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Financing green transformation in developing countries

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ABSTRACT

The prospects for external financing of green transformation and resilient post-COVID-19 recovery remain bleak for developing countries. The scope for mobilising substantial domestic resources is limited, while public-private partnerships and blended finance failed to mobilise promised finance. Borrowing from central banks remains the only viable option for financing green transformation. The conventional arguments against such borrowing, e.g. growth retarding acceleration inflation or macroeconomic instability do not have sound theoretical or empirical basis. However, democratic oversights are needed against fiscal abuse to ensure productive utilisation of borrowed funds. A high degree of coordination between fiscal and monetary authorities is also essential.

RÉSUMÉ

Les perspectives de financement externe pour un programme d'écologisation et une relance économique résiliente à la suite de la pandémie de COVID-19 demeurent peu encourageantes pour les pays en développement. La marge de mobilisation de ressources domestiques substantielles est limitée, tandis que les partenariats public-privé et les financements mixtes n'ont pas pu mobiliser les financements prévus. Les emprunts aux banques centrales demeurent la seule option viable pour financer un programme d'écologisation. Les arguments habituels contre de tels emprunts, soit la notion que l'instabilité macroéconomique retarde la croissance, et l'accélération de l'inflation, n'ont pas de fondements théoriques ou de base empirique. Cependant, un contrôle démocratique est nécessaire contre les abus fiscaux afin d'assurer une utilisation productive des fonds empruntés. Un haut niveau de coordination entre les autorités fiscales et monétaires est également essentiel.

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Introduction

The report of the Inter-Governmental Committee of Experts on Sustainable Development Financing (IGCESDF), set up in June 2013 by the General Assembly of the United Nations (UN), estimated that several trillion dollars per year would be needed annually for climate-compatible and sustainable development, with U$5~7 trillion

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additional financing for infrastructure (IGCESDF 2014). It also estimated that the available global savings were around US$22 trillion a year which should be sufficient to meet these needs if they are allocated correctly.

Therefore, according to the IGCESDF, 'the challenge for policymakers lies in facilitating greater investment of disperse financing flows into areas of global need, and in improving the quality of present policies, approaches, and instruments, addressing inefficient and harmful subsidies, corruption, tax evasion, illicit financial outflows … '. The IGCESDF Report proposed a basket of over 115 policy options, including for tax revenues, and suggested areas for advancement of the global partnership in the areas of trade, taxation, financial market stability, debt, and development cooperation, among others.

While the on-going COVID-19 has made the financing situation more challenging, prior to the pandemic the United Nations Conference on Trade and Development (UNCTAD 2019) estimated that an additional US$2.5 trillion a year would be needed in developing countries alone for 'green transformation'. Meanwhile developed countries have failed to deliver on their promise made twelve years ago at the UN climate summit in Copenhagen to channel US$100 billion a year to less wealthy countries by 2020 to help them adapt to climate change and mitigate further rises in temperature. Besides controversy about the accounting methodologies, a 2020 report for the UN concluded that 'the only realistic scenarios' showed the US$100-billion target was out of reach (IEGCF 2020).

Developing countries' ability to tackle the enormous climate change crisis is highly constrained due to limited fiscal space. The pandemic hit when the debt levels have been rising in almost all countries, especially since the 2008–2009 global financial crisis (GFC) (Kose et al. 2020). Even prior to the onset of the pandemic, rising public debt levels and heightened debt vulnerabilities were a concern in many developing countries. These vulnerabilities increased dramatically in 2020, according to the World Bank's *International Debt Statistics 2022*. The crisis drove up financing needs and thereby public borrowing, while weakening individual countries' economic fundamentals and capacity to service and repay public debt.

Considering the above, this paper will examine the financing options for developing countries' green transformation or efforts to build forward green, more resilient, and inclusive economies as envisioned in the UN Agenda 2030 for Sustainable Development Goals (SDGs). Given the bleak prospects for external financing, such as overseas development assistance (ODA) or climate finance and external borrowing constraints, as well as limited scope for mobilising domestic resources (e.g. tax revenues and savings), this paper argues that developing countries can finance their green transformation only through domestic borrowing, especially from their central banks. The paper debunks neo-liberal paradigms regarding central bank financing of public or government investment, such as growth-retarding inflation, crowding out or balance of payments crises.

The paper begins with a brief discussion of the external financing landscape for developing countries in the wake of the COVID-19 pandemic. It is followed by a discussion of developing countries' limited scope for mobilising adequate domestic revenues due to low income and structural features of their economies (e.g. large informal and peasant agriculture sectors). It then briefly examines alternative sources of finance to argue that the factors which limit the scope for raising domestic revenue, such low level of income and institutional weakness, also are limiting factors for domestic savings, and

that such instruments as public–private partnerships (PPPs) for leveraging private capital are fraught with uncertainty and contingent fiscal risks. The paper then provides empirical evidence from a large number of developing countries' experiences which, contrary to the neo-liberal claims against government domestic borrowing, have successfully implemented various instruments, in particular from their respective central banks. The final section contains concluding remarks.

The state of developing countries' external finance

External financial sources include borrowing (debt), foreign capital (long-term FDI and short-term portfolio equity) and aid. 'Climate finance' is a form of aid that developed countries promised in 2010 specifically to help developing countries deal with climate change mitigation and adaptation. The International Monetary Fund (IMF)'s Special Drawing Rights (SDRs) can potentially play a significant role in development finance.

The COVID-19 pandemic has worsened financing situation for many developing countries with less tax revenue, reduced exports and foreign investment inflows, and ODA cuts. Estimated falls in foreign direct investment (FDI), remittances, tourism receipts and government revenue of least developed countries (LDCs) (US$62.8 billion) are larger than total ODA to LDCs (US$57 billion) in 2019 (Development Initiatives 2021).

Net financial flows

The pandemic had a significant impact on aggregate net financial flows (debt + FDI + portfolio equity) to low- and middle-income countries (LMICs), declining from US $1.3 trillion in 2018 to US$908.6 billion in 2020 (Figure 1). Net FDI inflows to LMICs fell by 14 per cent from US$505.7 billion in 2019 to US$435 billion in 2020,

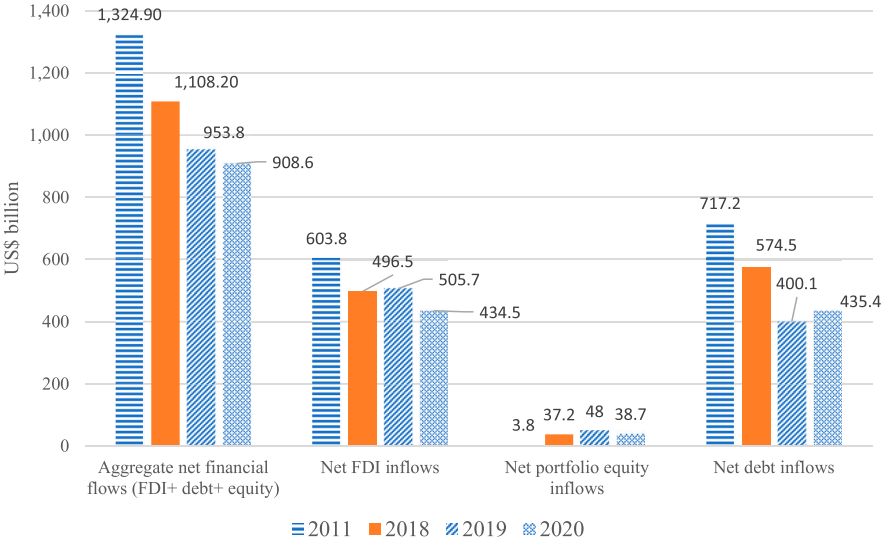

Figure 1. Net financial flows to low- and middle-income countries (US$ billion). Source: World Bank (2021), *International Debt Statistics 2022*.

the lowest level in a decade, and excluding China, FDI was 23 per cent less in 2020. Net debt inflow to LMICs increased slightly by around US$35 billion due to pandemic related borrowing (Figure 1). However, the 2020 amount of US$435.4 billion was significantly less than US$717.2 billion in 2011, indicating increasingly difficult access to the credit market for LMICs.

External debt burden

LMICs' combined external debt stocks rose sharply in 2020 and at end-2020 were US$8.7 trillion (Figure 2). For many countries the increase was in double digits. Long-term public and publicly guaranteed external debt rose 10 per cent in 2020 to US$3.7 trillion, equivalent to 43 per cent of total external debt stock.

The rise in external indebtedness was not matched by gross national income (GNI) and exports growth. During 2019–2020 LMICs' external debt-to-GNI and debt-to-export ratios rose, respectively to 29 per cent from 27 per cent, and to 123 per cent from 106 per cent (World Bank 2021). At the same time, the spreads on developing country bonds rose sharply, making it costlier to borrow, while the value of currencies against the dollar dropped significantly, making debt servicing more expensive. The aggregate foreign exchange reserves of LMICs fell by US$330.4 billion in 2020 (World Bank 2021).

The International Monetary Fund (IMF 2021) projects central government gross debt of emerging market and developing economies (EMDEs) at 63.4 per cent of GDP in 2021. The record-high EMDEs debt makes these countries vulnerable to financial market stress, and the list of EMDEs in debt distress has greatly lengthened (Bulow et al. 2020).

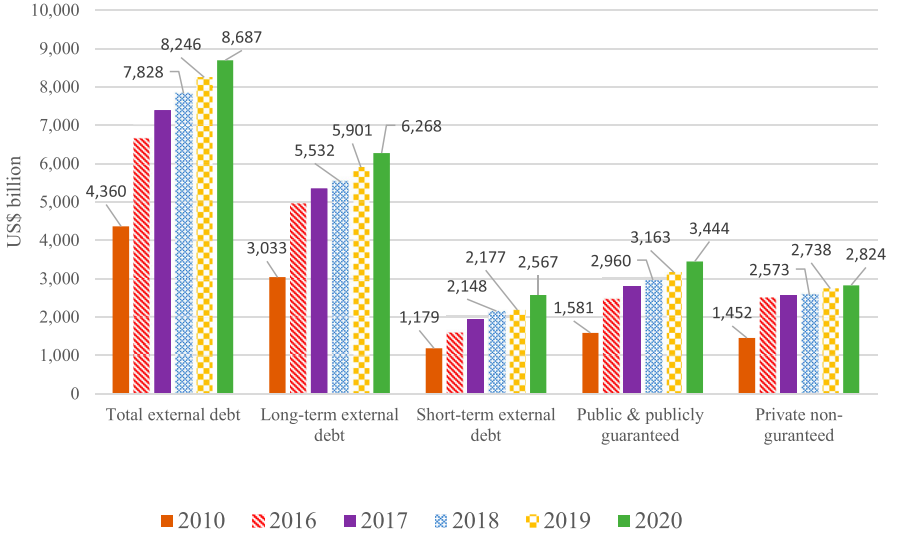

Figure 2. External debt stocks of low- and middle-income countries, 2010–2020. Source: World Bank (2021), *International Debt Statistics 2022*.

Note: Public and publicly guaranteed and Private non-guaranteed debts are components of long-term external debt which includes financing from the IMF.

Aid commitments

Meanwhile, ODA from the Organisation for Economic Cooperation and Development (OECD) has remained below half the donor aid commitment, made half a century ago, of 0.7 per cent of their GNI. ODA has largely been stagnant since 2016, and the aggregate ODA/GNI ratio fell from 0.31 per cent in 2017 to 0.29 per cent in 2019 (Cornish and Chadwick 2021). The pandemic has led to cuts in foreign aid from donor nations such as Britain (cutting its aid budget by US$5.5 billion), Australia, and Japan, and there has been a marked decline in ODA from bilateral donors in 2020 (Wilkins 2021). More importantly, while ODA grants are shrinking in significance, ODA loans have continued to grow – a trend that accelerated dramatically in 2020. At the same time, international financial institutions (IFIs) decreased the proportion of aid commitments to LICs (Dodd, Knox, and Breed 2021). These developments added to the developing countries' debt burden.

The donors and IFIs, in particular the World Bank, have promoted the concept of 'blended finance' (BF) just before the Third UN Conference on Financing for Development in Addis Ababa in 2015. It was claimed that aid money could leverage private finance to turn 'billions to trillions' for development finance (World Bank-IMF 2015). The World Economic Forum (WEF) claimed that the BF 'honey trap' was working: 'every dollar of public money invested typically attracts a further $1~ 20 in private investment', according to its survey (*The Economist* 2016).

However, the initiative has failed to achieve its purported objective to fill the estimated US$4~5 trillion annual SDGs funding gap (Doumbia and Lauridsen 2019). It could mobilise only US$0.37 of additional private capital for every US$1 of public money invested in LICs (Attridge and Engen 2019). *The Economist* (2020, 66) concluded, 'early hopes may simply have been too starry-eyed. A trillion-dollar market seems well out of reach. Even making it to the hundreds of billions a year may be a stretch'.

Climate finance

At the 26th Conference of Parties (COP26) of the UN climate summit in 2021, held in Glasgow, developed countries could not provide any blue-print mobilising their promised US$100 billion a year. The rich countries, in particular the United States (US) and the European Union (EU), also opposed a 'loss and damage' fund demanded by the most vulnerable developing countries, such as Small Island Developing States (SIDS). Despite its outsized contribution to global climate change, the US pays only 4 per cent of its fair share of international climate finance (Colenbrander et al. 2021).[1]

The US$100 billion annual target is hugely inadequate, even without taking COVID-19 pandemic impacts into account. The US$100 billion target was somewhat arbitrary, and far short of the needs of developing nations, especially the poorest.

At COP26, the G77 + China developing country caucus – negotiating for 130 nations representing 85 per cent of the world's population – called on donor countries to mobilise at least US$1.3 trillion yearly by 2030, equally split 50/50 between adaptation and mitigation, with at least US$100 billion in grant funding. However, Australia, Norway, and the EU refused to settle on a firm commitment.

According to the Climate Policy Institute (CPI 2021) which provides the most comprehensive overview of global 'climate-related primary investment' or climate finance, total (public and private) climate finance increased from US$364 billion in 2011–12 to US$632 billion in 2019–20, but increases have slowed since 2017–18. It also shows that an increase of at least 590 per cent in annual public *cum* private climate finance is required to meet internationally agreed climate objectives by 2030, and to avoid the most dangerous impacts of climate change.

CPI further notes that most climate finance – 61 per cent – was raised as debt, of which only 12 per cent was low-cost or concessional. Equity investments – the next largest category after debt – came to 33 per cent of total climate finance. Grant finance was a paltry 6 per cent of the total.

Three-quarters of global climate investments were for East Asia and the Pacific, Western Europe, and North America, revealing gross inequity marginalising Africa, Latin America, and the Caribbean SIDS. Even in East Asia and the Pacific, which accounted for almost half in 2019–20, South Pacific SIDS received very little as 81 per cent of the investments were in China.

Special drawing rights

The SDR is an international reserve asset, created by the IMF in 1969 to supplement its member countries' official reserves. To date, a total of SDR 660.7 billion (equivalent to about US$943 billion) have been allocated, which includes the recent most allocation in August 2021. The value of the SDR is based on a basket of five currencies – the U.S. dollar, the euro, the Chinese renminbi, the Japanese yen, and the British pound sterling.

Several leading economists and the UN have argued for using SDRs for COVID recovery, especially in LICs (Bradlow and Gallagher 2021; Gallagher and Ocampo 2021). Since its creation, it has been argued to link SDRs to development finance (see Eichengreen 2021; Park 1973). In 1965, a group of experts working for the United Nations Conference on Trade and Development (UNCTAD) argued that SDRs should be allocated to meet the development finance needs of newly independent countries. But nothing happened despite repeated calls by developing countries for IMF reforms. Subsequent new SDRs were allocated according to member quotas, broadly reflecting countries' relative position in the world economy.

New SDR allocation was agreed on 2 August 2021, more than a year after the proposal was made by the IMF's Managing Director.[2] Although the largest amount in history, the agreed amount is insufficient. While early in the crisis, the IMF estimated at least US$2.5 trillion financing need for developing countries, about SDR 456 billion (equivalent to approximately US$651 billion) was approved. The *Financial Times* (2020) believed a total of SDR 1trillion (US$1.37 trillion) was needed to help poorer countries.

Because of the current SDR allocation system based on countries' quota or automatic borrowing rights, within the IMF – quota formula heavily dependent on countries' aggregate GDP – barely 3 per cent of new SDRs went to LICs, 30 per cent to middle-income emerging market economies, nearly 60 per cent to HICs, and more than 17 per cent to the US, which can print dollars at will (Eichengreen 2021). Therefore, several leading economists (Bradlow and Gallagher 2021; Gallagher and Ocampo 2021; Herman 2020;

Eichengreen 2021) have suggested new SDR allocation rules, including re-channelling unused SDRs from HICs to special funds at the IMF and multilateral and regional development banks, designated as 'prescribed' SDR institutions, for COVID-19 recovery, especially in LICs.

But the prospect of changing SDR allocation rules to support development is bleak. Meanwhile, the IMF has proposed a Resilience and Sustainability Trust (RST), aimed at helping countries build resilience, respond to climate change, and accelerate transitions supportive of both development and climate. The proposed RST will be initially financed by 're-channelling' unused allocations from the recently approved SDRs.

The G7 leaders called upon other countries for contributions in support of their 'aim to reach a total global ambition of [US]$100 billion' of voluntarily re-channelled SDRs to help LICs deal with the pandemic and achieve green recovery.[3] This so-called 'global ambition' is miniscule compared with the US$17 trillion that rich countries have spent to support their economies during the pandemic. The G-20 economies reported combined pledges of only US$60 billion, far short of the 'global ambition', and less than a quarter of the US$290 billion allocated to the G-7 economies.[4]

The RST must be well-designed to effectively utilise re-channelled SDRs. Observers have already expressed concerns about onerous conditionalities, eligibility criteria to access the RST, and the IMF proposal to charge interest (currently five basis points and on the rise) on SDRs *plus* a margin of up to 100 basis points (Ahmed, Bárcena, and Titelman 2021; TFCD & IMF 2021).

Given this grim and uncertain situation with regard to possibility of external financing of green transformation, and resilient and inclusive recovery, most developing countries, especially LICs, have to rely predominantly on domestic sources. As we argue in the next section, the scope for mobilising the needed amount of finance domestically is also limited for them.

Mobilisation of domestic resources

Most developing countries have made progress in improving their tax efforts over recent decades (IATF 2021). For example, the median tax-GDP ratio in LDCs increased from around 10 per cent in 2008 to about 13 per cent in 2019, and that in MICs increased from around 16.5 per cent to slightly over 18 per cent during the same period. SIDS and land-locked developing countries (LLDCs) made the most progress, raising their median tax-GDP ratios, respectively from slightly over 18 per cent to around 22.5 per cent and from around 13 per cent to marginally above 18 per cent during 2008–2019.

However, a more complex picture emerges when we consider non-grant government revenue which includes cash receipts from taxes, social contributions, and other revenues such as fines, fees, rent, and income from property or sales; although ODA grants are also considered as revenue, they are excluded. While average non-grant government revenues increased from 16.3 per cent of GDP in 2009 to 20.6 per cent in 2018 in the case of upper middle-income countries, it plummeted for LDCs from marginally below 20 per cent of GDP in 2011 to around 14 per cent in 2016 (Figure 3). LICs showed some promise, raising average non-grant revenue-GDP ratio from 11 per cent in 2001 to 14.4 per

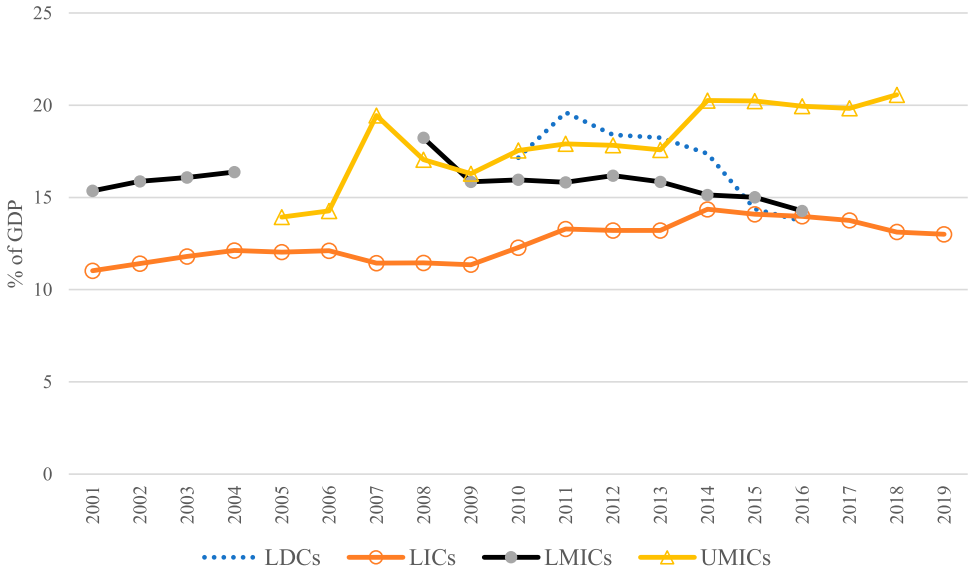

Figure 3. Average non-grant government revenue (% GDP), 2001–2019. Source: World Bank online data.

Notes: LDCs = Least Developed Countries; LICs = Low-income countries; LMICs = Lower middle-income countries; UMICs = Upper middle-income countries; MICs = Middle-income countries. LDCs are classified by the UN using 3 criteria: income (GNI), human assets and economic & environmental vulnerability, whereas LICs are classified by the World Bank solely based on income (GNI). Some MICs are classified as LDCs due to their low human assets and high economic & environmental vulnerabilities.

cent in 2014; but it declined to 13 per cent in 2019. Lower middle-income countries struggled to raise their average non-grant government revenue from around 15.5 per cent of GDP since 2009, and experienced steady declines in recent years.

There are a number of factors that limit developing countries, specially LICs and LDCs, scope for raising domestic revenues. Some of them are related to the structural features of these economies and others are policy related – exacerbated by external factors.

Structural barriers

Low income means, low tax base – there are simply not enough people earning significantly above the income threshold liable for tax. This stylised fact is presented by Besley and Pearson (2014), showing that tax shares in GDP are positively correlated with income. The tax-GDP ratios of today's developed countries were very similar a century ago to what they are now for poorer countries. In other words, countries tax capacity grows with income levels.

The low income constrain is compounded by the presence of a large agriculture sector. Research has shown that higher shares of agriculture and service sectors in GDP are negatively correlated with tax-GDP ratios in developing countries, see for example World Bank (2012).

A further complication is the incidence of informality. The large informal sectors in poor economies are inherently hard to tax (La Porta and Shleifer 2014).

Tax evasion and tax competition

Tax avoidance and evasion, especially by large multinational corporations (MNCs), continue to be a significant barrier to domestic resource mobilisation efforts as countries cannot act on this unilaterally (IATF 2019). MNCs avoid taxes through base erosion and profit shifting (BEPS), using highly sophisticated techniques to 'move' or declare profits in different jurisdictions without any significant changes in underlying real economic activity.

The IMF and the World Bank promoted 'supply side economics' since the early 1980s, claiming excessive tax rates discourage labour supply and entrepreneurship. As countries raced to the bottom, offering increasingly generous tax incentives to attract MNCs, corporate income tax (CIT) rates in developing countries fell by about 20 per cent since 1980 (Keen and Brumby 2017). However, tax concessions had little effect in diverting FDI (OECD 2008a; *The Economist* 2017; World Bank 2018).

Thus, in most cases, there have been net revenue losses as developing countries heavily depend on CIT – e.g. comprising 18.6 per cent of tax revenue in Africa, 15.5 per cent in Latin America and Caribbean, compared to 9.3 per cent in OECD countries in 2017. LMICs have lost US$167~200 billion annually, usually around 1~1.5 per cent of a country's GDP, due to corporate tax competition (Quak 2018).

The recently agreed minimum global CIT rate of 15 per cent is too low to address harmful tax competition and BEPS. Furthermore, many observers, including *The Economist* (2021), agree that the proposed distribution formula for additional tax revenues favours MNCs' rich home countries. The Independent Commission for the Reform of International Corporate Taxation had recommended a 25 per cent minimum and fairer revenue distribution to developing countries.[5]

Trade liberalisation and tax losses

Historically, developing countries depended more on trade taxes because of administrative ease. They are now losing revenues due to the pressure of trade liberalisation. Developing countries have steadily reduced tariff rates since the 1990s. The financial implications of this trend are likely greater for LICs, which sliced tariffs by more than half, from 36 per cent to 12 per cent between 1996 and 2010, on average, compared to a 7 per cent average cut in MICs. Many developing countries could not compensate the loss from trade-related taxes with the more regressive indirect taxes such as goods and services tax (GST) or value added tax (VAT) (Baunsgaard and Keen 2005).

Alternative sources of finance

The IGCESDF report noted that there are adequate funds available. The overall saving rates in most developing countries have increased substantially from an average of around 18 per cent in the late 1960s to about 32 per cent in 2009 of their incomes, as reported in the World Bank's *Global Development Horizon*.[6]

Figure 4 presents trends in private savings as a percentage of GDP in HICs, MICs, LICs and LDCs. While MICs made significant progress with the rise of income, raising gross savings rate from around 30 per cent of GDP in 2000 to over 37 per cent

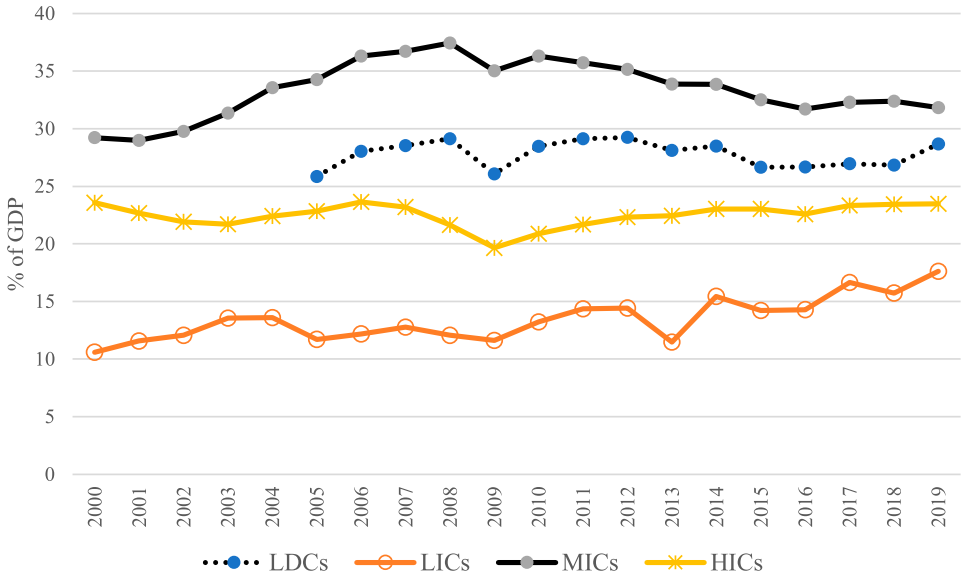

Figure 4. Gross savings ratios (average 2000–2019). Source: World Bank online data

in 2008, their savings rate steadily declined since the GFC to reach 31.8 per cent in 2019. LICs have also been able to raise their average savings rate from 10 per cent of GDP to 17.6 per cent during the same period.

Income is the single most important determinant of savings; across countries saving rates tend to go hand in hand with income growth. However, policies to ease access to financial institutions (and instruments) and financial sector stability as well as monetisation of the economy do enhance private savings. Some countries employed government bonds or certificates as saving instruments in the absence of a well-developed financial sector. Others, for example Singapore and Malaysia, have mobilised significant amount of private savings during their early phase of development by using administrative methods, such as compulsory contributions to provident or retirement (pension) fund.

Further challenge lies in finding ways to channel these private savings to sustainable development investment. Pros and cons of two broad alternative options are discussed here. They are: (a) public–private partnerships (PPPs) and (b) public borrowing from the domestic non-bank private sector. We also discuss pros and cons of public borrowing from central banks.

Public–private partnerships (PPPs)

PPPs is one of the ways recommended by the IGCESDF report, endorsed in the Addis Ababa Action Agenda. However, PPPs suffer from some serious problems both in terms of fiscal and sustainable development outcomes (Jomo et al. 2016). These include inadequate risk-sharing and contingent fiscal liabilities, compounded by treatment of PPPs as off-budget activities by most governments (IMF 2004, 2006). PPPs are also found generally to be more expensive (Blanc-Brude, Goldsmith, and Välilä

2006). The OECD (2008b) observes that had these projects been delivered through public procurement, their performance may have been just as good.

After a systematic review of a large body of literature on PPPs in developing countries, the Evaluation Department of the Government of the Netherlands (2013) concluded that (i) the evidence based on PPP evaluations is still scarce and hardly relies on sound and robust empirical counterfactual analysis; (ii) reported effects of PPPs are rather positive at output level, but also weak, mixed and negative effects are registered in several occasions; and (iii) the evidence of some development outcomes and effectiveness is rather weak.

Thus, it is unsurprising that PPPs have yet to become a major catalyst of investment in key sectors for sustainable development. Even in countries which make most use of PPPs, such as UK and Australia, they only account for about 15 per cent of all infrastructure investments; for most OECD countries the proportion is less than 5 per cent and, within Europe, PPPs represent little more than 5 per cent of all infrastructure investment (Hall 2015).

Public borrowing

Public domestic borrowing has to remain as one of the options for domestic resource mobilisation since 'the level of government expenditure and particularly of public investment in key areas of the economy has often been … a necessary ingredient of the development process' (Ahmad and Stern 1989, 1013).

However, there has been aversion to government borrowing, especially since the debt crisis of the 1980s. It is argued that government borrowings from the non-bank private sector do not positively add to savings and growth, ultimately risking debt sustainability. Two main channels are suggested through which this can happen – (a) crowding out and (b) increase in private savings to offset negative public saving (borrowing) – the so-called 'Ricardian equivalence'.

Government borrowing from central banks is also discouraged and, in some countries (e.g. Indonesia and Philippines) prohibited by legislations. It is argued that such central bank borrowing, commonly referred to as monetising debt or simply, 'printing money' causes growth retarding macroeconomic instability and accelerating inflation. We argue that none of these neo-liberal arguments have sound theoretical or empirical basis.

Debunking neo-liberal paradigm

The neo-liberal approach towards macroeconomic policy making since the 1980s has become almost articles of faith. This paradigm is sustained often by referring to historically exceptional circumstances or using discredited research (Alexander 2013; Chowdhury and Islam 2012).

Macroeconomic impacts of fiscal deficits and debts

It is commonly argued that fiscal deficits lead to deficits in the current account of balance of payments. This follows from the national income identity:

$$Y = C + G + I + X - M \tag{1}$$

where Y is national income, C is private consumption, G is government expenditure, I is private investment, X is exports and M is imports. Thus, equation (1) shows how national income is spent.

National income can also be divided as:

$$Y = C + S + T \tag{2}$$

where S is private savings and T is tax. Thus equation (2) shows how national income is allocated.From equations (1) and (2), it follows that:

$$(G - T) + (I - S) = M–X \tag{3}$$

Assuming that the gap between private investment and savings (I-S) is stable, fiscal deficit (T-G) will be matched by current account deficit (M-X). That is, the correlation between fiscal and current account deficits will be almost perfect (or 1).

Neoclassical economists have presented this simple accounting fact as a 'twin deficit hypothesis', implying an outcome of economic agents' (consumers, investors and government) behaviour. It is, therefore, argued that excessive government deficits cause balance payments crises, turning correlation into causation. This, thus, provides the basis for the IMF's fiscal austerity prescriptions.

Evidence presented in Figure 5(a) from 141 countries covering the period 2000–2019 should dispel the fears that fiscal deficits inevitably cause balance of payments problems (larger current account deficits). For the majority of the cases, there is no obvious relation between the two. Nonetheless, it seems that fiscal positions with +10 per cent and −10 per cent (shown in red circles) can serve as a useful marker; that is, fiscal positions within this range may not have any significant impact on the balance of payments of a country. Governments can also use countervailing measures, such as restricting luxury imports and managing capital flows, to maintain a competitive exchange rate and promote exports.

Thus, it is not surprising that fiscal deficits do not necessarily retard growth as revealed in Figure 5(b). As it can be seen, countries' per capita GDP growth can be high even when budget deficit exceeds 10 per cent of GDP. On the other hand, per capita growth can be low if budget surplus exceeds 10 per cent of GDP. Thus, it seems that countries can have fiscal positions (deficit/surplus) within +10 per cent and −10 per cent (shown in red circle) without inevitably harming growth.

These findings provide considerable counter-cyclical and developmental policy space for fiscal policy. At times of economic downturns or shocks, governments can increase fiscal deficits up to 10 per cent, while tightening fiscal belt during economic booms to raise fiscal surplus beyond 10 per cent may harm growth.

The fixation with a particular debt-GDP ratio lacks a sound basis. For example, the 60 per cent debt-to-GDP ratio, used by the European Commission and the IMF as the upper threshold for fiscal sustainability was decided arbitrarily – the 'European authorities never provided sound economic justifications' (Priewe 2020, 111; Buiter et al. 1993). Similarly, the 3 per cent budget deficit rule of the EU was also determined in an arbitrary manner. None of these ostensible 'bench-marks' rest on any optimality analysis in any meaningful sense, something the neo-liberal order is particularly fond of.

The IMF's 40 per cent debt-GDP ratio limit for EMDEs is only for external, not domestic debt. The IMF (2002, 25) acknowledged, 'it bears emphasizing that a debt ratio

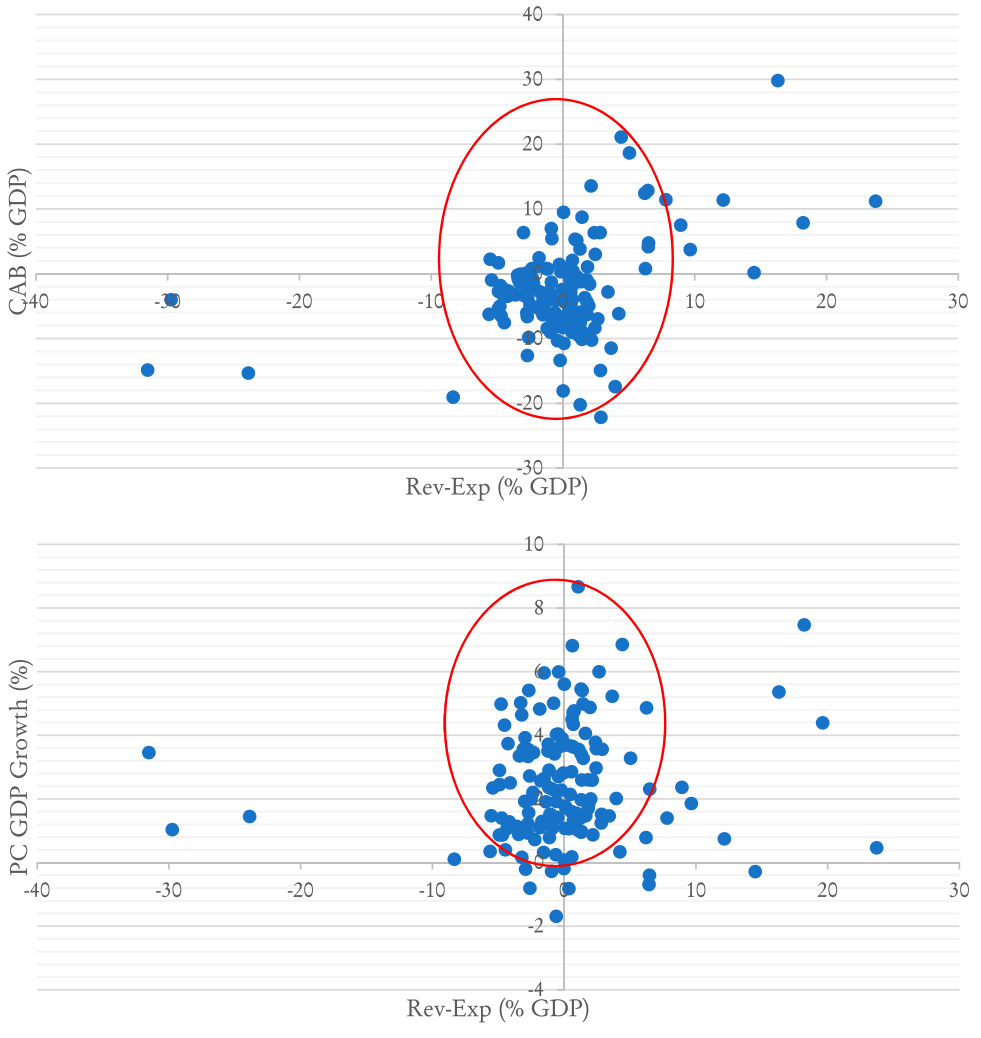

Figure 5. (a) Fiscal balance and current account balance (Average 2000–2019; 141 countries). (b) Fiscal balance and per capita GDP Growth (Average 2000–2019; 147 countries). Source: World Bank, online data.

above 40 per cent of GDP by no means necessarily implies a crisis'. It further noted that no single threshold can reliably define the turning point at which a country's debt would prove unsustainable, as country-specific factors and circumstances beyond the debt ratio play important roles.

The IMF (2012, 109) reiterated:

> There is no simple relationship between debt and growth. In fact, … there are many factors that matter for a country's growth and debt performance. Moreover, there is no single threshold for debt ratios that can delineate the 'bad' from the 'good'.

This vindicates the World Bank's observation, 'There is no unique set of thresholds for each macroeconomic variable between stability and instability' (World Bank 2001, 6).

The IMF Fiscal Monitor, May 2010, advocated fiscal consolidation, claiming that high fiscal debt would cause macroeconomic instability. However, the evidence it presented (Appendix Figure 4, p. 67) is very weak. Virtually, there is no relationship between initial gross debt and macroeconomic stability. The apparent slight positive relationship is due to outlying values – debt in excess of around 120 per cent of GDP. Similarly, Appendix Figure 1 (63) shows that the negative relationship between initial gross debt and per capita GDP growth is influenced by outliers – initial debt in excess of 100 per cent.

However, a distinction needs to be made between domestic and foreign debt. Domestic currency debt is deemed sustainable as long as national economic growth is greater than the interest rate (IMF 2020). Moreover, governments can 'roll over' domestic currency debt, although interest costs may be higher. While external borrowing can increase a country's access to resources, domestic borrowing only transfers resources within the country. Hence, only external debt generates a 'transfer' problem (Keynes 1929). Since central banks in developing countries cannot 'print' the hard currency necessary to repay external debt, external borrowing may lead to debt crises.

World Bank research (Bua, Pradelli, and Presbitero 2014) notes, domestic financing has some prominent advantages: lower exposure to exchange rate volatility; lower vulnerability to capital flow reversals; countercyclical policy space to mitigate external shocks; and improved institutional infrastructure underlying the organisation and functioning of local financial markets. In general, long-term domestic currency-denominated debt reduces maturity and currency mismatches and hence tends to be safer.

Since the early 2000s, several developing countries adopted aggressive policies aimed at retiring public external debt and substituting it with domestically issued debt. As a result, the share of domestic public debt (in total public debt) in developing countries rose from around 30 per cent in 1994 to around 40 per cent in 2005 (Panizza 2008).[7]

Central bank governors have long agreed that 'the scope for relying more on domestic markets, and less on international markets, is considerable'.[8] Nevertheless, borrowing in domestic currency should not enable fiscal irresponsibility. The key challenge is to ensure the most effective and productive use of such borrowed funds. Pragmatism requires considering capacities, capabilities and checks against abuse and wastage.

Crowding out effect of government borrowing

Neo-liberal argumentation maintains that government borrowing and spending push up interest rates and discourage private investment. This view, however, ignores the indispensable role of the government spending in generating essential sources of effective demand to keep economies ticking. State inaction would only worsen mass unemployment and bankruptcies and deepen the crisis conditions.

More importantly, the argument of interest rising is too simplistic, based on a very simple model that regards money supply as fixed and does not include the role of retail banks in creating credit money. When a government spends, the central bank credits the commercial bank accounts of recipients, augmenting retail banks' cash reserves. This increases banks' ability to lend more or create credit money unless the central bank raises the mandatory reserve requirements for the banks against their deposits. The overall money supply, thus, increases if central banks do not offset ('sterilise')

such effects, e.g. by selling government or central bank or short-term securities, or associated derivatives such as 're-purchase' agreements. Therefore, instead of pushing up interest rates, the central bank discount rate declines, exerting downward pressure on retail interest rates.

Furthermore, if a government borrows for infrastructure investment or skill development, overall productivity increases, and business costs decline, leading to 'crowding-in' of private investment. The IMF (2014, 75) observes, for instance, that 'debt-financed projects could have large output effects without increasing the debt-to-GDP ratio, if clearly identified infrastructure needs are met through efficient investment'. IMF staff research shows that when governments spend on infrastructure, they create many new jobs (Moszoro 2021).

The arguments of crowding out and balance of payments crisis are not internally coherent, especially when considered in conjunction with another neo-liberal claim – 'Ricardian equivalence' – that government borrowings (deficits) cause equivalent increase in private sector savings (decrease in private spending) in anticipation of higher future tax liabilities to pay for the debt. According to this dogmatic orthodox argument any possible impact of debt financed government expenditure on aggregate demand and output or employment is neutralised.

However, in this imaginary world of Ricardian equivalence then neither crowding out nor the balance of payment crises ought to happen. It is not surprising that extensive surveys by IMF researchers of related literature could not find any robust support for either of these: 'There is little evidence of direct crowding out or crowding out through interest rates and the exchange rate. Nor does full Ricardian equivalence or a significant partial Ricardian offset get much support from the evidence' (Hemming, Kell, and Mahfouz 2002, 5).

Furthermore, massive fiscal and monetary measures during the COVID-19 pandemic crisis and also over the 2008–2009 GFC helped, in fact, prevent economic depressions without causing the kind of problems that the neo-liberal visions have propagated. On the contrary, the turn to austerity advised by the IMF, OECD, and European Central Bank, invoking influential, but misleading academic research 'was a catastrophic mistake' (Coppola 2017), and prevented robust recovery from the GFC.

Government borrowing from central banks and inflation

Neo-liberals claim that government borrowing to finance deficit spending cause inflation and currency depreciations. This claim has led to such institutional fetters as central bank independence with a single mandate to keep inflation at a targeted low level. However, the overwhelming experience of central banks' purchase of government bonds (known as monetary financing of the government) since the 2008–2009 GFC, including during the current pandemic is that such action does not necessarily lead to rising inflation and currency depreciations.

Aßhoff, Belke, and Osowski (2021) did not find any lasting impact of unconventional monetary policies (UMP), which include central banks' purchase of government bonds, on inflation expectations in the Euro area during 2009–2018 as inflation remained stable. Similarly, research within the IMF (Agur et al. 2022) found no evidence of systematic effects of UMP on inflation expectations, even in the case of direct government

financing programmes in EMDEs. Ben Bernanke, the former Chair of the US Federal Reserve, claimed regarding UMP in his 2020 American Economic Association Presidential Address,

> costs and risks – including the possibilities of … high inflation … have proved modest. For example, worries about high inflation were based on a crude monetarism, which did not adequately appreciate that the velocity of base money would fall in the face of low interest rates. (Bernanke 2020, 5)

However, inflation may occur during crises if there are disruptions such as breakdowns in global supply chains due to pandemics, conflicts or sanctions, and precautionary/preventative restrictions such as lockdowns. Inflation can also be caused by rising commodity, such as oil prices. Most economists and central bankers agree that the recent inflationary surge is due to supply bottlenecks created by Russia's invasion of Ukraine and subsequent punitive sanctions against Russia and her allies, over which central banks have no control.[9]

Inflation and growth

Figure 6 plots average inflation and average per capita GDP growth in 163 countries (including West Bank and Gaza) for the period 1990–2020. Three facts stand out: (a) inflation and per capita GDP growth are positively related for inflation up to 30 per cent, (b) inflation-per capita GDP growth relation becomes negative when inflation exceeds 40 per cent, and (c) growth rates can be high or low for inflation up to 20 per cent (shown in the red circle).

Therefore, there is no solid empirical basis for the commonly used inflation targets of around 2–3 per cent for developed and 5 per cent for developing countries. Analysing

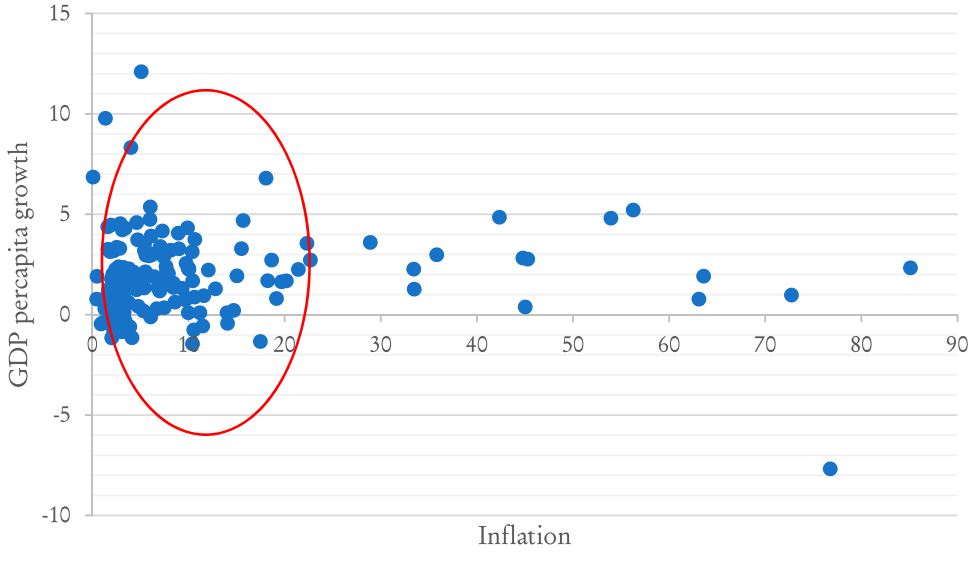

Figure 6. Inflation and per capita GDP growth (Average 1990–2020; 177 countries). Source: World Bank, online data.

1962–1992 data for 127 countries, Bruno and Easterly noted (1998, 3), 'The ratio of fervent beliefs to tangible evidence seems unusually high'. They found extremely high inflation – over 40 per cent yearly – were mainly due to very exceptional circumstances, e.g. after revolutions in Nicaragua and Iran, and concluded that inflation under 40 per cent did not tend to accelerate or worsen. Dornbusch and Fischer (1993) came to similar conclusions.

The 2 per cent inflation target, which has become a norm for developed countries, was first chosen by New Zealand completely arbitrarily. It came from a casual remark by the New Zealand central bank governor on television (Subramanian 2021; Irwin 2014). Similarly, the IMF's 5 per cent inflation target for developing countries has no empirical basis as acknowledged by the IMF's Independent Evaluation Office (IEO 2007).

Empirical studies on the inflation-growth relation found various threshold levels beyond which inflation may harm growth. However, these thresholds do not necessarily mean a sharp cliff-edge implying that growth would plummet when the threshold is hit. It is more likely that the threshold is a plateau and hence policy makers do not have to over-react every time the inflation rate edges up.

These empirical findings give monetary authorities considerable policy space, and they need not respond aggressively whenever any sign of inflation emerges. Anti-inflationary or stabilisation policies need to consider growth and distributional consequences. In the wake of the 2008 GFC, both the Managing Director and Chief Economist of the IMF at the time, criticised the *one policy one instrument* approach of bluntly using the interest rate to tackle all kinds of inflation (Blanchard 2012; Strauss-Kahn 2011).

Nonetheless, policymakers should be watchful, especially against wage-price spiral, i.e. giving in to demands for higher wages because of higher inflation. In such circumstances, higher wages are passed on to higher prices, and thus can create a vicious circle of inflation-wage demand-inflation.

There are alternative measures to deal with inflation and wage demand, for example, subsidised provisioning of services, such as child-care, healthcare, education, and public transport. Collectively, they can be termed as 'social wage', made possible by supportive fiscal policy.

Developmental role of the central bank

Historically, central banks have played developmental roles, e.g. by financing public investment Florence and (Dafe and Volz 2015). For example, the Bank of England even pioneered creating specialised development institutions, e.g. the Industrial and Commercial Finance Corporation, the Finance Corporation for Industry, and the Bankers' Industrial Development Company.

The US Federal Reserve Act is committed to realise 'the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates … in furtherance of the purposes of the Full Employment and Balanced Growth Act of 1948'.

Central banks of Italy, Germany, Japan, and the Netherlands have used various means to finance areas underserved by credit markets. These include lowering bank reserve requirements and lending for priorities such as housing, agriculture, exports, small business, and underdeveloped regions.

Central banks have also played an important role in development by easing the constraint of access to credit for firms through credit allocation policies. For example, subsidised bank loans (known as 'policy loans') were a vital instrument for the implementation of the strategy of the Republic of Korea for promoting heavy and chemical industries. In India, a decisive shift in credit deployment in favour of the agricultural sector took place in the 1970s and 1980s. From an extremely low level at the time of bank nationalisation, the credit share of the sector had moved to nearly 11 per cent in the mid-1970s and to a peak of about 18 per cent at the end of the 1980s, which was the official target. This change played an important role in the increase of agricultural output in India.

Developmental objectives are explicit in many developing countries' central bank statutes. The statutes of some central banks established in the 1970s and 1980s with IMF technical assistance have specific provisions for developmental roles, e.g. in Bhutan, Botswana, Fiji, Maldives, Solomon Islands, Swaziland and Vanuatu (Chandavarkar 1987).

Neo-liberals object central banks' direct financing of government programmes arguing that such practice can lead to 'fiscal dominance' and hence undermine central banks' independence and credibility. However, they do not make distinction between governments' development and non-development (recurrent) expenditures. Central banks' direct financing of governments' development and green transformation programmes in fact should enhance central banks' credibility and legitimacy.

Coordinating recovery and sectoral policies for green transformation

Borrowing from central banks to finance recovery and green transformation need to envisage desired changes, conducting business and work in new ways, creating new activities, accelerating digitalisation, revitalising rural and regional economies, and making economies more sustainable. Lessons can be learned from the EU, Japan, South Korea, and China.

One unique feature of the EU's pandemic response is the coordinated and targeted efforts of the European Central Bank and the EU for stepping up public investment and reforms following the pandemic (Hirtenstein 2020). This will allow member States to address the economic and social impact of the pandemic while pursuing green and digital transitions to become more sustainable and resilient.[10]

Bank of Japan is supporting the government's relief and recovery packages to promote structural change and post-pandemic economic growth, and to secure disaster management safety and relief as well as to fight climate change (Kajimoto and Kihara 2021) Certain provisions provide incentives for companies to invest in digitisation and green technologies.

The central bank of South Korea has expanded its purchase of government bonds.[11] It has also taken several measures to provide monetary support to the government's pandemic relief and recovery programmes, in particular 'Korean New Deal' for investing in digital and green sectors, and to expand employment safety nets (Kim et al. 2020).

The central bank of China's increasing emphasis on targeted monetary policy tools reflects its alignment with the government's long-term agenda (Liao and Chang 2020). The People's Bank of China's 'structural' monetary policy is essentially a set of differentiated policies that aim to optimise liquidity and credit allocation, to support key sectors,

while avoiding bubbles and overheating in sectors such as real estate, industries that are experiencing overcapacity.

Concluding remarks

The financing need for green transformation is daunting, especially for developing countries – far beyond their capacity to mobilise domestic resources. While donor promoted blended finance instrument turned out to be too optimistic, the Bank-Fund encouraged PPPs are found to be fraught with contingent fiscal risks with doubtful impacts on green transformation.

Given the bleak prospects for external financing of green transformation and resilient post-COVID-19 recovery in the face of developing countries' already high external debt burden, dwindling FDI and declining concessional aid, and advanced countries' failed climate finance promise, we have argued for domestic borrowing. Debt that finances productive social and infrastructure spending should lead to higher income and hence ultimately offset the cost of debt service and help balance risks over debt sustainability. We have presented evidence debunking neo-liberal paradigms against debt-financed transformative public investment, such as crowding out of private investment and accelerating inflation.

However, in most low-income and lower middle-income countries domestic capital markets are shallow and fragile. This is mostly due to low savings and such structural features as low income, large informality, and subsistence agriculture. Therefore, the only viable option for these economies is borrowing from their indigenous central banks. We have presented evidence refuting the conventional arguments against such borrowing, e.g. growth retarding acceleration inflation.

Nevertheless, democratic oversights are needed against fiscal abuses, including speculative activities, and to ensure productive utilisation of borrowed funds. Success, no doubt, will also depend on a high degree of coordination between fiscal and monetary authorities.

Notes

1. The principle of 'common but differentiated responsibility and respective capabilities' has long been at the heart of the UNFCCC; but there is no agreed formula to determine 'differentiated responsibility and respective capabilities'. Colenbrander et al. (2021) used a composite index comprising gross national income (GNI) and population for 2020 as crude proxies for countries' capacities, and recent cumulative CO2 emissions during 1990–2019 to estimate each country's 'fair share'.
2. The proposal was opposed by the Trump Administration because it would benefit countries disliked by the US, the largest shareholder of the IMF. Reuter report, "U.S. stalling massive IMF liquidity boost over Iran, China: sources", 15 April 2020, <https://www.reuters.com/article/us-imf-worldbank-sdrs-idUSKCN21X0L8> (accessed 29/12/2021).
3. <https://www.whitehouse.gov/briefing-room/statements-releases/2021/06/13/carbis-bay-g7-summit-communique/> (accessed 12/01/2022).
4. IMF News Report, 22 February 2022.
5. <https://www.icrict.com/about-icrict> (accessed 4/1/2022).
6. <http://siteresources.worldbank.org/EXTDECPROSPECTS/Resources/476882-1368197310537/Chapter2_web.pdf> (accessed 31/12/2021).
7. When weighted by GDP, the average share of domestic debt rose from 49% in 1994 to around 70% in 2005.
8. <https://www.bis.org/publ/bppdf/bispap11b.pdf> (accessed 9/09/2021).

9. <https://www.marketplace.org/2022/05/12/fed-chair-jerome-powell-controlling-inflation-will-include-some-pain/> (accessed 30/05/2022); <https://www.reuters.com/business/finance/bailey-says-hes-unhappy-about-inflation-boe-not-blame-2022-05-16/> (accessed 30/05/2022).
10. <https://eucalls.net/blog/next-generation-eu> (accessed 24/02/2022).
11. <https://www.centralbanking.com/central-banks/monetary-policy/unconventional-monetary-policy/7803656/bank-of-korea-to-expand-government-bond-purchases> (accessed 31/12/2021).

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