

ESCAPING GROWTH DEPENDENCY

Why reforming money will reduce the need to pursue economic growth at any cost to the environment

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ABSTRACT

A finite planet cannot sustain an ever-growing economy, and the effects of environmental degradation are already becoming alarmingly manifest. But governments around the world make growth their overriding economic objective. Why are governments so set on a policy that seems destined to destroy the environment and ecosystems on which we all depend?

There are several factors that drive governments to think growth is both beneficial and essential, and to think that a number of social and economic problems would arise if we *didn't* pursue economic growth at all costs. These social, political, or economic factors make governments feel they have no option but to pursue never-ending economic growth.

Because these factors make us *dependent* on the pursuit of endless economic growth, we have named them 'sources of growth dependency'. We identify a number of these sources of growth dependency.

We take a detailed look at one source of growth dependency: the role of the current monetary system in creating high levels of private and government debt. High levels of public and private debt create the pressure for ongoing economic growth. We identify how reforms of the monetary system can tackle this problem to reduce this source of growth dependency.

But if governments are to be persuaded to abandon the pursuit of endless economic growth as an overriding policy objective, it will be necessary to find other, *non-growth* solutions to these problems. Addressing all the sources of growth dependency would reduce the pressure for endless economic growth and open the door to an economy that operates within the limits of nature.

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INTRODUCTION

For most governments around the world, economic growth is the primary objective. Policies are geared towards growth, and governments are often judged on their ability to deliver ever-rising economic output, spending, jobs and pay.

But it is becoming increasingly obvious that continued economic growth is ecologically unsustainable. As we grow the economy, we grow our usage of energy and of a range of natural resources, many of which are becoming increasingly scarce. We also produce more pollution, including carbon emissions, than the environment and atmosphere can process and absorb.

It may sound a modest goal to aim to grow the economy by 2% this year – after all, most people would consider it reasonable to request a 2% pay rise. But the maths of exponential growth means that an economy that grows at 2% each year will be twice as big in 35 years, four times as big in 70 years, and seven times as big within a century. If our resource use and pollution today are already causing fish and bee populations to collapse, rivers and aquifers to dry up and weather patterns to change – with alarming implications for food production – then what should we expect when the global economy is two or four times larger?

Governments are aware of the environmental challenges we face, as evidenced by the fact that nearly 200 countries committed to the recent Paris agreement on climate change. Yet even though continued economic growth is incompatible with protection of the ecosystems that keep us alive, governments around the world are still focused on achieving continual economic growth as their number one priority. Why?

Governments believe growth is essential and beneficial for many economic reasons. These sources of growth dependency range from the need to provide employment for a growing population, the need to create jobs to replace those that are eliminated by technology, the desire to reduce poverty without challenging wealthy and powerful groups via redistributive tax systems, or the need to make high levels of public and private debt more manageable.

We seem to be faced with a clear ‘growth dilemma’. Governments believe there are strong social, political and economic reasons for growth. But continuing the pursuit of economic growth will completely overwhelm the carrying capacity of the Earth’s ecosystems. In the worst-case scenario, this could result in a collapse of food production with implications for billions of people.

It is also becoming clear that since the 2007-8 financial crisis economic growth has been harder to produce, hence the slow recovery from the recession. Despite governments’ determination to pursue growth at all costs, low growth and low productivity persist, suggesting that deeper structural issues are at play. With challenges to mainstream economic thinking becoming more frequent, could it be time to get rid of one of the best held tenets of economic thinking of the last few decades? Could it be time to abandon growth at any cost?

A way out of the growth dilemma

How do we address this growth dilemma? One way to tackle this impasse might be to look at the problems that governments currently try to solve through growth, and find alternative solutions to them. If these problems (the sources of growth dependency) can be solved through means other than economic growth, then the pressure for endless economic growth is removed.

This is the approach we take in this paper. We have attempted to systematically identify the different sources of growth dependency in the current economic system. Our list (in Chapter 2) is comprehensive but not exhaustive, and will hopefully serve as a starting point for further research by ecological, or other, economists.

After identifying many sources of growth dependency, we have chosen to tackle one of these sources in detail and attempt to find a non-growth solution to it. We take a detailed look at one source of growth dependency: the role of the current monetary system in creating high levels of private and government debt. These high debt levels create the pressure for on-going economic growth.

Our conclusion is that the current monetary system is one of the key barriers to creating an economy that operates within the limits of the ecosystem. Redesigning this monetary system is a critical step towards building an economy that fits within the limits of nature. Such changes could open the door to a transition to a sustainable economy.

The structure of this paper

In Chapter 1 we take a comprehensive look at the problems with endless economic growth, and develop a framework to help understand the challenge. We will distinguish ‘economic growth’ as an abstract statistical measure of the size of the economy from the real tangible resource usage and pollution that this economic growth creates. We look at the reasons why technological progress alone will not enable us to pursue continual economic growth whilst living within the constraints of ecosystems. We then outline the model of a ‘steady state economy’ developed by ecological economists, as this serves as a useful description of the hard constraints that the economy must operate within, and provides a vision of a sustainable economy.

In Chapter 2 we explore the political, social and economic sources of our current dependency on growth. We do not attempt to identify which source of growth dependency is strongest or most influential, but each of these sources needs a solution that does not depend on growth.

In Chapter 3, we focus on the sources of growth dependency generated by the design of the current monetary system. We explain how the design of the current monetary system, in which banks create the majority of new money when they lend, tends to generate high levels of private debt (debt of households and businesses) and high levels of public debt too. We consider why these high levels of debt are a problem.

In Chapter 4 we examine how private and public debt can be reduced and conclude that economic growth is seen as the easiest – and potentially only – solution when operating under the current monetary system.

In Chapter 5 we examine how changes to the current monetary system can reduce the level of private and public debt without relying on economic growth. We focus on proposals to transform the nature of money creation, and consider the implications of a 'sovereign money system'. In a sovereign money system, only the state, via the central bank, is able to create money. Because this money is created without a corresponding private sector debt, it can lead to lower debt levels across the economy, and therefore start to reduce one of our sources of growth dependency.

CHAPTER 1:

THE PROBLEM WITH GROWTH

What is economic growth?

When journalists and politicians refer to ‘economic growth’, they are usually referring to an increase in ‘Gross Domestic Product’, or GDP. GDP is an attempt by statisticians to measure the ‘size’ of the economy. By sampling various statistics, data from firms, and tax returns, the government’s national statistics office will attempt to give one monetary figure that combines all the different types of economic activity that took place in the previous year or quarter¹. The figure is supposed to represent all the value that is created by a country’s economy in a given period, for example, in pounds, dollars, or euros.

The UK’s Office for National Statistics calculates that the country’s GDP for the whole of 2015 was £1,869 billion. As of March 2017, the UK’s Office for Budget Responsibility was predicting that economic growth would average 1.7% over the next 5 years². If this growth continues over 5 years, the economy in 2021 will be £2,067 billion, almost £200bn larger than in 2015.

¹ The calculation of GDP is a complex process, and certain activities are not included, whilst others are estimated and included even if they do not correspond to a transaction where money changes hands. The book *GDP: A Brief but Affectionate History* by Diane Coyle is worth a read for a better understanding of the processes and some of the weaknesses of the measure, although more comprehensive critiques are given by ecological economists.

² Office for Budget Responsibility (2017a)

The real-world impact of growth

GDP itself is simply a number in a spreadsheet, representing³ the flow of spending through an economy. But what matters for the impact on the ecosystem and environment is not this sort of financial reporting, but the real-world activity that GDP statistics represent.

If the economic statistics say that transport makes up a certain percentage of GDP, what this means in the real world is that a portion of economic activity involves igniting fossil fuels in combustion engines to propel metal boxes from one location to another, and emitting pollution in the form of carbon dioxide, carbon monoxide and nitrogen oxides. Before this activity can happen, the oil sector must extract oil from the ground and refine it into a form that can be burnt in combustion engines, whilst the mining sector must dig iron and other metal ores from quarries (using fossil fuels to power its machinery), and the manufacturing sector must shape this metal and other raw materials (again, powered by fossil fuels) into cars, buses and trains.

For almost every pound, dollar or euro that makes up the statistic, GDP also represents some unmeasured usage (input) of energy and natural resources, and the release (output) of some amount of pollution and waste. It is all of this activity that has a real impact on the environment and ecosystems.

So, looking at the GDP figure alone presents no concept of the usage of energy and natural resources, and the production of pollution and waste, that ‘economic activity’ really involves. Ecological economist Herman Daly refers to this usage of natural resources and the release of production and waste as ‘throughput’ (Daly & Farley, 2011).

Throughput emphasises the fact that the ‘output’ (GDP) coveted by economists cannot be produced without some kind of ‘input’. The economy takes inputs of ‘matter’ (minerals, metals, wood, oil for plastics) and energy (coal, oil, gas, wind, solar), and converts them into useful outputs like products and services, and less useful outputs such as heat, pollution and waste. Even the useful outputs in the form of products like cars, computers, mobile phones, and clothes ultimately degrade, break, fall apart or simply go out of fashion, and end up as waste.

³ GDP is not simply a measure of all the payment transactions in an economy. Transactions that simply change the ownership of assets are not recorded (such as house purchases or trading in financial assets). For goods and services, only the value of the ‘final goods and services’ is recorded, so for instance, if a consumer buys a car from a manufacturer who in turn bought wheels and other parts from other suppliers, only the consumer’s ‘final’ transaction is included (otherwise the value of the wheels and other parts would be double or even triple counted). There are also contributions to GDP that have no corresponding monetary transactions in the real world; for example, GDP includes a measure of the value in terms of ‘housing services’ that mortgage-free homeowners receive from their houses, recorded as ‘imputed rent’.

The Earth's Biosphere

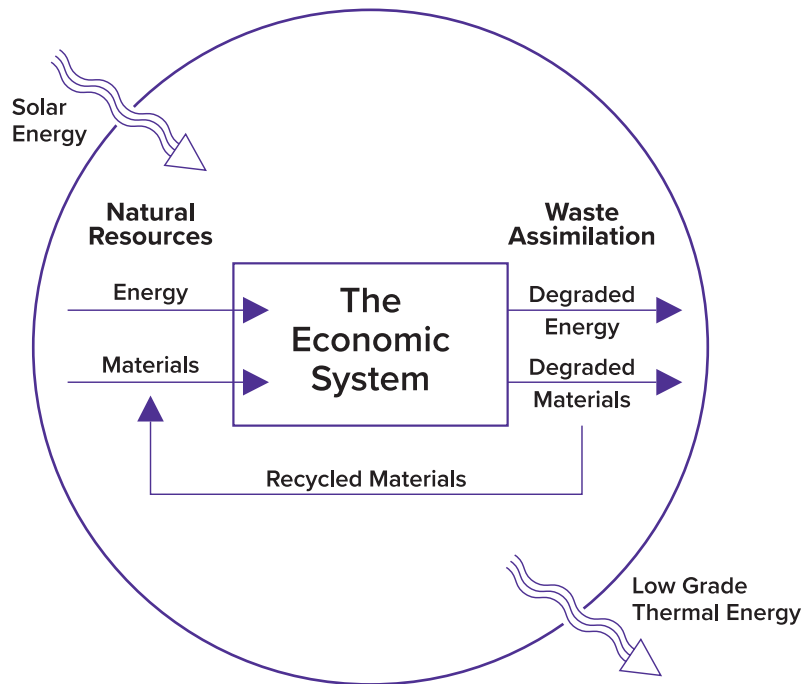


Figure 1 The Earth's Biosphere. Source: Wikipedia

GDP does not measure this throughput – the conversion of matter and energy into products, services, waste and pollution. Consequently, it's easy to forget that if we want the economy to be 2% bigger each year, then we must also expect the usage of natural resources and the production of waste and pollution to be bigger by a similar amount. Figure 2 shows that as GDP increases so the extraction and production of key metals and materials. In other words, as the economy grows, so does the throughput of matter and energy (see Figure 1).

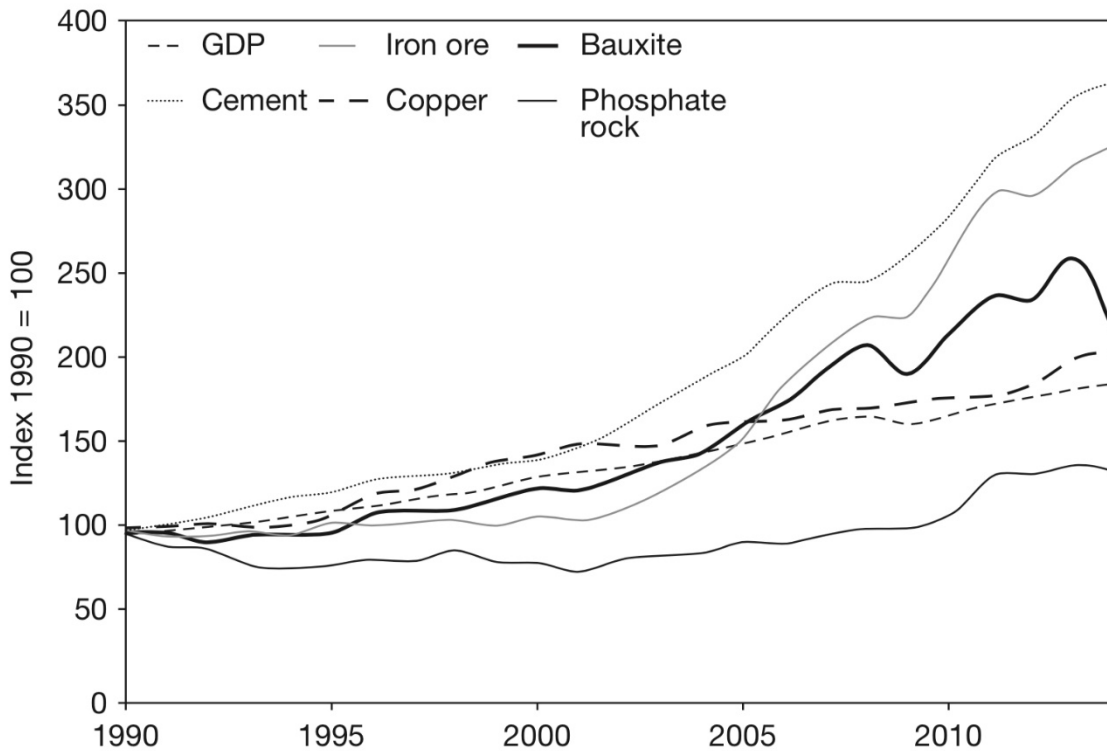


Figure 2

Global trends in resource production Source: Jackson 2017, Figure 5.5

Source: Data from US Geological Survey and World Bank

For example, consumption often leads to waste, while production can lead to pollution. The costs of waste and pollution are not borne by the individual consumers and producers alone; they are indirectly imposed on the whole of society.

The indirect costs of pollution and waste for the rest of society are numerous but they could include higher health-care costs (e.g. respiratory illnesses associated with air-pollution) or foregone production opportunities (e.g. when pollution harms activities such as tourism or agriculture). Similarly, greenhouse gas emissions are an example of a negative externality arising from consumption and production, which contributes to climate change. In turn, climate change has many negative repercussions for society, such as extreme weather conditions, food and water scarcities, altered habitats, rising temperatures, ecosystem threats, health issues etc. Importantly, the negative consequences of climate change will prevent future opportunities for socially beneficial economic activity.

We cannot aim to have endless growth in our economy if that also means endless growth in energy and resource use, which entails many negative externalities for society. It is neither desirable nor sustainable (Raworth, 2017). Eventually resources will run out and environmental degradation will be so severe that future generations will not be able to engage in economic activity of any kind.

Clearly our objective must be to reduce the usage of energy and natural resources and the production of waste and pollution to a more sustainable level. But how do we judge what level is 'sustainable'? Fortunately, ecological economists have precisely defined the requirements that we need to meet, under the label of the 'steady state economy'.

The 'steady state economy' alternative

Professor Herman Daly has developed the concept of a 'steady state economy', in which the economy would operate within the constraints of the natural environment (Farley et. al., 2013). There are four key requirements of a steady state economy:

1. Renewable resources must not be extracted faster than they are regenerated

For example, water must not be extracted from a river (or aquifer⁴) for irrigation or drinking water faster than the rain replenishes the water flow in the river. Forests cannot be cut down for wood at a faster rate than new trees are grown. Fish cannot be removed from the sea for food any faster than those populations can regrow.

Ignoring this rule for too long has obvious and inevitable consequences. As a simple example, if we start with an aquifer with 100 units of water, removing 10 units each year for farming, whilst the water cycle adds only 5 units a year, then in just under 21 years from now, the aquifer will be empty⁵.

But this simple example assumes a linear relationship between the usage of the resource (the flow) and the amount of that resource that remains (the stock). This implies that we can gradually deplete resources until they run out completely at a predictable time. However, when it comes to dynamic living systems, such as fish stocks, there can be unexpected 'tipping points' or 'thresholds', so that the stock may decline in a predictable way to a certain point, but then rapidly collapse in the space of just a few years (Meadows, 2009). Similarly, pollution in the atmosphere may have limited and predictable effects until levels reach a certain tipping point that triggers feedback loops and other processes in the environment.

The requirement that renewable resources must be used no quicker than they are generated is clearly ignored in the case of, for example, the Colorado river, which no longer reaches the sea due to over-extraction, or the Ogallala

⁴ An aquifer is a layer of water-bearing permeable rock or other earth from which water can be extracted.

⁵ The water extraction will then be limited to just 5 units a year, at the rate that water flows into the aquifer (which may not correspond with the times when most water is needed for irrigation). Halving the amount of water available for agriculture in these areas would require doubling the efficiency of water usage, which may or may not be possible. (In any case, it would have been better to double the efficiency usage in year 1, so that 5 units were used each year, 5 units were replenished by the water cycle, and the aquifer remained full at 100 units, giving a buffer in the case of an unusually dry year).

underground aquifer (the main water source for agriculture in 8 US states), or logging in the Brazilian Amazon, or the depletion of fish stocks around the world.

2. Pollution outflows must not exceed the earth's absorption capacity

For instance, carbon dioxide must not be emitted into the atmosphere faster than the forests of the world can reabsorb it and convert it back into solid biomass (to be stored either underground or in the tree itself). Failure to observe this requirement means that stocks of pollution gradually accumulate – whether in the atmosphere, the soil, or the rivers and oceans – and become harmful to humans, animals or plants. Soil may become infertile, making it impossible to grow food. Changes in the atmosphere can cause changes in climate and weather patterns, again impacting the growth of food and plants. Pollution in rivers and oceans can kill fish and other sea life. Eventually the environment becomes toxic to life.

3. Neither extraction nor pollution can threaten ecosystem functions

It may be possible to operate within the first two rules, whilst still threatening essential ecosystems. For instance, a river may be managed so that water is not extracted faster than it is replenished, and minimal pollution is released into the river, but the installation of a hydroelectric dam may still disrupt fish populations, creating food shortages for those who depend on fishing in the river.

4. Essential non-renewable resources must not be depleted faster than we develop substitutes

Put simply, since we have a finite amount of stored, easily-accessible energy in the form of fossil fuels⁶, it would be most sensible to use this energy to build the technology and infrastructure to switch to renewable energy sources. The same applies to a wide range of minerals and metals: for example, many of the metals required to make solar panels (for example) are forecast to run out in the next few decades.

Failure to plan for this and ensure that non-renewable resources are rationed or used to develop substitutes guarantees that we will eventually run out of the non-renewable resource. In terms of fossil fuels, running out of this supply of concentrated energy would require us to adapt suddenly to using significantly less energy overall.

⁶ And since much of the fossil fuels we have cannot be burnt in any case, without causing catastrophic climate change.

It seems difficult to argue with any of these requirements if we are to live within the limits of the ecosystem. The steady state economy is not an environmentalist's utopia that ignores the pragmatic realities of a modern economy. The requirements are based on intuitive laws of nature, and are as difficult to argue with as the statement that the human body must take in at least as many calories as it burns to stay alive in the long term. But we are currently in breach of all four steady state requirements, and endless economic growth will take us even further beyond those limits.

Does this mean we have to abandon the pursuit of growth? Many economists argue that this is not necessary, because we can instead 'decouple' our real-world impact (resource use, pollution and waste) from GDP itself. But as we'll see, there are significant problems with this idea.

Can we 'decouple' GDP from energy use, resource use, pollution and waste?

Conventional economists argue that we should retain our focus on increasing GDP, but aim to make efficiency gains so that each dollar of GDP uses less energy and natural resource and produces less waste and pollution (e.g. Ekins, 2000; UNEP, 2011; Ward et al., 2016). This is known as decoupling. Ultimately the idea of decoupling relies on technology to:

- Reduce resource use through more efficient extraction and manufacturing methods
- Reduce energy use and pollution through more efficient manufacturing, lighting, heating and transportation
- Produce less waste through clever manufacturing and more efficient recycling ('cradle to cradle manufacturing')
- Create valuable goods that count towards GDP but are 'weightless' i.e. have no inherent material content, such as software apps, videos, and music.

Most mainstream economists are 'technological optimists' who have faith that entrepreneurs and scientists will create new technology that will enable us to radically reduce our carbon emissions. Whilst there are important developments in technology that will have a significant impact (for example, the rollout of solar power and electric cars) it doesn't look likely to be a large enough effect. For example, the 'rebound effect' of technological innovation is real: some of the benefits of efficiency gains are lost, since the efficiency gains lead to higher levels of demand and consumption. This means that whilst relative decoupling might take place, absolute decoupling does not.

Relative decoupling is already happening, and can be measured by the ‘intensity’ of each pound of GDP in terms of the resources or energy used and the waste or pollution generated. For instance, the energy intensity of GDP measures the amount of energy required to produce each unit of GDP, whilst the carbon intensity measures the amount of carbon emissions per \$ (or £) of economic output. As Jackson (2017) explains,

“Carbon intensities have declined on average by 0.6 per cent per year since 1990. That’s good; but not good enough. Global population has increased at a rate of 1.3 per cent. And average per capita income has increased by 1.3 per cent each year....So rate of growth of carbon emissions is approximately 2% per year....which is exactly what is reflected in the data.’ (Jackson, 2017, p.97)

Figure 3, with the total volume of emissions on the vertical axis, shows the difference between relative and absolute decoupling. Whilst relative decoupling is happening, carbon emissions and resource use are still increasing at an unsustainable level. Absolute decoupling means GDP can grow whilst resource use and carbon emissions fall. Figure 3 also shows that to have significant enough decoupling to avoid the collapse of our ecosystems and stay within planetary boundaries we need an even more significant reduction of energy and carbon intensity.

The Test for Green Growth: Relative vs. Absolute Decoupling

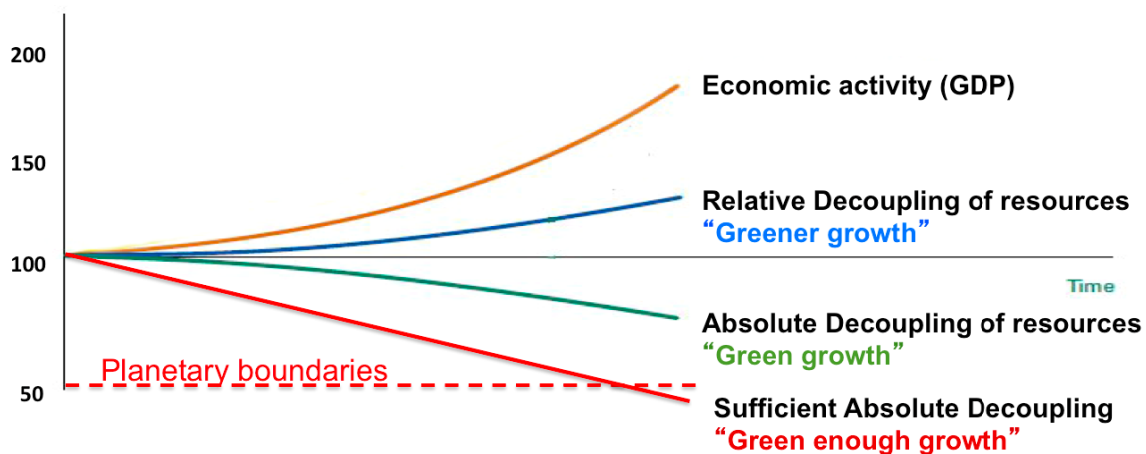


Figure 3
The difference between relative and absolute decoupling
Source: Kate Raworth

Jackson (2017) looks at what it would take if we want to allow for citizens of developing countries to have a lifestyle comparable to that of EU citizens, whilst continuing around 2% income growth in advanced economies. To keep us on track for a 1.5oC rise in global temperature requires a 95% reduction in total carbon emissions:

“To reach 95 per cent reduction, the carbon content of each dollar output would have to be around 2gCO₂/\$ by 2050. That’s almost 200 times lower than the average carbon intensity today.” (Jackson, 2017, p.100)

We are reliant on technological breakthroughs unlike anything seen to date. Similarly, many significant breakthroughs would be needed in resource use, waste and pollution.

Do we need to abandon the drive for growth?

We have seen that in the absence of incredible technological breakthroughs, the pursuit of continued economic growth is in direct opposition to the ecosystem and environment. So, do we need to abandon the drive for growth immediately?

It’s important to recognise that abandoning the pursuit of endless economic growth does not mean accepting poverty and inadequate healthcare and education for much of the world. Nor does it mean a miserable life for those in advanced economies. There is a huge body of work around the fact that GDP is not a particularly useful indicator of how happy or healthy a country’s citizens are (Williams, 2013; Boarini et al., 2006; Sen, 1999). On an individual level, large studies show that beyond a certain level of income, life satisfaction stops growing (e.g., Proto and Rustichini, 2013; McKinnon, 2014). There is no shortage of ideas for ways to significantly improve quality of life in ways that have a low impact on the environment.

However, Daly (2014) explains that, when the impact on the ecosystem is correctly measured and recognised, global growth has reached a point where the total private and social costs of economic growth, the negative externalities of growth, outweigh the private and social benefits. In other words, more global economic growth is making global society worse off overall.

Daly (2014) describes this type of economic growth, which reduces overall wellbeing, as ‘uneconomic growth’. The concept is based on the notion that growth can become uneconomic if it begins to cost more over the long run than it is worth in the short run.

More specifically, growth is uneconomic when it generates negative external consequences that outweigh the short-term value of an extra unit of growth. Or as Daly (1999) explains, “Growth is uneconomic when it increases environmental and social costs by more than it increases production benefits.”

Uneconomic growth is the consequence of inappropriate policy design - it is not necessarily the result of negative intentions. Rather than pursuing 'economic' growth, our policies are aimed at pursuing 'uneconomic' growth, with ever-growing usage of energy, resources and generation of waste and pollution, and reducing overall social wellbeing.

In sum, ecological economists have made a very convincing argument that we need to abandon the pursuit of endless growth and move to a 'steady state' economy. Some ecological economists are also calling for de-growth (Alier et al., 2010) before we reach a sustainable 'steady state' economy. Despite these strong arguments, most governments still hold GDP growth as the primary objective of their economic policies. We now need to look at why that is the case, and what we could do about it.

CHAPTER 2:

THE SOURCES OF GROWTH DEPENDENCY

There are multiple forces that ‘drive’ or produce growth in GDP, and a huge body of economic research that aims to understand what these factors are. The research covers factors such as technological progress, the discovery of new energy sources, the structure of political institutions, geography and climate, and education, amongst others. However, those drivers are not the focus of this paper. Instead, we are interested in the reasons that drive governments to make continual economic growth an essential policy objective, even though continual growth in output and throughput is in opposition to the sustainability of the environment and ecosystems on which we depend.

In other words, rather than looking at what features of the current system *cause* growth (i.e. the ‘drivers’ of growth), we want to look at what features of the current system *require* economic growth. Since these features make us *dependent* on economic growth, we will refer to these factors as *sources of growth dependency*.

SOURCE 1: The need to maintain employment and living standards

Governments must pursue economic growth in order to maintain employment levels and living standards in the face of (1) population growth, (2) increasing life expectancy, and (3) productivity growth.

Population Growth: The world population in mid-2015 was 7.3 billion. However, the United Nations (2017) predicts that this will grow to 9.7 billion by 2050 and 11.2 billion by 2100⁷. Note that this growth is not exponential: the year-on-year growth rate is already slowing down, so that population should peak below 12 billion. However, this still implies that the global population will increase by approximately 60% or more over the next century.

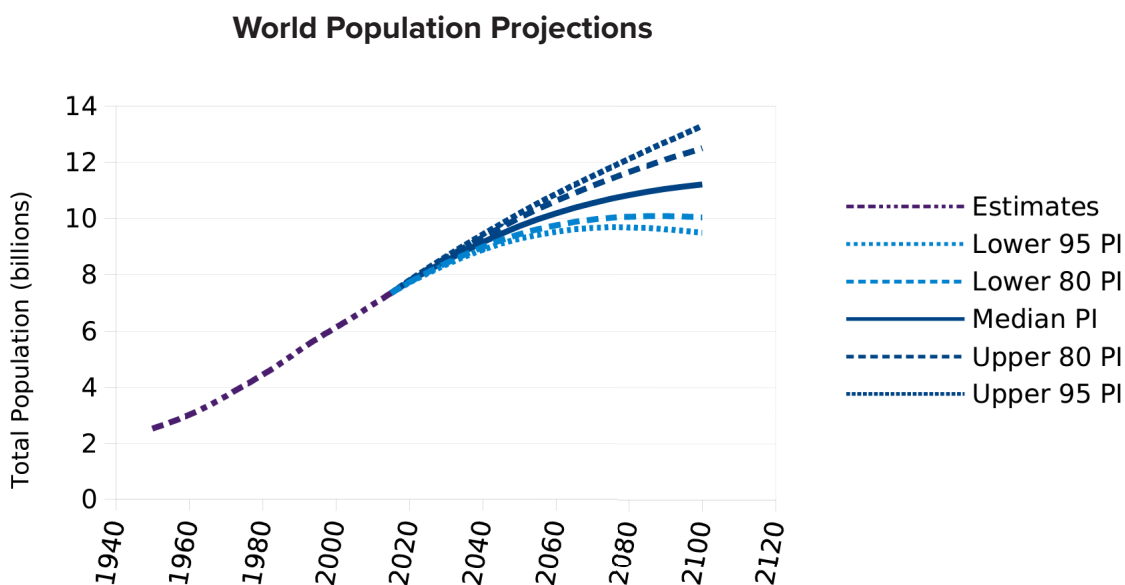


Figure 4: World Population Projections. Source: UN World Population Prospects

⁷ Global totals mask a range of different situations in different countries: in broad terms, populations in the poorest countries are forecast to grow much faster than population in the wealthiest countries, and in many high-income countries (including Japan) total fertility rates are below replacement level, implying that population will start to decline in the near future.

How does this relate to employment levels? As the population grows (Figure 4), so does the total number of people who are of working age. The ‘employment rate’ simply measures the proportion of these working-age people who are in employment. The unemployment rate is simply the percentage of working-age people who are not in employment⁸:

$$\text{Employment Rate} = \frac{\text{Number of working-age people in employment}}{\text{Total number of working-age people}}$$

$$\text{Unemployment Rate} = \frac{\text{Number of working-age people NOT employed but seeking work}}{\text{Total number of working-age people}}$$

Consequently, as the population grows, more people also need jobs. The total number of jobs is determined by the total size of the economy and the productivity per worker (i.e. how much each employee can produce, on average):

$$\text{Employment} = \frac{\text{GDP (size of economy)}}{\text{Productivity per worker per hour} * \text{Average hours worked}}$$

This is a simplistic formula, and productivity per worker varies massively between countries and industries, but it does make the dynamics of employment quite clear. As population grows, the extra people in our growing population will only find jobs if either:

1. GDP increases, or
2. Productivity per worker falls, or
3. Each worker is employed for fewer hours on average

Falling productivity per worker is unlikely on a global level, since it implies that we become less efficient on a global scale. This would require somehow losing technology and knowledge that already exists. (It is theoretically possible that severe energy shortages would lead to falling productivity per worker, but this is some decades off.). However, it should be noted that most advanced economies (including the UK) and emerging economies have experienced sluggish productivity rates for a decade or more (Foda, 2016)⁹.

⁸ For more precise definitions of employment and unemployment rates, see the guidance set by the International Labour Organisation, who set global standards.

⁹ In advanced economies, the productivity slump pre-dates the 2008 global financial crisis, suggesting that declining productivity is not a cyclical phenomenon (Foda, 2016).

Some shortening of working hours may be possible, in order to ‘share out the work’ more equally. This idea has been advocated by the New Economics Foundation as a critical step towards moving to a more sustainable economy (Cootes et al., 2010). However, with many workers under the pressure of high debt and high costs of living, not everyone can afford to reduce their hours.

This means that the extra people in this growing population are only likely to find employment if the number of jobs grows proportionately, and this implies that the economy must grow proportionately as well. Consequently, there is a huge pressure upon governments with growing populations to ensure that they grow GDP at least as fast as their population, simply in order to stop the rate of unemployment from rising.

There is a second economic problem created by a growing population: the need to maintain living standards. The measure of ‘per capita income’ is a very crude measure of the average standard of living, and is simply a measure of the total size of the economy divided by the number of citizens (of all ages including children):

$$\text{Per capita income} = \frac{\text{GDP}}{\text{Population}}$$

In simplistic terms, per capita income measures the size of each person’s ‘slice of the pie’, where the ‘pie’ is the national economy.

There are significant criticisms of this measure: for one, in countries with significant income inequality, per capita income will significantly overstate the income that a majority of the citizens actually experience.

But regardless of these weaknesses in the measure, if the number of people increases but GDP does not grow, then per capita income will fall. This reflects badly on governments and puts additional pressure on them to grow GDP to maintain per capita income. (Of course, measures to reduce inequality could also have a strong impact on the standards of living that people experience; we discuss why pursuing growth is usually favoured over tackling inequality below).

Nevertheless, governments do not always take per capita GDP growth as their target, being satisfied merely to achieve increasing GDP. Professor Simon Wren-Lewis, for example, notes that the UK government has often been credited for a strong economic recovery – measured by aggregate GDP growth. However, in terms of GDP per capita the UK has only grown at 0.1% annually since 2008 due to the UK’s growing population¹⁰.

Productivity growth: A third source of growth dependency comes from the pace of technological development, and its impact on productivity and employment.

¹⁰ <https://mainlymacro.blogspot.co.uk/2017/03/why-its-your-bloody-gdp-not-ours.html>

$$\text{Employment} = \frac{\text{GDP (size of economy)}}{\text{Productivity (output per worker)}}$$

Over time, technological developments tend to lead to increases in productivity. This can result in one of two outcomes:

1. The same number of workers produce more goods and services in total, so employment stays the same, but GDP increases.
2. Fewer workers are needed to produce the same amount of goods and services, so GDP stays the same but employment falls.

There is a third possibility: that the growth in productivity provides such a stimulus to the economy that both output and employment rise. For example, technological development in agriculture means that far fewer people are employed in agriculture than ever before. But rather than leaving the rest of the population unemployed, this technological progress has freed up other workers to produce other goods and services, growing the size of the economy overall. However, there is currently a debate about whether the coming wave of automation, as a result of computing and artificial intelligence, will mean that technological progress ‘destroys’ jobs faster than new jobs are created (Ford, 2015).

Either way, the maths is simple: if technological development leads to improvements in productivity, then growth in GDP (output) is needed to maintain the current level of employment. Governments therefore have another strong incentive to maintain economic growth, and technological development becomes another source of growth dependency.

SOURCE 2: The need to reduce poverty

Many governments see economic growth as the best way to reduce poverty. This idea relies on the belief that ‘a rising tide lifts all boats’ – that growth in the size of an economy increases the opportunities for all citizens, rich and poor, to increase their earnings and improve their standards of living. It is assumed that if the size of the overall economy grows, then everyone’s share of the economy will also increase.

Of course, inequality may mean that not everyone benefits equally from economic growth. However, implicit in mainstream economic theory is the assumption that even if the income of the rich increases much faster than that of those on lower incomes, all benefit from economic growth.

There is truth in this, since global economic growth has helped lift hundreds of millions of people out of poverty (DFID, 2008). However, there is now a growing awareness that economic growth may not always benefit people on the lowest incomes. Moreover, the impact of growth on standards of living will depend on the specific conditions of the country in question. For example, the late Hans Rosling showed that while economic growth in less advanced economies is more likely to raise living standards for the majority of the population, GDP growth beyond a certain level in advanced economies does not always lead to higher living standards.

Some writers have joked that a rising tide lifts only luxury yachts, whilst sinking all other boats. Since the financial crisis, economic growth in the United States and the UK has weakened, and analyses show that the vast majority of the benefits of what growth has occurred have gone to the richest, whilst those lower down the income scale have seen no change in their incomes or are actually worse off (Plunkett, 2011; OECD, 2012)¹¹.

However, the realisation that economic growth may not actually reduce poverty (given inequalities and other problems in the current economic system) has not yet fed through into government policy. As long as governments continue to believe that ‘a rising tide lifts all boats’, they will feel the pressure to chase economic growth as a way of increasing living standards and reducing poverty, creating another source of growth dependency.

SOURCE 3: The desire to avoid addressing other problems head-on

INEQUALITY

Economic growth can allow governments to avoid addressing other social problems head on. For example, if a rising tide really does lift all boats, then economic growth will allow those on low and middle incomes to improve their quality of life, even if the rich benefit disproportionately. This means that economic growth can mask the rise in inequality, at least for some time. Strain (2015) provides an example of this thinking, writing that “If your income is going up, you worry less about whether the income of your neighbour is going up faster than yours.”

The focus on economic growth can allow governments to avoid tackling inequality head on, for example by implementing a more progressive tax system (which would redistribute income from the very wealthiest to those lower down the income scale). In contrast, without growth, one person’s income can only be increased by reducing the income of someone else. Nobel laureate economist Angus Deaton outlines this dynamic when he writes that “Slower growth makes distributional conflict inevitable, because the only way forward for me is at your expense.” (Deaton 2015, quoted in Strain, 2015). Without growth, the only way to improve the income and standard of living of someone on a low or middle income is to somehow redirect income and wealth from those on high incomes.

Many governments would therefore prefer to push for economic growth and hope that this masks issues of inequality, then to address inequality head on and come into opposition with wealthy and influential citizens. Even though inequality leads to an array of social problems (Equality Trust, 2011), or evidence from advanced and developing economies that high levels of inequality can dampen economic growth (IMF, 2015), the desire to avoid tackling inequality head on creates a source of growth dependency.

¹¹ Plunkett states “The median American worker in 2009 earned no more than an equivalent worker in 1975. Over the same period, US GDP more than doubled. ... Similar trends, though far less chronic and less acute, are now in evidence in leading economies such as the UK, Germany and Canada. In all three countries, median wages were stagnant or falling during long periods of growth, prior to the 2008-09 global recession.” The OECD document reports “In the United States, for example, the top 1% of the population received 18% of pre-tax income in 2008, up from 8% in 1980.”

THE FALLING WAGE SHARE OF GDP

Another source of growing inequality is the gradual change in the split of business income between wages (which go to employees) and profits (which go to shareholders). In simple terms, the business sector's income in aggregate can only go to either workers (through salaries, bonuses, commissions etc.) or to profits (which are retained in the business, paid over to the government as tax, or paid out to shareholders, the owners of the business)¹².

As Figure 5 illustrates, since the 1970s, the share going to workers has gradually decreased from 60% in 1975 to below 50% by 2014, whilst there has been a corresponding increase in the share going to profits. This essentially implies that workers are receiving a declining share of the value that they create. Since shareholders tend to be wealthier and because wage income is much more evenly distributed than income from profits, this is a significant source of inequality.

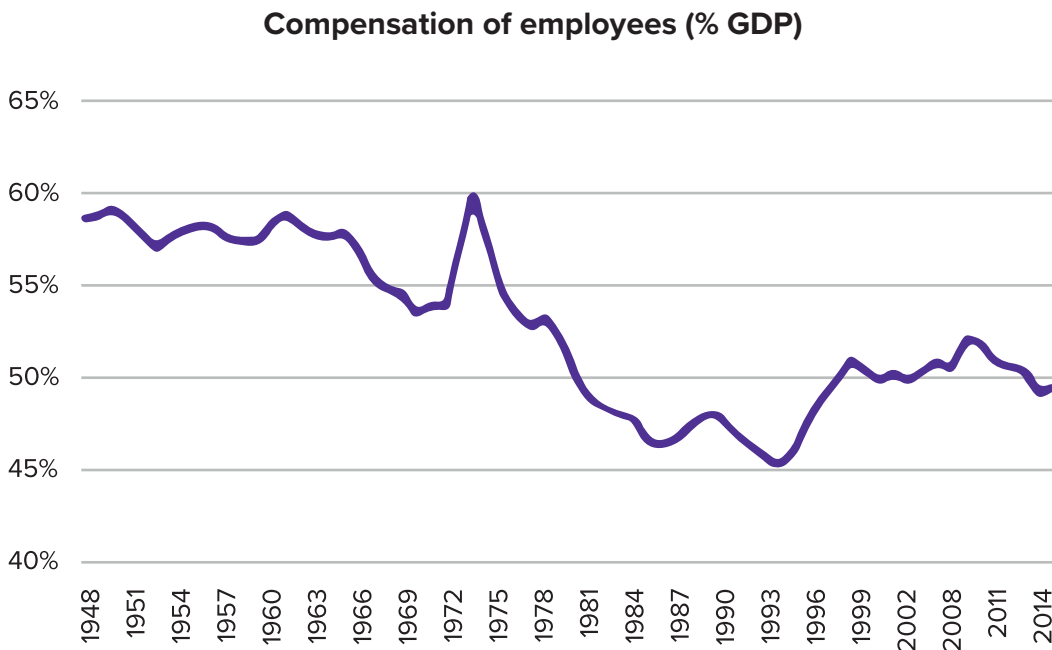


Figure 5 The falling labour share of income in the UK. Source: ONS Blue-book

¹² Payments by businesses such as rent and purchases from suppliers also ultimately end up being paid to the employees of those suppliers, or to the owners of those businesses. In aggregate, all business income must end up with workers, shareholders, or the government (via taxation).

Economic growth can again mask this growing profit wage share split. So long as money incomes grow across all levels of the population, it is not as obvious that workers in general are losing out to shareholders. However, if the economy stopped growing, then a falling labour share of business income would become obvious, since it would translate to workers receiving year-on-year pay cuts (in real and potentially also nominal terms), whilst dividends to shareholders kept increasing.

This would create the distributional conflict mentioned earlier, increasing pressure for government to do things to redress this balance and forcing them to act against the interests of wealthy and influential shareholders and corporations. Once again, governments have a strong incentive to pursue economic growth, rather than putting themselves in opposition to powerful vested interests by attempting to increase the labour share of business income.

SOURCE 4: To improve government finances

Typically, as the economy grows, so does employment. This means the government spends less on unemployment benefits and there are fewer demands on the social welfare system. At the same time, businesses increase their profits, so pay more in taxes on those profits, while households increase their incomes and spending and pay more in taxes as a result. This increases the scope for the government to introduce electorally popular cuts in tax rates without cutting expenditure programmes, or alternatively, increases in expenditure programmes without increasing tax rates.

In contrast in a shrinking economy, unemployment rises, and the government must increase spending on unemployment benefits (such as Jobseeker's Allowance in the UK). Businesses sell less, make less profit and therefore pay less tax on those profits, whilst households have lower incomes, pay less income tax, and also spend less so pay less sales tax. In this situation the deficit increases and the public debt (i.e. the government's debt) starts to increase, both in absolute terms and as a percentage of GDP.

Consequently, governments will always prefer a growing economy over one that stays the same size.

SOURCE 5: To address high private debt

The vast majority of advanced economies and a number of newly emerging economies are struggling with the burden of high levels of private debt.

Most households rely on economic growth and the resulting rises in wages to reduce the 'real' value of their mortgage and other loan repayments, in terms of hours worked, over the lifetime of a loan. This effect can be powerful enough to halve the real cost of mortgage repayments by the end of a 25-year mortgage. In the UK there has not been a 25-year period in which the economy has not grown significantly overall, so it is uncertain what the implications would be if new mortgage borrowers could no longer rely on growth to make their current mortgage repayments less burdensome.

There are also further problems. High levels of household debt increase the risk of financial crisis (Schularick & Taylor, 2009), whilst households' efforts to repay debt during a crisis can be a significant drag on spending and lead to less employment (Koo, 2009). As with high public debt (discussed below), economic growth makes it easier to reduce private debt. Indeed, it is difficult to reduce private debt in the absence of growth, for reasons that we discuss in detail in Chapter 3. This means that when high levels of private debt are generated, governments typically see the pursuit of economic growth as the simplest way to make those debt levels more manageable.

SOURCE 6: To address high public debt

As we discuss in detail in Chapter 3, high public debt (i.e. debt of the government) can create problems for governments. Money used to pay interest payments on the public debt cannot be used to finance public services and investment. Because wealthier citizens hold the bonds that make up most of public debt¹³, interest payments on debt have the effect of transferring income upwards and increasing inequality.

High public debt can also lead to worries about the financial health of the government, which can lead to higher interest rates and government borrowing costs – adding further to the government's overall debt burden. In extreme scenarios, this can generate market instability, and jeopardize future economic growth. The mainstream neoliberal narrative also means that governments are frequently judged by the press and economists on their management of the public debt¹⁴.

According to this narrative, there are strong incentives for governments to want to keep public debt at a low and sustainable level. However, in the absence of economic growth, finding the money to pay down government debt would require cutting spending on public services or raising the level of taxes in order to run a budget surplus. Neither of these options is easy or popular.

Governments rarely reduce the absolute (nominal) value of their outstanding debts. Instead, they issue new debt to make repayments on maturing debt, and then issue more bonds on top to cover the year's budget deficit. This means the nominal value of government debt tends to grow over time. However, as long as the economy grows at a faster pace than public debt growth, this outstanding debt becomes smaller relative to GDP. Because the structure of taxation typically collects a stable proportion of GDP as tax, this also means the outstanding debt falls relative to government revenue. Growth therefore makes the public debt less burdensome on the government finances, and governments have another strong incentive to pursue economic growth in order to make public debt more manageable.

¹³ Around 40% of assets in the financial markets being held by just the wealthiest 5% of households (Ryan-Collins et. al., 2013, p.26)

¹⁴ For a more detailed explanation on this subject see Keen (2017), Krugman (2015).

Conclusion

It is important to appreciate that there is not just one factor that drives governments to see continual economic growth as necessary. There are multiple sources of growth dependency, and it is unclear which have the greatest impact, so removing or reducing only one of these sources of growth dependency will not lead to governments immediately abandoning the drive for 'uneconomic' growth. However, if we are to move away from the environmentally unsustainable paradigm of growth as the overriding economic priority, we do need to find non-growth solutions to each of these sources of growth dependency.

In Chapters 3 to 5 of this paper we take **a detailed look at one particular source of growth dependency: the role of the current monetary system in creating high levels of private and government debt**. In Chapter 3 we will see why high private and public debt is a problem for governments, and in Chapter 4 explore the difficulties of solving these problems without economic growth. Once it becomes clear why governments see economic growth as the easiest solution to high private and public debt, we will look for alternative non-growth solutions to these problems in Chapter 5.

CHAPTER 3:

THE ROLE OF THE MONETARY SYSTEM IN CREATING HIGH PRIVATE AND PUBLIC DEBT

In this chapter we explore one of the key sources of growth dependency: the tendency of the current monetary system to create excessive levels of private and public debt. We will see why this creates a problem for governments, and see why it is challenging to tackle high private and public debt in the absence of economic growth. It will become clear why governments tend to see growth as the easiest solution to the problem of high public and private debt.

How banks create money and debt

It is essential to know how banks can create money and debt in order to understand how the current monetary system leads to high levels of public and private debt.

More than 97% of the money used by people and businesses in the UK exists in the form of bank deposits at commercial – or ‘high-street’ – banks. Less than 3% exists as coins or notes created by the state or central banks (such as the Bank of England). A similar situation exists in most countries around the world.

Banks create new money in the form of the numbers (deposits) that appear in bank accounts, through the accounting process used when they make loans. In the words of the Bank of England:

“When a bank makes a loan, for example to someone taking out a mortgage to buy a house, it does not typically do so by giving them thousands of pounds worth of banknotes. Instead, it credits their bank account with a bank deposit of the size of the mortgage. At that moment, new money is created.” (McLeay et al., 2014)

Therefore, bank deposits are the liabilities of commercial banks; they are effectively bank IOUs. The deposits are ‘backed’ by risk-bearing financial assets – such as loans and mortgages.

Conversely, when people use those deposits to repay loans, the process is reversed, and money effectively disappears from the economy. As the Bank of England describes:

“Just as taking out a loan creates new money, the repayment of bank loans destroys money. ... Banks making loans and consumers repaying them are the most significant ways in which bank deposits are created and destroyed in the modern economy.” (McCleay et. al., 2014)

So, in simple terms, banks create money when they issue loans, and effectively ‘destroy’ money when people repay loans.

At this stage it is worth noting two fundamental implications of the fact that banks create the vast majority of money. Firstly, under the current monetary system, money exists as both private debt and a means of payment. This means that the condition of our payments system is directly linked to the condition of our financial and credit system. Lending is about taking risk, whilst the payment system needs to be kept safe at all costs. Thus, as money takes on two distinct functions there is a conflict of interest. Put differently, the health of the payments system – and the ability to

¹⁵ Bank deposits are accounting liabilities representing IOUs from banks to their customers. When banks issue loans, they simultaneously create new deposits (liabilities) and a new asset (the loan). This is simple double-entry bookkeeping: the bank debits ‘loans’, increasing the value of its assets, and credits ‘deposits’ (the borrower’s account), increasing the size of its liabilities by an equal amount. When loans are repaid, the reverse process occurs: the bank debits deposits, reducing the size of its liabilities, and credits loans, reducing the size of its assets by an equal amount.

keep the rest of the economy functioning – depends on the health of banks’ lending decisions.

The second implication is that when banks create new money through lending, they are increasing purchasing power in the economy. By creating new spending power, the money newly created by banks increases the aggregate demand for goods and services. Likewise, the repayment of debt and the associated destruction of spending power can prompt a contraction in aggregate demand.

Why banks create too much private debt

Banks do not create money for the sake of it. Banks are profit-seeking businesses, and loans are the main product that they sell. They use incentive schemes and targets to encourage their staff to ‘sell’ (lend) more, whilst using marketing and sales strategies to encourage households to ‘buy’ (borrow) more. At the same time they are in competition with other banks, aiming to increase their market share and absolute size simultaneously. Their operations and strategy are almost always geared towards growing the level of bank lending.

This means that across the whole banking sector, banks have strong incentives to keep increasing the level of bank lending, and consequently the level of household and business debt. There are three factors which help give total free rein to the profit incentive of bank lending: the ability to externalise their costs, the lack of constraints on lending, and moral hazard.

Externalising Costs

At no point is the bank obliged or incentivised to consider the impact of the bank’s lending and money creation on wider economic, environmental, or social issues, let alone the environment. Banks reap the private benefit of creating money, in the form of interest on the debt that backs the newly created money. However, the social costs of their lending decisions, including financial crises and recessions, high levels of household debt, and unaffordable housing¹⁶, fall upon society more widely. Since banks do not face the ‘negative externalities’ of their private money creation, they face powerful incentives to create “sub-optimally large” volumes of credit and money (Turner, 2015).

Moral Hazard

In the UK, the government guarantees that if a bank fails, customers will be able to reclaim their deposit through deposit insurance schemes. Table 1 shows the changes in recent years. The state is effectively underwriting the liabilities (promises to pay)

¹⁶ This process is most evident in the housing market. Following a crisis or recession, during periods of relative stability, banks may start to feel more optimistic about the future of the economy. At the same time, potential house buyers or property speculators also start to feel optimistic and more buyers start to apply for mortgages. An increase in total mortgage lending creates extra spending power and demand for housing increases. Given a relatively constrained supply of housing, increased demand starts to push house prices up, which further encourages banks that the housing market is a good market to lend into. Rising house prices encourage first time buyers to enter the market (to avoid being priced out altogether) and attract speculators and other buy-to-let investors to enter. The increased demand from borrowers encourages banks to increase their lending, and when they see prices rise further, they become increasingly confident about relaxing loan to value ratios (because rising house prices mean that equity quickly builds up even in houses that start with high loan to value ratios).

of private banks – implying that the private banks’ liabilities are also the contingent liabilities of the state.

Start Date	Maximum compensation per person per banking licence	Calculation
Before 1st October 2007	£31,700	100% of the first £2,000 and 90% of the next £33,000
1st October 2007	£35,000	100% of the first £35,000
7th October 2008	£50,000	100% of the first £50,000
30th June 2009	£50,000 or €50,000	The higher of the two values in sterling based on the currency exchange rate on the day of default
31st December 2010	£85,000	
3rd July 2015	£85,000	see (a)
1st January 2016	£75,000	see (a)
30th January 2017	£85,000	see (a)

Table 1 Deposit insurance changes from 2007 – 2017.

(a) Up to £1 million additional protection for each temporary high balance (up to 6 months) following a specified major life event.

The government does not have many options when a bank fails. It can either liquidate the bank, a long and tedious process where the government would in effect become liable to reimburse all depositors through deposit insurance. Or it can inject capital to restore the bank’s balance sheet (bailing it out). It will be cheaper, faster, and less problematic to bail out the bank than to liquidate it and reimburse depositors (effectively passing the losses onto taxpayers). Banks beyond a certain size become too big to fail.

Deposit insurance and bailouts give banks a layer of protection from their respective actions. Bank profits can ultimately be privatised but losses are socialised. For example, if government and taxpayers had not rescued the Royal Bank of Scotland, millions of customers would have been unable to make payments. If RBS customers could not make payments, this would eventually prevent customers of other banks (dependent on the payments from RBS customers) from also making payments. Not only would this have a profound impact on the real economy, but also it could have caused panic and potentially prompted a cascade of bank failures (Dyson et al. 2016).

Through deposit insurance the state is effectively underwriting the liabilities (promises to pay) of private banks – implying that the private banks liabilities are also the contingent liabilities of the state. Banks will therefore lend greater amounts and lend to riskier borrowers than they otherwise would do. This in turn leads to an expansion in the amount of private debt and money in circulation.

Where does private debt go?

When we consider whether these large volumes of credit and money will become harmful or not, we need to look at what the loans are made for and how those loans will be repaid.

Many orthodox economics textbooks, and indeed a good number of modern economic models, assume that banks make the vast majority of their loans to entrepreneurs. In this story, the creation of money and debt by banks is no cause for worry, because the lending allows businesses to invest, produce goods and services and generate a revenue. This revenue can then be used to repay the initial loan. Through this process, jobs are created, wealth is produced, and the whole economy is better off as a result.

However, this is not an accurate description of the modern banking system. In reality, in the UK at least, most bank lending (and the resulting money creation) does not directly finance production by businesses. Indeed, most bank lending does not even finance activities that indirectly contribute to output and GDP (van Lerven, 2016). Instead, the majority of bank lending finances the purchase of pre-existing assets, especially property¹⁷.

Consequently, unlike lending to businesses, which should generate the revenue needed to repay the loan, much of the debt that banks create today does not increase the borrower's ability to earn income to repay the debt. Instead, they must give up a portion of their existing income to service or repay the debt (Jackson & Dyson, 2013; van Lerven, 2016).

Bank of England statistics suggest that of the increase in total bank lending (and creation of money and debt) between 1997 and 2007 in the UK, just 8% went to businesses outside the financial sector. Of the rest, approximately 51% of additional net lending was directed towards commercial or residential property (mortgages on office buildings and homes). Whilst some of this lending creates the demand for the construction of new property (contributing to GDP and employment), the bulk of it simply had the effect of inflating house prices relative to earnings. A further 8% was directed towards consumer credit, financing the sales of goods and services, and therefore directly contributing to GDP. However, while consumer credit creates additional demand in the present, those borrowers must divert some of their future income from spending towards debt servicing and repayments (Keen, 2017). It is therefore more accurate to describe modern banks as entities that primarily create new money and debt to finance the purchase of pre-existing assets, such as houses (which do not contribute to GDP), rather than entities that finance production of goods and services.

¹⁷ As Howells described as early as 2000, "If it was ever true that loans originated largely with firms' need for working capital, it is now abundantly clear that the demand for credit rests very heavily upon asset ('speculative') and intermediate transactions which have grown much more rapidly than GDP." (Howells, 2000).

Are there constraints on bank money creation?

Of course, central banks and regulators do now recognise that the profit motive, coupled with their ability to create money, gives banks the incentive to fuel credit bubbles and generate financial instability. But their tools to prevent this happening again are limited. The use of interest rates to influence banks' money creation has been shown to be a blunt and ineffective tool: it had little impact on slowing the credit bubble pre-crisis, and was unable to stimulate the economy post-crisis (forcing central banks to turn to unconventional policies such as Quantitative Easing). Since the crisis macroprudential regulation has been added to central banks' toolkit to ensure financial stability is considered a systemic problem. This regulation arose because there was an understanding that regulators could not understand systemic risk by looking at banks on an individual basis. However, it is unclear how their toolkit complements monetary policy, and whether they are sufficient in the face of long term structural problems.

So, what does constrain banks' creation of money? Ryan-Collins et al. (2011) explain that the effective constraints on bank lending are a) capital, specifically capital adequacy requirements, (to the extent that they are not circumvented by banks), and b) confidence in the likelihood of being repaid, which in turn depends on their confidence in the future health of the economy.

Capital¹⁸ acts as a buffer between the value of the bank's assets and the value of the liabilities. Regulation requires that banks recognise that the loans they extend may fail and their other financial assets may fall in value and that their capital should be sufficient to absorb these losses. Capital requirement regulations establish minimum levels for capital relative to the various categories of asset weighted by their levels of risk.

Once the ratio of capital to these risk-weighted assets falls to those regulatory levels (or any higher limits that the banks may themselves choose to adopt) then the bank is considered 'fully lent'. No further lending (net of repayments of existing loans) can occur unless further capital is secured or freed-up (i.e. via securitisation¹⁹).

If banks choose to set themselves higher limits than the regulations require (and most banks do), then those higher limits will reflect the banks' assessments of the likely impact of future economic conditions on the riskiness of their assets. In other words, it is banks' capacity to absorb risk, and their perception of the level of risk, which constrains their lending.

¹⁸ Capital is the stake that shareholders have in the bank plus part or all of the stake held by purchasers of bonds issued by the bank on the proviso that they may not be repaid in full (for instance, those advertised to the public as promising returns in five years' time provided the stock market is higher by then). The other major stakeholders are its creditors: staff and suppliers, who are paid in arrears; depositors, whose deposits represent promises by the bank to make payments to them or on their behalf; other banks and holders of wholesale bonds, who have lent the bank money to support its operations; and, possibly, the taxman, on whose behalf it has collected or withheld and not yet paid over sales, payroll and other taxes from its customers, creditors and shareholders.

¹⁹ As securitisation allows banks to package assets (loans) on their balance sheet and sell them on, it has the effect of freeing up the capital, which was being held to cover potential losses on those loans. As a result more (new) loans can then be made by banks even though existing debt owed by firms and households remains outstanding. This increases the pace of lending (and new money creation).

The problem is that both capital and banks' confidence in the economy can be highly pro-cyclical. In the good times, banks' default rates are low, and their loans are profitable. Any profit that is not distributed to shareholders or paid to the government in tax becomes 'retained earnings'. This increases the bank's capital, improving its capital adequacy ratio and giving the bank 'capacity' on the balance sheet to expand its lending at a faster rate. Increasing profitability also makes the bank's shares more attractive and allows it to raise more capital by issuing more shares²⁰.

At the same time, its confidence in the future health of the economy improves. Banks become willing to lend to a wider range of borrowers, and weaken their lending criteria (i.e. lowering collateral requirements and minimum credit scores, and offering higher loan-to-value ratios on mortgages). Their additional lending causes the economy to grow and house prices to rise, further increasing their confidence in the economy in a pro-cyclical, self-validating process.

Again, this dynamic is most obvious in the housing market (Turner, 2015). In many advanced economies, banks create money for the housing market because secured lending (mortgages) has a lower risk weighting than unsecured lending (business loans). When the majority of new money is pumped into property and financial markets rather than to the productive sectors of the economy, at a greater rate than can be accommodated by any increase in supply, house prices rise much faster than incomes (Jackson & Dyson, 2013; van Lerven, 2016).

Housing has therefore become increasingly unaffordable for large sections of the population, and at all income levels, a house buyer either receives "less house" for the money they have available, or must give up a greater percentage of their income for a house of the same standard.

Securitisation: Banks can also engage in the process known as 'securitisation', which acts as another incentive for banks to increase their lending. Securitisation allows banks to package loans on their balance sheet and to sell them on to willing investors at a price which includes an element for future interest payments. The loans, which would require the banks to hold substantial reserves of loss-absorbing capital, are replaced by cash, which requires no capital. The ability to securitise loans means banks can make profits not by the quality of the loans they make, but by simply increasing their quantity. Consequently, new loans can then be offered and the pace of lending (and money creation) can increase (Jackson & Dyson, 2013).

High debt to income ratios, financial crises, and recessions

Eventually, because the rate of growth of private debt cannot outpace the rate of growth in incomes forever, private debt levels become too high for some borrowers. Unable to keep up on repayments, many borrowers either go into arrears (late

²⁰ Banks lobby hard against extensions of capital adequacy ratios and expend considerable resources circumventing statutory limits. They generally resist issuing more shares arguing that the markets view this as a sign of weakness. Admati et al. (2013) explore these and other objections and show that they are based on largely self-serving "fallacies, irrelevant facts and myths."

payments) or default (stop paying completely). This means banks must declare those loans are “non-performing” and write down or write off their value from the balance sheet.

When financial analysts and the financial press see that banks are declaring higher than usual levels of non-performing loans and write-downs, they may start to raise concerns about the health of various banks, or of the entire banking sector. This can eventually lead to bank runs. Alternatively, the losses on bad loans alone may be enough to wipe out bank capital and make them insolvent, forcing a government bailout. In either case, since money is created as both a means of credit and payment, financial and credit instability threatens to endanger the payment system.

Economists Moritz Schularick and Alan M. Taylor (2009) show that the connection between high debt and financial crisis is not a recent phenomenon. They study data for 14 countries, making up 60% of world GDP, over 138 years of history (1870-2008). They conclude that:

“Credit growth is a powerful predictor of financial crises, suggesting that such crises are ‘credit booms gone wrong’ and that policymakers ignore credit at their peril.” (Schularick & Taylor, 2009)

In addition, Lord (Adair) Turner, the former chairman of the UK’s Financial Services Authority, has argued that this power to create money in the hands of commercial banks was a root cause of the Great Depression of the 1930s, and has argued that “[the] financial crisis of 2007/08 occurred because we failed to constrain the private financial system’s creation of private credit and money” (Turner, 2012).

Even in the absence of a banking/financial crisis, high private debt may still lead to recession. When households and businesses are borrowing rapidly, their spending adds to aggregate demand. However, eventually they may limit their spending in order to pay down debts that they feel are too high. As more efforts are made to deleverage, a greater portion of incomes are dedicated to servicing debt repayments. Consequently, spending declines, profits diminish, borrowers cannot service debts, and banks become somewhat reluctant to lend (as they are unsure of borrowers’ ability to service loans). The money stock shrinks, spending power decreases, and aggregate demand for goods and services declines, causing the economy to go into recession.

As the economy heads into crisis or recession, asset prices fall, incomes fall, and an increasing number of borrowers become unable to service their debts. This leads to significant losses by writing off or writing down their loans, which reduce bank capital, leading to diminishing capital adequacy ratios. Since banks are obliged by international banking regulation to keep at least a minimum level of capital, they must take steps to increase their capital ratio.

The fastest way for banks to increase their capital is to reduce the size of their risky assets, by calling in loans or restricting new lending whilst waiting for existing loans to be paid down by a significant amount. This reduces their stock of risk-bearing loans, relative to their existing capital, and so improves their capital ratios.

The money used to repay debt has been withdrawn from the economy and can no longer be spent, so it is no longer part of the “income stream” of the economy. If banks restrict their lending, so that the rate of new lending from banks is lower than the rate of loan repayment to banks, then the total supply of money in the economy is reduced; money is withdrawn from the economy.

The absence of positive net lending by commercial banks means that the spending power lost when loans are repaid is not re-created. In this situation, it is possible for the economy to tip into the ‘debt deflation’ scenario outlined by Irving Fisher (1935), or the ‘balance sheet’ recession outlined by Richard Koo (2009). The higher the levels of private debt following a crisis, the harder it is to recover from the recession, because households and businesses with high levels of debt and a very uncertain outlook on the economy are not willing to take on more debt to spend or invest. (Turner, 2016).

This all results in a highly pro-cyclical and unstable monetary system, with too much money being created during boom times (fuelling the boom and funding speculation), while too little is created in the aftermath of a bust (worsening the recession).

The ability of banks to create unconstrained credit is clearly a key driver of financial instability, asset price bubbles, unaffordable housing, unsustainably high private sector debt, and ultimately financial crises and recessions.

Recession leads to high public debt

In turn, recessions and/or financial crises inevitably lead to a rise in public (i.e. government) debt, because:

- 1. Bank failures and rescue packages increase government expenditure:** In the financial crisis of 2007-2009, many banks around the world were deemed too big to fail. National payment systems were jeopardized by the financial instability brought on by too much irresponsible lending, so these banks had to be rescued by governments (ultimately by taxpayers). For instance, RBS was rescued with a package that ultimately amounted to £46 billion; by February 2014 its losses exceeded the amount of this bailout²¹. (The bonds issued to finance these rescue packages are typically excluded from the headline public debt figures, but still contribute to the gross debt.)
- 2. Recessions cause tax revenue to fall:** In a recession, businesses face falling revenues and therefore make less profit, and pay less tax on that profit. At the same time, employees with reduced hours pay less tax on their income; those made unemployed have no income, and therefore pay no income tax. Others may reduce their own spending, reducing the sales tax the government receives and further reducing spending for businesses. Overall, governments face falling revenues during a recession.

²¹ <http://www.telegraph.co.uk/finance/newsbysector/banksandfinance/10664372/RBS-has-lost-all-the-46bn-pumped-in-by-the-taxpayer.html>

3. Recessions cause government welfare payments to rise: In a recession, businesses faced with falling revenues will often make many employees redundant. Those businesses who use employees on temporary contracts will simply hire fewer workers or hire existing workers for fewer hours. The incomes of these employees either stops or is significantly reduced. Workers made unemployed will apply for unemployment benefits (such as Jobseekers' Allowance and Housing Benefit in the UK) and those on reduced hours may apply for in-work benefits such as working tax credit or universal credit. The result of all of this is that the government's expenditure must rise (see Figure 6).

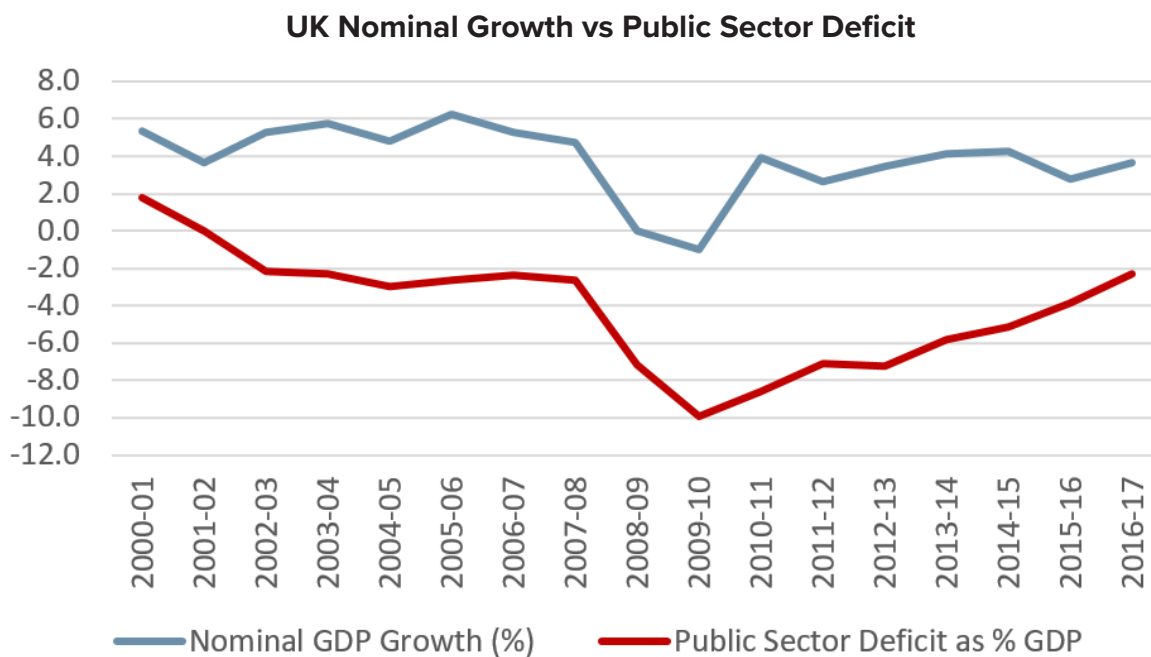


Figure 6: How UK public sector deficit increased because of the financial crisis of 2007-2009. Source: ONS data

Why is high public debt a problem for governments?

There are many reasons why high levels of public debt can be a problem for governments. However, it is firstly important to dispel the myth that government debt is bad simply because of the idea that ‘all debt is bad’.

Governments ‘borrow’ by issuing bonds and selling them to institutional investors such as pension funds, asset managers and insurance companies. These institutional investors want to hold government bonds because they are viewed as a safe asset, and make up a crucial part of these investors’ portfolios. In turn these portfolios make up a significant part of our pensions and retirement savings.

This means that investors want the government to issue bonds. They purchase these bonds not as a favour to help a cash-strapped government out of a temporary squeeze, but as a long-term investment and a safe way of storing their wealth. This means that the people and institutions who hold government bonds are not impatiently waiting for governments to ‘repay their debts’. If government did not ‘borrow’ and therefore did not issue bonds, then there would be a lack of safe

financial assets for pension funds to hold, meaning that people's pension savings would necessarily be much more exposed to riskier assets.

However, there are questions about how much public debt is beneficial, and how much is too much. Public debt equivalent to some percentage of GDP will always be necessary to provide safe assets, but there are a number of reasons that public debt at higher levels of GDP may start to cause problems for the government:

1. Interest payments divert money from public services. The higher the stock of outstanding debt, the greater the total interest payments that must be made to holders of government bonds. These interest payments may be financed either by taxation – in which case tax payments are being diverted away from public spending and into debt interest – or by further bond issuance, causing the stock of debt to grow even faster.

Whilst interest rates across the economy are low, these interest payments may not be a significant concern. However, what the UK government spends on interest is almost a third of what it spends on the National Health Services and almost as much as it spends to run the entire national network of schools. Any rise in interest rates would create significant pressure on other vital areas of government spending.

2. Interest payments can contribute to increasing inequality. Sometimes the national debt is presented as money “we owe to ourselves”, in that it is owed by the government to citizens who hold pension savings and other investments. However, there is significant inequality in the ownership of financial assets such as bonds and stocks, with around 40% of assets in the financial markets being held by just the wealthiest 5% of households (Ryan-Collins et. al., 2013, p.26). Consequently, interest payments on the national debt can distribute money from taxpayers as a whole to the already-wealthy, increasing inequality (and offsetting the impact of any progressive taxation).

3. High public debt can lead to worries about the financial health of the government. Even though investors do want to purchase and hold government bonds, and have no expectation that the entirety of the government debt will ever be ‘paid off’, they also want to know that the government will (a) be able to make its interest payments on schedule, and (b) be able to repay individual government bonds as and when they mature. If public debt reaches levels that are higher than the commonly acceptable level, then it may become necessary for the government to offer higher interest rates on new bonds in order to sell all the bonds (debt) that it issues²². In extreme cases, it may be unable to sell all the bonds it issues (i.e. be unable to borrow as much as it requests). If interest rates start to rise because of worries about the health of government finances,

²² The level of debt to GDP at which market concern kicks in varies for different countries. A recent OECD paper comparing credit default swap premiums and market interest rates on government bonds with debt to GDP ratios finds that for higher-income countries the limit ranges from 70 to 90% of GDP but for euro area countries a lower range of 50 to 70% applies, as they do not have control of monetary policy. For emerging economies, the range is even lower at 30 to 50% of GDP (Fall et al., 2015; see also OECD, 2015).

this could become a self-fulfilling prophecy, with the government having to borrow more in order to pay higher interest rates, creating further worries. In addition, higher interest rates divert more money away from government spending, creating pressure for the government to reduce its public spending.

4. With high public debt, the government has less ‘space’ to use countercyclical fiscal policy in order to respond to future crises or recessions. As discussed earlier, in a recession or financial crisis, tax revenue falls, government spending rises, and therefore the deficit increases. This means that the debt grows, both in absolute (nominal) terms and relative to the size of the economy. Abbas et al. (2013) explain that:

“High debt also makes public finances more vulnerable to future shocks, both by constraining the ability of governments to engage in countercyclical policies and by increasing the primary surplus needed to stabilize the debt ratio following an adverse shock to growth or interest rates.

In other words, if a financial crisis or recession leads to a significant rise in public debt, then any future recession becomes harder for the government to respond to, because its higher public debt ratio is more likely to trigger concerns from bond buyers.

The reasons above are powerful enough to drive governments to want to limit the growth in debt and reduce overall debt-to-GDP ratios. However, as we’ll see below, any attempt to reduce debt-to-GDP ratios is much more likely to rely on increasing GDP rather than reducing the debt.

Why is high private debt a problem for governments?

Because governments tend to be judged by the financial press on their management of public debt levels, they typically pay less attention to private debt levels. However, high private debt is also a significant problem for government, because:

- 1. High private debt levels increase the risk of banking crises:** When private debt is high relative to GDP, debt servicing (interest and principal repayments) takes up a greater share of the income of households and the revenue of businesses. This means that it may only take a small fall in income for debtors to start to struggle to service or repay loans. A small recession could therefore result in defaults and arrears on loans, which results in losses for the banks. These losses could cause concern about the health of banks, leading to runs on those banks or even a full-blown banking and financial crisis. Since the government is ultimately responsible for rescuing the banking system if it fails, high private debt increases the financial risks faced by the government.
- 2. High private debt will act as a ‘drag’ on the economy:** If households have high private debt levels, then a greater proportion of their income must be used to pay interest on that debt, which means that this income cannot be spent by borrowers on goods and services. The income that is used to pay interest is

effectively recirculated back into the economy through the bank's spending on staff, offices, other expenses, and through its payment of profits to shareholders and tax to the government. The bulk of bank expenditure is staff salaries. Bank employees tend to live in households with above-average incomes and such households also tend to hold above-average net financial wealth²³. Studies have shown that households with higher incomes and higher net financial assets are less likely to spend additional income on consumption (Sousa, 2009; Carroll et al., 2014). This means that the effect of interest payments is to distribute money upwards to wealthier citizens, who have a lower 'propensity to consume' out of additional income. In other words, the greater the level of private debt, the greater the upwards distribution of income to people who are less likely to spend it. Higher levels of private debt should therefore have a negative impact on economic output and employment.

3. High private debt can prolong a recession: High private debt can lead to what is known as a "balance sheet recession" (Koo, 2009). Economist Richard Koo explains that during the property bubble of the late 1980s, many corporates borrowed to buy hugely-overvalued land. When these land prices eventually crashed, sometimes by nearly 90%, these firms were left with huge loans and significant negative equity. So even though their cashflow and profits were very healthy, they would choose to repay debt rather than investing in expansion. This meant that the spending and demand that would normally come from the business sector was instead diverted towards debt repayments. Koo shows that this debt repayment led to a loss of demand equivalent to around 22% GDP (2003 GDP compared to 1990). This loss of a significant source of spending can clearly prolong a recession, and would also have negative effects on unemployment.

Mian and Sufi (2015) show how a different but similar scenario can apply in relation to residential housing. In the USA, from 2000 to 2007, US household debt doubled, rising to \$14 trillion. This led to very significant house price rises – up to 100% between 2001 and 2006 in cities that could not expand supply. However, when significant numbers of borrowers were unable to service their mortgages, banks started to foreclose and house prices started to fall. Mian and Sufi find that those mortgage borrowers who faced the largest fall in housing equity, as a percentage of their net worth, cut their spending by the largest amount. In other words, households can cut spending to build up their equity when house prices fall significantly, even if their income is still sound.

These mechanisms can limit spending by households and corporations and prolong any recession.

²³ Hodgson, G. (unpublished) based on an analysis of Wave O (2005) data from the British Household Panel Survey.

CHAPTER 4:

HOW CAN HIGH PRIVATE OR PUBLIC DEBT BE REDUCED?

The mathematics of debt reduction

We have seen that high private and public debt can be a problem for governments, but could they go about reducing that debt?

First, we need to understand the (simple) mathematics of public and private debt. When we talk about ‘high’ levels of debt, we are referring to the level of debt relative to GDP - the size of the economy. This is because it is the size of the economy that determines the ability to service (i.e. pay interest on) and repay total debt of any particular size.

In the context of private debt, what ultimately matters is the level of private income. A credit card debt of £10,000 might be a serious burden to someone with income of £10,000, but would be comfortably manageable for someone on £100,000 and insignificant to someone with an income of £1 million a year. In the same way, the size of a country’s public debt is only meaningful in relation to the size of its overall economy.

The private and public debt ratios are expressed as a percentage of GDP and calculated by dividing the debt by total nominal GDP (NGDP):

$$\text{Private Debt Ratio} = \frac{\text{Private Debt}}{\text{NGDP}} \qquad \text{Public Debt Ratio} = \frac{\text{Public Debt}}{\text{NGDP}}$$

These equations show that in order to improve the debt ratio, either:

1. Nominal GDP must be increased (increasing the denominator), or
2. The debt (private or public) must be paid down (reducing the numerator), or
3. Both (1) and (2) must happen simultaneously.

Growth in nominal GDP could take one of two forms (or a combination of both):

1. Inflation: The same amount of goods and services are produced as the previous period, but there is an increase in the prices of those goods and services and wages. The overall tally of spending (i.e. nominal spending) increases as a result, but without any increase in ‘real’ output (and therefore no increase in throughput).

2. Real output growth, meaning that after prices have been adjusted for inflation, the economy has grown in terms of actual output – the ‘real’ value of the goods and services produced. This of course implies that there has also been an increase in throughput (the input of energy and resources, and the output of pollution and waste).

It is of course possible for growth to have an element of both inflation and real output growth: for example, if nominal GDP rises by 5%, we might find that prices have risen across the board by 2%, and that output itself has increased by 3%.

It is not straightforward to either increase GDP or pay down debt. We will first look at the effect of increasing (real) GDP, before later on considering how debt can be reduced in the absence of growth.

The impact of growing real GDP on debt ratios

For real GDP to grow, there must be an increase in the real value of goods and services produced after the total figures have been adjusted for inflation. So, if inflation in the previous year is 2%, and nominal GDP has grown by 5%, the real growth in GDP is 3%.

Growing real GDP reduces the real value of both private and public debt:

- **Private debt:** If GDP grows, it is likely that incomes and employment will also grow. Again, the nominal value of debts is not adjusted to keep up with incomes or inflation, and so the relative burden of private debt is reduced.
- **Public debt:** As GDP grows, tax revenue also grows. Again, the amount of debt the government owes (i.e. the face value of its bonds) is not adjusted to account for this growth in the economy²⁴, meaning that the value of the debt

²⁴ There are some exceptions to this rule. In recent years both Greece and Argentina have issued bonds that are partly dependent on GDP or GDP growth as part of a debt restructuring programme. More commonly, governments often issue a small proportion of bonds that are adjusted in line with inflation, or savings products (such as the UK’s National Savings and Investments) where the government guarantees that the return will match or beat inflation.

(and the value of the monthly or annual repayments on maturing debt) falls as a percentage of government revenue (and as a percentage of GDP).

There is a huge body of economic theory on how governments can increase GDP, and the debate around the best methods, but we will not discuss this here. However, we have already recognised the fact that growing the economy, and consequently growing our usage of energy and resources and production of waste and pollution, is incompatible with protecting the environment and ecosystem. High public and private debt continues to be a source of growth dependency, but we cannot address this sustainably through economic growth. Instead, we need to look for a way to reduce private or public debt in the absence of economic growth, in the current monetary system. In other words, we need a non-growth solution to the problem of high private and public debt. Let's now see how feasible this is.

Can the debt be 'inflated' away?

In practice when governments talk about 'economic growth' they are referring to real economic growth, after the figures have been adjusted for inflation. So their objective is to grow real GDP (and by implication, throughput), rather than simply to create inflation.

However, inflation can be useful to governments, as it contributes to reducing the real value of debt. With inflation, the prices of goods, services and wages rise over time, but the value of debts is fixed in nominal terms. This means that over time the real value of the debt shrinks. For public debt, the nominal value of the debt becomes an increasingly smaller percentage of the economy. For private debt, the nominal value of the debt becomes increasingly small in relation to wages and income.

Inflating Away Private Debt

A simple example helps to demonstrate this effect. Imagine someone borrows £100,000 for a mortgage over 25 years, on an initial salary of £25,000. At an interest rate of 5%, the monthly repayments are £585. Over the next 25 years, let's imagine that this person stays in the same job, and is never promoted, but his salary is increased each year by 3% to keep up with inflation (so that his salary always buys the same amount of goods and services each year). However, the debt is never adjusted (increased) for inflation, and is gradually repaid. By the 25th year, the salary has more than doubled to £52,344. The prices of goods and services have increased by the same proportion, so the borrower doesn't feel wealthier when they go shopping, but the monthly repayments are still £585, meaning that it takes the borrower half as many hours to repay the mortgage as it did in the first year. In other words, the 'real' cost of the mortgage, in terms of hours worked, or goods and services that could be purchased with the same amount of money, has fallen by 50%.

This effect on private debt is most powerful for long-term debts such as mortgages, simply because the effect of compounding is greatest over long periods of time. But it can also help reduce the real value of short-term debt (for example 5-year loans).

Inflating Away Government Debt

A similar effect applies to government debt. The nominal value of the national debt outstanding has hardly ever fallen, and is now at a historical high. However, when this national debt is adjusted for inflation, as in Figure 7, it becomes clear that inflation has reduced the real value of the debt.

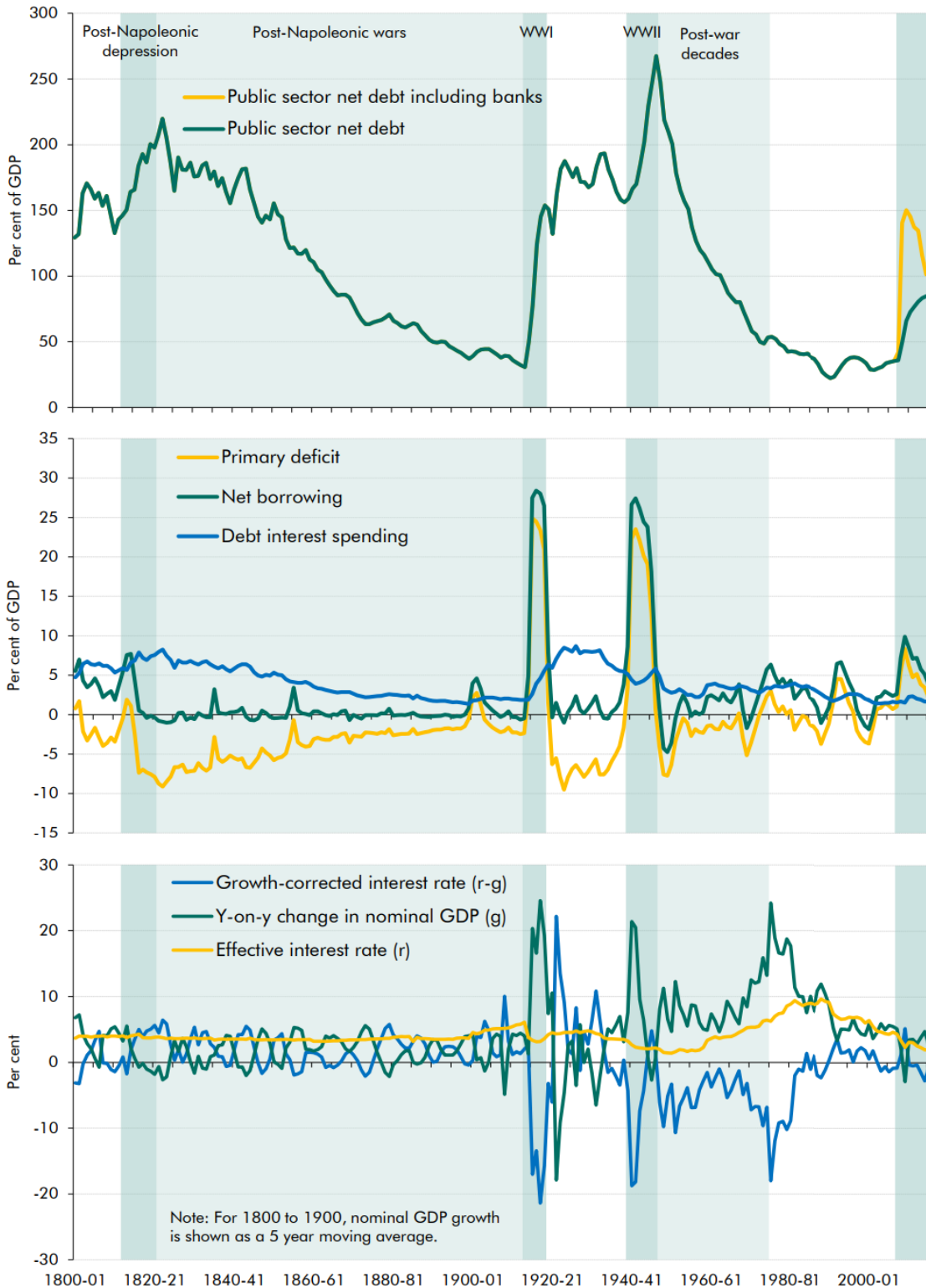


Figure 7: Public sector debt dynamics since 1800. Source: OBR based on Bank of England, ONS data

Figure 7 from the Office for Budget Responsibility (2017b), shows how nominal GDP growth has been used alongside primary surpluses to make even vast post-war public debt burdens sustainable (i.e. a falling trend in the top chart). When nominal GDP growth outstrips the effective interest payable on government debt (i.e. when the blue line in the bottom chart is negative) governments can even afford to run small primary deficit (i.e. yellow line above the x-axis in the middle chart) while still enjoying a falling public debt/GDP ratio. Quite simply this is because the denominator (GDP) is increasing at a faster rate than the numerator (public debt + interest payment + primary deficit).

But there is a catch. Achieving this effect is impossible over any length of time using elevated inflation alone (i.e. holding real GDP flat). This is because on maturing government debt, investors will demand ever-higher nominal interest rates to compensate for the added inflation they expect. A surprise amount of inflation can reduce the public debt/GDP ratio only for so long before the effect disappears. It is therefore only real GDP growth, sustained over long periods of time, that can truly help bring down public debt/GDP ratios without having to rely on primary public surpluses.

Empirical analysis of historical data by the International Monetary Fund suggests that inflation is rarely the significant factor in reducing public debt ratios via an increase in NGDP. More fundamentally, inflation is not under direct control of the government, and cannot be created at will whenever the government wishes to reduce the real value of their debt. Real GDP growth is much more important in reducing the relative burden of public debt. The truth is that inflation, even if achieved, can only reduce the burden of government debt for a while, before shorter-maturity debt must be rolled and re-issued at much higher coupons. Only real GDP growth can deliver improved public debt sustainability through time.

Can public debt be reduced without growth?

Remember that the public debt ratio is simply the debt divided by the size of the economy. We cannot increase GDP (increasing the denominator) without doing further damage to the environment. If we assume that NGDP is fixed, then can we instead reduce the numerator – the debt? It turns out that there are significant obstacles to doing this effectively.

To reduce the total stock of outstanding public debt in nominal terms, the government must repay more bonds than it issues. Conventionally speaking there are at least three ways it can do this:

- 1. Running a 'primary surplus'**, by collecting more tax revenue than is needed to cover both government spending and the interest payments on public debt. This means that some of the tax revenue can be used to repay existing bonds without issuing new ones, reducing the overall debt.

In the absence of economic growth, running a primary surplus can only be achieved by:

- Reducing government spending, or
- Increasing the level of taxes in order to increase tax revenue.

2. Selling off state assets to the private sector (i.e. privatization), using the proceeds to repay outstanding government debt.

3. By lowering the interest rates paid on government debt. This would allow some of the tax revenue currently spent on interest to be used to repay and retire bonds, reducing the overall stock of debt.

Practically, this can only be done by (a) finding ways to increase the ‘confidence’ or ‘credibility’ of the government so that bond investors view government bonds more favourably and will accept lower rates to hold them, or (b) by having the central bank intervene in the bond markets to keep rates low (as central banks have done through Quantitative Easing).

Unfortunately, there are challenges that make it difficult both to run a primary surplus, and to lower the interest rates paid on government debt.

Firstly, it is important to remember that the government’s spending translates into sales for businesses and salaries for government employees. Consequently, cutting government spending reduces the amount of spending coming into the economy, whilst raising taxes reduces the purchasing power of the private sector. Both measures have the effect of reducing aggregate demand, which would potentially lower economic output (GDP). This means that an attempt to cut spending or raise taxes in order to run a primary surplus could have the effect of shrinking the economy and worsening the ratio of public debt to GDP - the opposite effect to what is desired.

Secondly, there are problems with privatising state assets, such as government-owned companies or infrastructure. Some of those assets may generate revenue for the government, so selling them exchanges an ongoing income for an upfront lump sum, but reduces the long-term revenue of the government (Macfarlane et al., 2016). Selling assets can only ever be a short-term measure to reduce public debt, since eventually there will be no more assets left to sell. In any case, a recession is the worst time to sell large assets such as companies or infrastructure, since it is the hardest time to get a good price (Macfarlane et al., 2016).

Thirdly, interest rates in the bond markets depend on a combination of confidence in the government and confidence in the real economy. In mainstream economics, ‘fiscal consolidation’ (cutting spending, raising taxes, and running a surplus) is assumed to increase confidence in the government’s financial situation, but in practice it will also reduce confidence in the economy more generally, as businesses and economic analysts realise that less government spending translates to less revenue for the businesses that supply all parts of the government, and less income for government employees. In the years following the financial crisis there has been a contentious debate about whether the ‘credibility’ that governments might gain

by attempting to run a primary surplus will encourage the private sector to increase spending sufficiently to offset reduced spending by the public sector. This debate has not been settled conclusively. However, it is very far from clear that cutting public spending will reduce the interest costs of government.

These factors combine to make it very difficult for governments to reduce debt in the absence of low or zero economic growth. There may not be a non-growth solution to the problem of high public debt in the current monetary system. In Chapter 4 we will see how changes to the monetary system could reduce public sector debt, even in the absence of growth.

Can private debt be reduced without growth?

We need to consider whether it is possible to reduce private debt in the absence of growth. From an individual perspective, there are four ways to reduce debt:

1. Repay existing loans without taking out new loans
2. Reduce current spending and make additional debt repayments (over and above the scheduled repayments)
3. Receive an increase in income and use that extra income to make debt repayments (over and above the scheduled repayments)
4. Debt cancellation: Persuade creditors (the bank or lender) to cancel some of the debt; or convince policymakers to enact some kind of debt jubilee.

Of course, at any point in time some citizens will be repaying debts whilst others are increasing their borrowing. Since we are concerned with private debt in total we need to ensure that total debt repayments across the economy are greater than the total issuance of new loans by banks (and other lenders). To see whether it is feasible that private debt can be paid down in aggregate for a sustained period of time, let's consider the effect of each of these debt reduction strategies.

1. Repaying existing loans without taking out new ones

Most forms of debt, especially loans and mortgages, have scheduled repayments, for example, every month for 5 or 25 years. What normally happens in aggregate (i.e. in total across the economy) is that as some people repay loans, others take out new loans, so the total amount of debt does not fall. In practice, because of inflation (particularly of house prices), new borrowers must take out increasingly large loans and mortgages, so the overall amount of debt tends to rise over time.

For overall aggregate debt to be reduced, it would be necessary for borrowers to continue repaying debts according to their existing repayment schedules, without that debt being replaced by new borrowers. Either the existing borrowers must pay down their debts without taking out new loans, or other people who would otherwise have borrowed must decide not to borrow.

However, this is problematic. Recall from Chapter 1 that loan repayments to banks withdraw money and spending power from the economy. Whilst

households and businesses are repaying debt faster than they are taking out new loans, there is a 'leakage' from the flow of spending into the economy. Unless banks create new money by issuing new loans, this purchasing power will not typically make its way back into the economy. The only way this is possible is if those who were previously savers (and therefore have accumulated deposits) switch to becoming net spenders and spend down these deposits. In practice, substantial shifts in behaviour are hard to achieve in practice.

Therefore, unless new loans are issued, an overall reduction in spending is likely. This will translate into a fall in GDP (assuming that other sources of spending do not change). Recall that the private debt ratio is simply private debt divided by nominal GDP.

$$\text{Private Debt Ratio} = \frac{\text{Private Debt}}{\text{NGDP}}$$

What impact a fall in GDP has on the debt-to-GDP ratio depends on what effect the failure to issue new loans as existing loans are repaid has on the level of private debt. If private debt falls by a greater percentage than the fall in GDP, the private debt ratio will improve. The problem arises if NGDP falls by a larger percentage than the amount of debt repaid, in which case the debt ratio will actually worsen. This is quite possible: a fall in spending by households, for example, may lead to an overall decline in consumer and business confidence in the economy, with people choosing to save rather than spend, and businesses choosing to hold back on investment. With these two forces together, employment and household incomes will likely fall, making it harder to continue repay debts.

Consequently, it is possible that efforts by the private sector (households and businesses) to repay debts without taking on new loans will cause the economy to shrink and actually worsen the debt ratio. This does not appear to be a sustainable way to improve private sector debt ratios.

2. Diverting existing spending to making additional debt repayments, over and above scheduled repayments

Some loans, such as overdrafts and credit cards, do not have a repayment schedule, so it is up to the borrower to decide when to repay them. In addition, some mortgages and other loans allow 'overpayments' or early repayment. In this scenario, people who have existing debts may choose to repay overdrafts and credit cards and make overpayments on other debts. To reduce aggregate private debt, it would be necessary that these overpayments are not cancelled out by new borrowing (either by the same borrowers, or by new borrowers).

Of course, this requires that the borrowers take income that they would otherwise have spent, and use it to pay down debt. This leaves less of their income available for spending. This has the same negative impacts on spending that we discussed above, and may lead to a fall in GDP and employment. If GDP

falls, then by definition the economy is in recession; incomes are likely to fall, and it becomes increasingly hard for people to make further overpayments on debt. So this also looks unlikely to be a sustainable way of reducing private debt.

3. Increasing income to make debt repayments above the scheduled repayments

In theory, an individual could increase their income, through a pay rise, promotion or working more hours, and use the extra income to pay down existing debts. However, unless incomes elsewhere fell to balance that individual's increased income, then we have economic growth. Since we are looking for ways to reduce private debt in the absence of economic growth, let's assume that average incomes across the economy remain constant (no growth). In this case, this debt repayment strategy only works if we can find a way to increase the income of those with significant debts, to allow them to make repayments, but at the expense of those with smaller or less onerous debts.

One way would be to increase the labour share of profit (discussed in Chapter 2) so that workers receive more income at the expense of shareholders (who are likely to be wealthier).

Another approach to increasing the income of those with debt is for the government to undertake a 'fiscal stimulus'. This approach would not necessarily help high income earners manage their debt levels, but would definitely help low-income borrowers. This could either be through increased government spending, designed in a way that the money reaches workers on low and medium incomes, or a reduction in tax rates (which can again be targeted towards low and medium income workers).

The problem with using a bond-financed fiscal stimulus to reduce household debt is that it simply shifts the debt from the private sector to the public sector. The government must issue new bonds, increasing the public debt, then use the money raised to increase public spending or to make up for a reduction in tax revenues, which would tend to increase the disposable incomes of the beneficiaries of the tax reduction. Increased public spending increases the incomes of government employees and suppliers in the first instance, and this spending is multiplied across the economy. However, since only a portion of the extra income that people receive will be used to pay down debt, it will require more than £1 of bond-financed spending or tax cuts to create £1 of reduction in private debt. In other words, the public debt will increase by more than the fall in private debt. Consequently, a bond-financed fiscal stimulus is clearly not a sustainable way to reduce private debt.

How else could incomes be increased without economic growth? Leigh et al. (2012) suggest that a 'temporary macroeconomic stimulus' could be implemented by the central bank. In practical terms, this would mean lowering interest rates, which would eventually feed through into lower rates on mortgages and other bank loans. While this does not actually increase household income, it reduces the proportion of income that is spent on interest. For loans with fixed monthly payments and variable rates, the interest portion of the payment shrinks, so that

more of the payment is used to pay down the existing debt. This speeds up the pace of debt reduction. For loans that do not have a repayment schedule, the interest charged in each period will be lower, leaving greater income available for either spending or additional debt repayments. Other arrangements must be available for fixed rate loans which will not automatically benefit from central rate adjustment. Here, as rates on new loans fall, it may eventually become cost effective for borrowers to refinance by taking out new loans at the lower rates to pay off their existing loans plus any early redemption charges.

However, once again, there are problems with this approach. Firstly, lowering interest rates will increase the disposable income of debtors, but will reduce the interest income of savers, meaning that their own spending is likely to fall. This will partly offset any stimulus effect. Secondly, lowering interest rates also lowers the cost of new borrowing, particularly mortgage borrowing, so could encourage the creation of new debt. This can negate any debt repayment that is made by existing borrowers thanks to lower interest rates. Low interest rates can help problem debtors, and help normal debtors to repay debts faster, but in aggregate low rates are more likely to increase total borrowing and also inflate asset prices (such as houses), creating the need for people to borrow more in the future.

4. Selling off assets

One way in which debts can be paid down is if debtors can sell or 'liquidate' assets. In the aftermath of the financial crisis, many debts had been secured to purchase financial assets. A significant amount of debt was therefore paid down by selling such assets - either voluntarily or forcibly - on the open market at often fire-sale prices. The danger is that this depressive effect on financial markets, and the resultant loss in household net wealth, has the capacity to deepen any crisis significantly.

5. Debt cancellation

Some writers have argued in favour of debt forgiveness - cancelling debts for problem debtors. However, because loans and mortgages are the assets of banks, cancelling debt imposes losses on the banks and reduces their capital (which is essentially their buffer against losses on loans). After a financial crisis banks need to rebuild their capital, so debt forgiveness actually worsens their financial situation and can increase the risk of the government having to undertake a bailout of the banking sector.

The government could reimburse banks for cancelled debt. This ultimately means the government is paying off the debts of certain citizens. However, again this will simply shift debt from the private sector to the public sector, and therefore simply swaps one problem for another. It may also create moral hazard in banks, which would be sheltered from the consequences of making bad loans.

Debt cancellation for those debtors who have the most difficulty repaying, and who in many circumstances can be said to face illegitimate debts, is definitely a policy worth pursuing. However, this would only be a small amount of private debt relative to the whole economy. Debt cancellation on a scale that would lead

to a systemically significant reduction in debt is impossible, because it would either (a) bankrupt the banking sector, forcing a government rescue, and so end up adding an equivalent amount to the public debt, or (b) require the government to reimburse banks for their debt forgiveness, again adding this amount to the public debt.

In Summary

It seems that none of the options above provide a method to reduce aggregate debt significantly without very severe economic consequences. The main reason for this is that debt repayments typically remove money and spending from the economy, and in the current monetary system, this money can only be replenished if new loans are taken out, keeping debt from falling.

Conclusion: Debt reduction seems to need growth

We have seen that reducing either private or public debt without economic growth runs into a number of obstacles. Within the current system, it seems there are no easy non-growth solutions to the problems of high private and public debt; it is clear that debt reduction relies heavily on economic growth.

It is clear that governments will prefer to tackle high private or public debt levels by pursuing economic growth. But there is an additional complication: a growing body of evidence shows that high levels of private debt actually act as a drag on economic growth and recovery (Cecchetti & Kharroubi, 2012). (A similar pattern is found for high public debt, although there is controversy around this.) So the government needs growth to reduce high debt levels, but high debt levels themselves are a barrier to further growth.

This ultimately means that even more extreme ‘pro-growth’ measures must be taken in other areas of the economy. There are two common measures which are particularly problematic for the protection of the ecosystem.

The first problematic measure is the removal of protections for the environment. In an attempt to increase growth, governments often look for ‘supply side’ reforms to the economy. A common target for reform is ‘red tape’ - regulation that is assumed to place a burden on businesses and therefore hold the economy back. During times of recession and/or high unemployment, regulations protecting the environment often come under attack and may be blamed for ‘holding the economy back’. Environmental protections may be rolled back as part of stimulus measures to ‘get growth going again’²⁵. Consequently, as well as the environmentally damaging

²⁵ As an example of this dynamic, Nicole Johnson writes that: “In 2011, Florida’s growth management laws were severely weakened and the State’s land planning agency was eviscerated. The contention was that Florida’s growth management laws of the 1970s and 1980s were to blame for the devastating effects of the 2007 recession. The Financial Crisis Inquiry Commission investigated this claim and found that the great recession and Florida’s economic collapse was not due to our growth management policies. No surprise, it was due to rampant real estate speculation, insufficient regulations and inappropriate underwriting standards. However, the recession was still used to weaken and eliminate growth management and many other environmental regulations that had taken decades of bipartisan leadership to create.”

impact of much economic activity itself, the sources of growth dependency mean that governments may undo decades of work in a short-term attempt to increase economic growth.

The second problematic measure is that, perversely, in an attempt to reduce their own public debt, governments often encourage a rise in private debt. In other words, they attempt to grow the economy by encouraging businesses and households to borrow and spend. We can see this in the response of the UK government to the financial crisis. The crisis was triggered by a rapid increase in the creation of money and debt by the banking system. The crisis itself caused GDP to fall, and worsened government finances. To counter this fall in spending, governments adopted the mantra ‘we’ve got to get banks lending again’ (Jackson & Dyson, 2013), and launched schemes to encourage further borrowing and debt creation, such as schemes to help younger workers purchase their first house by increasing the amount they can borrow.

These policies created further private debt, increasing the risk of further financial instability or recession (Turner, 2016). **In certain circumstances**, this dynamic can reinforce growth dependency: the current system creates high private debt, which leads to financial crisis or recession, and then high public debt. In order to reduce the high public debt, governments encourage the creation of more private debt, laying the foundations for another financial crisis, and the cycle repeats.

The creation of high private and public debt, alongside the other sources of growth dependency, creates an environment where governments see growth as the most obvious solution to the problem. To generate more growth, they remove environmental protections, and encourage even further debt creation in a classic case of ‘kicking the can down the road’. This exacerbates both the damage to the environment and the problem of high private and public debt.

It seems implausible that governments in a high-debt economy would be willing to contemplate abandoning the pursuit of growth. Clearly high debt is incompatible with a zero-growth or steady-state economy. However, we have not been able to find effective solutions to the problem of high debt in the current monetary system. This implies that more fundamental changes to the nature of money and debt may be essential, in order to produce a low debt economy where abandoning the pursuit of economic growth is thinkable. We will address these changes in the next chapter.

CHAPTER 5:

SOVEREIGN MONEY SYSTEM AS A RESPONSE TO THE HIGH-DEBT PROBLEM

We have seen that endless growth in output (GDP) inevitably comes with unsustainable growth in throughput: the use of energy and natural resources, and the production of pollution and waste grows roughly in line with the growth of the economy. This endless growth is in direct opposition to the protection of the ecosystems that keep human beings alive.

Unfortunately, the structure of the current monetary and economic system means that not pursuing economic growth can create a range of other social and economic problems. Until we can find non-growth solutions to these problems, governments will feel they have no choice but to make economic growth their priority.

As Chapter 3 describes, a significant source of growth dependency is the tendency of the current system to create high levels of private and public debt. The banking system creates money and debt on demand for borrowers deemed to be credit-worthy, leading eventually but inevitably to a financial crisis.

The threat of crisis leads governments to grant the banking sector and their customers explicit and implicit guarantees and subsidies, which distort the assessment of risk and credit worthiness. One consequence of this is a pattern of cyclical and destabilising fluctuations in the prices of assets which newly-created bank money is used to purchase, and which simultaneously form the collateral for the loans through which the money is created.

The crisis, when it occurs, leads to a rapid rise in public debt, which means governments must pursue economic growth to make the public debt manageable. In an attempt to restart economic activity, they try to boost spending and stimulate growth by encouraging the creation of more private debt, laying the foundations for another financial crisis, and a repeat of the cycle. We clearly need a way to break this cycle.

Since the existence of high private and public debt creates strong pressure for governments to pursue unsustainable economic growth, it is essential to find a way to reduce that debt. However, we also saw in Chapter 3 that it is not easy, and may even be impossible, to reduce private or public debt significantly in the absence of economic growth – at least not within the current monetary system.

Even if this were possible, the new low-debt situation may not last long, since banks would become more willing to lend to households that had lower debt ratios. Consequently, if we find a way to reduce private sector debt, but continue to rely on bank lending to stimulate the economy, we may end up in the same position in a few years' time; debt reduction would simply rewind the clock a few years without solving the underlying problem. So more fundamental changes to the banking and monetary system appear to be necessary.

Introducing Sovereign Money

The inherent instability of our monetary and financial system and the problems associated with it are, to an extent, already recognised by regulators and other authorities. But their answer to this problem has been to add ever-more complex regulation²⁶. We think this approach of adding even more detailed rules is likely to fail: the more complex the regulation, the greater the cost of compliance and the more incentive and opportunity there is to find loopholes.

Instead, we would suggest two simpler but more radical proposals:

1. Adding a new tool to the Bank of England's toolkit: 'sovereign money creation' (or 'monetary financing')
2. Preventing banks from creating money altogether, and fully decoupling money as means of payment from money as a source of credit. This can be done by switching to a 'sovereign money system'.

The following sections will therefore provide a basic description of these proposals²⁷, how they could be used to reduce public and private debt, and how they could be used as tools to help achieve the goals of a steady state economy.

Sovereign money creation (SMC) is where money is created by the central bank and credited to the government's account to be spent into the economy. There is no increase in private sector debt levels when new money is created, unlike in the current system where new money is created only when the private sector takes on more debt.

A sovereign money system (SMS) would lead to a safer and more resilient banking sector, and give policymakers more direct influence over the wider macro-economy.

²⁶ A senior legal officer at one of the UK's largest banks told the author that they were currently dealing with the implications of 90 'pieces' of new regulation, whereby just one of those pieces alone was the 849-page Dodd-Frank bill and its 22,000 pages of corresponding guidance.

²⁷ For a full technical description of a sovereign money system see Dyson et al. (2016), Huber (2017), or visit www.positivemoney.org.uk

Therefore, when used appropriately, sovereign money could help tackle some of the sources of growth dependency that are detrimental to our environment. More specifically it can help:

1. Reduce the existing stock of private and public debt (in nominal terms, without relying on growth).
2. Address the factors that lead to the creation of excessive levels of private and public debt, to prevent the problem arising in the first place.

Reducing private and public debt

In the current monetary system, the central bank aims to influence the borrowing and saving behaviour of households and businesses (and the consequential money creation by banks), by setting the policy rate of interest. By lowering the policy rate banks are then incentivised to pass on lower rates to borrowers, and so the cost of credit falls and people are more willing to take out loans to spend, stimulating the economy. This mechanism is faulty because a) it relies on increases in private sector debt to stimulate the economy, and b) banks don't significantly lower the rates of interest in line with decreases in the policy rate.

As central bank interest rates have reached about as low as they can go, and economies are still undergoing stagnating wages, rising inequality, and rising private and public debt, it has become clear that central banks' toolkit is limited. Recently, there has been an increasing amount of support for 'monetary financing', or 'sovereign money creation', where the central bank uses its ability to create money to influence demand directly in order to meet its monetary policy objectives. New money created by the central bank is transferred to the government without increasing the government's net debt burden. The government can then spend this newly created money into circulation.

There are several ways in which new money can enter the economy: to finance government spending, in place of taxes or borrowing; to make direct payments to citizens; to redeem outstanding debts, public or private; or to make new loans through banks or other intermediaries. To create new money, the Treasury would issue a certain amount of 'perpetual zero-coupon bonds'. These would be non-marketable, interest free, and would never need to be repaid. The central bank would then purchase these bonds by crediting the Treasury account with new sovereign money²⁸.

Central banks have begun researching a digital version of cash – a central bank digital currency (CBDC). If each citizen held a CBDC account at the central bank, then sovereign money creation could easily be added as a monetary policy tool since demand could be boosted by injecting newly created money evenly among accounts. Giving money created by the central bank directly to citizens has also been referred to as 'helicopter money' (Friedman 1969).

²⁸ So that the central bank's balance sheet would balance out, the newly created money would appear as a liability of the central bank and an asset of the Treasury. The bonds would be an asset to the central bank and a liability of the Treasury.

SMC would be a very effective countercyclical tool when responding to shocks, crises, and recession. The stimulus required for economic recovery would not need to be fully financed by increased government borrowing, and would therefore reduce the amount of public sector debt the government was required to take on. Policymakers would no longer be in the catch-22 position of trying to encourage greater bank lending to stimulate a recovery, even though excessive bank lending may have been one of the primary causes of the crisis.

SMC equips the government with a powerful tool to meet its economics targets, be that lowering poverty and inequality, increasing incomes, or lowering public or private debt. It also offers an opportunity to review the Bank of England's mandate and how it can complement fiscal policy to bring about a fairer and more resilient economy.

Oversight of how this new tool is used is important. We suggest that the central bank should decide how much money to create, whilst elected politicians would decide how newly created sovereign money is used²⁹. A common critique of the policy is the idea that inflation or even hyperinflation could occur. Hyperinflation in Zimbabwe or Weimar Republic Germany is often mentioned as a reason why states cannot be trusted to issue currency. However, those making these claims rarely have any in-depth understanding of what happened in Zimbabwe, Germany or any of the other hyperinflationary periods. Each period of hyperinflation happens due to a unique set of circumstances, usually political (Benes and Kumhof 2012).

Money creation that is undertaken solely to boost government revenue, with little or no regard for the consequences, will be inflationary (as was the case in Zimbabwe). Conversely, printing money to spend into the economy, when performed responsibly and with a view to boost demand, employment, and wages, can deliver a low inflation environment.

If SMC or a form of CBDC was added to central banks' toolkits, then seigniorage – profit from creating money – would increase for the government. MacFarlane et al. (2016) calculate that private banks benefit from an approximate £23bn annual subsidy for this privilege. They calculate that if the Bank of England issued 30% of the money in circulation, this subsidy to commercial banks would drop to under £16bn and seigniorage from the central bank would increase to £10bn per year.

The 'Conversion Liability' Feature in a Sovereign Money System

If we transition to a full SMS, where the only source of money creation is SMC, there is a second method of debt reduction, even more significant in size, which comes about as money ceases to exist as liabilities of commercial banks. In an SMS, when loans are repaid, money or purchasing power is no longer destroyed.

²⁹ See Dyson et al. (2016) for a further explanation on the appropriate institutional checks and balances in a Sovereign Money system.

In an SMS, the demand deposits that have been created by banks are converted into sovereign money (account balances at the central bank). The banks' demand deposit liabilities to their customers are replaced by a new 'conversion liability', owed to the central bank (and ultimately to the government); in effect, the central bank has taken on banks' liabilities to their customers.

The effect of this is that, over around 20 years, repayments equivalent to around half of private sector debt – around £50 billion per year (Jackson & Dyson, 2013) – would be recycled back into the economy as additional spending, through the government, which comes with no additional private sector debt. Part of this additional spending can be used to pay down existing household debt, enabling a significant level of debt reduction overall.

Again, this debt reduction would not be possible within the current monetary system, because loan repayments would withdraw spending power from the economy, and this spending power could typically only get back into the economy if someone else borrows so that banks can re-create the money that was destroyed in loan repayments. In contrast, in a sovereign money system, the conversion liability allows a significant portion of debt repayments to be recycled and used to pay off even further debt.

Addressing the factors that lead to the creation of excessive levels of private and public debt

The creation of excessive private debt in the current monetary system is possible because of many misaligned incentives that enable banks to profit from creating higher levels of private debt but not suffer the consequences of excessive lending that results in financial instability.

Withdrawing Banks' Ability to Create Money

Banks' unique ability to create credit leads to financial instability, which ultimately leads to bank bailouts. By restricting bank lending to their ability to attract savings, the ability for banks to blow up asset bubbles will be greatly reduced.

As discussed in chapter 3, without the creation of new money for mortgages, the flow of credit into the housing market would be limited by the supply of savings and by the attractiveness of other assets that are available for investment. It is only when banks are able to create money specifically for mortgages, artificially adding to the demand for housing, that it is possible to see such rapid increases in land and property prices.

This is made worse by a self-reinforcing feedback loop, whereby banks see house prices rising, consider the housing market a 'safe bet', and become willing to lend even more to each borrower, therefore creating even more money. This additional purchasing power pushes up house prices again, making it necessary for borrowers to take on high levels of debt, and further encouraging banks to create more money for mortgages.

An SMS would mean that banks would no longer be able to extend loans by increasing their liabilities, as at present. Instead, they would need to transfer balances from a payment account held in its own name, or on behalf of its client investors, to the account of the borrower or the designated recipient of the lent funds. Bank lending, as with all other lending, would involve merely the transfer of existing money and would no longer result in the creation of new money, as at present. Additionally, showing people that their money (or some of it) is at risk should result in a better functioning banking system.

Removal of Government Subsidies

A sovereign money system seeks to make the payment system totally protected from bank failures. Under a SMS the central bank would provide the public with a way of holding state-issued (sovereign money) cash in electronic form; the accounts and payment services could be provided by private sector companies, but the money itself would be safely stored at the Bank of England³⁰. The business of lending and providing credit is separated from the business of providing a payment system. This would be achieved by separating investment (savings) accounts from transaction (current or payment) accounts. Instead of having current accounts with money that is composed of uncertain promises to pay issued by banks, such accounts would hold risk-free central bank money – sovereign money.

Under this system, if the customer's bank were to fail, the money in the transaction account would still be safe and the customer could still access it and spend it. Customers that made their money available for lending in an investment account would need to wait while the bank was liquidated to get their investment back. The ability of the rest of the economy to continue functioning would no longer be dependent on the health of a small number of extremely highly leveraged institutions, which are prone to engaging in the extremely risky herd-like behaviour that has historically resulted in their failures.

Letting banks fail will allow regulation to be simplified and deposit insurance to be removed. It would reduce the amount of additional government expenditure required to perform bailouts, reducing the government's aggregate public debt level from what it otherwise would be. Moral hazard would also be substantially reduced, as the knowledge of potential failure and insolvency should encourage banks to take much less risk, leading to more cautious lending activity and less potential for asset price bubbles.

³¹ This would be the equivalent to the situation which applies under the Client Money Regulations to non-bank financial and other institutions which hold money intended for their clients, or for making payments to third parties on behalf of their clients. Such regulations require these institutions to hold this money in a separate bank account, a designated Client Money account, which does not form part of the claimable assets of the institution in the event of its collapse. In the current system, such client accounts, as with all other payments accounts, are liabilities of the commercial banks in which they are held. Under a sovereign money system, they would be held at the central bank, along with the payment accounts of their own clients, as part of the commercial banks' own client money accounts.

Restricting Private Debt to Existing Savings

In an SMS private banks become true intermediaries between savers and borrowers. Banks would still perform an important role of maturity transformation (the conversion of short-term savings into long-term loans), and would in general operate like bond markets. By forcing banks to act as genuine intermediaries, the level of private debt would be restricted to the level of money held in investment accounts. Therefore, a sovereign money system restricts excessive lending much more than the current monetary system. Previous calculations based on lending data from 1997-2013 suggest that the flow of new savings (new time deposits) and loan repayments would have been sufficient to fund business lending and a non-inflationary level of mortgage and consumer lending. However, it would not be sufficient to cause the levels of house price inflation that preceded the financial crisis (van Lerven, 2015).

Unlike in the current monetary system, loan repayments in an SMS would not destroy money. This dynamic means that every loan repayment represents incoming funds flowing to banks. Accordingly, loans would be funded mainly by the flow of repayments from earlier borrowers. New funds from investors or savers would only need to be found if it was necessary to increase the overall amount of lending.

In the current system if loan repayments outpace lending, which tends to happen in economic downturns, it causes a contraction of the money stock, which can lead to a further slowing down of the economy. This dangerous dynamic doesn't happen in an SMS.

By restricting the rate of bank lending to the rate of repayments of existing loans, plus any increase in savings net of withdrawals, a transition to an SMS would result in a significant fall in household debt across the economy. This means there would be less demand for credit in the future, with savings able to meet that demand.

It would still be possible for investors in aggregate to move money from other asset classes into property if they thought property would be a better investment, so it is still possible for there to be bubble-like price rises in property. Pertinently, however, the net level of debt would not increase. The additional credit flowing into property would need to come from another asset class. Liquidity would be lower in an SMS, so investors would have to sell different assets (bonds, stocks, etc.) to release the money that they want to invest in property.

This means that the price of those assets will fall, and they become increasingly attractive to investors. This has a self-regulating effect: as money flows into property markets from other asset markets, prices in the other asset markets will fall, making them a better investment. Eventually the flow of funds into the property market will slow down as property becomes overvalued and other assets become undervalued.

Consequently, without the creation by banks of hundreds of billions of pounds for the property market, it is impossible for price rises to be sustained in the way they have in the past. This means that removing the ability of banks to create money, and restricting the level of debt to existing savings, should place a significant limit on the rise in private debt levels.

Addressing all sources of growth dependency

It's easy for governments to believe that 'a rising tide lifts all boats'. With this thinking, a growing economy means we can worry less about longer term structural issues such as poverty, living standards, employment, inequality, and falling wages. However, the figures suggest that GDP growth alone does not tackle these problems, and so focusing on GDP growth may in fact be stopping us addressing the deep social and economic problems that threaten the social fabric of our society.

A growing number of people recognise that GDP growth does not necessarily result in better employment, living standards, or a reduction in poverty. Politicians and civil society organisations have begun calling for 'inclusive growth'³¹. This is clearly a step in the right direction, however even the 'inclusive growth' frame fixates on growth being the target, rather than targeting better employment, better living standards, and reducing poverty directly.

Weaning governments off their fixation on growth will not be easy as it is so ingrained in the current system. However, both SMC and an SMS can provide governments with tools to tackle all other sources of growth dependency, so there is then no excuse about getting to the root of some of these causes. Also, allowing central banks to create money to be spent into the economy in the public interest through SMC will disrupt the idea that 'there is no money' for the things society needs, like good public infrastructure, social housing, healthcare, and education.

SMC and an SMS would both significantly improve government finances, and provide them with new sources of revenue alongside taxation and borrowing from financial markets. Converting to a full SMS would bring in income of at least £50bn per year over 20 years through the recycling of debt repayments to banks through government spending (see page 56). MacFarlane et al. (2016) estimate that if the central bank issued 30% of the money in circulation between 1998 and 2016 then it would have saved the government £182 billion which would have otherwise gone to interest payments on government debt.

Sovereign Money Creation is a powerful tool that allows governments to target employment, living standards, and poverty directly. It should be rules-based and used with caution, but if an economy has unemployment, poverty, and falling living standards, then the government should be able to devise schemes that address these and use SMC to finance them.

³¹ See for example: <https://www.thersa.org/discover/videos/rsa-insights/rsa-insights-inclusive-growth-commission>

Limitations of sovereign money

As outlined above, both SMC and an SMS would allow us to reduce private and public debt without slowing the economy. They would also remove some of the drivers of debt by reining in banks' ability to create credit. By shifting away from a high-debt economy, the need for growth will also be reduced.

However, neither SMC nor an SMS alone will be sufficient to transition to a steady state economy where ecosystems are protected. To shift our energy supplies, heating, agriculture and transportation, we will need a significant amount of finance. SMS and SMC provide the government with a new significant source of income that, assuming governments want to transition to a steady state economy, they can deploy towards that goal. However, there is no guarantee that banks and other financial institutions would choose to finance the transition.

Large shareholder banks are driven by short-term profits, which result in them lending predominantly to property and financial markets. In the UK bank lending to businesses makes up less than 10%. Scale is also important because it affects the type of projects which banks are well-suited to finance. For example, if the renewable energy networks of the future are likely to be much more widely distributed than the highly centralised fossil fuel infrastructure of the past, it may be that we need banks which are capable of operating 'close to the ground' to assess and finance new renewable energy projects (such as community solar power). Conversely, large banks may be much better suited to financing infrastructure which needs to be built quickly on a large scale (such as offshore wind).

Ownership and governance is important because it determines what and whom banks are accountable to, both in terms of their mission and the stakeholders who get a say in their strategy and activities. This has profound impacts on banks' incentives and business models – for example, their ability to accept higher risks or lower returns to support environmentally positive activities; the time horizons over which they are expected to deliver returns; the sources of their funding; the geographic and sectoral scope of their activities. It also affects the levers by which these banks can be influenced to change their practices (e.g. shareholder pressure for listed banks, customer/member pressure for co-operatives and mutuals, and democratic pressure for state-owned banks).

Therefore, we will also need a diverse array of banking institutions that are fit for purpose to transition our economy at the community, regional and national levels. This will require different models of ownership and governance, and values-based banks such as green state banks, stakeholder banks, and ethical banks. Some of these banks already exist, but most are small-scale; therefore, there will need to be many more 'green banks' set up in the coming years. Furthermore, commercial banks finance a huge amount of the fossil fuel industry, and in a sovereign money system this would continue. There will need to be restrictions on large banks lending to fossil fuel companies. A recent report, *Banking on Climate Change*³², shows how much money is being pumped into new fossil fuel projects. Commercial banks are unlikely to give up these investments easily.

³² Rainforest Action Network et al. (2017)

CONCLUSION

In sum, redesigning our monetary system could be a huge step forward in building an economy that fits within the limits of nature. Systematically addressing this and all the other sources of growth dependency would reduce this pressure for economic growth. Such changes could open the door to a transition to a sustainable economy.

There are many social, political or economic factors that drive governments to think that growth is essential and beneficial. These sources of growth dependency include employment, the desire to reduce poverty without challenging wealthy and powerful groups via redistributive tax systems, and the need to make high levels of public and private debt more manageable. There is a clear 'growth dilemma'. Continuing the pursuit of economic growth will completely overwhelm the carrying capacity of the Earth's ecosystems.

However, when you break down the reasons that governments pursue growth at all costs, these problems can be tackled in different ways. We have shown that, by design, the current monetary system creates unsustainable levels of private debt, and this inevitably leads to financial instability, resulting in high levels of public debt. These high debt levels create the pressure for on-going economic growth.

We put forward proposals of SMC, and a SMS to help reduce high private and public debt levels. Firstly, by changing the way money circulates in the economy, and allowing the central bank to create sovereign money, additional sources of income/revenue are made available to the private/public sector without any corresponding increase in the level of debt. Accordingly, an increase in incomes is possible without an increase in debt. It also gives governments a powerful tool to address directly poverty, employment, living standards, falling wage share of GDP, and inequality.

Secondly, by removing the banking sector's ability to create money as debt, reducing private debt to existing savings, and fully protecting the payments system, sovereign money addresses the factors leading to high levels of debt, preventing the problem arising in the first place.

The environmental, ecological, and climate change crisis that we face is upon us, and we are rapidly running out of time. A Global Carbon Project study predicts that we are on course for a 6°C rise by the end of the century, which would likely cause a mass extinction event, with most of the planetary surface totally uninhabitable and agriculture impossible³³. By 2020 about 30-40% of the world will have water scarcity, and climate change can make this even worse as higher temperatures and

³³ <http://www.independent.co.uk/environment/climate-change/world-on-course-for-catastrophic-6deg-rise-reveal-scientists-1822396.html>

more erratic weather patterns disrupt rainfall³⁴. We may only have until 2020 to avoid a 1.5°C temperature rise. Failing to keep temperatures below this 1.5°C 'safe limit' would cause hundreds of millions of climate change related deaths³⁵.

It is also clear that the political-economic system that has dominated over the last 40 years has not only failed to stop us destroying the environment on which we depend, but has also greatly increased inequality. What comes next is critical. The new economy can be designed to address systemic problems simultaneously if we want it to, and rethinking one of the fundamentals underpinnings of how our societies function – the monetary system – could accelerate the system change we need.

As some of the largest global economies continue to falter, with low productivity and low growth, and mainstream economics continues to be challenged, there is an opportunity for more courageous thinking. Governments can be bold and shift their thinking from growth at all costs to encouraging an economy with greater equality, high levels of wellbeing, and drastic decarbonisation.

³⁴ <https://www.sciencedaily.com/releases/2014/07/140729093112.htm>

³⁵ <https://www.theguardian.com/environment/2017/jan/19/cat-in-hells-chance-why-losing-battle-keep-global-warming-2c-climate-change>

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Authors:

Fran Boait and Graham Hodgson

Positive Money

212 Davina House
137-149 Goswell Road
London
EC1V 7ET

Tel: +44 (0)207 253 3235

info@positivemoney.org

www.positivemoney.org

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