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Financial integration, productive development and fiscal policy space in developing countries

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ABSTRACT

This paper offers a simple, tractable post-Keynesian model, which highlights the importance of structural change and productive development in defining the dynamics of the Real Exchange Rate (RER) and foreign debt in a small open developing economy. The argument is that in countries that keep the capital account open and rely on austerity policies to induce a notional surplus in the Balance of Payment, the RER can hardly be used as a tool aimed at smoothing the impacts of changes in international financial markets (as argued in the classical macroeconomic trilemma). In our model, capital flows and fluctuations in the RER endogenously feed back into each other and give rise to medium-term cyclical macroeconomic volatility. Fiscal austerity, supposedly taming external imbalances, exacerbates such instability. More diversified productive structures and stronger non-price competitiveness open more space for expansionary fiscal policies, make the economy more resilient to finance-led macroeconomic cycles and make external debt more sustainable. Capital controls, together with stronger price sensitivity of net exports, can further stabilize the economy. The paper carries important policy implications, in particular for the combination of industrial and macroprudential policies in peripheral economies, whose pattern of specialization is highly dependent on a few low-tech commodities. The adoption of industrial policies to foster non-price competitiveness and diversification is critical to sustaining macroeconomic stability, both in the short and the long run.

1. Introduction

The Covid-19 pandemic gave rise to a massive global economic shock. Almost all governments worldwide had to intervene with bold fiscal measures either to provide emergency support to households and firms during lockdowns or to finance longer-term recovery plans. The Ukraine war now sets new, no-less defying challenges with public finances subsidizing economic actors hit by increasing energy and food prices. Dismal global economic forecasts may require national governments to keep on pursuing expansive fiscal policies in the near future. Fiscal space, however, is not equal amongst countries. Empirical evidence suggests it is larger in developed countries than in developing and emerging ones – EDE henceforth (Kose et al., 2022), and that wide differences also exist amongst EDE countries themselves (Heller, 2005). On top of this, the space for fiscal policy may have changed through time due to increasing EDE countries' integration in the global financial market and exposure to mobile capital flows, amongst other factors. How financial integration influences fiscal policy in EDE economies is likely to be crucial in the current scenario of progressive abandoning of quantitative easing and restrictive monetary policy in developed countries, and (therefore) tightening liquidity in global financial markets.

In this paper, we analyse the relationship between financial integration and fiscal policy in the context of a small open developing economy. Our goal is to analyse the implications on economic dynamics of fiscal policies that respond to and deal with finance-led cyclical macroeconomic volatility. More specifically, we study how restrictive fiscal measures, cuts in public expenditures in particular, which are supposedly meant to avoid exchange rate crises, excessive external indebtedness, and capital flights, may actually exacerbate macroeconomic instability rather than not. In doing this, we also consider how the productive pattern of the economy and the ensuing capacity to export (and/or to reduce import dependency) cushion the effects of external

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shocks. Ceteris paribus, structural change, and successful productive diversification in EDE countries may in fact increase the external solidity of the economy and open more space for expansionary fiscal policies or reduce pressures for the adoption of austerity programs.

We develop our arguments by presenting a simple macro-aggregated model in which foreign capitals play a leading role in the determination of domestic demand injections (private consumption and investment on top of public expenditures) and the *short-run* demand-driven macroeconomic equilibrium. The medium-run dynamics of the economy is in turn described by the joint evolution of the real exchange rate (RER) and of the foreign debt-to-capital stock ratio. In this regard, we formally model the boom-and-bust dynamics (i.e., exchange rate appreciation and increasing external indebtedness followed by currency collapses and massive capital outflows) that integration in global financial markets often generates in EDE countries. Given such fundamental dynamics, we describe the (undesirable) effects of contractions in public expenditures originally aimed at addressing mounting external imbalances, the accumulation of external debt, and rising interest rates. We finally describe how an economy that is better capable to generate current account surpluses via "improved" parameters reflecting productive development and diversification may structurally become more stable and avoid (misplaced) recurse to fiscal adjustments.

The paper is organized as follows. Section 2 provides a brief review of the existing literature about financial integration and fiscal policy in EDE economies, as well as of the frequent pro-cyclical nature of fiscal policy itself in such countries. Section 3 presents the fundamental structure of our model and the determination of the short-run equilibrium. Section 4 moves the attention to medium-run cyclical dynamics in EDE countries. Section 5 describes the dynamic effects of (restrictive) fiscal policies and the stabilizing role of more developed and diversified production systems. Section 6 draws some policy implications of our analysis. Attention is to Capital Flow Management (CFM) policies. In our view, they emerge as useful policy tools, complementary to industrial policy, that may conduce to more "productive development-friendly" macroeconomic environments, namely a stable and competitive RER coupled with counter-cyclical fiscal policy stances and wider space for productive development-orientated public investment. Section 7 concludes.

2. Financial integration and fiscal policy: a brief literature review

The relationship between fiscal policy and external account in EDE economies is a long-standing core topic in development economics. It thus comes with no surprise that it is now at the forefront of the economic debate given the bold fiscal actions taken by most governments worldwide in the wake of Covid-19. On the one hand, international economic institutions note that fiscal responses to Covid in 2020–2021 have been generally milder in EDE countries than in advanced economies (IMF, 2022). On the other hand, ongoing discussion is about how to create enough fiscal policy space for public support for post-Covid recovery (Cimoli and Kozul Wright, 2022). Both analyses explicitly or implicitly recall the possible endogeneity of EDE countries' fiscal space to constraints imposed by the foreign sector and EDE countries' positions in the balance of payments (McCombie and Thirlwall, 2002; Neto and Vernengo, 2004; Arestis and Sawyer, 2010; Porcile and Yajima, 2019; Vernengo and Perez Caldentey, 2020). It is even more so in the present era of financial globalization, i.e., a system in which financial integration and international financial flows can quickly change the space of domestic fiscal policy (Kohler and Stockhammer, 2022a; Hein and Truger, 2012).

The concept of fiscal space regards the possibilities that a government has to allocate/create funding for specific objects (i.e., social policies, investment) without threatening the sustainability of the economy and its financial position (Heller, 2005; Perotti, 2007). The fiscal space constraints concrete policy action (Roy et al., 2012), defining the limits for a stable expansion of policies aimed at promoting national socio-economic development, including social protection (Ortiz et al., 2015), as well as investments (Heller, 2005) and structural change (Cimoli et al., 2020). It also defines limits to fiscal policy responses to crises (Romer and Romer, 2019), which have usually been weaker in (EDE) countries with high debt and/or reduced access to financial market. Giròn and Correa (2021) provide a clear synthesis of this concept when they cite ECLAC (2020) and state that in Latin America, in the last decade, "the priority of the region has been to safeguard the sustainability of the public debt [so that] the spending policy has focused on containing its growth, which has led to a reduction in primary spending to adjust the increasing weight of interest payments" (Giròn and Correa, 2021, p.555).

In the mainstream literature, the debate about the link between domestic spending, public spending first and foremost, the external account and the foreign debt goes back to the so-called twin deficit hypothesis (Polak, 1857; Miller and Russek, 1989). In this view, public deficits and current account deficits are correlated with causality running from the former to the latter. Larger government deficits in fact entail a decline in government and overall domestic savings. This in turn brings to (temporary?) economic expansion, rising interest rates, and declining private investment. In the mainstream view, the crowding-out of the private investment may bear negative implications for the productivity dynamics and the competitiveness of the domestic economy. More relevantly, public deficits result in larger trade and current account deficits financed by foreign capitals attracted by higher interest rates. Such external imbalances may ultimately give rise to the excessive accumulation of foreign debt and perhaps pave the way to external debt crises. In this regard, more recent contributions about the perverse link between public debt and financial instability, or about the negative effects of high public debt over growth, somehow represent natural developments of the twin deficits theory.[1] In this sense, various contributions stress how fiscal variables such as credit to the public sector and fiscal deficits can work as predictors for currency and financial crises (Kaminsky et al., 1998). On the other hand, Reinhart and Rogoff (2010), amongst others, note the negative effects of high public debt ratios on economic growth. Such negative effects are partially due to the fact that fiscal responses to economic contractions are weaker in highly indebted countries (Ostry et al., 2010; Arslanalp and Tsuda, 2014). High public debts make policy makers more concerned about debt sustainability and loss of access to financial markets, and fiscal multipliers are smaller when fiscal space is limited (Huidrom et al., 2020). This problem is exacerbated by *pro-cyclical* fiscal policy in EDE countries (Ilzetzki and Végh, 2008). Rising public expenditures and widening fiscal deficits during booms render fiscal policy inoperative at best, or contractionary and de-stabilizing at worst when downturns come.[2]

The complex link between fiscal policy and the external account is not unknown to heterodox theories either. Indeed, in line with the balance of payments constraint tradition (Thirlwall, 1979; McCombie and Thirlwall, 2002), the external sector imposes strong limitations on expansion in domestic demand and, therefore, on economic growth. Countries that require foreign currency to pay for their external debt need to always adjust their economies in order to keep domestic absorption and the current account in line with the balance of payments

[1] These theories also complement the so-called "Ricardian equivalence" (Barro, 1974), which identifies a negative causality in the closed economy case between government savings and private ones, and emphasizes the irrelevance (or even detrimental effect) of (expansionary) fiscal policy in feeding growth.

[2] An "extreme" version of mainstream theory suggests however that fiscal consolidations may have expansionary outcomes (Alesina and Perotti, 1997), even during recessions, when they are based on cut of public expenditures and modify people's expectations about debt dynamics and overall financial stability.

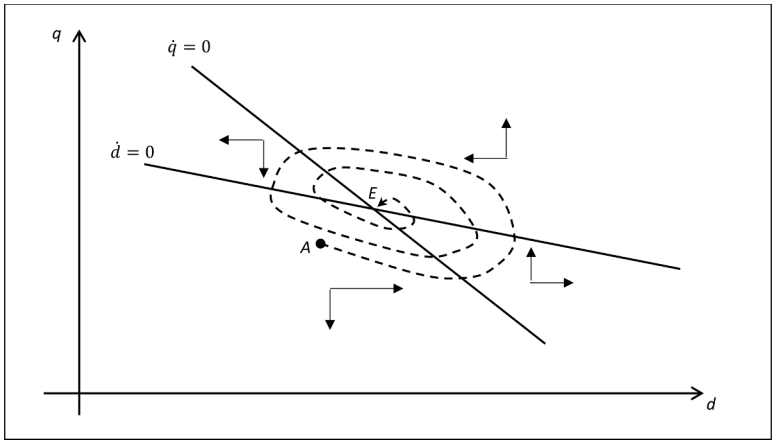

Fig. 1. Finance-led cyclical dynamics between (real) exchange rate and foreign debt in a small open economy. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

stability (Ocampo, 2011). Under external constraints, a regime that Ocampo (2011) labels "BoP dominance", the ability to do fiscal policy is then directly compromised (Barbosa-Filho, 2004; Ocampo, 2011), as the government is constantly required to adjust spending, controlling aggregate demand to its foreign accounts, indicating a constant commitment to debt sustainability both in terms of domestic and of foreign debts. For heterodox theories, expansionary fiscal policies, public investment feeding productive development in particular, would be desirable in demand-driven backward economies (Neto and Porcile, 2017). Binding external constraints, however, does not allow for them, at least in the medium-to-long run. Interestingly, the productive structure of the economy also plays a role in shaping fiscal space. More diversified economies are more resilient to the effects of foreign debt on domestic spending, being able to generate stronger reactions through fiscal spending. This point is of paramount importance from a structuralist post-Keynesian perspective, as non-price competitiveness is a central source of export demand (Dávila-Fernandez and Oreiro, 2022; Gräbner et al., 2020; Cimoli and Porcile, 2014). The less developed the productive structure of the economy, instead, the more stringent the external restriction and the narrower the space for fiscal policy.

Which is the role of financial integration and international capital in all this? Mainstream theories generally claim that financial integration and capital account liberalization are what EDE countries need to avoid fiscal policy-led instability. This view dates back to the financial repression theory. Following Mckinnon (1973) and Shaw (1973), rising (perhaps excessive) public expenditures are possible only if financial operators are bound to purchase public bonds, interest rates are capped at artificially low levels, and investors cannot freely move funds in and out of the economy. Financial repression and fiscal profligacy, however, come along with distortions and long-run damages to the economy (Roubini and Sala-i-Martin, 1992; Haslag and Koo, 1999; Hoffmann, 2019). Indeed, funds are diverted away from productive *private* investment, inflation likely increases and external competitiveness declines, external imbalances widen, and the exchange rate is frequently depreciated (with risks of an inflationist spiral). In the end, the quest for fiscal discipline and long-term economic growth inevitably requires financial and capital account liberalization.

In "financialized" EDE countries, the macroeconomic framework loses space for discretional (unwise?) policies. First, "financial deregulation obtained the central banks' autonomy, whose main objective was to set inflationary goals, leaving aside the economic development" (Giròn and Correa, 2021, p.553). Second, according to the classical debate of the impossible trinity, or policy trilemma (Mundell, 1962), economies with an open financial account and fixed (or quasi-fixed) exchange rates have difficulties in maintaining a sovereign monetary policy. This is even more so if, consistent with recent literature about the "global financial cycles" (Rey, 2015), a dilemma actually replaces the trilemma. The dilemma is now between a fully liberalized financial account or the implementation of capital controls. When capitals can move freely, even flexible exchange rates become useless to insulate domestic monetary policy from external (global) financial cycles. Domestic monetary policy *has to* take restrictive (expansionary) stances whenever

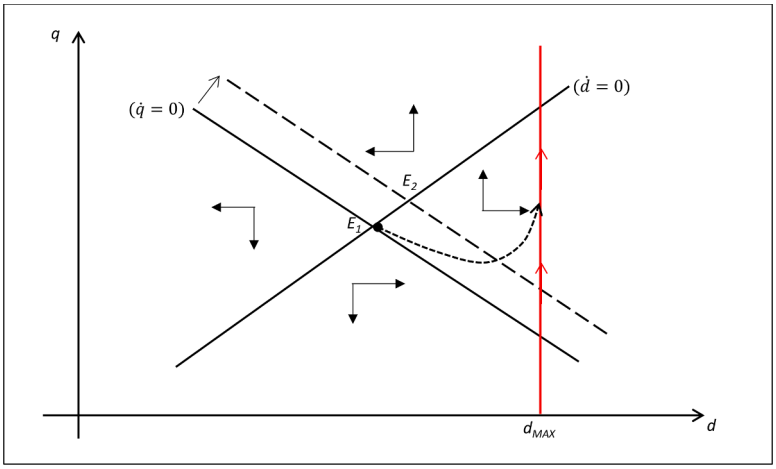

Fig. 2. Austerity-led macroeconomic instability. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

liquidity abounds (evaporates) in the global financial system, regardless of the real needs of the home economy. In this context, limits imposed on domestic monetary policy are implicitly set to fiscal policy as well. In fact, monetary policy cannot take any accommodating stance in favour of the fiscal policy. It most likely becomes strictly conservative and gets even more restrictive (i.e., less benevolent with respect to the Treasure) whenever possible fiscal expansions might scare foreign investors and lead to capital outflows. Margins of manoeuvrer for fiscal authorities in EDE countries with currencies in the bottom part of the world hierarchy (Prates, 2020) become very tight, if not supported by a favourable international financial climate. Without such support, the possibility of conducting a discretional fiscal policy will be very limited in EDE countries, including the one focused on long-run structural transformation (Cimoli et al., 2020).

Some empirical contributions tend to confirm that financial integration may have made the management of the fiscal balance more sustainable than in the past, and reduced fiscal policy procyclicality. Alesina and Perotti (1997), Alesina et al., (1998), Kim (2003), and Furceri and Zdzienicka (2011), for instance, find that the size of the fiscal deficit has been generally smaller in financially integrated economies. This is in line with the view that financial integration is needed against fiscal dominance. Frankel et al. (2013) find that deeper financial integration, as measured by the Chinn-Ito index, reduces the cyclical component of government expenditures, in EDE countries in particular. However, there is no consensus yet about the alleged virtues of financial integration in conducting "good" macroeconomic policies, diligent fiscal stances, and macroeconomic stabilization. First, the above contributions use a limited country coverage focusing on OECD countries mostly. Second, the process of financial and capital account opening since the late 1980s and early 1990s – labelled by Rodrik (2011) as hyper-globalization or financialization by Palley (2013) – has resulted in more abundant and more volatile international capital flows to EDE countries (Calvo et al., 1996). While this process allowed an inflow of capital to EDE countries, the volatility of these flows together with the type of macroeconomic policies required to manage them have resulted in a new source of economic constraints and instability in the peripheral world (Bortz and Kaltenbrunner, 2018; Botta, 2017; Paula et al., 2017). Indeed, when reflecting upon the 1990s, Agènor already noted in 2003 that "several large recipients of capital inflows suffered from some, or a combination of some problems – namely, a rapid increase in liquidity, inflationary pressures, real exchange appreciation, and growing external imbalances." (Agènor, 2003, p.1106–1107). And he adds that "some types of policy responses (such as sterilised intervention, or a tightening of fiscal policy) can be effective in mitigating the adverse macroeconomic effects of large capital inflows in the short term [but] over time these polices may become less effective or too costly to pursue" (Agènor, 2003, p.1107). More recently, Ostry et al., (2016) go as far as recognizing that "portfolio investment and banking and especially hot, or speculative, debt inflows seem neither to boost growth nor allow the country to better share risks with its trading partners [whilst] costs in terms of increased economic volatility and crisis frequency seem more evident" (Ostry et al., 2016, p.39).

When it comes to the specific relationship between financial integration and fiscal policy, some recent contributions note that *finance-led* pro-cyclical fiscal policy is still there in EDE countries (Alberola et al., 2016; Alberola and Sousa, 2017; Benetrix and Lane, 2017). EDE countries may have in fact improved their capability to manage public budgets through "normal" business cycles or cycles related to booms-and-busts in the price of primary commodities. Perhaps thank to the introduction of fiscal rules, domestic governments may have effectively recorded large public surpluses in good times, i.e., during booms in the price of exported primary commodities, to open more space for fiscal deficits in bad times, i.e., with the bust of in the primary commodity bubble. Frankel (2013), for instance, puts emphasis on the specific case of Chile from 2008 to 2009. Things, however, get much more complicated with (external) finance-led cycles. On the one hand, Alberola and Sousa (2017) note how financial cycles bear stronger effects over structural fiscal budgets than commodity cycles. If these effects are not properly taken into account, they may induce fiscal authorities into pro-cyclical public expenditures. More importantly for our analysis, in Latin America, external financing conditions continue to play a key role in the determination of fiscal stances (Alberola et al., 2016). Periods of abundant liquidity in international financial markets and large capital inflows to EDE countries lead to expansionary fiscal policies. Subsequent dearth in foreign capitals, however, easily prompts painful contractions in the public budget in periods of economic contraction. In a way, Benetrix and Lane (2017) support this story when they find that surging capital inflows, as captured by deeper current account deficits, cause larger public deficits. This is in turn consistent with Nikiforos et al. (2015) when analysing the mechanisms behind the accumulation of Greek debt on the way up to the Greek financial crisis. They find that it is the external account that (Granger) causes the fiscal stance, thus suggesting reverse causality with respect to the "twin deficits" hypothesis. In the end, counter-cyclical fiscal policies in EDE countries in the wake of the 2007–2008 financial shock first and Covid-19 were likely made possible by over-expansionary monetary policies in core economies and flooding liquidity in international financial markets.

The economic mechanisms behind these facts could be easily captured through the lenses of post-Keynesian/structuralist theory. During expansionary phases in global financial cycles, risk aversion declines. Foreign lenders become more willing to take higher risks onboard and finance EDE countries even with rising foreign debt burdens (Minsky, 1983). Private debt builds up more frequently than public debt (Taylor, 1998; Ocampo et al., 2009). Fiscal policy may also become more expansionary (not necessarily leading to fiscal deficits) if governments try to take advantage of cheap international credit. This increase in the fiscal space is only able to continue up to a certain point though. It ends in an external constraint when the external finance-led cycle reverts. This may happen when central banks in core economies switch to monetary restrictions and rising interest rates, foreign financial shocks hit, and/or EDE countries' imbalances become hardly sustainable any longer. This has been the experience of many Latin American countries in the 1990s (Neto and Vernengo, 2004; Frenkel and Rapetti, 2009), but also of some Southern EU countries before the 2007–2008 crisis (Stockhammer, 2016). In the declining stage of the (global) financial cycle, sudden stops and increasing private funds outflows can take place. Public debt may also have to bail out private ones. And "official" foreign capitals from international financial institutions (IMF) or foreign governments (the US Treasure in Mexico in 1994–1995 or EU governments in the case of Greece) may replace foreign private capitals. However, official financial support usually comes with tough conditionality. Austerity measures come into play (Neto and Porcile, 2017) and fiscal policy turns strongly pro-cyclical. The possibility of using the public budget for social policy and public investment, is impeded because priority is given to honouring external financial commitments. Effects on growth may be ultimately tough (Kohler and Stockhammer, 2022a). They may even come together with permanent output losses and de-stabilizing effects, since fiscal austerity leads to structural reversions (Gechert et al., 2019), and cuts to public investments further worsen non-price competitiveness and structural external imbalances of the economy (Neto and Porcile, 2017).

In the next sections of the paper, we try to formalize the interaction between capital flows and fiscal policy in open financially integrated EDE countries. We do so with a simple post-Keynesian/structuralist model. We first look at the cyclical dynamics possibly set in motion by large capital inflows and how the domestic fiscal policy fits into these cycles with the attempt of counter-acting mounting external imbalances. Similar to Neto and Porcile (2017), we show how fiscal contractions may actually heighten medium-term instability rather than taming it. Different from them, however, we pay more attention to the role of foreign capitals as a leading factor in the determination of

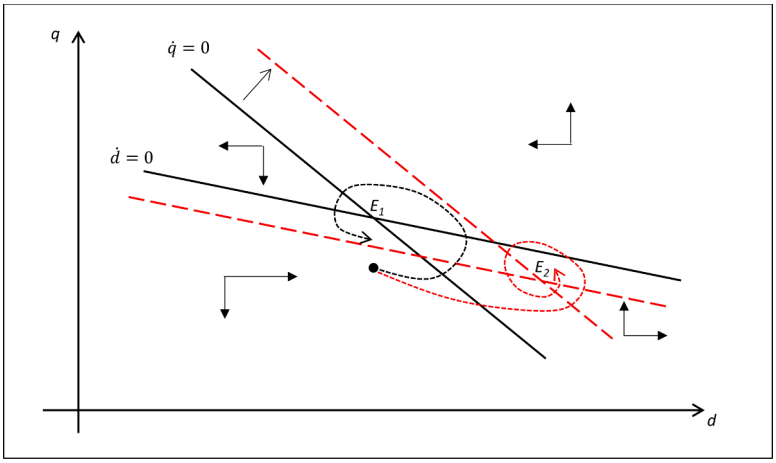

Fig. 3. Productive development and economy's resilience to finance-led instability. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

macroeconomic fluctuations and fiscal policy stances. We finally look at how productive development, product diversification, and perhaps "virtuous" integration into Global Value Chains (GVCs) aimed at building new productive capabilities at home (Lee et al., 2017; Andreoni and Tregenna, 2020) ,[3] with the necessary support of capital controls, may enable EDE countries to create a more stable macroeconomic environment and open more space for expansionary fiscal policies.

3. The model

Let us assume a small open developing economy that is (partially) integrated into the global financial market.[4] The economy is demand-driven, as available capital is not used at full capacity and there is no shortage of labour. Capital goods "K" are imported from abroad and the domestic currency value of the capital stock is eP_fK. P_f is the foreign-currency price of one unit of the capital good, whilst "e" is the nominal exchange rate, i.e., the quantity of domestic currency that is needed to purchase one unit of the foreign one, say one dollar.[5] The price of the domestic good is P_h. Prices are taken as constant in the short run, whilst they change from one period to the other all along the transition to the medium run (see more on this below). Given these assumptions, Eq. (1) defines real consumption (in terms of the domestic good) normalized by the capital stock "K". Eq. (2), instead, describes capital accumulation (i.e., the purchase of foreign capital goods):

$$\frac{C/P_h}{K} = c = c_0 f - c_1 q + c_2(1-t)u \tag{1}$$

With $c_i > 0$

$$\frac{I/P_h}{K} = g_K = b_0 f - b_1 q + b_2 u - b_3 r \tag{2}$$

With $b_i > 0$

The first two terms in Eqs. (1) and (2) try to capture the relation that may exist between domestic consumption and capital accumulation with foreign (net) capital inflows "f" and the RER "q", respectively. More precisely, f is net capital inflows in real terms as a ratio of the capital stock: $f = \frac{eF_f}{eP_fK} = \frac{(F_f/P_f)}{K}$. The real exchange rate "q", in turn, is defined as $\left(q = \frac{eP_f}{P_h}\right)$.

In this paper, we describe an economy in which short-run dynamics could be fundamentally shaped by international finance according to the level of integration in the global financial system. Following Ghosh and Chandrasekhar (2009), Reinhart and Reinhart (2008), Mendoza and Terrones (2012), and Rey (2015), periods of international financial bonanza may easily come along with domestic credit booms. Easier access to external funds (i.e., a higher "f" in Eqs. (1) and (2)), perhaps intermediated by the domestic banking system, may give rise to an expansion in credit to the *private* sector. In the end, when foreign capitals pour into the economy, they may likely feed larger credit-financed consumption and investment expenditures (b_0, $c_0 > 0$), so that demand injections rise, and the economy gets momentum in the short run.

As to the role of "q" in Eqs. (1) and (2), our assumptions try to capture recent and older evidence about *short-run* contractionary exchange rate devaluations (Krugman and Taylor, 1978; Edwards, 1986; Kohler and Stockhammer, 2022b) .[6] We first assume a negative relation between "c"

[3] The evidence about the contribution of EDE countries' integration into GVCs to productive and economic development is mixed. Lee *at el.* (2017) and Andreoni and Tregenna (2020) emphasize the importance of integration in GVCs for backward economies that have to absorb foreign technological knowledge at early stages of economic development. However, they also note how the establishment of denser domestic value chains and production linkages become primary goals of middle-income countries at more advanced phases of the development process. Paraphrasing Andreoni and Tregenna (2020), a small bunch of successful Asian economies (Taiwan and South Korea first, China later) have managed to "linking-up" in GVCs while then "linking back" in the domestic productive structure. In other cases such as Central American countries like Mexico, EDE countries that "have attempted to integrate globally have also ended up 'de-linking domestically' and hollowing out the domestic manufacturing sector" (Andreoni and Tregenna, 2020, 326).

[4] The assumption of partial financial integration in the global financial economy is functional to the development of our analysis that aims at investigating the effects of possible further steps towards full liberalization of capital flows and of the financial account.

[5] In this model, an increase in "e" stands for a depreciation of the domestic currency. Lower values of "e", instead, imply an appreciation.

[6] Kohler and Stockhammer (2022b), for instance, provide evidence of a positive correlation between cycles of appreciations in the nominal and real exchange rate and expansions in some domestic demand components, and eventually GDP. In this regard, whilst our assumptions try to capture such stylized facts, they do not provide any support to an appreciated exchange rate policy as a way of boosting growth. In fact, such short/medium-term cyclical patterns may be very much at odds with long-term development goals. The focus of this paper is not on long-run productive development as such. Nonetheless, we will discuss in a later part of the paper (section 6) how a *stable* and *competitive* real exchange rate can play a relevant role in feeding the structural change of the economy, which in turn contributes to taming macroeconomic volatility and creating more space for pro-development expansionary fiscal policies.

and "q" (i.e., $c_1 > 0$). Given EDE countries' dependence on imports of consumption and intermediate goods, ceteris paribus, the depreciation of the nominal and hence RER tends to decrease domestic actors' purchasing power, and may cause regressive income redistribution (see Taylor, 1991, chapter 7). Both facts can lead domestic consumption to squeeze. The other way around, the inclusion of the term "q" in Eq. (1) aims at capturing the "level" effect that changes in "q" may have on domestic absorption, and consumption expenditures in this case. Expenditure "switching" effects are instead captured by parameter "j" in Eq. (4) below modelling net exports. When it comes to investment expenditures, an appreciated RER (i.e., lower "q") may also speed up capital accumulation by increasing domestic firms' (profits) purchasing power with respect to the imported capital good. More than this, with domestic firms indebted (at least partially) in foreign currency, RER appreciations make their balance sheet more solid and could possibly encourage further expansions in investment (Perez Caldentey and Vernengo, 2021; Bonizzi and Kaltenbrunnen, 2020; Perez Caldentey *et al.*, 2019). Hence, the negative short-run relation between g_K and "q" (i.e., $b_1 > 0$) .[7]

In Eq. (1), "c_2" is the positive propensity to consume out of disposable income $(1 - t)u$, with "t" as average income tax rate and "u" domestic income (as a ratio of the capital stock). Given our focus on finance-led macroeconomic dynamics, we assume distributive shares between profits and wages to be given (see more on this below), apart from possible exogenous exchange rate-related shocks as captured by term ($b_1 q$) discussed above. Therefore, for the sake of simplicity, we neglect to consider how endogenous changes in domestic income distribution may influence consumption expenditures and the overall macroeconomic equilibrium. In Eq. (2), we finally assume that domestic investment responds positively to increases in capacity utilization and negatively to a rise in the interest rate.

Eq. (3) formalizes public expenditures. Given some exogenous expenditures (γ_0), we assume that domestic government reduces public expenditures when either the domestic interest rate "r" or the *external overall* debt stock (as a ratio of the capital stock) of the economy $d = \frac{eD_f}{eP_f K} = \frac{D_f/P_f}{K}$ increase.

$$\frac{G/P_h}{K} = g_p = \gamma_0 - \gamma_1 r - \gamma_2 d \tag{3}$$

With $\gamma_i > 0$.

The assumptions behind Eq. (3) play a crucial role for the dynamics of the model and deserve a detailed explanation of their rationale. On the one hand, Eq. (3) aims at capturing two stylized facts about the behaviour of public budgets in EDE countries. During periods of financial bonanza, governments in EDE countries may first be tempted to raise public expenditures to take advantage of progressively cheaper foreign and domestic credit. When large foreign capitals fuel domestic credit expansion, "r" may initially decline, and local governments raise g_p. Such trend, however, does not usually last long. When *external private* and(or) *public* indebtedness mounts (i.e., "d" increases), foreign capitals slow down, and the interest rate rises, fiscal policy frequently takes restrictive stances even in the mid of economic crises. Pressures to cut public spending may come from international financial organizations, the IMF for instance, providing conditional financial support to the country. Domestic monetary institutions could also push domestic governments in the same direction by raising interest rates in the (often vain) attempt to keep foreign capitals inside the economy. All in all, these two sequential facts, taken together, may well reproduce procyclical dynamics in public expenditures documented above. On the other hand, the inclusion of the term ($\gamma_2 d$) in Eq. (3) puts emphasis on the macroeconomic adjustment role that the public budget is primarily expected to play when dealing with increasing (externally) indebted economies. Following Taylor (1998), Frenkel and Rapetti (2009), and Ocampo et al. (2009), booms-and-bust episodes in developing countries in the 1990s and 2000s (but we could go back to Chile in the second half of the 1970s) are prevalently stories of *private external* debt, at least at the beginning of the cycle. Nonetheless, it is the public sector that mostly intervene and compensate for mounting private debt via public spending cuts and perhaps fiscal surpluses. This is so because: (i) it is the public sector that is expected to tackle perverse macroeconomic externalities originating from economy's overall debt; (ii) it may have to do so for creating fiscal space for the bail out of troublesome private actors (financial ones, in particular)[8]; (iii) this is often a requirement of conditional loans extended by international institutions in the way up or in the mid of the crisis. Moral hazard problems that public bailouts of private debt entail can also explain why we include the negative effects of "d" over public spending, but not in private ones (see Eqs. (1) and ((2)) .[9]

Eq. (4), finally, described net exports as normalized by the "imported" capital stock. In Eq. (4), "h" stands for an exogenous component in net exports that may capture the home economy's income elasticity of exports. "m", instead, is obviously related to imports' income elasticity.

$$\frac{NX/P_h}{K} = \frac{X/P_h}{K} - \frac{M(q, P_h Y)/P_h}{K} = x(q) - m(q,u) = x^n = h + jq - mu \tag{4}$$

In Eq. (4), we also assume that the foreign "real" demand of domestic goods is a positive function of "q" whilst the domestic demand of imported goods responds negatively to an increased (depreciated) RER. Overall, we may assume that the Marshall-Lerner condition holds true and that there is an overall positive relation between x^n and q (i.e., $j > 0$).

Eqs. (1) – (4) formalize the real side of the economy. Eq. (5), in turn, takes a look at the financial side and to domestic interest rate "r" more specifically.

$$r = \mu_0 \left[r_0 + \alpha\left(\pi - \pi^T\right) \right] + \mu_1 \left[r_f + \phi(d,q) \right] \tag{5}$$

[7] Despite such a possibly *direct* expansionary effect of real exchange rate appreciations over domestic firms' investment, the final effect of "q" over "I" remains uncertain. Indeed, it also depends on the *indirect* effect that real exchange rate appreciations may carry out over investment by affecting aggregate demand, capacity utilization, and, eventually capital accumulation via the accelerator. In this sense, should exchange rate depreciations have strong expansionary effects by boosting exports and limiting imports, aggregate investment may actually increase rather than decrease along with higher values of "q". See more on this below.

[8] Wyplosz (2013) explains well this perspective when motivating his quest for fiscal discipline in eurozone member states: "In a monetary union where the central bank does not act as lender in last resort, fiscal discipline requires […] the existence of sufficient funds that can be taped promptly in the case of an emergency. In the absence of lending of last resort and of an adequate fund, sharply reducing the odds of a large-scale bank crisis becomes an integral part of fiscal discipline" Wyplosz, 2013, p.23). *Ceteris paribus*, this line of reasoning has been vastly applied to EDE countries as well. Indeed, they are often largely indebted in foreign currency, so that domestic central banks cannot effectively act as lenders of last resort. Local governments have to intervene instead, perhaps backed by conditional support of international financial institutions.

[9] See Nefci (1998) for an analysis of how private actors' debt-related reckless behavior may be justified by ex-ante expectations of ex-post government bailouts. Taylor (1998) also explains well why private actors, financial ones in particular, may be reluctant to include debt-related considerations in their decision making when temporary booms unfold: "Suppose that a spread [opportunity] opens. A few local players take positions in the relevant assets, borrowing abroad to do so. Their exposure is risky but small. It may well go unnoticed by regulators. Indeed, for the system as a whole die risk is negligible. Even if the risks are recognized, it is difficult for other players not to jump in. A trader or loan officer holding 5% paper will reason that the probability of losing his or her job is close to 100% now if he or she does not take the high-risk/high-return position. Such potentially explosive behavior is standard market practice." (Taylor, 1998, p.669).

With $\mu_0 > 0;\ 0 \leq \mu_1 \leq 1; \alpha > 0; \phi_d > 0;\ \phi_q > 0$

We assume "r" to be defined according to two broad factors. First, we assume that "r" depends on domestic central bank's effort to get domestic inflation to the target. We assume domestic central bank to adopt an inflation targeting strategy that exclusively focus on inflation. Consistent with a pretty standard Taylor rule, domestic central bank increases "r" whenever domestic inflation (π) is higher than targeted one (π^T). "r_0", instead, stands for a sort of "natural" interest rate that, in central bankers' view, may prevail when current inflation is at target. It also represents a "floor" rate in the determination of "r" that central bank imposes to possibly set "r" higher than foreign rate "r_f", in order to attract foreign capitals, keep the exchange rate appreciated and inflation low.[10] In Eq. (5), μ_0 stands for the relative importance of such domestic channel in setting "r".

The determination of the domestic interest rate is also influenced by the level of integration of the economy in the world financial system. Therefore, in Eq. (5), we assume "r" to depend positively on foreign interest rate "r_f" as well as on the country factor risk ϕ. In turn, we assume the country risk factor to be a positive function of the accumulated stock of external debt (as a ratio of the capital stock) "d", as well as of the RER "q". On the one hand, the higher the external debt-to-capital stock ratio, the higher the financial exposure of the domestic economy to foreign creditors and, therefore, its perceived risk of default.[11] On the other hand, at least in the case of EDE countries exporting primary commodities, an increase in the price of the exported goods (i.e., a lower value of "q") is usually taken as an indicator of better capability to support external debt. Moreover, an appreciation in the nominal and hence real exchange rate (again, a *decline* in the level of "q") may improve the balance sheet of domestic firms indebted in foreign currency. Overall, the economy may appear a safer place to foreign investors, at least in the short run, hence a reduction in ϕ and "r".

In Eq. (5), μ_1 captures the importance of foreign forces in determining "r". It ranges from 0 to 1 according to the level of integration of the economy in the global financial market. On the one hand, μ_1 would be equal to 0 in the case of an economy closed to international capital flows. On the other hand, it would be equal to 1 with perfect integration into the global financial system.

For the sake of simplicity, we assume that foreign capital flows consist of international loans that take place either via foreign purchases of domestic bonds or international banks' credit. We thus neglect to consider portfolio investment related to equities. Eq. (6) formalizes net foreign capital inflows as a function $\upsilon(.)$ of the gap between the domestic and foreign one once adjusted for the country factor risk:

$$f = \upsilon\left(r - r_f - \phi\right) \tag{6}$$

In Eq. (6), "υ" represents international capitals' responsiveness to interest rates' differential and changes according to the level of financial integration of the economy. The more integrated the economy is, the higher is υ and the stronger is foreign capitals' reaction to any variation in "r", "r_f" or ϕ. Ceteris paribus, with the exception of the case of full financial integration, an increase in the country factor risk will reduce interest rate differential $(r - r_f - \phi)$ and lead to reductions in net capital inflows if not capital reversals.

The final set of equations below describes the determination of domestic and foreign inflation. In this paper, we focus on (international) finance-driven macro dynamics and the space for fiscal policy in (more or less) financially open EDE countries. As such, we shed light on the role of international capitals as the main determinants of the nominal and (hence) RER (see also Kohler and Stockhammer (2022b) on this) more than relative inflation dynamics and inflation rates' differentials. For the sake of simplicity, we adopt an oversimplified description of inflation, in which both home and foreign inflation rate is taken as *exogenous* and *constant*. Eqs. (7)–(10) clarify this point:

$$\pi = \widehat{W} - \widehat{a} \tag{7}$$

$$\widehat{W} = \pi^e + \widehat{a} \tag{8}$$

$$\pi^e = \pi^T \tag{9}$$

$$\pi_f = \overline{\pi_f} \tag{10}$$

Eq. (7) shows that domestic inflation (π) is the result of firms' fixed mark-up pricing over unit labour costs, where $(\widehat{W})$ is the growth rate in nominal wages and $(\widehat{a})$ is the exogenous growth rate of labour productivity.[12] Eq. (8) says that money wage increases $(\widehat{W})$ is bargained by trade unions based on expected inflation (π^e) and labour productivity growth $(\widehat{a})$. Eq. (9) makes the assumptions that domestic economic actors trust domestic monetary institutions and that expected inflation is equal to the central bank's target. Eq. (10) finally sets foreign inflation (π_f) as exogenously equal to $(\overline{\pi_f})$. In such a framework, inflation differentials would be simply constant or equal to zero in the event that domestic central bank sets its own target equal to foreign inflation.

Eqs. (7) – (9) also make explicit that in this model, given our assumptions about inflation, distributive shares are exogenous. The introduction of endogenous distributive shares and inflation dynamics would have certainly made our model more realistic. However, it would have also increased its complexity (the short-run equilibrium – see below – would have become fully endogenous, with "u", "g", "f" and "r" all determined simultaneously) without modifying the essence of our narration. For this reason, we decided to avoid additional unnecessary degrees of complexity.

3.1. Short-run equilibrium

Eqs. (1) – (9) determine the short-run equilibrium of the model. Causality is simple. Given domestic inflation from Eqs. (7) – (9), and with "d" and "q" fixed in the short run, Eq. (5) determines the interest rate "r". This in turn defines net capital inflows according to Eq. (6). With the financial side of the economy now set, Eqs. (1) – (4) jointly determine the short-run equilibrium values for capacity utilization and capital accumulation. More specifically, Eq. (11) below defines the

[10] An increasing number of EDE countries has moved to pure inflation targeting since early 2000s. Theoretically, such a monetary regime would imply exclusive focus on inflation and a free-floating exchange rate regime (Frenkel, 2006). In reality, this is not the case, as central banks in EDE countries usually pay great attention to exchange rate as relevant "pass-through" channel of foreign inflation to domestic one. It is for this reason that monetary institutions in EDE countries may privilege relatively high interest rates, positive net capital inflows and an appreciated exchange rate as preferred strategy to keep domestic inflation low (Botta, 2021).

[11] There are several alternative indicators that may capture the external financial solidity of the economy. One could think about the external debt-to-export ratio, the debt service-to-export ratio or the ratio between external debt and foreign reserves, for instance. In this model, we use the external debt-to-capital stock ratio. We do so because this is a more immediate measure of the relation between (external) liabilities and total assets of the economy. Also, following equation (4), a certain level of proportionality exists between domestic capital stock and foreign exports. In the end, in our model, installed capital stock also gives an idea of the economy's capability to generate exports and make its external financial position sustainable.

[12] Given the *short/medium-term* horizon of our study of finance-driven cyclical dynamics, we preferred to assume an exogenous growth rate of labor productivity. A more realistic endogenous dynamics of labour productivity would have made the model more complicated without adding much to our analysis. Nonetheless, section 6 will pay more attention to possible implications of short/medium-term cycles we describe in this paper over long-term development, labour productivity dynamics among other factors.

macroeconomic equilibrium between domestic production (normalized by the capital stock) and aggregate demand:

$$u = c(u,f,q) + g_K(u,f,q,r) + g_P(r,d) + x^n(q,u) \tag{11}$$

Now take Eqs. (1) – (4) and plug them into (11). After some mathematical passages and re-arranging terms, one obtains two explicit solutions for both capacity utilization and the growth rate of the capital stock. They are stated in Eqs. (12) and (13) below:

$$u^* = \frac{(\gamma_0 + h) + (c_0 + b_0)f(q,d) - (c_1 + b_1 - j)q - (\gamma_1 + b_3)r - \gamma_2 d}{\{1 - [c_2(1-t) + b_2 - m]\}}$$
$$= \frac{1}{\xi}[\varphi_0 + \varphi_1 f(q,d) - \varphi_2 q - \varphi_3 r(q,d) - \gamma_2 d] \tag{12}$$

With: $\xi = \{1 - [c_2(1-t) + b_2 - m]\}$ and:

$$\varphi_0 = (\gamma_0 + h) > 0; \varphi_1 = (c_0 + b_0) > 0; \varphi_2 = (c_1 + b_1 - j) \lessgtr 0; \varphi_3 = (\gamma_1 + b_3) \rangle 0$$

$$g_K^* = b_0 f - b_1 q + b_2 u^* - b_3 r \tag{13}$$

It is worth noting that the short-run equilibrium level of capacity utilization is a negative function of the domestic interest rate "r" as well as of the accumulated stock of external debt "d" due to the negative impact that "d" could possibly display over both government expenditures and further capital inflows. On the contrary, short-term capacity utilization responds positively to "f" as periods of large net capital inflows have been frequently associated with domestic credit booms and rising private consumption and/or investment expenditures. The sign of the relation between u^* and "q" is in turn uncertain. Indeed, appreciations of the RER "q" could be either expansionary or contractionary in the short run depending on the specific values of "exchange rate"-related parameters in Eq. (11) and the relative strength of the different mechanisms through which the RER influences capacity utilization. This is formally stated in Eq. (14), which gives us the partial derivative of u^* with respect to "q":

$$\frac{\partial u^*}{\partial q} = \frac{1}{\xi}\left[\varphi_1 \frac{\partial f}{\partial q} - \varphi_2 - \varphi_3 \frac{\partial r}{\partial q}\right] \lessgtr 0 \tag{14}$$

Following Perez Caldentey and Vernengo (2021) and Kohler and Stockhammer (2022b), RER appreciations may lead to (perhaps temporary and unsustainable) short-run expansions in capacity utilization if they stimulate higher consumption and investment expenditures by increasing the purchasing power of households and firms (see parameters c_1 and b_1 as components of φ_2 in Eq. (14)). The expansionary effects of RER appreciations could be magnified by domestic firms indebted in foreign currency that may scale up their investment as a consequence of supposedly more solid balance sheets. The same if true if a more appreciated real exchange rate initially reduces perceived risks by foreign lenders (domestic borrowers) such that "f" rises and "r" declines. In line with new developmentalist thinking (Bresser-Pereira et al., 2014; Marconi, 2012), RER appreciations carry out undoubtedly negative effects over capacity utilization via net exports by reducing the price competitiveness of domestic goods with respect to foreign ones (see component "j" of parameter φ_2). Which scenario will eventually prevail is a matter of the specificities of each peculiar economy under scrutiny. And the picture would get even more complicated if we would consider the non-linearity with which changes in the RER likely affect economic activity through the multiple channels just mentioned.

It is easy to see from Eq. (13) that also the sign of capital accumulation's response to variations in the RER is uncertain:

$$\frac{\partial g_K}{\partial q} \lessgtr 0 \rightarrow \begin{cases} (\partial u^*/\partial q)\langle 0 \rightarrow (\partial g_K/\partial q)\langle 0 \\ (\partial u^*/\partial q)\rangle 0 \rightarrow \begin{cases} (\partial g_K/\partial q)\rangle 0 \ if b_2 \dfrac{du^*}{dq} > \left[b_1 - b_0\dfrac{\partial f}{\partial q} + b_3\dfrac{\partial r}{\partial q}\right] \\ (\partial g_K/\partial q)\langle 0 \ if b_2 \dfrac{du^*}{dq} < \left[b_1 - b_0\dfrac{\partial f}{\partial q} + b_3\dfrac{\partial r}{\partial q}\right] \end{cases} \end{cases}$$

RER appreciations may either lead to more investment or a reduction in capital accumulation depending on the relative *direct* and *indirect* strength of the financial/balance sheet versus net export mechanisms outlined above. Despite such uncertainty, contractionary devaluation (i.e., $((\partial u^*/\partial q) < 0)$ will certainly come along with declining investment. This is due to the negative effects of an increase in "q" over "f", "r" and "u*" (on top of its direct negative effect on domestic investment by reducing the purchasing power of domestic firms with respect to imported capital goods). Expansionary devaluation (i.e., $((\partial u^*/\partial q) > 0)$ will instead lead to rising capital accumulation only if investment's (positive) response to an expanding economy more than compensates for possible downscaled investment due to deteriorating balance sheets and an overall worse monetary environment (i.e., a higher "r").

4. Finance-led medium-run cycles

So far, we have assumed the real exchange rate "q" and the (external) debt-to-capital stock ratio "d" to be constant in the short run. These variables, in turn, change over the medium run. In the last forty years, increasing integration of EDE countries in the global financial market and exposure to global financial cycles have frequently given rise to heightened macroeconomic volatility characterized by cyclical dynamics in the joint evolution of "q" and "d". In this section, we provide a simplified representation of such finance-led macroeconomic volatility. Let us focus first on the evolution through time of the RER.

Consistent with the definition of the RER provided above, the percentage variation of "q" is nothing else than the percentage variation of the nominal exchange rate "e" plus the inflation differential between foreign and domestic inflation. This is stated in Eq. (15) below:

$$\widehat{q} = \widehat{e} + \overline{\pi_f} - \pi \tag{15}$$

Whilst we assume inflation differential as exogenous (potentially equal to zero if $\pi = \pi^T = \overline{\pi_f}$), the variation through time of the nominal exchange rate is endogenous and determined by *notional* imbalances in the Balance of Payments. Consistent with Bhaduri (2003), Kholer (2019), and Stockhammer and Kholler (2022b), Eq. (16) below says that the (percentage) variation of the nominal exchange rate is a function $\rho(.)$ of the several components of the Balance of Payments (BoP), with ρ as the sensitivity of the nominal exchange rate to any temporary nominal imbalance in the BoP itself:

$$\widehat{e} = \rho\left[\underbrace{(x^n(u^*(q,d),\ q) - r(q,d)d)}_{-}, \underbrace{f(q,d)}_{-}, \underbrace{\Omega}_{+/-}\right] \tag{16}$$

In Eq. (16), the nominal exchange rate responds negatively to possible surpluses in the current account of the economy as determined in the short run, i.e., $(x^n(u^*(q,d),\ q) - r(q,d)d)$. Indeed, positive net exports that exceed interest payments on external debt may push the domestic currency to appreciate so that $\widehat{e} < 0$ and "e" decreases. By the same token, positive net capital inflows, i.e., $f(q,d) > 0$, may equally lead to an appreciation of the domestic currency. Finally, in Eq. (16), Ω stands for other components of the BoP, such as changes in foreign reserves that here we take as exogenous and possibly guided by policy decisions. The sign of their effect on the dynamics of the exchange rate is positive as, *ceteris paribus*, domestic monetary institutions willing to accumulate (decumulate) foreign reserves will tend to depreciate (appreciate) the domestic currency.

If we plug Eq. (16) into (15) and we then multiply both sides by q, we

obtain the expression of the dynamics of the RER. We report this in Eq. (17):

$$\dot{q} = q\{\rho[(x^n(u^*(q,d),\ q) - r(q,d)d), f(q,d), \Omega] + (\overline{\pi_f} - \pi)\ \} \tag{17}$$

As to (foreign) debt-to-capital stock ratio, once noticed that net capital inflows represent changes in the stock of debt "D", its variation through time is given by multiplying its percentage change $\hat{d} = \left[\frac{f(q,d)}{d} - g_K(q,d)\right]$ by "d" itself in Eq. (18):

$$\dot{d} = d\left(\frac{f(q,d)}{d} - g_K(q,d)\ \right) \tag{18}$$

Equations (17) and (18) form a system of two non-linear differential equations giving rise to complex dynamics in the (q-d) space. We can capture such dynamics in the proximity of the steady state by analysing steady-state values of partial derivatives of $\dot{q}$ and $\dot{d}$ with respect to state variables "q" and "d". Let's take $\dot{q}$ first. The expression below gives the own partial derivative of $\dot{q}$ with respect to the current value of the RER itself:

$$\left.\frac{\partial \dot{q}}{\partial q}\right|_{SS} = \left.\frac{\partial \rho()}{\partial q}\right|_{SS} = \frac{\partial \rho}{\rho x^n}\left(\frac{\partial x^n}{\partial q} + \frac{\partial x^n}{\partial u^*}\frac{\partial u^*}{\partial q}\right) - \frac{\partial \rho}{\partial r}\frac{\partial r}{\partial q}d_{SS} + \frac{\partial \rho}{\partial f}\frac{\partial f}{\partial q}$$

By substituting from Eqs. (5) and (11), we get:

$$\left.\frac{\partial \dot{q}}{\partial q}\right|_{SS} = \rho_{x^n}\left[j - \frac{m}{\xi}\left(\varphi_1\frac{\partial f}{\partial q} - \varphi_2 - \varphi_3\mu_0\frac{\partial \phi}{\partial q}\right)\right] - \rho_r\mu_0\frac{\partial \phi}{\partial q}d_{SS} + \rho_f\frac{\partial f}{\partial q} \lessgtr 0 \tag{19}$$

With $\rho_{x^n} = \frac{\partial \rho}{\rho x^n} < 0$; $\rho_r = \frac{\partial \rho}{\partial r} < 0$; $\rho_f = \frac{\partial \rho}{\partial f} < 0$; $\frac{\partial f}{\partial q} < 0$; $\frac{\partial \phi}{\partial q} > 0$;

The sign of partial derivative (19) could be either positive or negative. On the one hand, its sign depends on the contractionary or expansionary effects of a RER devaluation over short-run economic activity u^*(i.e., the term in round parentheses in Eq. (19)) once put together with the direct positive effect of changes in "q" over net exports (as captured by the parameter "j"). On the other hand, it also depends on the effects that changes in "q" bring about in the BoP via its impacts on interest payments on the accumulated debt stock (i.e., $\rho_r(\partial r/\partial q)d$) and, perhaps more importantly, over net capital inflows, (i.e., $\rho_f(\partial f/\partial q)$). Ceteris paribus, contractionary exchange rate devaluations, by curtailing u^* and improving the economy's current account, tend to generate self-stabilizing effects of "q" over its own dynamics. Expansionary devaluations, in turn, are more likely to lead to further depreciations of the nominal and real exchange rates.

"Pure" finance-related mechanisms through which "q" influences its own dynamics may carry out de-stabilizing effects.[13] Indeed, a RER appreciation tends to reduce interest payments "rd" over accumulated external debt stock "d", so that the economy's current account improves and *less* pressures for an exchange rate depreciation to take place via BoP. More than this, a RER appreciation further stimulates surges in net positive capital inflows, as the balance sheet of domestic borrowers is perceived as more solid and foreign investors become more eager to invest in the economy.

In Eq. (19), ρ_{x^n}, ρ_r, and ρ_f stand for the responsiveness of the nominal (and real) exchange rate to the various components of the BoP, net exports, net interest payments, and net capital inflows, respectively. In general, given the far larger size of financial flows with respect to trade relations and the increasing importance of financial flows in the determination of finance-related macroeconomic economic variables, the nominal (and real) exchange rate, amongst others, it makes sense to assume the latter de-stabilizing effects to prevail over the former stabilizing ones. More formally, if $|\rho_f| \gg |\rho_r|$, and (or) $\varphi_1$is sufficiently small, we may safely assume that $\frac{\partial \dot{q}}{\partial q}|_{SS} > 0$. Things could actually become even more complicated in the medium run if foreign creditors' confidence in the financial solidity of the economy progressively fades away, i.e., $(\partial(\partial f/\partial q)/\partial q) > 0$, as a too-much-appreciated RER induces likely unsustainable current account deficits. Such non-linear dynamics in foreign capital and, hence, in the exchange rate may, in fact, generate multiple equilibria (see Botta, 2021), which we do not explicitly consider in this model for the sake of simplicity.

The partial derivative of $\dot{q}$ with respect to "d" in turn reads:

$$\left.\frac{\partial \dot{q}}{\partial d}\right|_{SS} = \left.\frac{\partial \rho}{\partial d}\right|_{SS} = \rho_{x^n}\left(\frac{\partial x^n}{\partial u^*}\frac{\partial u^*}{\partial d}\right) - \rho_r\left(\frac{\partial r}{\partial d}d_{SS} + r_{SS}\right) + \rho_f\frac{\partial f}{\partial d}$$

By taking the partial derivative of u^* and "r" with respect to "d" from Eqs. (5) and (11), we obtain:

$$\left.\frac{\partial \dot{q}}{\partial d}\right|_{SS} = \rho_f\frac{\partial f}{\partial d} + \left[\rho_{x^n}\frac{m}{\xi}\left(\varphi_1\frac{\partial f}{\partial d} - \varphi_3\mu_0\frac{\partial \phi}{\partial d}\right) - \rho_r\left(\mu_0\frac{\partial \phi}{\partial d}d_{SS} + r_{SS}\right)\right] \lessgtr 0 \tag{20}$$

Once again, the sign of this partial derivative is uncertain. Indeed, the recessionary effects that an increasing external debt brings about, directly or indirectly, via lower public expenditures, consumption and investment, tend to improve the current account of the economy and, hence, reduce pressures for exchange rate's depreciations. However, quick enough responses of net capital inflows and net interest payments to rising concerns about increasing external debt could easily lead to repeated devaluation of the exchange rate, such that the sign of derivative (20) is eventually positive.

If we move our attention to the evolution of the foreign debt-to-capital stock ratio, Eq. (21) shows the partial derivative of Eq. (18) with respect to the RER evaluated at the steady state:

$$\left.\frac{\partial \dot{d}}{\partial q}\right|_{SS} = \frac{\partial f/\partial q}{d_{SS}} - \left[b_0\frac{\partial f}{\partial q} + b_2\frac{\partial u^*}{\partial q} - \left(b_1 + b_3\mu_0\frac{\partial \phi}{\partial q}\right)\right] \lessgtr 0 \tag{21}$$

The first term in Eq. (21) shows the effect that a depreciation of the RER brings about the stock of external debt (as a share of the capital stock) by affecting net capital inflows. The effect is negative. In fact, a depreciated exchange rate may increase the perception of vulnerable balance sheets of domestic borrowers with respect to currency mismatch. The country risk factor ϕ increases, driving down net capital inflows and the dynamics of external debt. The term in square parentheses in Eq. (21), instead, captures how the exchange rate affects capital accumulation in the domestic economy. Several forces are at play. On the one hand, increasing interest rates (i.e., $b_3\mu_1(\partial\phi/\partial q)$), lower purchasing power in term of the *imported* capital good (i.e., b_1) and the slowdown in foreign finance-led credit boom (i.e., $b_0(\partial f/\partial q) < 0$) all curtail capital accumulation and de-stabilize the debt-to-capital stock ratio. A contractionary devaluation would exacerbate this. Expansionary effects of exchange rate depreciations (i.e.,$(\partial u^*/\partial q) > 0$) compensate contractionary/de-stabilizing forces above by stimulating capital accumulation via the accelerator term b_2. The final result is again uncertain. For the sake of our analysis, we assume that the first stabilizing effect prevails over de-stabilizing forces, at least for relatively low values of the steady-state debt-to-capital stock ratio d_{SS}. In the end, this assumption amounts to capital accumulation that does not react too strongly to changes in the interest rate,[14] something that available empirical evidence tends to confirm (Sharpe and Suarez, 2014; Taylor, 2014).

Eq. (22) below finally shows the effects of "d" on its own dynamics:

[13] Increases in net capital inflows as stimulated by a real exchange rate appreciation may also boost short-run economic activity by expanding debt-financed domestic consumptions and investments. Ceteris paribus, this effect will tend to counter-act further appreciations of the real exchange rate, as it leads to a worsening trade and current account balance.

[14] We can similarly assume that the accumulation of productive capital in the tradable sector of the economy is rather insensitive to credit booms, once again a pretty well-known stylized fact, at least in some developing countries since 2010 (Ibarra, 2011; Perez Caldentey and Vernengo, 2021; Perez Caldentey *et al.*, 2019).

$$\left.\frac{\partial \dot{d}}{\partial d}\right|_{SS} = \frac{(\partial f/\partial d) - (f_{SS}/d_{SS})}{d_{SS}} - \left[b_0\frac{\partial f}{\partial d} + \left(b_2\frac{\partial u^*}{\partial d} - b_3\mu_0\frac{\partial \phi}{\partial d}\right)\right] \lessgtr 0 \tag{22}$$

The first term in Eq. (22) is undoubtedly negative (since that $(\partial f/\partial d) < 0$) and this certainly tends to stabilize the debt-to-capital stock ratio. However, the second term into squared parentheses is negative: a higher stock of foreign debt curtails domestic capital accumulation via a multiplicity of channels: (i) the credit-boom channel ($b_0(\partial f/\partial d)$); (ii) the accelerator channel ($b_2(\partial u^*/\partial d) < 0$), which becomes more acute the more the domestic government is averse to the economy's accumulation of foreign debt (i.e., γ_1 and γ_2 largely positive; (iii) the interest rate channel, i.e., $b_3\mu_1(\partial \phi/\partial d)$. For the sake of our analysis, assume again that the former stabilizing effect dominates the latter de-stabilizing one. In particular, in order to better study the effects of structural changes in the stance taken by fiscal policy to the evolution of foreign indebtedness (see more on this below), assume that domestic government's expenditures are rather insensitive to "r" and "d", the first stabilizing component in Eq. (22) prevails over the de-stabilizing one, and therefore $(\partial \dot{d}/\partial d)|_{SS} < 0$.

Given this set of partial derivatives, the dynamics of the economy in the (q-d) space in the neighbourhood of the medium-run equilibrium is determined by the Jacobian Matrix (M.1) below:

$$J_{M.1} = \begin{matrix} \\ \dot{q} \\ \dot{d} \end{matrix}\begin{matrix} \begin{matrix} q & d \end{matrix} \\ \begin{bmatrix} + & + \\ - & - \end{bmatrix} \end{matrix} = \begin{bmatrix} \left.\frac{\partial \dot{q}}{\partial q}\right|_{SS} & \left.\frac{\partial \dot{q}}{\partial d}\right|_{SS} \\ \left.\frac{\partial \dot{d}}{\partial q}\right|_{SS} & \left.\frac{\partial \dot{d}}{\partial d}\right|_{SS} \end{bmatrix}$$

Multiple scenarios may emerge depending on the relative slope of the two geometric loci for $(\dot{q} = 0)$ and $(\dot{d} = 0)$. Local stability requires the determinant $det.(J_{M.1})$ of the Jacobian matrix $J_{M.1}$ to be positive and trace tr.$(J_{M.1})$ to be negative. The first condition is fulfilled when the locus for $(\dot{q} = 0)$ is steeper, in absolute terms, than the locus for $(\dot{d} = 0)$. The latter, in turn, is satisfied when $|(\partial \dot{d}/\partial d)|_{SS}| > (\partial \dot{q}/q)|_{SS}$. Fig. 1 portrays this scenario. More specifically, it shows the convergent cyclical dynamics in the (q-d) characterizing it.

Let's assume that the domestic government liberalizes at large the financial account of the economy and adopts neoliberal-type reforms appealing to international investors (the privatization of state-owned companies and/or the opening of productive sectors to foreign investors). Alternatively, expansionary monetary policies in developed countries reduce perceived global financial risks, and liquidity abounds in international financial markets. A quick surge in capital inflows moves the domestic economy to point A and ignites a cumulative process where exchange rate appreciation feeds back positively into new waves of (speculative) capitals and vice versa. A well-known episode of financial bonanza takes place feeding the expansion of the economy. Finance-led euphoria comes together with mounting imbalances, however. RER appreciation likely causes the progressive worsening of the trade account as cheaper imported goods substitute for increasingly more expensive domestic ones. This is even more so if positive foreign exchange-led effects on the balance sheet of domestic borrowers expand the economy further. At some point, payments to foreign lenders also increase due to rising external debt and the connected risk premia, leading to even larger current account deficits. In the medium run, such imbalances may push exchange rate dynamics to reverse and the exchange rate to depreciate. The reversal may come even earlier if foreign capital inflows slow down since foreign investors get increasingly pessimistic about economy's possibility of maintaining the exchange rate appreciated in the presence of widening current account deficits. When the exchange rate eventually starts to depreciate, foreign investors become even more nervous. At this stage of the story, increases in the domestic interest rate that domestic central bank may engineer to convince foreign capitals to remain are mostly ineffective (see Botta, 2021). They may rather reinforce foreign creditors' conviction that the current macroeconomic scenario is unsustainable. Sudden stops get momentum and capital reversals may follow soon, together with the collapse of the exchange rate. The initial boom eventually ends up in a burst.[15]

5. Financial integration and fiscal policy space

5.1. "Pro-austerity" governments

The cyclical dynamics just described is mostly rooted in "pro-cyclical swings in *private* (italics from the original quoted contribution) spending that are financed by borrowing from the rest of the world" (Ocampo et al., 2009, p.76). And external factors related to global financial cycles have emerged as the primary kick-starter of such processes, at least in the last three decades (Combes et al., 2017). Available evidence suggests such private sector-led interactions more frequently shape the evolution of EDE countries than public sector disarrays (Taylor, 1998; Ocampo et al., 2009). Nonetheless, mainstream economic theory mostly identifies excessive public expenditures as main drivers of current account deficits financed via the accumulation of foreign debt. In this view, fiscal indiscipline is ultimately responsible for financial instability and macroeconomic volatility, with causality running from domestic (public) imbalances to external ones. This is the well-known "twin deficits" theory (Polak, 1957; Miller and Russek, 1989).

Consistent with such an approach, EDE countries have been usually advised IMF-type structural adjustment programs putting emphasis on restrictive fiscal packages (Griffith-Jones and Ocampo, 2009). To some extent, even the more recent experience of Greece does not make an exception to this mantra. Further liberalization of capital flows is an additional structural reform that is meant to enforce fiscal discipline by exposing the behaviour of domestic governments to the judgement of international financial investors (Nikiforos et al., 2015).

Let's assume that such strengthened fiscal discipline imposes local governments to more vigorously cut public expenditures whenever external debt increases. More formally, let assume γ_2 takes largely positive values so that $\gamma_2 \gg 0$. In this context, even relatively small increases in the external debt of the economy may induce the domestic government to reduce aggregate demand and capacity utilization, with positive effects on the current account balance of the economy. In the mainstream view, this would, in turn, avoid excessive external borrowing and external debt crises.

In our model, such a "pro-austerity" fiscal regime affects the medium-run dynamics of the economy in two ways. First, a structurally more contractionary fiscal policy stance reduces the short-run equilibrium value of capacity utilization u^*. Indeed, taking Eq. (11) and the partial derivative with respect to γ_2, we get:

$$\frac{\partial u^*}{\partial \gamma_2} = -\frac{1}{\xi}d < 0$$

Ceteris paribus, given RER in the short run, this leads to a structural improvement in the trade and current account balance of the economy. As a consequence, the locus for $(\dot{q} = 0)$ moves upward and to the right. More formally:

$$\left.\frac{dq}{d\gamma_2}\right|_{\dot{q}=0} = -\frac{\rho_{x^n}\left(\frac{m}{\xi}\right)d_{SS}}{\left\{\rho_{x^n}\left[j - \frac{m}{\xi}\left(\varphi_1\frac{\partial f}{\partial q} - \varphi_2 - \varphi_3\mu_0\frac{\partial \phi}{\partial q}\right)\right] - \rho_r\mu_0\frac{\partial \phi}{\partial q}d_{SS} + \rho_f\frac{\partial f}{\partial q}\right\}} > 0$$

[15] Macroeconomic cycles portrayed in Figure 1 are consistent with those formally described by Kohler (2019) and Kohler and Stockhammer (2022b) in the "exchange rate-output(investment)" space, or with the stylized facts outlined by Frenkel and Rapetti (2009) in their description of Minskyan cycles in developing countries. They are also in line with cycles in the RER dynamics emphasized by Bresser-Pereira (2012) when describing the perverse effects of the Dutch disease on industrialization in developing countries.

Second, structurally lower public expenditures and capacity utilization curtail capital accumulation via the accelerator effect. By doing so, however, pro-austerity fiscal measures may change the slope of the locus for $(\dot{d}=0)$ by affecting how quickly capacity utilization and capital accumulation contract when "d" rises. Keeping in mind that $(\partial u^*/\partial d) = -(\gamma_2/\xi)$ from Eq. (11), one can easily verify that:

$$\frac{\partial((\partial\dot{d}/\partial d)|_{SS})}{\partial\gamma_2} = \frac{b_2}{\xi} > 0$$

If austerity-led reduction in capital accumulation is strong enough, the slope of the locus for $(\dot{d}=0)$ may eventually turn into positive. If so, the new Jacobian matrix $J_{M.2}$ below will now guide the dynamics of the system:

$$J_{M.2} = \begin{matrix} \\ \dot{q} \\ \dot{d} \end{matrix} \begin{matrix} \begin{matrix} q & d \end{matrix} \\ \begin{bmatrix} + & + \\ - & + \end{bmatrix} \end{matrix}$$

Whilst the determinant det.$(J_{M.2})$ of the new system remains positive, the condition about trace is now violated as tr.$(J_{M.2})$ certainly turns positive. Fiscal austerity may be self-defeating. It may actually destabilize the (external) debt-to-capital stock ratio and the entire economy rather than putting them on a safer, stable track. We portray medium-run systemic instability caused by fiscal austerity in Fig. 2.

In Fig. 2, the initial short-run effect of fiscal austerity is to induce a notional surplus in the BoP as fiscal austerity cuts absorption and improves the current account balance of the economy. In a flexible exchange rate regime, however, this will cause "q" to appreciate if domestic monetary authorities are unwilling to manage the exchange rate and keep it competitive. Due to financial integration, foreign capitals start to move in as foreign lenders more easily finance apparently more solid domestic borrowers (due to improved currency mismatch in their balance sheets). The expansionary phase of the cycle kicks-in again, with the exchange rate that appreciates further, and foreign capital keep on pouring into the economy. This, in turn, frustrates the initial government's attempt to control the current account via cuts in public spending. The increase in foreign debt now triggers an immediate response by the government that sharply cuts public expenditures. Whilst this may help to keep the exchange rate appreciating, the debt-to-capital stock ratio increases further also due to stagnating or declining investment. Such dynamics inevitably come to an abrupt end. In fact, continuous increases in foreign debt and rising concern about its sustainability will slow down again net capital inflows. Lower capital inflows and larger current account deficits will together cause the exchange rate to start depreciating, sooner or later. In this new scenario, however, the devaluation of the RER won't prompt any decline in the debt-to-capital stock ratio. This will, in fact, keep on growing as capital accumulation will plummet due to over-restrictive fiscal policies and low capacity utilization. The economy will diverge towards the maximum level of foreign indebtedness allowed by foreign lenders. This is represented by d_{MAX} in Fig. 1. Once reached that level of debt exposure, the economy will likely default, and the exchange rate will collapse together with drying up (at least private) foreign capitals. Domestic institutions may have to adopt extraordinary measures and perhaps benefit from some external institutional financial support, i.e., IMF's conditional loans, to finally stabilize the exchange rate at a much-depreciated level. In the end, the real-economy consequences of financial-led dynamics can be very harsh. And mainstream misinterpretations of such dynamics that wrongly focus on alleged public sector disarrays can make them worse. Eq. (22) below shows the deep contraction in capacity utilization (and hence employment) that, ceteris paribus, happens in an overburdened economy with excessive external debt (remember that $(du^*/dd) < 0$). This contraction gets even deeper if massive exchange rate devaluation is strongly contractionary.

$$u^*_{d_{MAX}} = \frac{1}{\xi}[\varphi_0 + \varphi_1 f(q, d_{MAX}) - \varphi_2 q - \varphi_3 r(q, d_{MAX}) - \gamma_2 d_{MAX}] \tag{22}$$

5.2. Structural change, productive development and stronger non-price competitiveness

Heterodox theories, Latin American structuralism, in particular, have traditionally put emphasis on structural change and productive development as relevant drivers of long-term development trajectories. The productive structure of the economy, however, may also influence medium-term cyclical finance-led macroeconomic dynamics at the centre of our analysis.

Let's assume, for instance, an economy with a more diversified and advanced productive structure, a larger range of exported goods, and, say, an almost structural current account balance. The case of China and of other emerging Asian economies easily comes to mind. In this model, we can capture the structural productive features of the economy via changes in the parameters affecting net exports and hence the current account balance and the dynamics of the nominal and real exchange rate. In particular, productive development, productive diversification, and a widening spectrum of exported goods could be associated with higher values of "h" and smaller values for "m" in Eq. (4). Such changes in "h" and "m", in turn, influence the position of the locus for $(\dot{q}=0)$. Similar to what was seen before, the locus for $(\dot{q}=0)$ moves up and to the right even in the presence of an increased export-led short-run capacity utilization u^* (see Eq. (11)). The economy's structural capability to export more and import less makes it more resilient to finance-driven appreciations of the nominal and real exchange rates.

Larger net exports and increased capacity utilization also affect capital accumulation via the accelerator effect. Ceteris paribus, domestic firms permanently raise capital accumulation such that the locus for $(\dot{d}=0)$ also moves. More specifically, it moves down and to the left. Given our assumptions about the signs of partial derivatives (21) and (22), an appreciation of the RER or a reduction in "d" would is to stabilize the debt-to-capital stock ratio. We portray such medium-run dynamic macroeconomic consequences of productive development in Fig. 3 below.

As clearly emerges from Fig. 3, the medium-run equilibrium of the economy moves from E_1 to E_2. The new equilibrium features a permanently higher value of the debt-to-capital stock ratio and a more appreciated equilibrium RER. On the one hand, a higher value of "d" is the result of a structurally more developed economy that, thanks to its more diversified productive and trade pattern, can get better access to international financial markets and can "afford" higher levels of the external debt-to-capital stock ratio without fear of an external debt crisis. In a way, this result is consistent with the well-known literature about "debt intolerance" (Reinhart et al., 2003). Advanced economies with stronger productive structures can get access to and bear higher levels of external indebtedness without financial markets becoming intolerant to them than backward economies. On the other hand, Fig. 3 also shows that such an economy can resist a longer initial phase of finance-led RER appreciation before cyclical volatility kicks in. This is due to its stronger non-price competitiveness that can better compensate for more protracted periods of appreciated uncompetitive exchange rates as determined by financial flows. Both facts can be considered as signs of stronger economic resilience to the macroeconomic instability possibly caused by financial integration.

Beyond this, a current account balance that is structurally more solid may also reduce (political) pressures on domestic governments to adopt fiscal austerity measures in an attempt to correct external imbalances. More space for expansionary fiscal policies may open instead. Structurally more expansionary fiscal policies (i.e., a higher $\gamma_0$in Eq. (3)) may indeed be contemplated. This could, in turn, strengthen the non-price competitiveness of the economy further if increased public expenditures will concentrate in public investment feeding productive

development and structural change (Neto and Porcile, 2017). A virtuous circle of self-reinforcing feedback between productive development-orientated public expenditures and structurally stronger current account balances may feed long-term development (see Section 6 below).

5.3. Capital controls, participation to GVCs and the role of RER-elastic net exports

Despite an undoubtedly improved macroeconomic environment, finance-related mechanisms can still be a source of macroeconomic volatility. Indeed, dynamics in the neighbourhood of equilibrium E_1 or E_2 still present the cyclical pattern described above. This is due to the predominance of de-stabilizing finance-related factors in the determination of foreign exchange dynamics over trade-related factors. In this context, a primary goal of policy makers is to reduce the macroeconomic relevance of foreign capital flows (and of the instability they generate by interacting with the RER) and, symmetrically, strengthen possible self-adjusting mechanisms between nominal (and real) exchange rate and trade imbalances. A proper mix between capital restrictions and strategic trade integration into GVCs could do the job. Consistent with Erten and Ocampo (2016), amongst many others, capital controls may work to reduce the size of capital flows, weaken their interaction with the RER, and make nominal and real exchange management easier. Symmetrically, they will increase the relative importance of trade imbalances in determining exchange rate dynamics in Eqs. (16) and (17). Available empirical evidence also notes that participation in GVCs may increase net exports' sensitivity to RER (Ahmed et al., 2017; Zhao et al., 2020). To be fair, higher net exports' sensitivity to RER may display ambivalent effects over macroeconomic outcomes depending on the direction of change of the RER itself. It contributes to significantly improving net exports even in the presence of small depreciations of the nominal and real exchange rates. However, it is also a source of concern whenever large capital inflows lead to exchange rate appreciations that cause immediate losses of competitiveness in international good markets. In this paper, we are interested in the role that net exports' price sensitivity may play in stabilizing medium-term macroeconomic dynamics. In this sense, everything that improves the fulfilment of the "Marshall-Learner" condition, "virtuous" participation in GVCs, for instance, certainly makes the economy more stable. In turn, the combination of such industrial/trade strategy together with capital controls is precisely meant to magnify the effects of a competitive RER whilst avoiding finance-led RER appreciations and their deleterious effects on the trade balance.

In this model, EDE countries' participation in GVCs and ensuing higher net exports' responsiveness to RER could be captured by assuming an increased value of parameter "j". A higher value of "j", in turn, influences the slope of the isocline for ($\dot{q} = 0$). It can certainly make it steeper. With the necessary help of capital controls that significantly reduce "ρ_f" in Eq. (19), both policies together may even make the locus for ($\dot{q} = 0$) positively sloped. The dynamic implications of such "structural change" are wide. The Jacobian matrix $J_{M.3}$ below captures them from a mathematical point of view. Fig. 4, in turn, offers a graphical representation.

$$J_{M.3} = \begin{matrix} \\ \dot{q} \\ \dot{d} \end{matrix} \begin{matrix} \begin{matrix} q & d \end{matrix} \\ \begin{bmatrix} - & + \\ - & - \end{bmatrix} \end{matrix}$$

The new stabilizing effects of "q" on its own dynamics undoubtedly tend to stabilize the economy as well and dampen cyclical volatility. Indeed, the determinant det.($J_{M.3}$) is certainly positive and the trace tr. ($J_{M.3}$) negative. The system becomes locally stable. In this context, the space for expansionary fiscal policy may widen further. On the one hand, policy makers could worry less about the effects fiscal expansions could bring about on the current account. Indeed, possible fiscal policy-induced current account deficits may "self-adjust" by giving rise to exchange rate depreciations that bring the economy back to equilibrium. On the other hand, exchange rate depreciation may more likely have expansionary effects on capacity utilization itself, given the stronger price elasticity of net exports.

All in all, the virtue of structural change and productive development do not pertain the domain of long-term growth only. They can well contribute to generating a more stable macroeconomic environment, at least partially immune to finance-led macroeconomic cyclical volatility. The sheer size of capital flows in current international relations, however suggests that full immunity could be attained only with restrictions to capital mobility itself. When dealing with the finance-related virus, one jab is good, two are better.

6. Policy discussion

This paper does not deal with long-run development as such. It is for this reason that we simplistically assume a somehow given productive structure (as captured by trade-related parameters) and an exogenous growth rate of labour productivity. Nonetheless, medium-term finance-led macroeconomic dynamics described here may certainly bear relevant long-term implications for productive development (see Botta, 2017, 2021). Following Bresser-Pereira (2012), Bresser-Pereira et al., (2020), and Botta et al., (2022), for instance, even temporary periods of appreciated exchange rate with respect to what could make structural change viable can be a source of (premature) de-industrialization and (hence) permanent slowdown in productivity dynamics. This would, in turn, make the economy even more fragile and exposed to financial cycles. Policy makers may thus have to react to finance-led "misalignments" in the current RER (with respect to "industrial competitive" one – see Marconi et al., 2021) and perhaps target a *stable* and *competitive* level of "q". This might be a leading component of complex policy packages aiming at feeding long-term productive development and structural change in middle-income countries.

In our model, domestic monetary institutions could counteract market forces leading to an appreciated exchange rate by accumulating foreign reserves. Term (Ω) could become endogenous and positive in Eq. (16) in order to compensate and neutralize any exchange rate effect of surges in "f". This could, in turn, disarm market-driven macroeconomic cycles described in Fig. 1. The accumulation of foreign reserves, however, comes with costs. This is particularly the case if it is accompanied by sterilization measures that may drive up interest rates and the cost of funding domestic actors, the domestic government first and foremost. It is for this reason that capital controls and, more broadly, CFM policies are essential here.[16] They may in fact reduce the scale of interventions (and of the related costs) that domestic monetary institutions might have to take in the foreign exchange market to keep the nominal and real exchange rates at competitive levels. Following Botta et al., (2022), these policies should now be an integral part of articulated policy strategies aiming at reducing the relevance of (international) finance in the determination of crucial macro prices (RER in this case) and of medium-term macro dynamics. Their ultimate goal should be the creation of more space for developmentalist monetary/fiscal/exchange rate policies and promote, together with industrial policies, long-term development.

7. Conclusions

In this paper, we explored the complex relationship between fiscal policy space, financial integration, and productive structure in emerging and developing economies (EDE). The existing mainstream literature on fiscal responsibility in open economies points out to a (negative)

[16] See Ostry *et al.* (2012) for a definition of CFM policies and a better distinction between capital controls and external macroprudential policies.

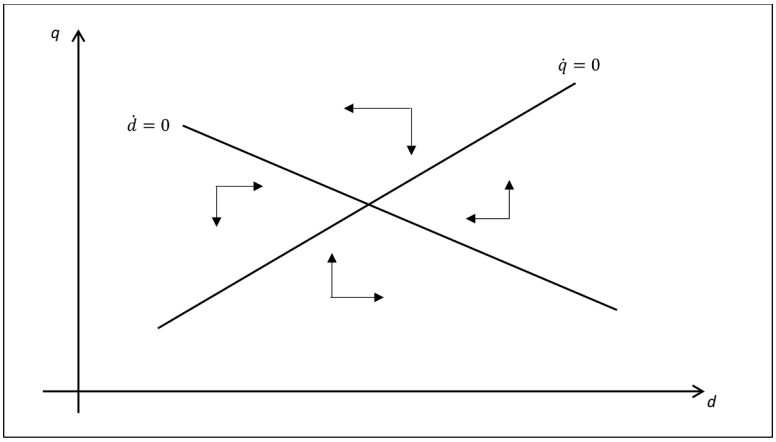

Fig. 4. Dynamic effects of trade integration in GVCs and the high price elasticity of net exports (plus capital controls). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

causality running from the spending behaviour of the public sector to external indebtedness consistent with the twin deficit hypothesis. Heterodox contributions in the post-Keynesian and structuralist traditions, on the other hand, stress the fact that the dynamics of EDEs are BoP dominated, hence reversing the causality put forward by their academic counterparts.

There seems to be a partial consensus, however, on the effect of short-term, or speculative, capital inflows on the economic performance of these economies, with increasing volatility and crisis frequency (Ostry et al., 2016), which ultimately brings to less fiscal receipts and deteriorating government balances. This makes fiscal policies in EDEs highly pro-cyclical, in particular during a period of abundant liquidity in international financial markets, which may trigger the build-up of private indebtedness (both external and internal) and, at a slower pace, government expenditure. Yet, with the reversal of the international financial cycle, both public and private agents may end up more indebted, also for the need of the former to bail out the latter. Local governments will likely have to make painful adjustments and cut spending to (supposedly) restore financial markets' confidence.

We formalize the interactions between capital flows and fiscal policy by developing a simple open economy macro dynamic model with a cyclical dynamic that is possibly set in motion by large capital inflows. We observe how the domestic fiscal policy fits into these cycles with the attempt to counter-act mounting external imbalance. Our contribution resides in closer attention to the role of foreign capitals as a leading factor in the determination of macroeconomic fluctuations and fiscal policy stances compared to the current literature.

Our results show how fiscal contractions may actually increase medium-term instability rather than tame it. Local stability analysis reveals that pro-austerity fiscal measures could give rise to diverging medium-run cyclical dynamics between RER and foreign debt. Rising foreign debt-to-capital-stock ratios, caused by cuts in government expenditures to sustain a BoP surplus, lead to self-defeating effects as foreign investors lose confidence in the resilience of the economy while the real exchange rate and domestic spending keep on plummeting.

Finally, we look at how productive development, product diversification, and potential integration into GVCs, with the necessary support of capital controls, may enable EDE countries to create a more stable macroeconomic environment and open more space for expansionary fiscal policies. If EDEs implement policies that directly tackle their resilience, such as industrial policies that aim at diversifying their productive structure while increasing their participation in GVC, that may help to dampen the external finance-led cycle and build fiscal space whilst improving country's credibility and solidity in international financial markets. However, these policies must be integrated with additional CFM policies that may squeeze capital flows and reduce collateral costs of central banks' interventions in the foreign exchange market aimed at keeping RER stable and competitive. Given the size of current international financial transactions with respect to trade-related ones, these last policies have increasingly become a necessity more than an option for developing countries.

Data availability

No data was used for the research described in the article.

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