great virtue. Capitalism is wasteful in the degree to which it is not planned. Multiple producers enter the market with hopes but no certainty of success. In its best aspect capitalism is a system built on freedom and creativity (for producers). This is the kind of thing Marx had in mind when writing the paeans to bourgeois inventiveness which bestrew his work. But it is a virtue which comes at a price. There must continually be an excess of supply in the system; which again means the system as a whole must continually be growing. It is only this which provides for the freedom for entrepreneurship and expansionism, for producers right across the system to launch new products and businesses.

We can understand this most clearly by imagining the alternative. If the economy were in steady-state, then any new use of resources—money, labour, equipment, raw materials—would have to be prepared for by a withdrawal of a corresponding amount of resources (whether in use already, or committed for the future) from existing producers. This would rule out the spontaneous

production decision-making which characterises capitalism, the ability of anyone to start or expand a business so long as they can persuade investors to lend them enough money. Instead, supply of resources would have to be managed by some form of boards or agencies, with prospective producers applying or bidding for the use (whether continued, in the case of existing production, or new, in the case of start-ups or expanding businesses) of a defined amount of resources.

(vi) Consumption of energy

This brings us to the last reason in this discussion as to why capitalism has to grow. It has to do with the need for the supply of *resources* to continually increase. This has to mean more than just the supply of money. Banks can create money out of thin air, but this is not enough to start or expand a business; you need to be able to buy things with it, things which facilitate the production of commodities for sale. In addition to labour, the other fundamental inputs required for all production are raw materials. Growth in these resources is required by the system's overall requirement for growth.

One aspect to this is well established among radical economists. This is the effective law by which, in a capitalist system, a rise in the efficiency with which natural resources are used will lead to an absolute increase in their consumption. This is often referred to as the Jevons Paradox, after W.S. Jevons, the nineteenth century economist who first observed this phenomenon in the use of coal in Victorian Britain. Increasing the efficiency with which a resource can be used—e.g. through development of a new technological process—has the effect of increasing the available supply of that resource, hence of decreasing its market value. As it falls in price, so there is an incentive for producers to use more of it; by lowering their unit costs of production, it enables them to earn bigger profits. Under pressure of competition, producers in general will have to take advantage of this fall in input price to expand production, otherwise those that do will undercut those that do not and expand at their expense. This is why anyone who harps on the theme of “sustainable capitalism”, and talks up energy efficiency as a “win-win” for business and the planet, is talking out of their hat. Capitalism exists to make money; and you make money by expanding production, not by cutting it.

The Jevons Paradox is fairly well known (albeit mainly within a relatively specialist community of environmentalists). We can, however, further develop this line of argument as to why the capitalist economy—and specifically its impact on the environment—has to grow. By expanding the available supply of natural resources (both through expanding their primary extraction and through increasing the efficiency with which they are used), you lower their unit cost, and in the process help to lower the unit cost of all the chains of products which are produced from them. This means that the relative economic value of all goods declines, meaning producers can purchase more of

them in exchange for their products and workers more in exchange for their labour time.

But at the same time, the underlying value of each commodity goes *up*, in the sense of the share of natural resources it embodies (or could be exchanged for). Given the ultimate constraint on obtaining or synthesising many natural resources is energy, we might as a shorthand call this the energy value of each product.¹⁷ We could speak of a product as having energy value in two ways. First, there is the energy used to produce it. Second, there is the energy which it commands as we use it, the work we can get from it in consuming it (or using it to produce something else). These uses give products an intrinsic value, in the sense that they represent an irretrievable use of a finite stock of resources. They have value because of the fundamental scarcity of resources available to us.

Now, from time to time, some people have used this thinking to argue that the economic value of a product or service should be determined entirely by its consumption of energy, to be recognised perhaps by the replacement of money with state-issued quotas for energy consumption.¹⁸ This is going too far. Partly this is because, as Herman Daly has argued, it fails to account for the subjective value which different people would attribute to different things.¹⁹ Partly it is also because technological development also creates qualitative advances in the types of experience we can enjoy; it changes the uses we can make of energy. Just take smartphones as a recent example. Their invention means we can enjoy a new form of utility from their deployment of scarce resources (both embodied and in-use) which might otherwise (in time) have been used on something else.

Nevertheless, there is a strong link between the utility we derive from a commodity and the amount of energy it embodies and puts at our disposal. In this sense, the energy value of a commodity is a measure of the *power* which it commands—the power to travel somewhere and to have goods transported to you, for instance; to be warmed, washed, and cooled; to source, preserve, and cook food; to send and receive electronic transmissions of entertainment and information; to convert raw materials into a myriad of finished products, and to purchase them and enjoy the fruits of this work.

It is here that the unsustainability of capitalism as a system which can only exist in growth is most clearly exposed. Energy value has intrinsic value because it is scarce, and yet this scarcity is not reflected in economic values. On the contrary, there is an inverse relationship between energy and economic value; the faster a resource is used up, the lower its price will fall, in turn encouraging even greater consumption. This is essential to economic growth. It drives up the work got from the economy's resource base in a self-fuelling manner, enabling the magic of productivity growth, with the increase in the masses of goods produced lowering their cost and expanding the economy—

even as the underlying resource base is depleted. It is not only magic but an illusion.

What capitalist markets price is the supply of economically available resources (that is, available for current or short-term production), not the underlying stock of resources. An increase in supply necessarily means a decrease in the stock, but the price-signal producers receive simply incites them to further exploitation. This economic signal only changes in the face of a resource's incontrovertible collapse, at which there will be a sudden crash in connected markets. Historically, growth has continued beyond such local collapses via the swapping in of new sources of the same resource, or the development of alternatives. But this cannot go on forever; the alternatives, too, will become progressively exhausted. As capitalist economies knit together into a globalised system, their ability to cope with the exhaustion of any local resource base increases—but so does the prospect of exhaustion on a global scale, sudden collapses from which it would be impossible to recover.

Conclusion: Beyond the capitalist Ponzi scheme

It would be useful at the end of this analysis to recall Charles Ponzi, that notorious fraudster of the early twentieth century. Ponzi got rich—for a time—from a scheme involving the selling of international postal coupons. The details of this scheme are irrelevant; the point is, it was a swindle. It appeared to be a roaring success, paying out great returns to those who invested in it, which only encouraged more people to pile in. But there was no *investment* as such; those who had bought into it were merely being paid out of the new “investments” made by those who came in after them. For a while it worked wonderfully; but as more and more investors came in, so still more had to join, in order for the growing number who had come in before to receive their dividends—impossible after a certain point. Eventually the whole thing collapsed, and Ponzi went to gaol, his legacy being to lend his name to all such pyramid-selling schemes.

In recent years Ponzi's name has been cropping up again, and not just because of examples of pyramid schemes in the news, Bernie Madoff's being the most famous recent example. Since the 2008 financial crash it has become a commonplace to read leftists and environmentalists characterising the entire economic system which led up to it as “Ponzi capitalism”. This is usually as far as it goes; those making this argument tend to put the crisis down to a wrong turn which capitalism took by investing in financial asset bubbles rather than real production. Thus they oppose this recent Ponzi capitalism to capitalism proper, and argue for a return to investment strategies which would deliver real and sustainable growth.

Such analysis is an acute diagnosis of the recent era of financialised capitalism, but misses the bigger point. *From its very beginnings, the entirety of the capitalist system has been one ginormous Ponzi scheme.* All right, it has not

just paid out what new investors have poured into it; investment in production has led to a massive growth in real wealth. However, the essential structure of a Ponzi scheme is all there. The entire system is in debt, dependent on future growth, owed by future producers and consumers; the current income of capitalists and workers is drawn on a generational IOU; the entire system *must* keep growing or it will collapse. And it can't keep growing forever.

Now very recently, it's true, it's started to be said that perhaps the system has more or less stopped growing—in already developed economies, at least. Much has been made of the economist Robert Gordon's pronouncement in 2012, for example, that advanced capitalism has effectively run out of major new sources of growth.²⁰ Indeed Paul Sweezy and others connected with the journal *Monthly Review* had been saying this for years, while arguing that this was masked from the early Seventies by resort to financial bubbles—something which would inevitably burst sooner or later, laying bare the reality of chronic stagnation.²¹ For Wolfgang Streeck, we may now have moved into a new stage of capitalism, one in which plutocratic elites no longer need national economic growth in order to grow richer themselves; for a time at least, they can exploit the political weakness of workers to extract a growing share from an overall cake that itself has virtually stopped expanding.²²

Would this mean at last that we had stumbled on a form of capitalism that didn't require growth, a gentle landing for the global Ponzi scheme? Not a bit of it. Streeck's argument is precisely the contrary: this is a sign that capitalism has begun its terminal phase. Through factors such as this, capitalism is liable to destroy itself, by undermining the conditions for its own survival. It *does* require growth to survive. A capitalist system which experienced only low or no growth would go on seeking to exploit its inputs of labour and natural resources ever harder, in the desperate attempt to extract a profit from them, for as long as it could. It could not avoid collapse indefinitely, but left to its own devices it could die a very protracted and painful death.

So, to return now to our beginning, where does this leave the debate between steady staters and ecosocialists? The ecosocialists are clearly right that a post-growth world could not be capitalist. This is more than semantics, more than some arcane classification. Though for that matter, the requirements of a post-growth economy may be more than some ecosocialists have yet been able to imagine. While there are few radicals today who hark back fondly to Soviet-style socialism, such economies provide the only recent alternatives to capitalism to learn from. And yet there is not that much to such economies which could be useful to examine; from the perspective of this analysis, the historical model of state socialism could perhaps better be described as state capitalism, given its same reliance to one degree or another on the principle of technological investment to accelerate mass production. No; to make a break with the Ponzi scheme of endless growth, a yet more radical change must be imagined.

Let us recap from the above survey of the reasons why a capitalist economy must grow. If that analysis is correct, then flipping it on its head, we might have to say that a post-growth economy:

- must not be one in which the primary point of production is to get wealthier;
- must not exist within a market society, in which there is no higher socially organising principle than competition between units of economic production;
- must not continually add to unemployment by seeking to making people redundant in order to increase profitability;
- must not grow in overall population (unless compensated by per capita decreases in purchasing power);
- must not require monetary payments (i.e. for wages and producer goods) in advance of sales income;
- must not allow private banks to charge interest on loans they create *ex nihilo*, and must not be in ongoing net debt as a system;
- must not be based on mass production for an anonymous market, and must not continuously expand the volume of commodities for exchange and with that the purchasing power of producers and consumers;
- must not have a continuously increasing supply of economic materials (e.g. money, raw materials, and labour power); and must not therefore enable production decisions to be made freely and spontaneously by individual producers; and
- must not allow economic and energy values to be in inverse relationship, and must not be based on a principle of continuously increasing the energy value of commodities.

If even half of this analysis is correct, then such requirements would demand the creation of a radically different society. Whatever such an economic system were called, one thing it could not be is capitalism.

Bill Blackwater

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- ¹ The precursor to Tim Jackson's book, *Prosperity Without Growth*, was a report he produced for the Government's Sustainable Development Commission (SDC). It's to the credit of that Labour Government that it created the SDC and sponsored the dissemination of what could be for it very challenging environmentalist views - even if ministers and officials may have found many of its conclusions too unpalatable to act on. In 2010 the incoming Conservative-Liberal Democrat Government removed any such disruptive influence by abolishing Jackson's post, along with the entire Sustainable Development Commission, as one of its first actions in office.
- ² Johan Rokström, *et al*, "A safe operating space for humanity", *Nature* 461, 472-475 (24 September 2009).
- ³ Tim Jackson, *Prosperity Without Growth: Economics for a finite planet* (London: Earthscan, 2009), p 198.
- ⁴ William J Baumol, *et al*, *Good Capitalism, Bad Capitalism, and the Economics of Growth and Prosperity* (London: Yale University Press, 2007), pp 60-92.
- ⁵ Jackson, *Prosperity Without Growth*, p 200, p 202.
- ⁶ In Bill Blackwater, "Off the CASSE", *We Are All Wotan*, 15 October 2011, <http://weareallwotan.wordpress.com/2011/10/15/off-the-casse/>
- ⁷ Richard Smith, "Beyond growth or beyond capitalism?", *Real World Economics Review*, 53, 26 June 2010, p 35.
- ⁸ Herman Daly, "The operative word here is 'somehow' ", *Real World Economics Review*, 54, 27 September 2010, p 103.
- ⁹ Joel Kovel and Michael Lowy, "An Ecosocialist Manifesto", International Endowment for Democracy, September 2001, http://www.iefd.org/manifestos/ecosocialist_manifesto.php.
- ¹⁰ For example, Chris Williams bases his argument that capitalism is fundamentally unsustainable on the observation that it features a "relentlessly expansive drive [...] for profit". In support of this he quotes from Paul Burkett's *Marx and Nature* that: "the value form of wealth [i.e. the focus on money rather than useful possessions] by definition imbues production with an expansive character. As a result, capitalist societies are on an unsustainable 'treadmill of production' featuring every greater quantities of material and energy throughput." The issue here is that while indeed the modern focus on wealth as money does *enable* the pursuit of limitless growth to take hold as a social goal (since money is an abstract resource, which does not in itself have any physical limits), it does not logically *compel* it do so. In other words, while this analysis is acute, it is also incomplete. Chris Williams, *Ecology and Socialism: Solutions to Capitalist Ecological Crisis* (Chicago: Haymarket Books, 2010), pp 195-6.
- ¹¹ James Fulcher, *Capitalism: A very short introduction* (Oxford: OUP, 2004), pp 15-18.
- ¹² Tim Jackson is especially good at demolishing the argument that economic growth can be "decoupled" from growth in material resource use and pollution.
- ¹³ See, for example, Robert Reich, *Supercapitalism: The Battle for Democracy in an Age of Big Business* (London: Icon, 2009 edn).
- ¹⁴ Douglas Dowd, *The Waste of Nations* (Westview Press, London, 1989), p 21.
- ¹⁵ See Bill Blackwater, "Rediscovering Rosa Luxemburg", *Renewal*, forthcoming.
- ¹⁶ On banks' creation of money, see, for example, Josh Ryan-Collins, *et al*, *Where Does Money Come From?* (London: New Economics Foundation, 2012, 2nd edn).
- ¹⁷ Strictly speaking, we ought to be referring to *exergy* value rather than energy value here. Exergy is a term which refers to the energy which is available to perform work. The laws of thermodynamics dictate that energy can never be destroyed; but that any use of energy reduces its capacity to perform work. Another way of describing this is to say this process consumes its exergy. For more details, see Robert U. Ayres, "Resources, scarcity, growth and the environment", <http://ec.europa.eu/environment/enveco/waste/pdf/ayres.pdf>.
- ¹⁸ E. R. Berndt, "From technocracy to net energy analysis: engineers, economists, and recurring energy theories of value", in A. Scott, ed, *Progress in Natural Resource Economics* (Oxford: Clarendon, 1983), pp 337-366.

¹⁹ Herman E. Daly, Joshua Farley, *Ecological Economics: Principles and Applications* (Washington, D.C.: Island Press, 2011, 2nd edn.), p 70. See also Daly, “Thermodynamic and Economic Concepts as Related to Resource-Use Policies: Comment”, *Land Economics*, 62(3), 1986, 319-322

²⁰ Robert Gordon, ‘Is US Economic Growth Over? Faltering Innovation Confronts the Six Headwinds’, *nber Working Paper* 18315, August 2012.

²¹ On this see Bill Blackwater, “On the death of financialised capitalism: Steve Keen and *Monthly Review*”, *Renewal: A journal of social democracy*, 20 (4), 2012, 20-29..

²² Wolfgang Streeck, “How will capitalism end?”, *New Left Review*, 87, May-June 2014, 59.