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Weaknesses of MMT as a guide to development policy

Adam Aboobaker and Esra Nur Ugurlu*

This paper addresses the limitations of Modern Money Theory (MMT) as a guide to development policy. We explore two main questions on this topic: whether policies championed by MMT advocates (i) *ought* to be implemented in low- and middle-income economies and (ii) *can* be implemented. In relation to the first question, we argue that the MMT literature mischaracterises the essence of the development challenge for low- and middle-income economies. Our argument is that the chief long-run growth challenge faced by developing countries concerns structural transformation rather than general aggregate demand insufficiency. We use several formal representations of the consumption–investment trade-off in growth theory, found in the Harrod–Domar growth model, the Feldman–Mahalanobis model and Kalecki's 1963 growth model to illustrate this point. Concerning the second question, we argue that even if MMT had the correct diagnosis of the principal growth challenge faced by developing countries, its chief policy recommendations would likely be counter-productive if implemented outside of select advanced economies. We draw from the international economics literature on currency hierarchy and exchange rate volatility to illustrate this point.

Key words: MMT, Structural change, Macro policy, Growth models, History of economic thought
JEL classifications: B0, E0, O10

1. Introduction

Modern Money Theory (MMT) has recently generated considerable discussion. While MMT has a growing following thanks to the brilliant success of its chief proponents in popularising the theory, much of the recent attention has been critical (Epstein, 2019; Summers, 2019; Palley, 2020). Although a significant amount of this attention has focussed on MMT's applicability in advanced economies, particularly in the USA, critical engagement with questions over the applicability of MMT-inspired policies

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in developing economies has been limited. Since MMT is now garnering more attention in developing countries, amidst crises of legitimacy for orthodox macroeconomic policy, the need for formal criticisms of the MMT framework is becoming increasingly relevant. This is not to suggest that criticism of orthodoxy is unwelcome. Unfortunately, however, the wide applicability of MMT is often too simply assumed, and its academic advocates have made little attempt to qualify the approach's domain of applicability. The COVID-19 economic shock has amplified our concerns with these developments, as debt monetisation under the rubric of quantitative easing has appeared to be more appealing to policymakers, despite contractions to the supply-side, in a period where the prospects for tax financing are diminished by the collapse of incomes, while the 'flight to safety' dampens foreign demand for government bonds.

This paper addresses the limitations of MMT-inspired policies in developing countries. First, we argue that the MMT approach mischaracterises the essence of the economic development challenge for low- and middle-income countries. Our argument is that the long-run growth challenge faced by developing countries concerns structural transformation rather than general aggregate demand insufficiency. Second, we argue that even if MMT had the correct diagnosis of the principal growth challenge faced by developing countries, the chief policy recommendations emphasised by MMT might be counter-productive if implemented outside of select advanced economies. While the second point has been made by some scholars in recent years, including Vergnhanini and De Conti (2017), Bonizzi *et al*. (2019) and Vernengo and Caldentey (2020), the mischaracterisation of the main economic development challenges by MMT has not received enough attention, aside from Skott (2019). The two issues we address in this paper reduce to whether MMT policy (i) *ought* to be implemented in low- and middle-income economies and (ii) *can* be implemented.

One of the main concepts we use in this paper to examine the desirability of MMT-inspired policies is the consumption–investment trade-off, which underlines the perspective that making room for investment in capital-scarce economies involves sacrificing present for future consumption. This concept has long been illustrated in a series of contributions to the development literature, including in the Harrod–Domar growth model, Feldman–Mahalanobis model, Kalecki (1963) and a more recent Harrodian representation in Skott (2019). Through examining the details of these models, which help to clarify the mechanics of the trade-off, core to historical and contemporary development theory, we argue that MMT advocates fail to consider the implication of their proposals for the composition of national output between consumption and investment. For economies suffering from a structural aggregate demand deficiency, standard counter-cyclical policies to stimulate present consumption and pursue full employment are desirable. However, for economies that require prolonged periods of rapid capital accumulation to attain higher future living standards, curtailing current consumption is needed to create space for a high investment share of output. This need begets serious political economy questions for growth strategy in developing countries, where inequalities and absolute poverty are often high. In this paper, we illustrate that MMT advocates' writings on developing countries show a lack of appreciation for these previously well-recognised points in development discourse.

The rest of this paper is organised as follows. Section 2 provides a summary of MMT's theoretical underpinnings as well as its main policy proposals in the context of developing countries. Section 3 discusses the mischaracterisation of development issues by MMT advocates. Section 4 presents formalisations of the consumption–investment

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trade-off. Section 5 addresses the limits to MMT policies, given the current international macroeconomic and financial context. Section 6 concludes.

2. A brief overview of MMT

MMT advocates often complain about the mischaracterisation of their theoretical framework by critics [see Nersisyan and Wray (2020)]. In this section, we will attempt to summarise MMT's core principles by drawing on the original writings of MMT authors. MMT, in significant part, builds on insights from Abba Lerner's work on 'functional finance', which concludes that governments should set their fiscal position at a level consistent with 'functionally' defined outcomes such as price stability and full employment (Lerner, 1943, p. 41). As such, MMT advocates setting the primary target of fiscal (and monetary) policy as maintaining full employment without excessive inflation.

The MMT approach also builds on neo-chartalism, which is a claim that countries issuing sovereign currency do not need to levy taxes to pay for government expenditures (Wray, 2015, p. 48). While there is some variation,[1] the definitions of monetary sovereignty by MMT scholars share the following features: a country is said to have sovereign currency if (i) the domestic currency is the unit of account, (ii) taxes and government expenditures are paid and debts are issued in this domestic currency and (iii) the currency is floating and non-convertible, where non-convertibility means that the government does not promise to convert the domestic currency into something they could run out of, such as gold (Wray, 2015, pp. 41–5). Under neo-chartalism, the government spends its currency into existence, which taxpayers use to pay their tax obligations (Wray, 2015). MMT suggests that households require the government to spend so that they can fulfil their tax obligations rather than governments needing the tax revenue to spend. In other words, according to MMT, the primary purpose of taxation is to drive the use of currency rather than provide revenue for government expenditures. Hence, currency issuance and tax imposition ensure widespread domestic use and acceptance of the currency.[2]

Following these ideas, MMT argues that a sovereign government cannot become insolvent in its own currency (Wray, 2015, p. 286). In other words, it cannot be forced into involuntary defaults on its obligations denominated in its currency. This implies that a sovereign government can 'afford' to purchase anything for sale, including labour, insofar as it is priced in its currency (Wray, 2015, p. xi).

Regarding policy advice, MMT advocates an expansion in government spending when total spending in an economy is 'too low' and an increase in taxes when there is a need to damp down the economy to prevent excess inflation. Concerning monetary policy, MMT recommends keeping interest rates low in the long-run. Since a government with a sovereign currency cannot default on the payment of a debt denominated

[1] For instance, Kelton (2020) adopts the 'spectrum of monetary sovereignty view', which sees monetary sovereignty as a continuum with some nations having a high degree of sovereignty and others having less, little or none. See Bonizzi *et al.* (2019) for a summary of the differences among MMT advocates regarding their thoughts on the spectrum view.

[2] Incidentally, this perspective on the role of taxation might be particularly persuasive when considering the history of capitalist development in many developing countries, particularly former colonies. See Arrighi (1970, p. 208) for a comment on the role of hut and poll taxes in stimulating proletarianisation in Rhodesia. In-kind payment was initially accepted but later discouraged to induce the payment of tax through wage employment. See Bundy (1972) for discussion on the South African case.

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in its currency, international markets, MMT advocates argue, will not doubt their payment capacity. As such, MMT contends that 'most of the pressures that governments currently believe arise from international markets are actually self-imposed constraints that arise from a misunderstanding of the nature of government deficits' (Wray, 1998, p. 75).

Concerning open economy issues, MMT proposes the adoption of a flexible exchange rate regime as a way of relaxing constraints on the ability of developing countries to implement MMT policies (Kaboub, 2007; Wray, 2012). MMT suggests that as much as a country can afford purchasing goods priced in its currency, it can also purchase foreign currency by offering up its currency in exchange. Therefore, the adoption of a flexible exchange rate regime constitutes one of the requirements for monetary sovereignty and, hence, MMT's applicability. Although some MMT scholars acknowledge that there might be limits to this, these limits are paradoxically overlooked by MMT scholars that have a developing country focus. For instance, Fadhel Kaboub, described by some as the leading development-oriented MMT scholar, in discussing open economy constraints in the Tunisian economy, argues that:

> If the Tunisian government adopts a flexible exchange rate regime and allows free convertibility of the TND [Tunisian Dinar] in international exchange markets, then Tunisia can practically import anything it wants by simply offering to exchange TNDs for whatever other currency is required for that purchase. There will always be a demand for TNDs, albeit at a devalued exchange rate. (Kaboub, 2007, p. 24)

MMT's treatment of the trade balance stands out from most conventional analyses in the literature. MMT views imports as a benefit and exports as a cost in 'real' terms (Mitchell *et al.*, 2019). Accordingly, while exporting nations bear the cost of producing the output and not getting the benefit, importing countries enjoy obtaining the output that they did not have to produce. It is for this reason that net exports are viewed as net costs, while net imports are seen as net benefits (Wray, 2015, p. 218). As Bonizzi *et al.* (2019, p. 48) note, this interpretation only considers the immediate benefits of increased current consumption and accumulation of physical capital, accompanied by a larger trade deficit, while ignoring its implications on the longer-run accumulation of cross-border financial positions.

MMT advocates for the state fulfilling a role as Employer of Last Resort (ELR) as a means to achieve the full employment objective. The ELR is a proposal for a government-funded program whereby the government employs all unemployed labour who are ready, willing and able to work in a public sector project at a basic wage rate (Kaboub, 2012, p. 307; Tcherneva, 2012). In this way, governments can introduce a mechanism to respond to business cycle fluctuations by absorbing excess labour supply when the private sector downsizes and can release workers when the economy is booming. The end target of an ELR program is to achieve full employment at all stages of the business cycle. It should be noted that some MMT advocates ascribe an even more ambitious role to ELR programs, putting them forward as a development strategy to provide 'an efficient and rapid means of meeting many of the United Nations international development goals' (Kregel, 2009, p. 39).

Building on MMT's central premise that governments that issue sovereign currencies are not financially constrained, ELR advocates argue that there is always the financial capacity to pay for ELR programs (Kaboub, 2007, p. 4; Tcherneva, 2012). Wray (2015) notes that since most developing nations have a sovereign currency, they can

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'afford' to buy whatever is for sale in the domestic currency, including unemployed labour (p. 217).

3. Misdiagnosis of the problem

The main problem with an MMT approach to development challenges in a low-income or middle-income economy concerns the diagnostic aspect. The MMT approach, in general, is geared towards managing either the issues of short-run stabilisation or 'secular stagnation'. That is, this approach is suited towards managing downturns in business cycles or long-run aggregate demand insufficiency. But this is not sufficient to drive economic development and structural change, which has significant long-run and supply-side dimensions.

Another reason why MMT's relevance to the specific problems faced by developing countries is limited is that MMT does not pay enough attention to the constraints that have historically hindered development policy. Where the literature on late industrialisation has typically focussed on industrial and trade policies, MMT's domain of relevance is strictly fiscal and monetary. This would be less surprising if there were a significant economics tradition that highlighted the centrality of general aggregate demand stimulus to drive development. Instead, there is a long tradition of macroeconomic theory, going back to authors like Rao (1952) and Chakravarty (1979), which has stressed the inapplicability of Keynesian policies as a lever for driving the development process.

The problem with MMT's diagnostic of development issues is well illustrated by the notion that the ELR can be meaningfully implemented in countries with vast reserves of hidden or observable unemployment. In essence, the application of MMT-inspired policies to developing countries amounts to a crude conflation of 'Keynesian unemployment', which stems from the deficiency of effective demand, with 'Marxian unemployment', resulting from scarcity of capital (relative to the labour supply; Boianovsky, 2018). To develop this point, it is worth stressing how classical development theory and some influential post-Keynesian macro theorists have characterised the underdevelopment challenge. From its early stages in the 1950s, development economics sought to highlight two structural features of developing economies: surplus labour/hidden unemployment and capital goods insufficiency. These two features are linked—it was argued that through a process of rapid capital accumulation, surplus labour can be absorbed and a developing economy can approach maturity. The development problem and issue of unemployment in developing countries then, as post-Keynesian theorists such as Joan Robinson put it, is *not* a problem of deficiency of effective demand, but a deficiency in the acquisition of capital goods:

> Keynesian remedies can be effective as a solution to a problem of under-utilization of capacity, but it is evident that they cannot create a capacity that doesn't already exist. (Quoted from Lavoie, 2014, p. 278)

Robinson was not the only eminent post-Keynesian to adopt this position. Kalecki was similarly dismissive of the idea that the problem of underdevelopment was one of deficient effective demand:

> The problem of unemployment in underdeveloped countries differs fundamentally from that in developed economies. In the latter, unemployment arises on account of inadequacy of effective demand. During periods of depression unemployed labour coexists with underutilized

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equipment. The situation may, therefore, be tackled by measures designed to stimulate effective demand, such as loan financed government expenditure.
Unemployment and underemployment in underdeveloped countries are of an entirely different nature. They result from the shortage of capital equipment rather than from deficiency of effective demand. (Kalecki, 1960, p. 3)

These two quotes highlight the importance, both for Robinson and Kalecki, of the distinction between Keynesian and Marxian unemployment. In the early stages of economic development, 'the reserve army of the unemployed' or 'surplus labour' exerts downward pressure on wages. This helps capitalists to generate high profits, which can be used for capital accumulation. As the pace of accumulation accelerates, capital accumulation outpaces the growth in the labour force, which builds excess capacity into the economy. Once the existing stock of capital rises above a level that is more than sufficient to employ the available labour, unemployment becomes Keynesian in the sense that it is associated with the insufficiency of effective demand, which can be addressed by expanding government expenditures. On the other hand, addressing unemployment in developing economies requires an increase in the size of the capital stock to a level sufficient to employ the available labour. In other words, raising employment and living standards in developing economies necessitates an increase in productive capacity via high levels of investment (Kriesler, 2012).

Kalecki argued that in developing nations, the attempt to secure full employment could easily lead to inflationary tendencies if productive capacity is not improved (Sawyer, 2007).[3] He discussed this possibility through his 'forced savings' argument, addressing the inflationary effects of aggregate demand stimulus in the context of inelastic wage-goods supply (Kalecki, 1954). As far as we can tell, MMT advocates have not put forward compelling responses to these classical criticisms of simplistic transplantation of macro policy ideas from advanced economies to emerging economies. This has led to the proposal of treating significant reserves of hidden and visible unemployment as absorbable through the public sector—a proposal which, in the many low- and middle-income countries affected by this issue, entails growing the government share of output to a degree seemingly unappreciated by the advocates of this proposal. In the paragraphs below we address the desirability and feasibility of this suggestion.

The policy advocacy of leading MMT scholar, Bill Mitchell, provides an illustrative example. For Mitchell, the notion that South Africa's high rate of (visible) unemployment, over 30% by broad definition, is structural in nature, is wrong. 'By any standards, the unemployment problem in South Africa is what economists call a demand deficiency situation rather than a structural problem'. Further, solving the problem is simple: 'The solution to South Africa's unemployment problem is to generate more work' (King-Dejardin and Santos, 2009, p. 115). In other words, the scourge of un- and under-employment can easily be addressed by ELR programs. This is not how

[3] Some MMT scholars acknowledge the real constraints to increasing government expenditures. For instance, Kelton (2020) notes that '[j]ust because there are no *financial* constraints on the federal budget doesn't mean there aren't *real* limits to what the government can (and should) do. Every economy has its own internal speed limit, regulated by the availability of our real *productive resources*—the state of technology and the quantity and quality of its land, workers, factories, machines and other materials. If the government tries to spend too much into an economy that's already running at full speed, inflation will accelerate' (emphasis in the original). We find it puzzling that more development-oriented MMT scholars, such as Kaboub, overlook these constraints. Besides, while it is important for MMT to acknowledge that inflation could constrain governments' ability to increase spending, this does not address the issue of how to deal with unemployed labour.

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expanded public works programs (EPWP) have been understood in South Africa. As a leading South African labour market specialist has put it: 'Unlike [African National Congress] politicians and sundry hacks, EPWP management is … usually at pains to dispel the perception that the EPWP is a "panacea" for "the unemployment problem of the country"' (Meth, 2011, p. 6).

Moreover, for Mitchell (2012), the use of ELR programs in developing countries like South Africa constitutes a development strategy insofar as it 'can serve [as] an industry policy to promote a quickening of this move to a high-wage, high productivity economy by placing pressure on market economy employers through the wage floor it establishes'. Yes, 'some employers would close their operations because they would not be able to operate at the higher costs… [but] economic development always involves a movement from lower productivity-higher cost production to higher productivity-lower cost production' (Mitchell, 2012). It is hard to situate Mitchell's proposals within established development theory—in fact, this approach seems almost specially disposed to bringing about a situation of 'pre-mature maturity', impeding the developmental use of duality. Where the wage premium plays an important role in spurring the growth of the high-productivity sector in classical development theory (like the Lewis model), Mitchell's approach flips the script by attempting to drive the transition to a high-productivity economy through collapsing the wage premium at a high cost to the low-productivity sector. This approach towards policies that put firms out of operation is concerning considering it is advocated in contexts with already high unemployment and where the informal sector employment is often crucial for keeping heightened rates of absolute poverty at bay. We acknowledge that the low-productivity sector is bound to have higher rates of exploitative practices than the high-productivity and clearly it will be ideal to transition to greater rates of formal sector activity from both the social and economic standpoints. But there are major qualitative differences between achieving a high share of formal sector employment through: (i) growing the formal sector versus (ii) through contracting the informal sector.

While Mitchell fails to recognise the nature of unemployment in developing countries characterised by vast reserves of hidden or visible unemployment, Wray (2015, pp. 229–34) notes two major challenges to implement ELR programs in these countries. First, he notes that small developing economies may produce a small range of commodities and import many types of goods they do not produce. Second, he acknowledges the significant sectoral disparities characterising these economies, whereby a small formal sector coexists with a large informal sector that generates most of the production and employment. He argues that if implemented under these conditions, the introduction of an ELR program would likely trigger a flood of workers from the informal sector towards the ELR jobs. This would bring about a significant increase in monetary incomes and demand for consumption goods, resulting in deterioration of the trade balance and quick loss of international reserves. These dynamics, Wray argues, would likely result in an exchange rate and economic crisis.

As a remedy to these challenges, Wray suggests that an ELR program in a developing nation would need to keep the program's wage close to the average wage earned in the informal sector. For Wray, the poverty-reducing capacity of the program could still be maintained by including a compensation package into ELR programs that would provide some necessities including domestically produced food items, clothing, shelter and some essential services such as healthcare, childcare and education. He argues that the in-kind nature of these transfers will decrease the chance that monetary incomes

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substitute imports for domestic production. Nevertheless, the wage income the ELR provides and the provision of necessities will generate a net positive impact on aggregate demand, which would create pressure on the trade balance. This pressure will be intensified if production by ELR programs requires imports of capital equipment. Wray suggests that careful planning by the government, such as linking the provision of imports to export earnings or international aid, can help address these undesired impacts.

To assess these proposals, it is important to scrutinise the nature of obstacles to stepping up investment, given that the lack of productive capital is the major factor driving structural unemployment in many developing countries. Kalecki (1966) discusses three major obstacles in this respect: (i) private investment may not be upcoming at an adequate rate due to lack of incentives, (ii) there may be bottlenecks in physical resources to produce more investment goods or (iii) there may be a problem of inadequate supply of necessities to cover the rising demand resulting from the increase in employment. Without formulating policies aimed at expanding the modern sector through incentives and provision of the capital goods required to enhance capital accumulation, it is hard to see how Wray's alterations to the ELR program can address these obstacles, particularly the first two.

One of the few MMT scholars to have made contributions to development literature is Jan Kregel. Kregel (2016) has been relatively clear in recognition that MMT must respond to questions regarding the existence of supply-side constraints if it is to engage meaningfully about the applicability of the framework in developing countries. The problem of rigid wage-goods supply is one manifestation of these supply-side constraints, but development theory has also long emphasised the significance of savings constraints. While Kregel distinguishes himself from other MMT counterparts in recognising this issue, it is unclear that he either incorporates or refutes relevant contributions to the development literature in this regard. He argues that most developing countries are not plagued by scarce resources, since they are labour and commodity rich, as if this sufficiently addresses the supply-constraint argument, which highlights the insufficiency of capital as opposed to labour, or as if classical development theory has been unaware of these points.

Furthermore, while Kregel may be correct to raise doubts about the ability to finance development externally through capital inflows, it is unclear whether this criticism can be levied against what he calls as the 'supply-side approach' in general. In other words, Kregel makes a considerable jump from criticising Domar's position on the relevance of external finance for development to arguing that the problems of this approach imply the need for a demand-centred MMT-led approach to mobilising domestic finance. Kregel (2016, p. 515) argues that:

> [l]ike Keynes's theory, this approach was formulated with developed countries in mind, as an argument to support the use of Keynesian expenditure policies to produce full utilisation of productive capacity and full employment. But it seems to be just as applicable to developing countries with the appropriate adaptations noted above with respect to the appropriation of Keynes's theory of effective demand and disguised unemployment.

To his credit, Kregel does not seem to argue for addressing development issues primarily through aggregate demand policy: he, rightfully in our view, highlights the importance of the exchange rate as a key policy variable under the rubric of 'New Developmentalism', and in the context of the role for the manufacturing sector as an

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engine for development. He also highlights the need for controls on foreign capital flows.[4] Unfortunately, it is hard to situate these arguments within the broader thrust of the piece and the argument in favour of MMT-led development is left underdeveloped.

If one of the main targets of a long-term development program is to increase capital accumulation, there should be incentives for firms in the modern sector to carry out the required investment. In capital-constrained economies, besides creating incentives, economic policy should also focus on creating resources for sustained capital accumulation. In our view, one of the most socially desirable ways of creating resources would be to reduce luxury consumption by high-income earners through taxation. While some MMT scholars, such as Wray (2015) consider the importance of curtailing luxury consumption, this view is in stark contrast with other MMT authors' attitude towards distributional issues, such as Kelton (2019) and Kaboub (2007).[5] Kaboub argues that under a floating exchange rate regime with convertible currency, individuals who can afford luxury goods should be free to pursue their consumption. We believe that MMT's advocacy on the basis that it offers free lunches is concerning because it overlooks the importance of resource allocation to 'finance' capital accumulation. Moreover, this criterion abstracts from distributional considerations. Distributional conflict is, in our view, central to processes of economic development.

4. The consumption–investment trade-off

That the MMT route to development is out of keeping with development theory is illustrated by a series of contributions to the literature going back a considerable period. The consumption–investment trade-off has been key to influential iterations of development theory and policy for nearly a century. For instance, Kalecki (1971) argued that making room for investment in capital-scarce economies involves sacrificing the present for future consumption, particularly restraining consumption of nonessentials out of higher incomes through appropriate fiscal policy. Formal representations of variations of this argument have been provided in the influential Harrod–Domar model,

[4] Some MMT advocates mention capital controls as an important tool that can be used to increase monetary sovereignty; however, as Epstein (2019) notes, the treatment of this issue in the MMT literature is minimal. For instance, capital controls receive one-page space in the most recently published MMT textbook by Mitchell *et al.* (2019, p. 390). While Mitchell advocates more strongly for capital controls in his blog, MMT scholars do not discuss in any sufficient detail the details and institutional specificity of capital controls that are required to enhance nations' monetary sovereignty. As another example, the only mention of capital controls we could find in Kaboub's work on ELR is the following statement: 'The proposed strategy [referring to ELR] … require flexible exchange rates, currency convertibility, capital controls…' (Kaboub, 2008, p. 226). Kaboub does not expand on this in the rest of the paper. Finally, MMT's treatment of capital controls is not free of contradictions. For instance, while Wray (2015) states that capital controls might be needed to provide developing countries with more sovereignty, he also argues that relaxing capital controls could also be desirable insofar as it allows a nation to enjoy more benefits (imports) and fewer costs (exports).

[5] Kelton makes contradictory statements regarding the role of taxation. In his 2019 Bloomberg opinion piece entitled 'The Wealth Are Victims of Their Own Propaganda, to escape higher taxes, they must embrace deficits', Kelton argues that adopting MMT thinking can provide the rich an escape from paying high taxes. On the other hand, Kelton (2020, p. 25) advocates for taxing the rich to rebalance the distribution of wealth and income and protect the health of democracy. At best, MMT is unclear regarding its stance on the redistributive role of taxation and, at worst, defending the status quo through not taking a strong position.

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the Feldman–Mahalanobis model, as well as models developed by Kalecki. In this section, we outline these models and their key conclusions.[6]

In the classic Harrod–Domar growth model the consumption–investment trade-off finds a salient representation. This is an interesting feature of the model considering the purpose of the model was to extend the static insights of Keynesian economics to a dynamic, long-run setting. The model takes both the income and the capacity-generating effects of investment into account. Equation (1) is an identity giving potential output, κ, such that ρ is the constant capacity-capital ratio and K is the capital stock. Equation (2) shows that the change in the capital stock, by definition equal to I (investment), is equal to S (saving), at the static goods market equilibrium, where s is the marginal propensity to save. A dot over a variable denotes a time-derivative, a hat denotes a growth rate.

$$\kappa = \rho K \tag{1}$$

$$\dot{K} = I = S = s\kappa \tag{2}$$

Equations (1) and (2) imply that along the goods market's equilibrium time path, corresponding to the so-called 'warranted' growth rate, a higher accumulation rate requires a higher marginal propensity to save, as seen in equation (3):

$$\hat{\kappa} = \hat{K} = s\rho \tag{3}$$

A clearer representation of the trade-off can be found in the Feldman model. Against the backdrop of the Feldman model were the rich Soviet industrialisation debates. At the inception of these debates, Soviet industry was under strain and 'the possibility of securing output increases by more intensive utilisation of available equipment was diminishing as capacity limits were approached' (Erlich, 1950, p. 59). These challenges would be aggravated by forms of demand-side stimulus: the demise of feudal lords post-revolution freed up the use of agricultural surpluses produced by peasants to be consumed rather than appropriated by the landlords predisposed to consuming luxury imports. Large-scale unemployment, meanwhile, was compatible with high rates of capacity utilisation for the simple fact that '[t]he total productive capacity of the then existing Russian industry and the size of its capital-making facilities were insufficient to absorb the labour reserve which had been inherited from the agrarian structure of the old regime' (Erlich, 1950, pp. 63–4). Fixing a labour market disequilibrium of this magnitude by 'mere reliance upon the smooth movement of resources from one small section of the economy to another and upon a more intensive utilisation of them would clearly not suffice' (Erlich, 1950, p. 77). In short, the development challenges faced by the Soviet Union in this period, stimulating industry and absorbing excess labour, were not problems of deficient aggregate demand or, in other words, Keynesian in nature.

MMT-inspired development perspectives dismiss the political and economic questions central to these debates.[7] Class conflict and a host of political economy issues are pushed to the periphery. Why broach the subject of distributional conflict (in the time

[6] The consumption-investment trade-off is also found in some neoclassical models. However, we excluded these models from our analysis given that we disagree with some of their key features, particularly the perfect factor substitutability assumption and loanable funds theory of investment.

[7] See Mitra (1977) for a stimulating characterisation of these debates.

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of Preobrazhensky, the 'peasant question'[8]) when addressing the issue of financing development, if all that is necessary is leveraging the state's capacity to create money? By taking this approach, neo-chartalists, in effect, shift the supply-side issue of how to finance/create space for development through 'forced savings', penalising luxury consumption or otherwise into the demand-side issue by asking 'how much should government expenditure grow to absorb surplus labour'.

Preobrazhensky was one of the leading Soviet intellects of the early twentieth century. His 1924 article is considered the opening gun in the Soviet debate on industrialisation. For Preobrazhensky it was clear that while substantial additions to the capital stock would have beneficial effects on future supply, there would be costs to current consumption. This could be achieved in a regressive or progressive way. The more desirable latter way could be attained by penalising usury and hoarding (Erlich, 1950, p. 81).

The Feldman model captures some aspects of Preobrazhensky's argument. It depicts two sectors/departments, one producing investment goods (department 1) and the other producing consumer goods (department 2). The model can be summed up in a few equations, derived in Domar (1957) and re-interpreted below.

Using the simplifying assumption that the capital coefficient across each sector is v, where γ is the share of total investment allocated to department 1 (producing investment goods), K_1 and K_2 give capital stocks across each department, I is output of department 1, C is output of department 2 (producing consumer goods), I_1 is the allocation of investment to the investment goods sector's capital stock and I_2 the allocation to the production of consumer goods, we have:

$$I = \frac{K_1}{v} \tag{4}$$

$$I_1 = \frac{\gamma}{v} K_1 \tag{5}$$

$$I_2 = \frac{1-\gamma}{v} K_1 \tag{7}$$

$$C = \frac{K_2}{v} \tag{8}$$

This implies:

$$\hat{I} = \widehat{K_1} = \frac{I_1}{K_1} = \frac{\gamma}{v} \tag{9}$$

$$\hat{C} = \widehat{K_2} = \frac{I_2}{K_2} = \frac{1-\gamma}{v}\frac{K_1}{K_2} \tag{10}$$

Using equations (9) and (10), we can obtain a differential equation for $\frac{K_1}{K_2}$, the inter-sector relative capital stock, given by equation (11):

[8] Financing development in a worker's state was to be done, not through the exertion of downward pressure on wages as in the industrial revolution, but through a pricing policy grounded in industrial monopoly—de facto taxation was to be implemented through shifting the terms of trade (Erlich, 1950, pp. 72–3).

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$$\left(\widehat{\frac{K_1}{K_2}}\right) = \frac{\gamma}{v} - \frac{1-\gamma}{v}\frac{K_1}{K_2} \tag{11}$$

This equation has a stable stationary solution such that:

$$\frac{K_1}{K_2} \to \frac{\gamma}{1-\gamma}$$

Using equations (9) and (10), and plugging the stationary solution into the latter, the growth rate of each sector asymptotically equals γ/v. Hence the model shows that the growth rate of the economy is directly related to the allocation of the capital stock between consumption and investment. Given that γ takes a constant value varying between 0 and 1, increasing the economy's growth rate requires allocating more resources to investment than consumption.

Kalecki (1963) similarly stressed the trade-off between growth (and thereby future consumption) and current consumption in his various writings.

$$Y = I + N + C \tag{12}$$

Equation (12) divides national income into three components: productive investment (I), the increase in inventories (N) and consumption (C).

$$\dot{Y} = \sigma I - aY + uY \tag{13}$$

Equation (13) establishes a relationship between the increment in national income ($\dot{Y}$) and productive investment. The first term represents the productive effects of investment, that is, the amount by which the national income is increased as a result of investment, where σ denotes the output-capital ratio. The second term indicates how much the national income declines due to depreciation of the existing capital equipment, where a denotes parameter of depreciation. Finally, the last term represents the increase in national income due to improvements in the utilisation of equipment, such as improvements in the organisation of labour or more economical use of raw materials.

Dividing both sides by Y gives us the growth rate of national income. Re-arranging the terms yields:

$$\frac{I}{Y} = \frac{(Y + a - u)}{\sigma} \tag{14}$$

Kalecki assumes that the volume of inventories changes proportionally to national income, that is, $N = \mu\dot{Y}$. Dividing both sides of this equation by Y gives:

$$\frac{N}{Y} = \frac{\mu\dot{Y}}{Y} = \mu\hat{Y} \tag{15}$$

where μ represents the ratio between the volume of inventories and national income (the so-called 'average period of turnover of inventories').

Using equations (14) and (15), the growth rate of national income can be written as:

$$\hat{Y} = \frac{1}{\frac{1+\mu\sigma}{\sigma}}\frac{I+N}{Y} - \frac{\frac{1}{\sigma}}{\frac{1+\mu\sigma}{\sigma}}(a-u) = \frac{\sigma}{1+\mu\sigma}\frac{I+N}{Y} - \frac{1}{1+\mu\sigma}(a-u) \tag{16}$$

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We can denote the share of productive accumulation in total income by $i = \frac{I+N}{Y}$. The share of consumption is then given by $1 - i$. Finally, let $\frac{1+\mu\sigma}{\sigma}$ be denoted as k and call k the 'total capital-output ratio' since this indicates the sum of fixed capital and inventories required to produce an increment in national income. Using this notation, equation (16) can be re-written as:

$$\hat{Y} = \frac{i}{k} - \frac{1}{\sigma k}(a - u) \tag{17}$$

Equation (17) forms the basis of Kalecki's discussion of economic growth in most of his writings (Sawyer, 1985). This equation can also be used to indicate the intergenerational trade-off between growth and (immediate) consumption because holding k, σ, a and u constant,[9] an increase in Y requires a rise in i and hence a fall in the consumption to income ratio (Sawyer, 1985). In other words, accelerating the growth of national income requires a rise in the relative share of productive capital accumulation in national income, and a concomitant decline in the share of consumption, which will adversely affect the level of consumption in the short-run.

How do these arguments relate to questions over MMT-style policies in developing countries? It is relatively straightforward to show, as Skott (2019) has done, that fiscal policy is relevant to the consumption–investment trade-off. Alternatively, if fiscal policy is monetised by the central bank to the end of absorbing surplus labour, this implies a growth in the size of the government sector scaled by the capital stock. This must come at the expense of the rate of accumulation as shown by Skott (2019) in a Harrodian setting.

Equation (18) is given by the standard national income identity, divided through by the capital stock.

$$\frac{Y}{K} = \frac{C}{K} + \frac{I}{K} + \frac{G}{K} \tag{18}$$

This equation can be rewritten as below, where $\frac{Y}{K} = \sigma$ (as above, and fixed at the 'normal' rate of capacity utilisation), $\frac{I}{K} = g$, $\frac{G}{K} = \theta$, which is a constant determined by how many (consumption) goods and services the population determines the state should provide, and W = wealth.

$$g = \sigma - \frac{C}{K}(Y,\ W) - \theta \tag{19}$$

To avoid any potential misunderstanding of equation (19), it should be noted that a lower consumption rate or government expenditure rate does not automatically *cause* a higher investment rate but is instead required to *make space* for more rapid accumulation. Importantly, recognition of this does not preclude an active role for the state—in fact, upon achieving a higher 'warranted' rate, there is a major role for the state to induce higher rates of accumulation through industrial, trade and monetary policies—but this is distinct from increasing θ. It should neither be neglected that the state is required for crucial 'investments' in health, education and physical infrastructure.

[9] Kalecki notes that in a capitalist system, u reflects changes in the degree to which it is possible to find a market for the output of existing productive capabilities. On the other hand, in a socialist economy, utilisation of productive capacity is determined by planning. As such, u in a socialist economy reflects the effects of technical and organisational improvements that do not require significant capital outlays and hence can be taken as constant. In our exposition of Kalecki's model, we take u as a constant in line with the Harrodian assumption of constancy of capacity utilisation in the long-run.

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To summarise these models, they all feature capacity constraints, whether in the form of constant capacity-capital ratios (ρ in the Domar model), capacity utilisation (u in the Kalecki model), output-capital ratio (σ in the Skott model) or constant γ lying between zero and 1 in the Feldman model. These capacity constraints have slight but important differences—σ is equivalent to the ratio of actual to potential output multiplied by ρ (in other words, $\sigma = \frac{Y}{\kappa} \times \rho$). The measure is of an aggregate nature but the fixed capital–output ratio is grounded in theory of the firm. In the Kalecki model meanwhile, u denotes the utilisation of capacity in a more general sense than strict utilisation of capital equipment, by encompassing factors like more efficient use of raw materials. Regarding the Feldman model, γ represents a capacity constraint related to the development planner's choice—'to which sector should the fixed set of resources be apportioned to maximise the growth rate?' In short, capacity constraints within all these models drive the trade-off between investment and other components of aggregate demand. The trade-off implies that in order to raise the investment rate, consumption may need to be restrained.

From a more applied perspective, concerns about capacity constraints have similarly been raised by Thomas Palley in the context of a discussion with MMT advocates regarding the viability of South Africa's Expanded Public Works Program (EPWP). Palley argued that a job guarantee was likely to have complex political ramifications if it stimulated demand for wage-goods when the South African economy did not have the capacity to produce more of these wage-goods (Mosler, 2008). Up against constraints to quantity adjustment, prices must adjust and hence excess demand stimulus has the potential to drive inflation, in the process lowering the real wages of those private and public sector workers who were not direct beneficiaries of EPWP jobs.

The formal analysis above pertains to closed economies, but we argue that the analysis extends to the open economy setting. Assuming a one-sector model producing a tradable good, further that all consumption is of domestic tradable goods, and if all capital goods are imported (an assumption relevant to many developing economies)—the level of exports is determined as a residual from domestic output not consumed. Assuming balanced trade in the long-run, a higher level of consumption means lower exports and consequently a lower level of investment consistent with balanced trade. A formal representation of a similar argument can be found in Razmi *et al.* (2012). More generally, discussion of the open economy raises a host of issues addressed in the following section.

5. The international macro context

Much of the MMT literature view external constraints on policy choices as being self-imposed and MMT's policy proposals for developing nations, in general, downplay binding external constraints (Bonizzi *et al.*, 2019, p. 53).

The international currency hierarchy literature and the concept of 'original sin' provide a relevant starting place to examine the extent to which developing countries possess 'monetary sovereignty'. The international monetary system has a hierarchical and asymmetric institutional structure organised around a key currency, the US Dollar (Andrade and Prates, 2013). In this structure, currencies are positioned according to their degree of liquidity, which reflects their ability to perform the three functions of money on the international scale: means of payment, unit of account (denomination of contracts) and store of value (international reserve currency; De Paula *et al.*, 2017). The relative size of

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an economy, the nature of integration with the world markets, geopolitical power and the willingness to internationalise the domestic currency influence the extent to which currencies can perform these functions. The US Dollar, placed at the top of the hierarchy, is followed by currencies of other core countries, such as the Euro and Japanese Yen. Given their inability to perform the international money functions, currencies issued by developing nations are placed at the bottom of this structure (De Paula *et al.*, 2017).

The hierarchy among currencies engenders various challenges for developing nations. It makes them vulnerable to capital flight and their currency markets more susceptible to the volatility of short-term capital flows (Andrade and Prates, 2013). Furthermore, the asymmetric structure makes it challenging for most countries to borrow in domestic currencies domestically and internationally, both in the short and long-term (Hausmann and Panizza, 2003). The phenomenon of foreign currency borrowing, the aforementioned 'original sin', although not limited to, is overwhelmingly associated with developing nations.

Foreign currency borrowing can be made by households, firms or the government. In the proceeding paragraphs, we will refer to the borrowing made by firms. There are a few reasons why firms in developing countries often struggle to borrow in domestic currency and resort to borrowing in foreign currencies. First, some of the key intermediate goods, such as machinery and energy, are not always sold in domestic markets in domestic currency. As developing countries attempt to move away from producing agricultural commodities to manufacturing goods, the need to import capital goods, mostly from advanced economies, increases. Furthermore, technological dependence results in a strong inelasticity of imports to growth, particularly with respect to the capital or technology-intensive imports of intermediate goods. Given the integration into the world economy as exporters of primary commodities and low-value-added manufacturing products, export revenues do not typically suffice to pay for these imports. As a result, most developing countries exhibit a structural tendency to run trade deficits and obtain foreign currency to meet their payment obligations.[10] This tendency for trade gaps and foreign exchange constraints have long been theorised in the classical structuralist literature, for instance, by Prebisch (1962) and Thirlwall (1979).

The second reason why many developing countries resort to foreign currency borrowing relates to foreign investors' unwillingness to hold developing country currencies. A country can borrow in domestic currency only as much as its lenders are willing to provide, and in the current international system, the demand for currencies other than a small number of key currencies is limited. Jeanneret and Souissi (2016) document that outstanding international debt securities are denominated primarily in four currencies: the US Dollar, the Pound Sterling, the Euro and the Japanese Yen. Eichengreen *et al.* (2005) similarly show that more than 90% of all international financial contracts are denominated in five currencies. These findings are striking in the context of roughly 150 existing currencies that could alternatively be used (Fritz *et al.*, 2018).

The concept of currency hierarchy requires that monetary returns of assets denominated in peripheral currencies must compensate for their lower liquidity relative to that of core currencies to induce foreign investors to demand such assets and to prevent capital outflows by domestic investors (De Paula *et al.*, 2017). This applies to sovereign bonds issued by developing nations. Furthermore, if the markets perceive an increase in government spending as a sign

[10] While foreign exchange constraints hold for many developing countries, some developing countries, particularly those that are commodity exporters, can have foreign exchange excesses during times of high commodity prices. Our analysis pertains to developing countries that systematically lack foreign exchange.

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of a lower commitment to debt retirement, this can result in a self-fulfilling expectation of exchange rate depreciation and higher long-term interest rates. Indeed, many developing nations resort to fiscal tightening to compensate for the negative effects of currency depreciation[11] on their fiscal balance and to inspire global investors' confidence (De Paula *et al.*, 2017). In practice, these are reasons why interest rates are often set at higher levels in developing countries than advanced economies, which suggests that standard Keynesian monetary tools for stimulating expansion are constrained in an important sense, particularly in the absence of capital controls. This also means that contrary to what is argued by MMT advocates, fiscal austerity is not always self-imposed; developing country governments are subject to instability triggered by international markets' unfavourable reactions to expansionary policies.

Third, the lack of development of domestic financial markets can force developing countries to borrow in international markets. Domestic financial markets in developing nations are often characterised by credit constraints and higher interest rates charged on lending (De Paula *et al.*, 2017; Bonizzi *et al.*, 2019). These problems are exacerbated by the unwillingness of domestic private actors to borrow or hold domestic assets and currency whose value is often volatile. These factors restrict the ability of the financial system to provide long-term credit necessary for industrialisation.

What does the structural nature of balance of payments (BoP) deficits and dependence on foreign debt mean in practical terms for the issue at hand? First, the structural nature of BoP deficits and the issues of fiscal balance are interrelated. Introducing restrictions on the imports of (luxury) consumption might be one potential way of relaxing the BoP constraints, which suggests a role for higher income and consumption taxes. This suggests that even when operating under a floating exchange rate regime with a convertible currency, the conduct of fiscal policy in open economies has to take the BoP constraints into consideration (Skott, 2019).

Second, alongside (net) foreign debt accumulation, private and public sectors in developing nations can be subjected to currency mismatches on their respective balance sheets. When developing countries are subject to vagaries of international capital flows and exchange rate volatility, as is often the case in flexible exchange rate regimes, an increase in currency mismatch on balance sheets would further increase the risk premiums.

While flexible exchange rate regimes may lessen some more immediate problems of thinking about the relevance of MMT in developing countries, insofar as the pressure to accumulate foreign currency to defend the integrity of the currency peg disappears, they come with their own set of challenges that requires grappling with. Relying on domestic currency borrowing under a flexible exchange rate system will likely devalue the domestic currency due to capital outflows and pressures on the current account balance. To Kaboub (2007), this does not represent a problem because developing countries will be able to import *anything* they want merely by offering their domestic currency, and there will always be a demand for those currencies, albeit a devalued exchange rate. However, this suggestion can have severe implications for inflation and external debt financing (Bonizzi *et al.*, 2019).

[11] This raises the question 'why not allow the depreciation?'—a substantial literature has emerged linking real exchange rate depreciation to long-run growth (see Demir and Razmi, 2022 for a review of the literature)—but this may raise questions about whether the real exchange rate is a target or a tool. Using fiscal policy as a tool to target full employment, it will only be by fluke that the real exchange rate corresponding to the desired fiscal expansion is consistent with the target level of undervaluation required by structural transformation imperatives. *N* targets require at least *N* independent instruments (Tobin, 1993). This obviously leaves room for monetary policy to pursue an exchange rate target. But MMT advocates subordinate the role of monetary policy to financing fiscal policy, through debt monetisation.

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A decline in the value of the domestic currency will likely put upward pressure on domestic prices. Wray (2006) and Kaboub (2007) claim that depreciation will increase only the *relative* prices of commodities with significant import content, which they refer to as 'relative price effect' rather than 'inflation'. However, given that many developing countries are net importers of key intermediate goods, such as capital goods and energy, which enter the production process of almost everything, a rise in the prices of these key goods will be reflected in the *overall* price level. Furthermore, in the case of continuous pressure on the exchange rate for a significant period or a rise in the overall price level triggering a price-wage spiral, domestic currency financing under a flexible exchange rate regime has the potential to trigger inflation. The empirical evidence indicates that the effect of currency depreciation on inflation, or the 'exchange-rate pass through', tends to be stronger in developing nations than advanced economies (Mohanty and Scatigna, 2005). Concerns regarding the pass-through impact are also an important reason why many developing country central banks adopt an asymmetric stance with respect to exchange rate policy, tolerating real exchange rate appreciations by remaining inactive in the case of an appreciation while fighting against depreciation beyond some threshold (Benlialper and Cömert, 2016).

Second, the free-floating exchange rate regimes can lead to cyclical crises given that capital flows often follow a speculative and volatile logic that results in exchange rate volatility (Vergnhanini and De Conti, 2017). Short-run capital flows constitute the primary determinant of exchange rate dynamics in developing countries, which are shaped by expectations. Given that the currencies of developing nations have a lower liquidity premium in relation to the key currencies, in times of increasing uncertainty, assets denominated in these currencies become the first victims of the 'flight to safety'. On the other hand, under more promising circumstances, international investors tend to hold illiquid assets denominated in peripheral currencies, given that they generate higher overall returns. The existence of a hierarchical currency structure conditions the behaviour of exchange rates because any sudden change in financing conditions in core nations or in expectations can trigger a rapid response in exchange rates. Operating under high vulnerability to portfolio flows and exchange rate risk, developing country government may find themselves in a position to choose between domestic currency financing of imports or preventing the exchange rate from collapsing (Bonizzi *et al.*, 2019). Often, they adopt administrated exchange rates with different degrees of intervention to avoid sudden defaults that could be caused by currency mismatches and to avoid the inflationary pressures.

Overall, MMT's assertion that a country with a sovereign currency cannot default on its public debt in that sovereign currency is misleading insofar as it does not take into consideration that the international demand for the assets denominated in developing country currencies is limited and volatile (Vernango and Caldentey, 2020).

6. Conclusion

The core perspective outlined in this paper is summarised in the view that MMT does not constitute a valid approach to long-run macroeconomic policy in a developing country. Authors in the MMT tradition could pay greater recognition to important structural limits on fiscal and monetary space of developing country governments. Further, it is necessary to identify that the challenges of developing countries go beyond the scope of influence of standard counter-cyclical aggregate demand policies.[12]

[12] This observation has implications beyond MMT-affiliated prescriptions; Keynesian aggregate demand policies are subject to similar limitations.

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While these policies can be necessary for stabilisation, they are not sufficient for addressing the full class of growth challenges faced by developing countries. A long and rich history within the development and macroeconomic theory has outlined some of these issues. A more nuanced approach to state intervention in developing countries would include a greater focus on the role for trade and industrial policies that create a suitable environment for modern sector activity. Recognising and organising against this state of affairs is the art of a long tradition of heterodox development thought, which, in our opinion, MMT makes little contribution to and shows no regard for.

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