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Commentary

Facilitating the transition to a steady-state economy: Some macroeconomic fundamentals

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ABSTRACT

Central government policy is based on a misguided understanding of the macroeconomics of a modern, fiat-currency economy. As the owner/issuer of a nation's currency, a central government has unlimited spending power. Moreover, taxation exists as nothing more than a means by which a central government can destroy the spending power of the private sector. In the process of outlining some of the policies required to facilitate the transition to a steady-state economy, this paper does not recommend that central governments should spend wildly and irresponsibly. To the contrary, this paper explains how a central government can use its unique spending and taxation powers in a disciplined and policy-effective manner, yet in a manner that is being largely overlooked.

1. Introduction

This paper briefly outlines the fundamental macroeconomic principles and policies required to facilitate the transition to a steady-state economy. A steady-state economy is a physically non-growing but qualitatively-improving economy that is maintained by an ecologically sustainable rate of resource throughput. It is also an economy inhabited by a constant population of human beings. The transition to a steady-state global economy is necessary to avoid, among other things, catastrophic climate change. Even if a James Hansen-designed emissions protocol had emerged from the December 2009 greenhouse conference in Copenhagen, trying to avoid catastrophic climate change in the presence of persistent efforts to physically expand the global economy will be akin to putting a square peg in a round hole (Lawn, forthcoming).

Because there are enormous inequities in the world, a further phase of clean, efficient, and equitable growth is required by many of the world's impoverished nations. Conversely, I believe that the world's rich nations will need to begin the transition to a steady-state economy within the next five years. For some, this will mean having to reduce GDP from its current level (de-growth). Depending on the country in question, poor nations will eventually have to make the transition to a steady-state economy within 20–40 years. Since many poor nations have high population growth rates, they must act now to stabilise their population. Rich countries need to do more to support them.

The main ideas in this paper, which I plan to outline in greater detail at a later date, are based on an infusion of ecological economics and an alternative interpretation of macroeconomics being promulgated by the Centre of Full Employment and Equity (University of Newcastle, Australia) and the Center for Full Employment and Price Stability (University of Missouri–Kansas City). I say 'alternative' in the sense that it is a non-mainstream view of macroeconomics. However, it is a non-mainstream view because, as I am now firmly convinced, the mainstream position is based on a false conception of fiat-currency economy and of the unique spending and taxation powers of a currency-issuing central government. Whilst ecological economics has challenged many microeconomic principles, it has generally held conventional macroeconomics to be sound apart from the primary objective to continuously increase GDP. Many readers may find the following macroeconomic ideas difficult to accept, as I did when first exposed to them nearly a decade ago. I therefore invite readers to examine these ideas by exploring the works of Wray (1998), Bell (2000), Mitchell and Mosler (2005), and Mitchell and Muysken (2008).

2. Macroeconomic Fundamentals of a Fiat-Currency Economy

In order to present this alternative vision, I want you to imagine me as a currency-issuing central government and yourself as a member of the private sector. For the moment, we will ignore all other levels of government. I'll refer to them at some point later. I do recognise that the systems of government vary from country to country, so I will try to explain myself in the most generic form possible and stress major differences and their implications as they arise.

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Before I begin with this thought exercise, I want you – if you didn't already know – to keep the following in the back of your mind. Firstly, one of the main causes of inflation is a growing disconnect between money (claims on real goods and services) and the flow of real goods and services entering the market for sale. If money grows at a faster rate than real goods and services, more money ends up chasing each good or service for sale. This reduces the internal value of a nation's currency (i.e., reduces the spending power of each dollar), which is equivalent to inflation. Secondly, unlike real goods and services, money is a very abstract construct. It can exist as a minor physical token, it can exist as a number on a computer hard-drive, and, in a trust-worthy society, can exist as a passed-on handshake (the basis of many local community currencies). Moreover, unlike real goods and services, money can effectively be created out of nothing since the resources required to create and maintain it are negligible.

By virtue of legislation that renders a central government the monopoly owner and issuer of a nation's currency, a central government effectively possesses, whether it likes it or not, a bottomless pit of money that endows it with unlimited, internal spending power.[1] In other words, I, as the monopoly issuer/owner of the nation's currency, can create as much money as I like, whenever I like, and spend it into existence. As such, I have no need, *from a purely financing perspective*, to raise tax revenue or borrow money by selling government bonds to finance my spending. This has two implications for taxation. Firstly, taxation does not exist as a means by which I can increase my own spending power, since the latter is always unlimited. Nor, as a consequence, does my spending reduce my own spending power. Secondly, following the first point, taxation is nothing more than a means by which I can destroy your spending power. Note that I am referring to the *financing* aspect of central government spending, not the desirability of it. Also, when I create money, I rarely print money. Before the computer age, I often used to write out cheques in order to spend. Now I invariably use a computer to credit private-sector accounts which exist on a hard-disk drive of a bank's computer. Most money now exists as a number on a computer disk drive. I only print money to ensure there is enough cash floating around the economy to meet your cash transaction needs. Since most transactions do not involve the use of cash, this has virtually no relation to the size of the total money supply.

Whilst I am the owner/issuer of the nation's currency, you, as the private sector, are the users of the currency. Because we exist in a fiat-currency economy, you can avoid the use of money by bartering, but generally you will need to obtain money in order to access useful goods and services. Indeed, you are happy to use money as a medium of exchange because it allows you to overcome the inconvenience and inefficiencies of bartering.

When I spend, I inject spending power into the economy. When I tax you, I destroy your spending power (i.e., I destroy some of your claims on real goods and services). When I spend more than I tax (budget deficit), I inject more spending power than I destroy. Conversely, when I tax more than I spend (budget surplus), I destroy more spending power than I inject.

Although I have unlimited spending power, you, as the private sector, have limited spending power. To spend, you either have to earn money, borrow it, or sell existing assets, and there are limits in each case. If you happen to be a private bank, you also can create money. However, there are a number of differences between you and me. Firstly, I can create money, virtually without limit. You cannot. Secondly, when I create money, I create a financial asset but no financial liability. When you create money, you create a financial asset and a financial liability of the same value. Hence, only I can create net financial assets, which I do by operating a budget deficit (i.e., by injecting more money than I destroy), which is necessary for the private sector, in aggregate, to net save.[2]

It is true that the introduction of an external sector allows the private sector in my country to net save in the presence of a budget surplus.[3] However, it requires a substantial trade surplus and my country may be a net borrower. More importantly, I am acutely aware that some of the policies I have in mind will be difficult to institute whilst my country operates in a globalised economy characterised by highly mobile international capital. This is because international trade is governed in these circumstances by the principle of absolute advantage (Daly, 1996). This leads to trade outcomes that are not always mutually beneficial. It also allows transnational corporations to bypass the cost-internalising policies I wish to institute. Because domestic industries have been lost to countries where wages are low, working conditions are poor, and environmental standards are weak, the previous government was discouraged from introducing more stringent cost-internalising policies. Now that I am in government, I have no plans to disengage my country from the global economy. But I am working hard diplomatically to convince the governments of other nations to work towards a system that: (1) restricts the mobility of international capital; (2) permits the imposition of WTO-sanctioned 'green' tariffs to protect cost-internalisation policies from the degenerative effects of standards-lowering competition; and (3) increases the amount of foreign aid provided by rich to poor nations. Apart from emergency support, my main foreign aid emphasis is on payments for ecosystem services to reduce the rate of deforestation, population stabilisation policies, and assisting poor nations with the high cost of utilising new technology. I am hoping these diplomatic efforts will eventually lead to balanced trade and the restoration of comparative advantage as the principle governing international trade. However, I am aware that a balance in trade would make it impossible for the private sector to net save unless I operate a budget deficit (Mitchell and Mosler, 2005).

Because some of you, as private banks, can create a lot of money, you can destabilise the economy by creating too much money. Whilst I recognise that the central bank can artificially raise interest rates to deal with any inflationary impact of your excessive money creation, I understand that tight monetary policy cannot prevent the eventual disconnect between the growth in the money supply (claims on real goods and services) and the growth in goods and services caused by

[1] Internal spending power equates to the spending power that exists within the domestic economy. There are two reasons why it is important to emphasise internal spending power when referring to a currency-issuing central government. Firstly, whilst any inflationary form of central government spending will reduce the wealth-claiming power of every dollar within the domestic economy, a central government can increase the quantity of money it spends by whatever is required to crowd out the private sector's claims on real goods and services. Only the refusal of the private sector to exchange goods and services for the government's offer of money can prevent this from occurring. Assuming that the private sector always accepts the government's offer, the central government has unlimited, internal spending power. Secondly, a central government has limited, external spending power. In other words, its ability to claim foreign goods and services is limited. This is because any inflationary effect of central government spending weakens or depreciates the external value of the nation's currency, thus reducing the government's claim on externally-located goods and services. Overall, the unlimited spending power of a central government is restricted to the domestic economy.

[2] This assumes a flexible exchange rate.

[3] For any national economy, injections must equal leakages. If a country is trading with the rest of the world we have:

$$I + G + X = S + T + M$$

where I = investment, G = government spending, X = exports, S = savings, T = taxes, and M = imports. Rearranging the above, we obtain:

$$(S - I) = (G - T) + (X - M)$$

Positive net savings ($S>I$) is possible in the presence of a budget surplus ($G<T$) if there is a sufficiently large trade surplus ($X>M$). For example, the following could be occurring:

$$\textit{Net savings}\,(100) = \textit{budget surplus}(-100) + \textit{external trade surplus}(200).$$

physical limits to the expansion of a nation's productive capacity. To minimise the frequency and magnitude of financial collapses and the destabilisation of the economy that follows, I plan to take control of the money supply. I aim to achieve this by gradually increasing the fractional reserve ratio to at least 50% and by capping the amount of money that banks can create. I plan to make banks periodically bid for the rights to create money, where I hope the auctioning process will capture most of the seigniorage they would otherwise enjoy (Lawn, forthcoming).

Because I am also concerned about the exponential increase of money that is left to accumulate in interest-bearing accounts – which is again inconsistent with biophysical realities (Soddy, 1926) – I am also considering a proposal to mandate the payment of ‘simple-interest dollars’ (Lawn, forthcoming). My plan is to have simple-interest dollars exist electronically in specially designed accounts that can only be converted into real goods and services, not financial assets. Central to my plan is the electronic confiscation of simple-interest dollars that are not spent within the year of receipt. This last feature ensures that the spending of simple-interest income on real goods and services roughly coincides with the length of time it takes for the existing stock of productive assets to generate a sustainable flow of new goods and services.

3. Using a Central Government's Spending and Taxing Powers to Achieve Policy Objectives

For various policy-related reasons, I want to participate in the economy. That is, I want to muscle my way into the economy. I do this by spending — by creating money and spending it into existence. This allows me to access some of the incoming resource flow (the true input of the economic process); capital and labour (the resource-transforming agents of the economic process); and final goods and services. In doing so, I can provide the public goods and critical infrastructure required of a qualitatively-improving steady-state economy. Because I have unlimited spending power, I do not have to tax or borrow to muscle my way into the economy.

Why, then, might I tax you? There are good policy reasons for taxing you. Some of you are polluters; others are resource extractors. It is clear to me that pollution and resource extraction can impact on the natural environment, on the health of the nation's citizens, and indirectly on the economy. I therefore want to tax pollution and resource extraction (Pigouvian taxes). Because this destroys some of the spending power of polluters and resource extractors, I know that those who do either or both will have an immediate incentive to reduce the pollution and resource extraction intensity of their economic activity. In the longer term, they will have an incentive to further reduce their pollution and resource extraction by developing and employing resource-saving and pollution-reducing technology. As an ecological economist, I recognise that irrespective of how well Pigouvian taxes are designed and implemented, they cannot prevent the ‘rebound’ or Jevons' effect from overwhelming the efficiency gains that are induced by the taxes. As such, I know that Pigouvian taxes cannot guarantee ecological sustainability (Daly, 1992). Instead, I introduce cap–auction–trade systems to quantitatively limit the entropic rate of throughput. The premiums paid for the right to pollute and extract resources serve the same purpose as a Pigouvian tax. I therefore achieve ecological sustainability through the setting of quantitative throughput constraints and promote the efficient allocation of the sustainable resource flow by destroying the spending power of those who must purchase pollution/resource extraction rights.

I might also tax you because I do not like the existing distribution of spending power in the private sector. I might think it is inequitable. I am also acutely aware that the distribution of spending power is a very important consideration in a steady-state economy because I can no longer rely on GDP growth to improve the lot of the poor. I therefore tax the rich more than I tax the poor. In doing so, I destroy more spending power of the rich, thereby improving the equity of spending power. Some of you are pensioners, are unemployed, or welfare recipients of another kind. I don't tax you at all. I create money and, instead of spending it into existence, I give it to you to spend into existence.

Having said this, I believe that unemployment is socially destructive. I also believe that long spells of unemployment reduce the productivity of the nation's labour force. People have also questioned how I can achieve full employment in a steady-state economy when GDP growth is considered necessary just to prevent unemployment from escalating. I therefore act as an employer-of-last-resort by introducing a Job Guarantee (Mitchell and Muysken, 2008). The Job Guarantee provides a job for all unemployed people. I need not have to worry about whether I can finance the Job Guarantee, but I do have to think about its potential inflationary effect. I kill off a great deal of the inflationary impact of the Job Guarantee by ensuring that Job Guarantee workers produce useful goods and services. By doing this, my Job Guarantee wage bill closely approximates the value of the goods and services produced, thus ensuring the extra claims on real goods and services closely match the goods and services generated. Because Job Guarantee workers are paid a minimum living wage, I also prevent competition for labour with the private sector which would otherwise drive up wages and be inflationary.

Not all unemployed people want full-time work. I design the Job Guarantee so there are fractional jobs available for those who want them. I also provide training and work flexibility. This provides two benefits. Firstly, it forces the hand of many private sector employers to do likewise, thus enabling me to simplify existing industrial relations regulations. Secondly, it enables workers to increase their leisure time by exploiting the increase in their labour productivity. This promotes job sharing that can reduce the full employment level of real GDP. As a consequence, I need not have to pre-occupy myself with having to increase real GDP to achieve full employment.

For good policy reasons, some of the goods and services generated by the Job Guarantee programme will have public goods characteristics. Because most public goods are not sold through a market, it is possible that this element of the Job Guarantee will be inflationary. As we shall see, I may be forced to use taxes to destroy some of your spending power in order to quell the inflationary element of my Job Guarantee spending. Alternatively, and as long as the resultant inflation is not too high, I could simply allow the inflationary pressure to reduce private sector spending. Although this would reduce private sector employment across a range of wage levels, it would be matched by the increase in the number of people employed by the Job Guarantee at the minimum living wage, thereby maintaining full employment. The spillover of labour from the private sector to the Job Guarantee would continue until a non-inflationary ratio of Job Guarantee workers to conventional workers was reached. Stabilisation of the inflation rate would thus arise as a consequence of the newly engaged Job Guarantee workers having less spending power than when they were previously employed at higher, private sector wages (Mitchell and Muysken, 2008). Mainstream macroeconomists would have difficulty objecting to this approach. After all, they recommend a similar strategy that is often referred to as the NAIRU approach to inflation control (NAIRU denotes a ‘non-accelerating inflation rate of unemployment’). It involves reducing aggregate demand through monetary policy settings (i.e., higher interest rates) in order to allow unemployment to rise sufficiently to achieve an inflation-controlling ratio of unemployed labour to conventional workers. In my opinion, the NAIRU approach, which is adopted by almost all central governments, is an insidious means of controlling inflation since it requires the permanent existence of a sacrificial pool of unemployed labour. The Job Guarantee would do away with this unjust and unnecessary policy.

Continuing on with the equity theme, an inequitable distribution of spending power may also exist regionally. If, for a moment, we consider other levels of government, I might also hand over created money to some State/Provincial and Local Governments to spend into existence. That is, I might bankroll the budget deficits of other levels of government (up to an agreed-upon level) in order to drag some states/provinces and local government areas out of an economic depression. The Job Guarantee I have introduced will be of great assistance here.

Finally, I may introduce a tax to deal with economic rents. Economic rents constitute the difference between the amount paid to a factor of production and the minimum payment required to have it supplied in a factor market. Because economic rents emerge largely as a consequence of a rise in the scarcity of a particular production factor, not because of any increase in its productive capacity, economic rents constitute an unearned increase in one's claim on real goods and services. What's more, since the rich are most able to purchase economic rent-earning assets, the redistribution of spending power caused by the retention of economic rents invariably passes from the poor to the rich. Ideally, I would confiscate all economics rents by taxing them at a 100% rate. I have already achieved this in relation to natural resources and waste sinks by introducing cap–auction–trade systems. To bluntly capture economic rents from other sources, I introduce a 100% marginal tax rate on incomes above a certain level. That is, I set a maximum income limit. Because I'm operating in Australia, I decide to impose the maximum income threshold at the salary of the Australian Prime Minister. I do this in the belief that any income beyond the threshold effectively constitutes an economic rent. I am wary that some Australians might emigrate as a consequence of my decision, but, by and large, I know that my decision will not dampen incentive. I am also aware that my confiscation of most economic rents will reduce unproductive forms of investment and asset price bubbles. This is because profits can only be gained by increasing or maintaining real wealth or augmenting its use value.

After taxing what I consider to be the worst of the nation's 'bads', I might also have to tax you because my spending can be inflationary. That is, when I muscle my way into the economy, I will be competing with you for the incoming resource flow, capital, labour, and final goods and services. To some extent, my spending will simply mobilise idle resources (i.e., resources that you weren't using in any case). This element of my spending is largely non-inflationary because I'm not competing with you. However, as a rule, quite a lot of my spending is potentially inflationary. Therefore I tax you and destroy some of your spending power to quell the inflationary effect of my spending.

May I say, if I am imposing taxes on you for policy reasons, these taxes will already be playing a part in negating the inflationary impact of my spending, thus reducing my need for additional taxation. This is why it is better to view taxes as a policy instrument first and an inflation-quelling device second; and to ignore its revenue-raising function entirely — the exact opposite to the way virtually all central governments view taxation. Why don't central governments use taxes for policy purposes? More than anything else, it's because they tax the private sector up to the eyeballs in the false belief they need to raise tax revenue to finance their spending. This inadvertently destroys much of the inflationary impact of a central government's spending, but leaves it with little room to use taxation for policy purposes.

After quelling inflationary pressure through the imposition of my policy-related taxes, it may turn out that I do not have to impose much in the way of additional taxation. Indeed, if the additional taxation I have in mind applies to your income, I might be able to tax income at a much lower rate than most central governments do at present, thereby imposing less of a penalty on your value-adding (wealth-creating) endeavours. The imposition of taxes on pollution/resource extraction via the use of cap–auction–trade systems and the reduced need to tax incomes below the maximum income threshold is what many ecological economists refer to as ecological tax reform.

There are two points worth making at this stage. Firstly, in some countries, income tax powers are shared between the central government and state/provincial governments. This can reduce the ability of central governments to use income taxes to nullify the inflationary impact of their own spending. Secondly, I may find that I'm having difficulty using taxation to quell the inflationary impact of my spending. To assist me, the central bank can intervene and raise interest rates to further reduce private sector spending. If I don't want interest rates raised (i.e., I prefer interest rates to remain low), I may have to reconsider how much I spend and the nature of my spending. I should point out that the possible need for the central bank to raise interest rates does not mean that budget deficits exert upward pressure on interest rates. It simply means that 'excessive' government spending – as this might be described – may require the central bank to raise interest rates to take some heat out of the economy. As we shall see, the natural market forces on interest rates are still downward and the central bank response involves an artificial not a natural increase in interest rates.

Assuming that I have controlled inflation, I may be in a position where my spending has exceeded my taxation. That is, I will be operating a so-called budget deficit. Do I need to borrow (i.e., sell government bonds) to make up the difference? No, for reasons already given. Why might I need to issue government bonds? I do so to enable the central bank to conduct monetary policy on my behalf through interest rate settings. To recall, if I operate a so-called budget deficit, I am injecting more money into the economy through my spending than I am destroying through taxation. Eventually this net injection of money works its way through the economy and into the exchange settlement accounts (ESAs) of the major banks. The ESAs are used by banks to conduct their day-to-day transactions with each other and the central bank. Virtually every banking system in the world works in this manner. Left overnight in ESAs, funds earn a default rate of interest. In Australia, the default rate is 0.25% below the central bank's target cash rate. In many countries, the default rate is zero. Profit-seeking banks seek to off-load these funds just prior to the end of each trading day. Competition between the banks drives the cash rate below the target rate set by the central bank. Without a response by the central bank, the cash rate falls to the ESA default rate. This is precisely what happened in Japan in the 1980s where the default rate on ESA funds was zero (i.e., interest rates fell to around 0% despite large central government deficits). To defend the target rate, the central bank sells government bonds to the major banks, thus draining the excess liquidity. What appears as central government borrowing to finance a budget 'shortfall' is none other than a means by which the central bank defends the target cash rate when the government operates a so-called budget deficit. This is never taught in standard macroeconomics textbooks.[4]

Overall, we have a situation where I have taxed the private sector and sold government bonds, yet not one cent of it was undertaken to finance my spending. It was only required to:

- achieve policy goals generally, but facilitate the transition to a steady-state economy specifically;
- quell the inflationary impact of my own spending;
- allow the central bank to conduct monetary policy (i.e., set appropriate interest rates) on my behalf.

4. The Unfortunate, Real Story

What do most central governments do in reality? Apart from persisting with GDP growth without asking if the marginal benefit of growth is greater than its marginal cost, they behave as if they are

[4] Because I plan to spend at whatever level is required to ensure the adequate provision of public goods and critical infrastructure, to achieve and maintain full employment, to provide the net financial assets required for the private sector to net save, and to limit taxation once it has nullified the inflationary impact of my spending, I would almost certainly be running budget deficits. Thus, my macroeconomic policies will be placing downward pressure on interest rates, not upward pressure as mainstream macroeconomists would have everyone believe.

finance-constrained. They behave as if they need to raise 'tax revenue' and/or borrow to pay for their spending. They attempt to run a deficit only during GDP 'recessed' times to stimulate spending. They attempt to run surpluses during GDP boom times on the false belief they must accumulate the financial means to deal with a GDP recession. Some of them 'put aside' surplus funds (e.g., the Australian Federal Government) on the false belief they need to accumulate the financial means to cope with an aging population.

Over the business cycle, most central governments attempt to run a budget surplus (i.e., ensure total budget surpluses exceed total budget deficits). In doing so, they extinguish some of your net savings, thus increasing your need to borrow to maintain your spending. They also relinquish one of the most effective policy instruments imaginable in a fiat-currency economy. In the end, most central governments tax the private sector for all the wrong and unnecessary reasons. By default, a 'fiscally conservative' central government controls the inflationary pressure of its own spending and issues the government bonds to enable the central bank to conduct monetary policy. But almost all of them fail miserably in terms of:

- ensuring the entropic rate of throughput is ecologically sustainable (due to a lack of throughput constraints);
- discouraging 'bads', such as resource depletion and waste generation (due to a lack of taxes on bads);
- encouraging the maximum addition of use value to each unit of the incoming resource flow (due to the over-taxing of income and labour);
- ensuring an equitable distribution of wealth and income (due to a lack of personal income limits and a failure to capture the economic rents derived from economic rent-earning assets);
- achieving and maintaining full employment (due to a failure on the part of central governments to act as an employer-of-last-resort);
- promoting the efficient allocation of the incoming resource flow (due to a lack of cost-internalisation policies domestically and espousal of standards-lowering globalisation internationally);
- providing the public goods and infrastructure needed to support a steady-state, low-throughput, high use value-adding economy;
- controlling the nation's money supply to prevent a growing disconnect between the money supply (claims on real goods and services) and the claimable flow of real goods and services entering the market for sale.

In short, all central governments fail to take the necessary steps to initiate the transition to a steady-state economy, not only because of their on-going predilection with continuous growth, but because they fail to use their unique spending and taxation powers in the manner prescribed above.

5. Concluding Remarks

The macroeconomic issue requiring urgent consideration is what should a central government do with its unlimited spending power, its capacity to destroy the spending power of the private sector, and its ability to issue bonds to facilitate the transition to a steady-state economy in a responsible manner? It can, of course, operate like the Zimbabwean Government of recent times or the German Government of the early-1920s and totally destabilise the national economy (both cases demonstrating the unlimited spending power of a central government). On the other hand, it can spend judiciously to provide public goods, critical infrastructure, and maintain full employment; it can use taxation as a policy instrument, which would nullify much of the inflationary impact of its spending; and it can impose whatever additional taxation is required at a desirable interest rate band to completely control inflation, which, as I have argued, would probably lead to lower tax rates on income than is presently the case.

After the central government has used its taxation and bond-issuing powers to *ensure macroeconomic stability*, it matters none what the budget position is. If the central government's budget is in surplus, so be it. The surplus provides no additional spending power to the central government nor additional funds to set aside for an intergenerational fund (if it so chooses) because it already possesses a bottomless pit of money. The only intergenerational fund that matters is the future availability of natural resources and the maintenance of productive capacity. This requires the sustainable use of natural resources and constant investments in physical capital, education, and skills development — the latter of which are reduced by 'storing funds away' rather than spending them appropriately now.

If, instead, the central government's budget is in deficit, so be it. The deficit does not reduce the central government's spending power because it possesses a bottomless pit of money. People point to the issuing of government securities as evidence of a central government having to fund any budget shortfall (deficit). This is nonsense. The central bank must issue additional bonds to defend the target cash rate so it can conduct monetary policy on behalf of the central government. This does not require eventual increases in taxes or reduced government spending because the central government can use its bottomless pit of money to pay back bond holders at any time.

Overall, the macroeconomic programme I have briefly suggested in this paper is entirely responsible and disciplined insofar as it stresses the need for central governments to use their spending power wisely as well as use taxation to quell the inflationary effect of its spending. It also stresses that, should a central government be unable to control inflation, it must reconsider the extent and nature of its spending. But it would never have to reconsider its spending from the point of view of its financing capacities, because its financing capacities are unlimited.

I also believe that the programme I have proposed is more responsible than the programmes currently being delivered because, under their present *modus operandi* of balancing the budget over the business cycle, central governments tax the private sector needlessly, which leaves them with little if any room to use taxation as a policy instrument. They therefore achieve fewer policy objectives. Worse still, they are light-years away from introducing the policies required to facilitate the necessary transition to a steady-state economy.

I have recently presented these ideas to a range of audiences. The three most common responses I get are: (1) a programme of this nature is fiscally irresponsible; (2) there is a need for 'balance'; and (3) my ideas resemble a 'free lunch'. I find it strange that people assume irresponsibility at the first mention of a central government's unlimited spending power yet do not make mention of the potential destabilising effect of the financial sector — even more strange given that we are in the midst of a global financial crisis caused by the realisation of the latter. Whilst the creation of money out of nothing and the spending of it by a central government is potentially inflationary, at least a central government has the means (taxation) by which it can nullify the inflationary effect of its spending. It can also direct its spending to guarantee the creation of real goods and services, thus ensuring the extra money it injects via its spending is not chasing fewer goods and services. The same cannot be said of the financial sector.

As for the 'free lunch', it is not a free lunch we receive but free ingredients (low entropy matter-energy). The free ingredients we capture are sometimes consumed in their natural form (e.g., fruit), but most are combined in the production process to create 'lunches' (real goods and services). We can continue to create lunches – indeed, create better lunches over time (development) – so long as we exploit the ingredients sustainably. On the financial side, and since we operate in a fiat-currency economy, we require a free injection of money (financial assets) as the means by which we can claim goods and services. The only balance required is the need to make sure that the increase in the claims on real goods and services shadow the increase in goods and services made possible by nature's provision of free ingredients. Because the central government is the initial issuer of money, there is no need to balance central government spending with central government taxation. In fact, to balance real goods and services and the financial claims on them, a central government must maintain a cumulative budget deficit (Mitchell and Mosler, 2005).

There are some people who believe that, next to the wheel, money is the greatest of all human inventions. If this is true, then coming in equal first place must be the invention of the budget deficit and the ability of central governments to responsibly generate a deficit without the need to finance the shortfall. Let's hope that one day central governments become aware of this, think more creatively about what they can do with taxation, and fully exploit their fiscal powers to facilitate the much needed transition to a qualitatively-improving steady-state economy.

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