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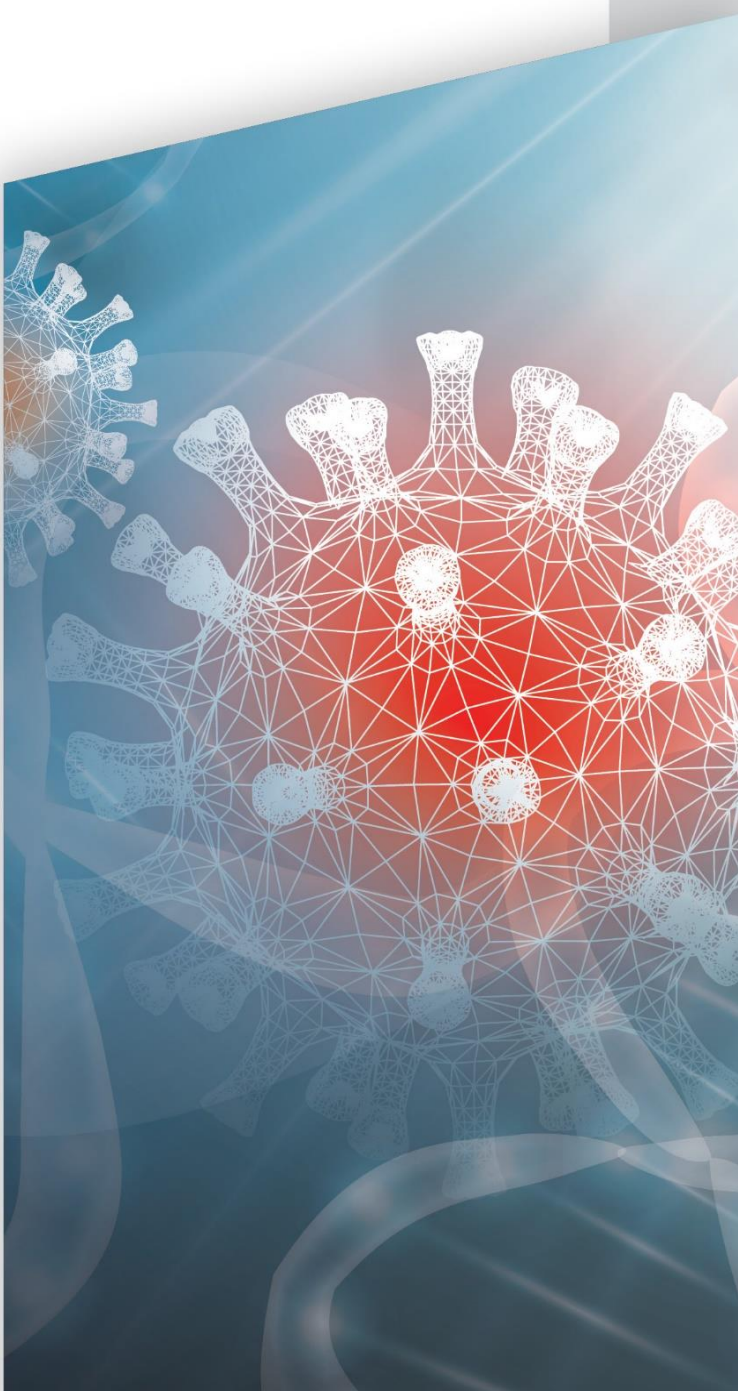
Response and Recovery

Mobilizing financial resources for development

DA-COVID-19 project led by Debt and Development Finance Branch, Division on Globalization and Development Strategies (DDFB/DGDS)



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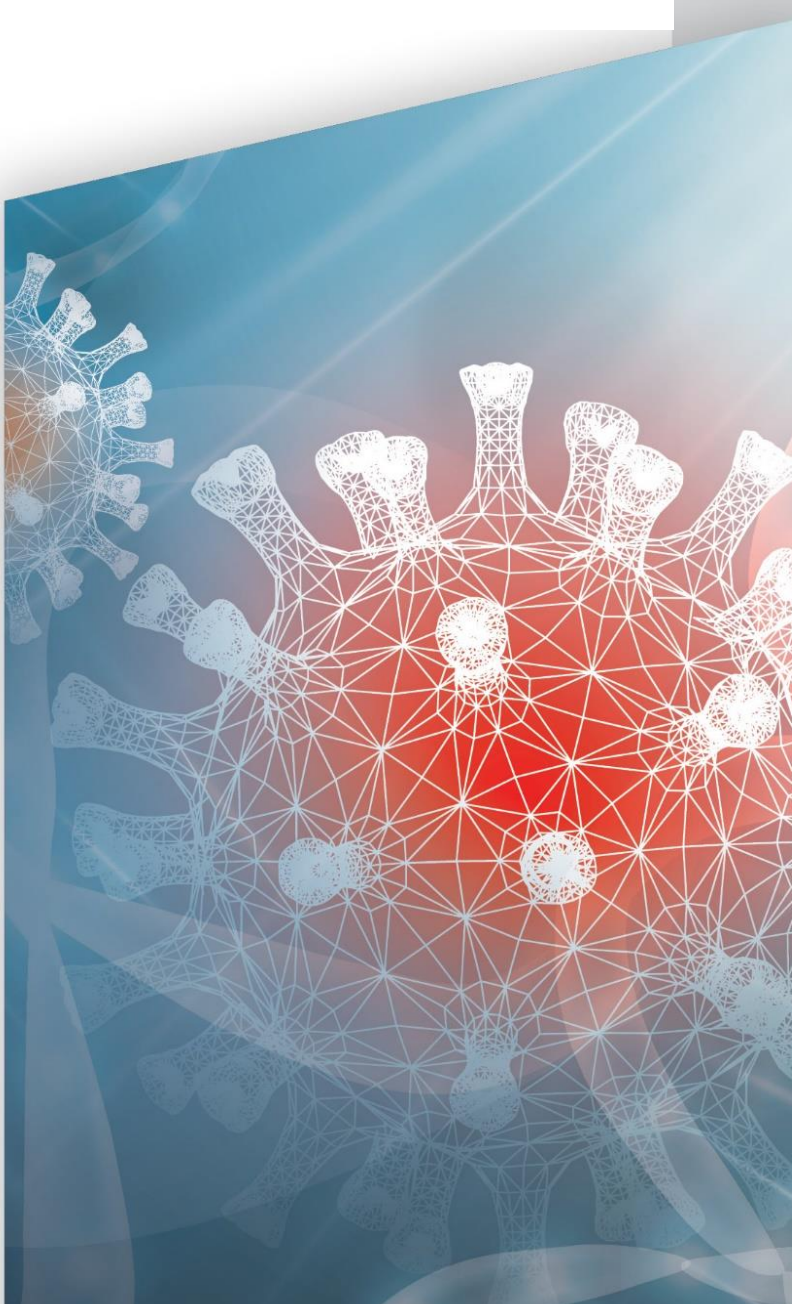
UNCTAD Sustainable Development Finance Assessment (SDFA) Framework: Linking debt sustainability to the achievement of the 2030 Agenda

Debt and Development Finance Branch
UNCTAD



About the COVID-19 Response and Recovery project

This paper is an output from the project “Response and Recovery: Mobilising financial resources for development in the time of COVID-19”, which is co-ordinated by the Debt and Development Finance Branch of UNCTAD and jointly implemented with ECA, ECLAC and ESCAP. This project is one of the five UN Development Account short-term projects launched in May 2020 in response to the COVID-19 crisis.

The project aims to enable low-income and middle-income developing countries (LICs and MICs) from Africa, Asia-Pacific, and Latin America and the Caribbean to diagnose their macro-financial, fiscal, external financial and debt fragilities in the global context, and design appropriate and innovative policy responses to the COVID-19 pandemic leading toward recoveries aligned with the achievement of the Sustainable Development Goals (SDGs).

UNCTAD Sustainable Development Finance Assessment (SDFA) Framework: Linking debt sustainability to the achievement of the 2030 Agenda

Introduction

Since the launch of the 2030 Agenda for Sustainable Development (2030 Agenda) in 2015, many developing countries have seen their external financial positions deteriorate, first gradually and recently at a greater speed due to compounding global shocks, including the uneven recovery from the Covid-19 pandemic, the rapidly worsening climate crisis, the armed conflict in Ukraine and the ongoing cost-of-living crisis. At the same time, and as the UNCTAD Trade and Development Report 2022 shows, rapid interest rate increases and fiscal tightening in advanced economies currently risk pushing the world towards global recession and prolonged stagnation. As of 30 September 2022, the IMF assessed 54 per cent of PRGT-eligible countries[1] to be at high risk of or already in debt distress compared to fewer than 30 per cent in 2015, as well as around 30 per cent of emerging market economies. [2]

In this context of mounting obstacles to the achievement of the Sustainable Development Goals (SDGs), UNCTAD has developed the Sustainable Development Finance Assessment (SDFA) Framework for policymakers of developing countries. This framework is a tool to assess a country's development finance needs to achieve structural transformation through the most significant SDGs[3] while at the same time ensuring the sustainability of the external and public sector financial positions (Hawkins and Prates, 2021). This framework incorporates sustainable development finance as a whole, considering all sources of external financing, i.e., foreign direct investment (FDI), foreign portfolio investment and external debt (both public and private). Its objective is to underline that there is a range of policy options to maintain external financial and public sector sustainability while also achieving the SDGs, with the SDFA framework allowing the assessment of these options.

In the UNCTAD SDFA framework, sustainability is a synonym for long-run solvency (Domar, 1944), where sustainability is defined as the condition that net liabilities (a stock, such as external debt) relative to some repayment capacity (a flow, such as export earnings) do not grow indefinitely in the long run. The emphasis is on the long run since the achievement of the SDGs typically requires

[1] The 69 countries eligible to apply to the IMF's Poverty Reduction Trust Fund (PRGT) include 25 low-income, 35 lower-middle income and 9 upper-middle income countries, based on World Banks income classifications. See https://www.imf.org/external/Pubs/ft/dsa/DSAlist.pdf

[2] See, e.g., https://www.devex.com/news/imf-chief-sees-growing-risk-of-a-debt-crisis-103628.

[3] In the current version, the first four SDGs (SDGs 1-4 - no poverty, no hunger, good access to health services and access to quality education) that are SDGs expected to be fully met by public sectors given their high and long-term social returns and low-short term private resources (Schmidt-Traub, 2015).

an extended period of high public and private investment. Therefore, achieving the SDGs may cause a deterioration in both external and public sector financial positions creating potential long-run solvency problems.

This paper has three sections. The first explains why the UNCTAD SDFA framework differs from standard Debt Sustainability Analysis (DSAs). The second presents the SDFA framework. The paper ends with final remarks on the applications of this framework and the way forward.

1. Background to the UNCTAD SDFA Framework

The crucial point of departure of UNCTAD's SDFA framework – reflecting some of the broader considerations summarized in Box 1 - is the assumption that long-run output growth is demand-led and that the balance of payment performance represents the dominant economic constraint to growth and development in developing countries. The external sector establishes an upper bound for aggregate demand and, consequently, for long-term growth that is usually below full employment. Although, in theory, all countries face this external constraint (Thirlwall, 1979), it is more likely to be binding for developing countries due to their external position within the global economy (Prebish, 1949 and 1953). This position has two interconnected dimensions. First, developing countries typically run trade deficits reflecting the productive-technological dimension (Porcile, 2021) – for example, because of their reliance on imported capital goods and technologies. Second, they do not issue an international reserve currency – a currency widely used in international transactions (predominantly the US dollar), which reflects the monetary-financial dimension (Fritz et al., 2018). The interplay of these two dimensions means that developing countries cannot finance their structural balance of payment deficits in domestic currency. The shortage of foreign currency associated with such deficits eventually leads to a constraint on the long-term growth rate (see next section).

The UNCTAD SDFA framework differs from standard DSAs in three main aspects. First, it has a development focus as it puts the achievement of the SDGs at the centre of the analysis, allowing them to be considered explicitly in fiscal decision-making. Even if standard DSAs consider a long-term period (e.g., 30 years), whether or not a debt is sustainable is a short-term concern of meeting performance benchmarks defined independently of long-term development goals. Domestic policy space, particularly fiscal policy, is, thus, permanently constrained by the effort to ensure debt sustainability is an end in itself (UNCTAD, 2019).

Second, standard DSAs rely on supply-side growth models in which the economy operates at full employment levels. By contrast, in the UNCTAD SDFA framework, long-term economic growth is demand-led and constrained by the balance of payments for the reasons mentioned above. Consequently, in such DSAs, aggregate spending could only have a composition effect, and

fiscal austerity is the usual policy recommendation to achieve public debt sustainability in situations of unsustainable external debt. On the contrary, in the UNCTAD SDFA framework, various combinations of macroeconomic and development policies can be employed within the bounds of the country's external position (see next section).

Third, this framework goes beyond standard DSAs by emphasising the broader dimension of external financial and public sector financial sustainability. External finance refers to all external liabilities (external debt, foreign direct investment (FDI) and portfolio investment) and public sector finance refers to all public sector liabilities. As external and public debts are essential components of developing countries' external and public sector liabilities, external financial sustainability and public sector financial sustainability usually require external debt and public sector debt sustainability, respectively.

Two further differences between the UNCTAD SDFA framework and conventional DSA are worth mentioning here: First, the UNCTAD SDFA framework considers not only exports of goods and services as a source of foreign currency free of cost but also gross remittances. Second, while standard DSAs adopt sustainability indicators (e.g., external debt over exports, external debt service over exports, domestic public debt over GDP) based on conventional thresholds, the UNCTAD SDFA framework extends Pasinetti's (1998) concept of an area of sustainability to external finance, external debt and public sector finance, in developing countries. This area defines a range of values of these indicators compatible with external financial and public sector financial sustainability, as detailed in the next section[4].

[4] Pasinetti's paper was a reaction to the "Maastricht criteria" that set targets that the members of the European Commission would have to meet to join the future monetary union. The targets were 60 per cent for the public debt to GDP ratio and 3 per cent for the fiscal deficit to GDP ratio. He shows that, as these ratios change over time, the relation between them should be considered arbitrary and not fixed thresholds. Thus, different combinations of these two ratios ensure public debt sustainability. For more details on Pasinetti's diagram for an area of sustainability and its application to the SDFA framework, see Torr (2022)

BOX 1. UNCTAD work on Debt sustainability

UNCTAD's involvement with debt sustainability analysis goes back to the late 1970s. In the context of extensive discussions at UNCTAD on frameworks and policies for debt relief and restructurings in developing countries between 1976 and the early 1980s[5] – with UNCTAD having been one of the first voices to warn of mounting debt distress in the developing world - UNCTAD joined the Paris Club as an Observer in 1978. In this role, UNCTAD presents assessments of debtor countries' debt positions during negotiations, including medium- and long-term economic perspectives in the wider global context, and provides support in drafting debt rescheduling requests to the Paris Club, if approached by the debtor country. Moreover, to provide technical support for these negotiations, UNCTAD developed the first version of the Debt Management and Financial Analysis (DMFAS) programme[6], which has so far supported 115 institutions in 74 primarily low-income countries.

Since the late 1990s, efforts to advance comprehensive development agendas gathered pace in the United Nations, exemplified in the United Nations Millennium Development Goals (MDGs) and their successor, the 2030 Agenda for Sustainable Development and the associated Sustainable Development Goals (SDGs). This also included a strong and explicit focus on the financing of such ambitious development agendas, amongst concerns about growing incidences of debt and financial crisis in developing countries. The UN International Conferences on Financing for Development (Monterrey 2002, Doha 2008 and Addis Ababa 2015) became the main vehicle for these discussions, resulting most recently in the Addis Ababa Action Agenda (2015). They largely succeeded in creating a framework for international cooperation on some major financing for development issues and in furnishing the United Nations with a central role in shaping and taking forward this framework.

This coordinated focus on scaling-up of development finance to meet the SDGs and achieve the 2030 Agenda inevitably also put a renewed spotlight on the question of developing countries' external and public debt sustainability. Core SDGs (including poverty elimination, nutrition, good health and quality education), rely, by common agreement, heavily on public sector finance, since they cover public goods that yield high social returns but low and uncertain private returns in the short run. Moreover, as debt-based finance will remain one of the key components of developing countries' strategy for mobilisation of developing finance to achieve the SDGs, mounting debt service costs can undermine SDG-related public investment. For this reason, debt sustainability analysis plays a prominent role in the AAAA[7] and is explicitly linked to achieving the 2030 Agenda[8].

It is in this context that calls grew for an approach to debt sustainability analyses that could take explicit account of SDG-related investment requirements[9] and, more generally, perform as an integral part of long-term national development strategies (Kregel, 2006; Pinto, 2018)[10]. This wider focus on a set of policies compatible with both medium and long-run external and public debt sustainability as well as the achievement of longer-term developmental goals and agendas contrasts with conventional DSAs. These centre around an exclusively creditor-focused policy view and on the conditions required to ensure that a sovereign debtor can meet its foreign debt service obligations at any moment in time. This entails the policy view that sovereign debtors should prioritize the timely and continuous servicing of their external debt obligations over competing claims on a debtor country's total domestic resources and foreign exchange receipts (Kregel

[5] See UNCTAD (1980). Trade and Development Board Resolution 222 (XXI), Part B on "Detailed Features for Future Operations Relating to the Debt Problems of Interested Developing Countries".

[6] See: https://unctad.org/dmfas/Whoweare

[7] Action area E. Debt and debt sustainability.

[8] Target 17.4: Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress

9 See e.g. A/RES/76/193, OP 33.

10 In 2005, former Secretary-General Kofi Annan proposed that debt sustainability should be defined relative to overall developmental goals or "as the level of debt that allows a country to achieve the Millennium Development Goals and reach 2015 without an increase in debt ratios" (United Nations, 2005: 2).

(2006). [11] The UNCTAD SDFA framework responds to this call to relate alternative and complementary debt sustainability assessments more directly to investment requirements arising to developmental strategies, goals and agendas. Filling this gap has become even more urgent given the mounting pressures on debt sustainability from current interrelated global shocks and monetary tightening in developed countries.

2. The UNCTAD SDFA framework

The SDFA framework builds on three steps. The first considers the sustainability of external finance and external debt. The second incorporates the sustainability of public sector finance. The third then integrates the sustainability of external and public sector positions with the achievement of the SDGs.

This section presents these building blocks of the UNCTAD SDFA framework and discusses some possible policy implications for developing countries facing unsustainability in their external and public sector accounts.

4.1 External financial sustainability

The interplay of the two dimensions of developing countries' external integration in the global economy explains why the balance of payments constraint on long-term growth can be considered binding on developed countries. The productive-technological dimension typically implies a specific composition of exports and imports that leads to structural trade deficits. The monetary-financial dimension implies not issuing international reserve currencies.

Regarding the productive-technological dimension, in most developing countries the share of imports, especially of capital and intermediate goods, in domestic output is very high. Developing countries tend to export commodities or manufactured goods for which external demand increases only slightly when external output increases and import manufactured goods for which domestic demand increases significantly when domestic output increases. Thus, as the performance of exports depends on the external output and commodities prices are set in the international market while imports are driven by domestic output, economic growth usually leads to trade deficits in these countries. An increase in external output and/or a depreciation of the developing country's currency may boost exports and result in a trade surplus. Still, eventually, the trade deficit returns as the composition of exports and imports and the share of imports in domestic output are variables that only change in the long term with structural transformation. The inclusion of remittances as free of cost revenue in foreign currency does not change this conclusion, as migrants' income depends mainly on the economic performance of developed countries.

[11] For a critical assessment of the standard DSAs, see Laskaridis (2021), Wyplosz (2011), Pinto (2018) and Kregel (1996).

The trade deficits result in current account deficits that need to be financed by inflows of foreign capital – external debt, FDI and portfolio investment – that give rise to external liabilities (stocks of external debt, FDI and portfolio investment). These liabilities, in turn, must be serviced in the form of payments of interest, profits and dividends abroad. This external financial service[12], along with the structural trade deficits, results in recurrent current account deficits and a further increase in external liabilities that eventually will need to be paid in international reserves currencies.

Consequently, the capacity of developing countries to sustain a growth path that enables structural transformation (and the change in the composition and level of exports and imports) depends on their ability to manage external liabilities. This problem is independent of the specific form of external liabilities. This challenge was stressed a long time ago by Raúl Prebisch, the first executive director of UNCTAD, and is still present, mainly in the case of lower-middle- and low-income countries (LICs and LMICs), despite the changes in the profile of their external integration since then. In his words: "*As the stock of foreign capital increases, its financial services also grow, which will demand increasing resources from exports, and the more these services grow, the less there will be room for importing capital goods with these resources* (Prebisch, 1949:480, author's translation). Interestingly, as Kregel stress (1996), the cost of FDI tends to be higher than the cost of external debt because profit rates tend to be higher than interest rates.

In the long run, a country faces an external sustainability problem when there is an overall scarcity of foreign currency relative to its net external liabilities. Net external liabilities refer to the difference between external liabilities and total external assets (e.g., international reserves and direct investment abroad)[13]. Although these assets are usually smaller in value than external liabilities in developing countries, several of them (mainly the so-called emerging market economies - EMEs[14]) have built-up international reserves and other external assets since the beginning of the 2000s (Akyüz, 2021; UNCTAD, 2019). Thus, it is important to consider such assets in assessing external financial sustainability. The net external liabilities vary over time due to both net capital flows and valuation changes - which represent the gain or loss stemming from an appreciation or depreciation of the stock of liabilities and assets[15].

[12] This service is called "investment income" in the Sixth edition of the Balance of Payment Manual of the IMF (BPM6) (IMF, 2009), which is the current methodology for the Balance of Payments.

[13] The net external liabilities are equal to the negative value of the country's international investment position as defined by the BPM6 (IMF, 2009).

[14] EMEs are high-income and upper-middle income developing countries that integrated into financial globalization in the 1990s.

[15] For example, suppose that a foreign investor buys equities negotiated on the stock exchange of an EMEs, increasing its external liabilities. If the prices of these equities fall, the external liability of this economy will also fall while foreign investors will incur a financial loss as the value of their assets decreased. An exchange rate depreciation will have the same effect as it reduces the value of external liabilities in foreign currency.

The broad indicator of external financial sustainability is the ratio between the country's net external liabilities and the cost-free inflow in an international reserve currency that can be used to repay these liabilities – exports and remittances in the UNCTAD SDFA framework[16]. The sum of exports and remittances is referred to here as "augmented exports". As external financial sustainability is defined by the condition that the ratio between net external liabilities and augmented exports does not grow indefinitely, the country's external finance will be sustainable if the growth rate of net external liabilities is equal to the growth rate of augmented exports. External sustainability will deteriorate if net external liabilities grow faster than augmented exports. Conversely, if this ratio declines, external sustainability will improve.

This sustainability condition (which is a stability condition) requires two conditions: First, in the presence of an adjusted trade deficit (the trade deficit plus remittances[17]), the growth rate of augmented exports must be greater than the average cost of net external liabilities - so that these liabilities can rise without threatening external financial sustainability; Second, for a given difference between the growth rate of net external liabilities and the average cost of these liabilities, imports must grow as fast as augmented exports. As the level of economic activity is the primary driver of imports, this yields a specific economic growth rate compatible with external financial sustainability.

The stability condition also defines a relation between the level of the adjusted trade deficit over augmented exports and the level of net external liabilities over augmented exports. It can be interpreted, following similar reasoning as Pasinetti (1998), as a menu choice between these two ratios that define an area of sustainability where many combinations ensure external financial sustainability (see Figure 1 in the Technical Annex). However, as developing countries do not issue international reserve currencies to pay their external liabilities, there is a boundary to the level of net external liabilities over augmented exports. This boundary, in turn, establishes a limit to the level of the adjusted trade deficit over augmented exports and, consequently, to the domestic growth rate compatible with external financial sustainability.

Developing countries can, however, face external credit constraints and a sudden stop on new external borrowing. Hence, the external debt must be explicitly considered relative to augmented exports. Moreover, international debt obligations held in foreign currency and under foreign law have specificities in comparison to the other sources of external financing. So, the second (and narrower) indicator of the UNCTAD SDFA framework is the ratio between the country's net external debt and

[16] In the UNCTAD SDFA framework, remittances refer to compensation of employees (primary income account) and personal transfers (secondary income account), according to the BPM6 (IMF, 2009).

[17] For sake of simplification, we suppose that the non-remittance flows in the secondary income account is zero. This does not change the results as these flows are usually insignificant in developing countries.

augmented exports. It measures external debt sustainability and is a similar indicator to that used in standard DSAs to measure external debt sustainability (with the difference that these DSAs consider gross external debt). When external financial conditions deteriorate, this indicator may limit the adjusted trade deficit over augmented exports, leading to a constrained area of sustainability (see Figure 2 in the technical annex). This is the case in many developing countries.

4.2. Public sector financial sustainability

The next step is to assess the sustainability of the public sector's finance. In the UNCTAD SDFA Framework, the public sector comprises the different tiers of government (federal, state, and municipal administrations), as well as the central bank, state enterprises and public banks.

The public sector's sustainability reflects the relation between, on the one hand, the public sector net liabilities – defined as the difference between all liabilities and all assets held by the public sector – and, on the other hand, its repayment capacity in domestic currency. This capacity relies mainly on tax revenues. As historical data on these revenues are not always available, and these revenues depend primarily on the level of economic activity, the GDP (Gross Domestic Product) is used as a proxy of tax revenues, as suggested by Domar (1944).

We assume the country's public sector finance will be sustainable if the growth rate of these liabilities is equal to the GDP growth rate. Public sector financial sustainability will deteriorate if public sector financial liabilities grow faster than the GDP. Conversely, if this ratio declines, public sector financial sustainability will improve. This stability condition requires: First, given a primary fiscal deficit[18], the GDP growth rate must be greater than the average cost of these liabilities; Second, for a given difference between the GDP growth rate and this average cost, the primary fiscal deficit must remain constant relative to the GDP.

The public sector financial sustainability condition can also be interpreted as allowing for policy choice between the level of the primary fiscal deficit over GDP and the level of public sector net liabilities over GDP: all the combinations of these two ratios inside the area of sustainability ensure that public sector finance is sustainable (see figure 3 in the Annex). In contrast to the external sector, the boundaries of these public sector ratios are usually, subject to political, institutional or market constraints. An example of these constraints is a fiscal rule that sets a boundary on either the level of the public debt over the GDP and/or the level of the primary fiscal deficit over the GDP[19]. They can

[18] The primary fiscal deficit is the positive difference between the sum of government expenditures and transfers, on the one hand, and tax revenues, on the other hand.

19 See Schaechter et al. (2012).

also be subject to market constraints as investors may impose limits on public sector borrowing through lending conditions (cost, repayment period or value) changes.

4.3. Integrated constraint: connecting external financial sustainability, public sector financial sustainability and the SDGs.

Given the assumption that the balance of payment performance is the most relevant economic constraint on growth for a developing country, in the SDFA framework, the condition that imports must grow as fast as augmented exports yields a specific GDP growth rate compatible with external financial sustainability, i.e., a maximum attainable long-run economic growth given the external constraint.

To connect external financial sustainability and public sector financial sustainability, this growth rate is plugged into the public sector sustainability condition, which allows for determining the fiscal space for public investment in SDGs with sustainability in the external and public sector accounts. This will be achieved if the GDP growth rate consistent with external financial sustainability exceeds the average cost of public sector net liabilities given a primary fiscal deficit.

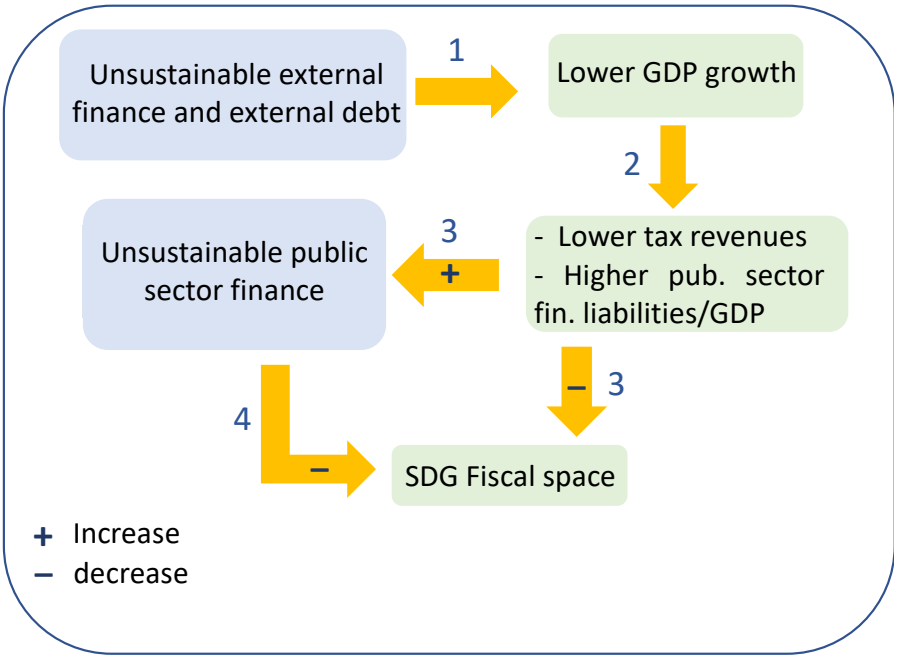
Supposing that this average cost remains unchanged, two situations are possible. In the first one, the growth rate compatible with external financial sustainability is lower than the current GDP growth rate. Therefore, this rate must decrease to achieve sustainability in the external dimension in the long run. Given that standard government expenditures do not change in the short term, the fiscal space to increase SDG-related public investment will reduce. In the second one, the current GDP growth rate is lower than the growth rate compatible with external financial sustainability. Thus, the external accounts can accommodate a higher growth rate in the long run, allowing for more public expending on SDGs with the sustainability of public sector finance. Such expending will, in turn, boost GDP growth, improving public sector financial sustainability. However, even this favourable situation may not be sustainable in the long run as higher GDP growth will also boost imports, which may threaten external financial sustainability. On top of that, SDG-public-related investments are in general, unlikely to lead to an expansion of exports in the short-term while they may increase imports, since, in general, they are in non-tradable sectors.

The next section presents an example of a hypothetical LIC country - reflecting the current situation of many LICs and LMICs – which helps to clarify the relationship between external financial sustainability, public sector financial sustainability and the achievement of the SDGs.

4.4. Insights from the UNCTAD SDFA framework for policymaking

Consider a LIC country with a managed exchange rate regime that faces a situation of unsustainable external finance and debt burdens in the long run, where the growth rate of augmented exports is not enough to offset import growth and the average cost of net external liabilities. An unsustainable trend of public sector finance aggravates the scenario since to attain public sector financial sustainability with the achievement of the SDGs, a higher GDP growth rate than the growth rate compatible with external financial and debt sustainability would be required. Consequently, the country would need to subdue economic growth due to the external constraint, which would result in lower tax revenues and a higher ratio between public sector net liabilities and GDP. This will shrink the policy space to achieve the SDGs and reinforce the unsustainable trend of public sector finance, which would further reduce the policy space to achieve the SDGs. Given the critical role of the balance of payment constraint, addressing external financial and external debt unsustainability is a pre-condition to break this vicious cycle (see Figure 2).

Figure 2. The vicious cycle between unsustainable external finance and debt and unsustainable public sector finance



How can the LIC country described break the vicious cycle between the unsustainability of external finance and external debt, the unsustainability of public sector finance and the achievement of the SDGs?

The variables involved in the external financial sustainability condition are augmented exports, imports, net external liabilities, net external debt, and the growth rates of net external liabilities, of net external debt and of augmented exports (see section 4.1). The cost of net external liabilities is out of the control of the country. Besides being primarily driven by external factors, a LIC in a situation of unsustainable external finance and debt would not be able to reduce this cost through capital flow regulation[20]. Given this situation, the country would face currency depreciation pressures. A depreciated currency would stimulate augmented exports and curb imports. However, the country would try to curb the currency depreciation selling international reserves as this depreciation has negative spillovers on inflation, real wages and external debt burdens. However, this policy could only continue until the stock of international reserves is depleted. At this point, the exchange rate would record a huge depreciation. However, in the case of LICs, even this depreciation would be insufficient to raise exports and curb imports' growth rate if it is not coupled with development policies (industrial, technological, and commercial policies) that would lead to structural transformation and, thus, to a change in the composition and level of exports and imports. Such a new profile of the trade balance would ease the external constraint, allowing for a higher growth rate compatible with external financial and external debt sustainability.

The investments required to achieve structural transformation and ease the external constraint have long-term maturity and include key SDG-related public investments. However, the country does not have fiscal space to expand public expenditures that would, in turn, stimulate private investments. This means that the only way to ease the external constraint and take the LIC country out of the vicious cycle described is to reduce the level and the cost of net external liabilities, which could only be achieved with increased access to Official Development Finance (ODA) and concessional financing; external debt restructuring and/or cancellation. The usual policy recommendation, i.e., fiscal austerity, would only reinforce the vicious cycle: growth would remain subdued and the fiscal space constrained, putting the country further away from the goal of achieving the SDGs with sustainability in the external and public sector accounts.

This example shows that the UNCTAD SDFA framework provides additional insights into which combinations of macroeconomic (monetary, fiscal and exchange rate policies) and development policies (industrial, technological and commercial policies) may enable the attainment of the SDGs with sustainability of external finance, external debt and public sector finance. These combinations will depend on each country's macroeconomic and institutional framework, productive structure -

[20] This regulation encompasses capital controls and prudential regulation. For instance, a developing country could impose a financial tax on short-term external loans or securities issued abroad for changing the composition of the external debt toward longer-maturity and lower-cost modalities.

which shapes the profile of the integration in global trade and global value chains – and the degree of capital flow regulation - which shapes the profile of the external financial integration.

Because the UNCTAD SDFA framework signals if the country is moving towards an unsustainable and unstable situation in the external and public sector accounts, it can also be considered a tool for debt crisis prevention allowing for the adoption of policies to change this trend. These policies include macroeconomic and development policies, as well as capital flow regulation, which could be used to change the composition of the net external liabilities towards less expensive modalities of external finance. But the UNCTAD SDFA also has applicability when the country is already in an unsustainable situation in the case of debt resolution as it indicates if domestic policies would be sufficient to achieve the SDGs with external financial and public sector financial sustainability. If they are not, as in the example above, it may be used to estimate the extent of the write-off of external debt and/or reduction of its cost that would be needed to move the economy back into a position of sustainability.

5. Final remarks: applications and the way forward

In a nutshell, in the UNCTAD SDFA framework, the external sector establishes an upper bound for the long-term growth rate in developing countries. As this rate is the main driver of public sector financial sustainability, public sector sustainability is also subject to an external constraint. This constraint defines the country's fiscal space to achieve the most fundamental SDGs – which rely on public investment - with external financial, external debt and public sector financial sustainability.

Hitherto, the UNCTAD SDFA framework had two applications routes: first, the application to three countries (two lower-middle-income - Sri Lanka, Pakistan - and one upper-middle-income - Indonesia) to assess the long run external financial and public sector financial sustainability considering the achievement of SDGs 1-4 in 2030; second, the development of a visual policy tool (a dashboard) that determines trends in the sustainability of their external and public domestic sector and in the integrated financial positions in two scenarios. The dashboard allows policymakers in the selected country to assess the impact of different policy choices on these positions (see Lockwood, 2022 and Annex 2).

The UNCTAD SDFA framework may be extended in a number of ways still under discussion. In the first instance, the existing framework can be applied to other country studies, including for feedback information on data limitations and on priorities for adjustment and expansion of the basic model presented here. Second, the range of SDGs and concomitant investment requirements is one core extension that is already being prepared for the case of climate-related financing needs in the

context of upcoming country-based project work. Finally, there are several routes towards the refinement and expansion of the analytical relationships in the basic model underlying the SDFA framework. This might, for example, include the introduction of policy rules (i.e., fiscal and monetary) and further policy variables (e.g. exchange rate), as well as determinants of reaction patterns or functions in core variables (i.e., output growth, imports and exports) to such policy rules. These and other possible extensions would aim at developing the SDFA framework further towards an interactive planning tool, in addition to its current use as an assessment framework primarily.

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Annex 1

The SDFA framework: sustainability conditions and areas of sustainability

1. External financial sustainability

The broad indicator of external financial sustainability in the SDFA framework is the ratio between Net External Liabilities (NEL) and augmented exports (X*) – that is the sum of exports and remittances: NEL/X*. In this framework, sustainability refers to long-run solvency and is defined by the condition that this ratio does not grow indefinitely, which means stability in the long run. Therefore, the growth rate of NEL needs to be equal to the growth rate of X*: $g_{NEL} = g_{X^*}$. This condition leads to the sustainability condition for the external accounts, as follows:

$$\frac{M - X^* - \theta}{X^*} = \left(\frac{g_{X^*} - r}{1 + g_{X^*}}\right)\frac{NEL}{X^*} \qquad (1)$$

Where:

- $M - X^* - \theta$ is the adjusted trade deficit that refers to the trade deficit including remittances (in augmented exports) and other non-remittances flows in the secondary income account (θ) – that corresponds to secondary income flows net of gross remittances and capital account flows.
- **r** is the average cost of NEL[21]
- $\frac{g_{X^*} - r}{1 + g_{X^*}}$ is the snowball effect that refers to the growth in NEL stemming from the difference between the r and X*

Thus, the sustainability condition establishes that (M-X*-θ) over (X*) must be equal to the snowball effect multiplied by NEL/X*. This condition requires that:

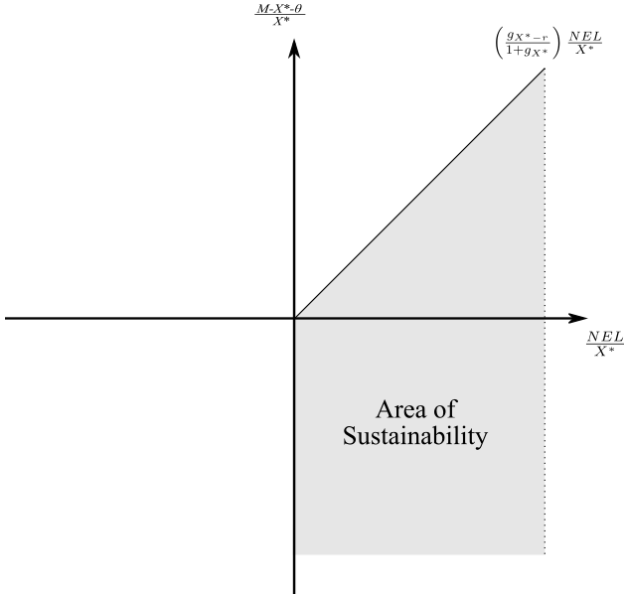
- First, given (M-X*-θ), g_{X^*} must be greater than *r*. Since *r* is an average net cost of liabilities, it will tend to be determined by the highest and most persistent of these costs in the long run. Some of these costs and returns include gains stemming from asset and liability valuation changes, which may be high in the short run, but may not be persistent. In the long run, g_{X^*} must be higher than the highest cost included in *r* as it will tend to increase its share in the weighted average sum.

[21] In the case of developing countries, this cost is usually negative as the cost of external liabilities (payment of interests, profits and remittances for non-residents) is greater than the return on external assets (payment of interests, profits and remittances by non-residents). This cost includes the net nominal cost (net cost of liabilities minus return on assets) and valuation changes in assets minus valuation changes in liabilities associated to changes in the exchange rate and asset prices (such as equity and bonds).

- Second, for a given difference between g_{X^*} and *r*, (M-X*-θ) must be constant relative to X*. This implies that M must grow in line with the weighted average growth of X*-θ. However, if X* and θ grow at different rates, the weights attributed to each one will change over time. If X* grow faster, the share of θ will decrease in this average rate over time. The same holds for the opposite case, where θ grows faster relative to X*. As θ is smaller than X* in developing countries, it is reasonable to assume that X* are the relevant term in this average growth rate and that its share tends to increase over time relative to θ. Thus, the long run constraint on growth can be expressed as $g_M = g_{X*}$[22]. Since the level of economic activity is the main driver of imports, this yields a specific GDP growth rate compatible with external accounts sustainability that we called g_{BP}.

The sustainability condition can be interpreted, following similar reasoning as Pasinetti (1998), as a menu choice between the ratios $M - X^* - \theta$/X* and NEL/ X*. This menu choice defines an area of sustainability represented in figure 1 for the case of X* growing faster than r. All the combinations of M-X*$-\theta$/X* and NEL/X* inside this area ensure that the external accounts are sustainable.

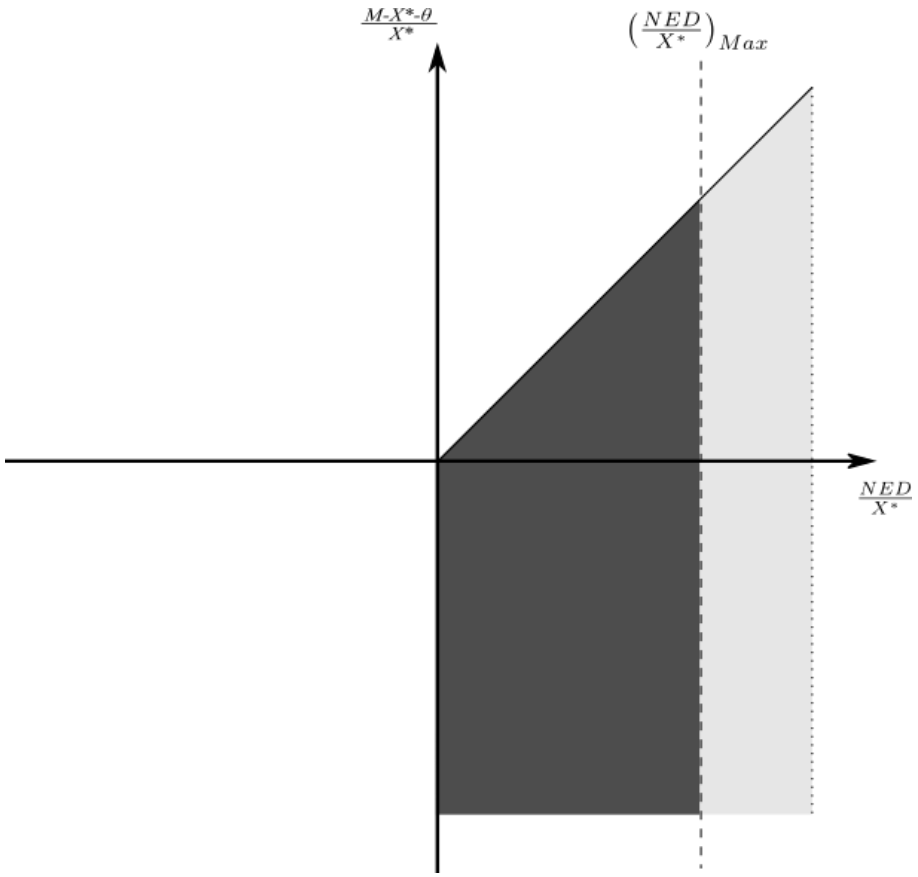
Figure 1. Area of external financial sustainability



[22] The output and export growth rates may be affected by what kind of imports grew – capital goods would tend to have a larger impact than luxury consumer goods.

Some of the components in NELs might face a constraint relative to exports. This is the case, for example, of the net external debt (NED) in foreign currency (payable and denominated in foreign currency and issued in the international market). Developing countries can face both external credit constraints and a sudden stop on new external borrowing. Moreover, international debt obligations held in foreign currency and under foreign law have specificities in comparison to the other sources of external financing (i.e., FDI and portfolio investment in the domestic financial market). The SDFA framework second and narrow indicator is, thus, the ratio between the country's NED and its repayment capacity in foreign currency: NED/X*. It measures external debt sustainability and is typically used in standard DSAs. When external financial conditions deteriorate, this indicator may impose some limit to the level of M-X*-θ/X* leading to a constrained area of sustainability, as represented in figure 2 by the darker grey shaded area.

Figure 2. External financial sustainability with a maximum level of NED over exports plus remittances



As mentioned above, the sustainability condition (1) establishes that with an adjusted trade deficit, g_{X^*} must be greater than r. However, in dynamic terms, different situations can take place depending on whether: the variation of the ratio NEL/X* (Δnel) increases or decreases ; g_{X^*} is higher or lower than r ($g_{X^*} < r$ or $g_{X^*} > r$); and M are greater or smaller than $\boldsymbol{X^* + \theta}$ ($M > (\boldsymbol{X^* + \theta})$ or $M < (\boldsymbol{X^* + \theta})$).The dynamic sustainability condition describes the dynamic relationship between Δnel and *nel*, as follows:

$$\boldsymbol{\Delta nel = \frac{M - X^* - \theta}{X^*} - \left(\frac{g_{X^*} - r}{1 + g_{X^*}}\right) nel} \quad \textbf{(2)}$$

The size of Δnel will change according to the conditions given by figures (3), (4) and (5).

Figure 3. External Sustainability Dynamic: the relationship between Δnel and nel

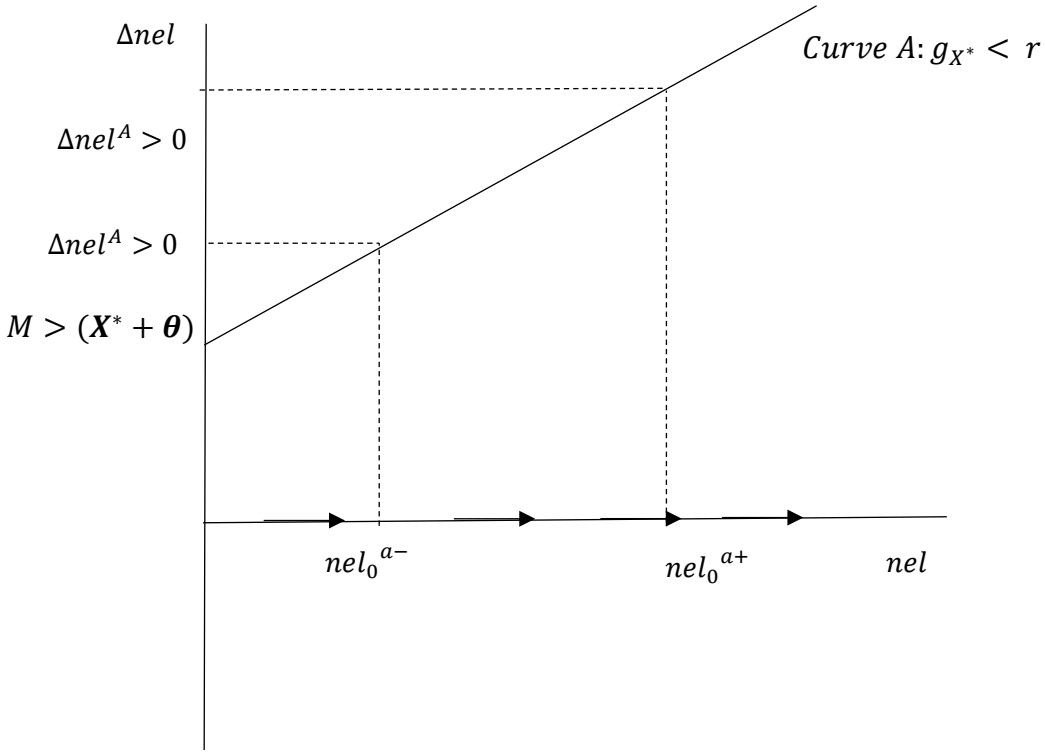


Figure 4. External Sustainability Dynamic: the relationship between Δnel and nel

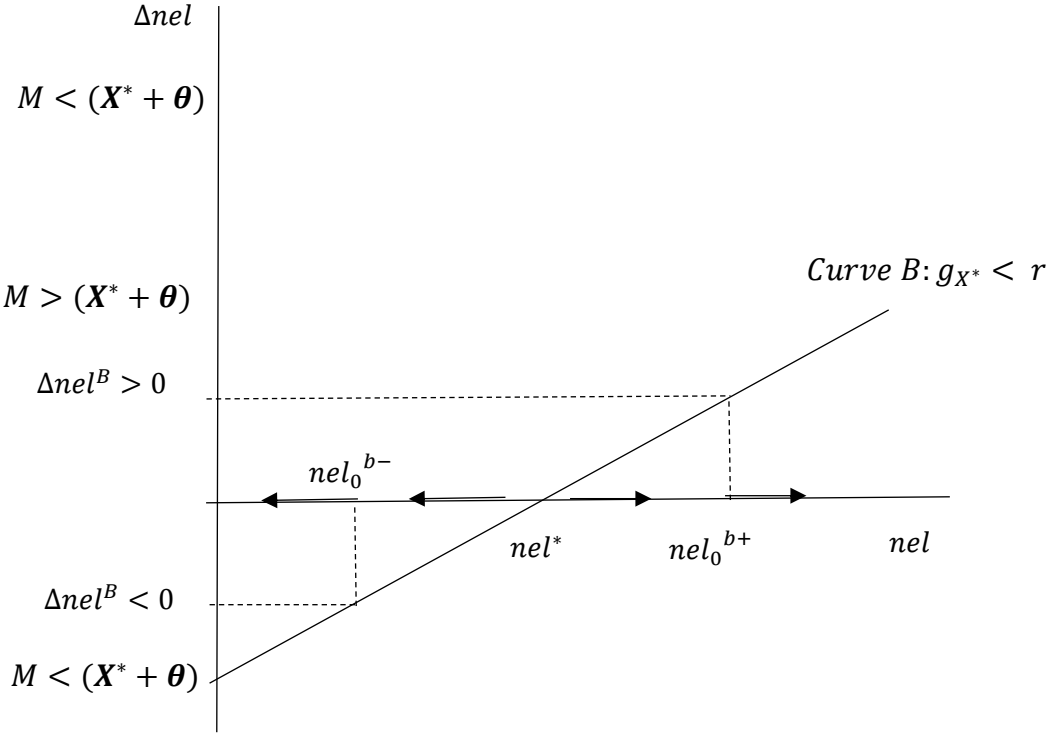
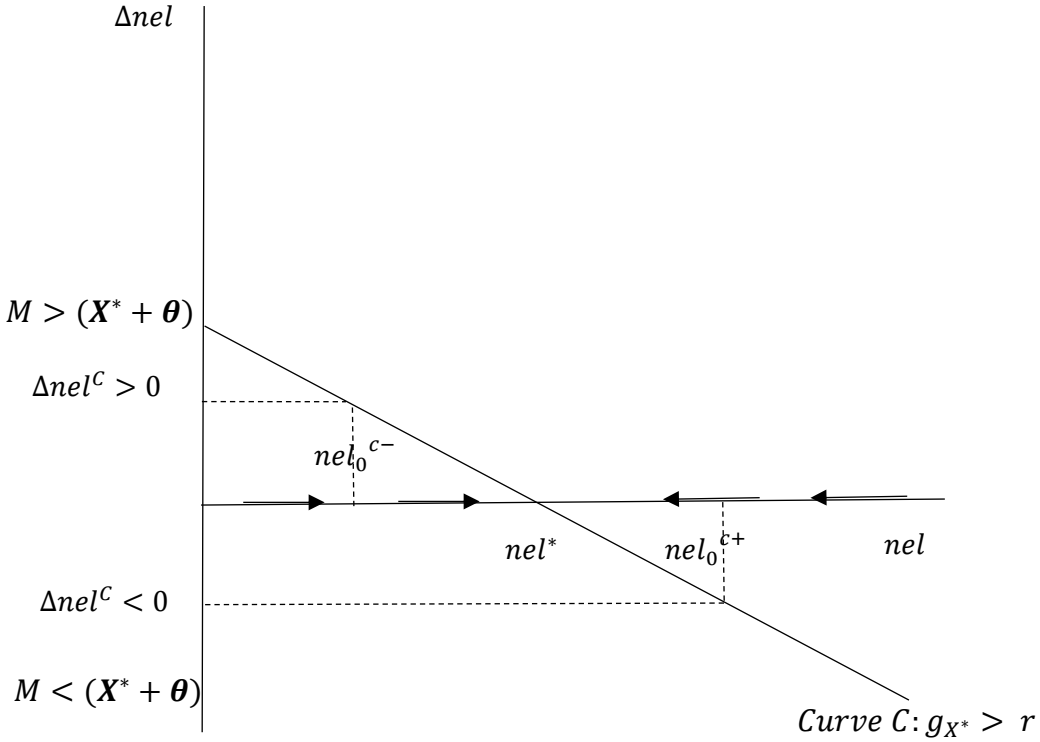


Figure 5. External Sustainability Dynamic: the relationship between Δnel and nel



2. Public sector financial sustainability

The next step is to assess the public sector's financial sustainability[23]. Following a similar approach applied to the external accounts, the public sector's solvency reflects the relation between, on the one hand, the public sector net liabilities (PSNL) – defined as the difference between all liabilities, which include public debt, and all assets held by the public sector – and, on the other hand, some flow that determines its repayment capacity in domestic currency. This capacity relies, mainly, on tax revenues. As historical data on these revenues are not always available and they depend, mainly, on the level of economic activity, the Gross Domestic Product (GDP or Y) is used as a proxy of tax revenues, as in standard DSAs.

The indicator of public sector financial sustainability is, thus, the ratio between PSNL and Y: PSBL/Y[24]. As the public sector's solvency requires the stability of this indicator in the long run, the growth rate of PSNL (g_{PSNL}) needs to be equal to the GDP growth rate (g): $g_{PSNL} = g$. This condition leads to the sustainability condition for the public sector:

[23] In the SDFA Framework, public sector refers to federal, state, and municipal administrations, as well as the central bank, state enterprises, and banks.

[24] Besides these revenues, government spending is also financed by variations in the monetary base and the net public internal debt and external debt.

$$\frac{G+F-T_0}{Y} = \left(\frac{g-\beta}{1+g}\right)\frac{PSNL}{Y} \quad \textbf{(3)}$$

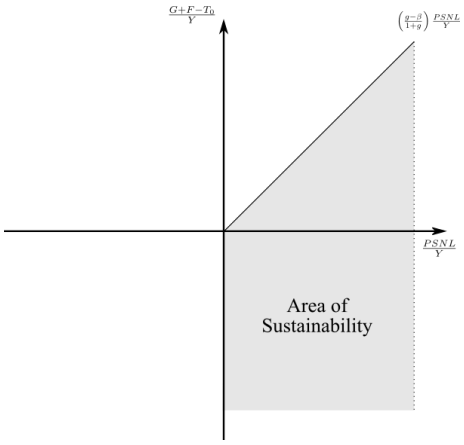
Where:

- $\mathbf{F}$ are transfers and $\boldsymbol{T_0}$ tax revenues
- $\mathbf{G} + \mathbf{F} - \boldsymbol{T_0}$ is the primary fiscal deficit
  - $\boldsymbol{\beta}$ is the average cost of PSNL – that includes, for example, the policy rate set by central banks
  - $\left(\frac{g-\beta}{1+g}\right)$ is the snowball effect that refers to the growth in PSNL stemming from the difference between β and g.

Therefore, the sustainability condition for the public sector establishes that $\mathrm{G} + \mathrm{F} - T_0/\mathrm{Y}$ must be equal to the snowball effect multiplied by PSNL/Y. This condition requires that: First, given $\mathrm{G} + \mathrm{F} - T_0$, g must be greater β; Second, given a difference between g and β, $G + F - T_0$ must remain constant relative to Y.

The public sector sustainability condition can also be interpreted as a menu choice between the $\mathrm{G} + \mathrm{F} - T_0/\mathrm{Y}$ and PSNL/Y, as depicted in Figure 6: all the combinations of $\mathrm{G} + \mathrm{F} - T_0/\mathrm{Y}$ and PSNL/Y inside the area of sustainability ensure that the public sector accounts are sustainable. This figure is like Pasinetti's one (Pasinetti, 1998) with the difference that the SDFA framework considers the broader concept of PSNL, while Pasinetti's analysis includes only public debt. In addition, we represent it from the point of view of a deficit in government spending relative to taxes (the most common situation in developing countries) while Pasinetti presents the case of a surplus. This explains why Pasinetti's curve is downward sloping and our curve is upward sloping.

Figure 6. Area of public sector financial sustainability



The sustainability condition (3) establishes that given $\mathrm{G} + \mathrm{F} - T_0$/Y, the GDP growth rate must be greater than β. However, as in the case of the external accounts, in dynamic terms different situations can take place depending on whether: the variation of the ratio PSNL/Y (Δd) increases or decreases; g is higher or lower than β (g > β *or* g < β); and G + F are greater or smaller than T_0 ($G + F > T_0$ or $G + F < \boldsymbol{T_0}$). The dynamic sustainability condition describes the relationship between Δd and *d* as follows:

$$\Delta \boldsymbol{d} = \frac{\boldsymbol{G+G_{SDG}+F-T_0}}{\boldsymbol{Y}} - \left(\frac{\boldsymbol{g-\beta}}{\boldsymbol{1+g}}\right)\boldsymbol{d} \quad \textbf{(4)}$$

The size of Δd will change following the conditions given by figures (7), (8) and (9).

Figure 7 – Domestic Public Sector Dynamic: the relationship between $\Delta \boldsymbol{d}$ and $\boldsymbol{d}$

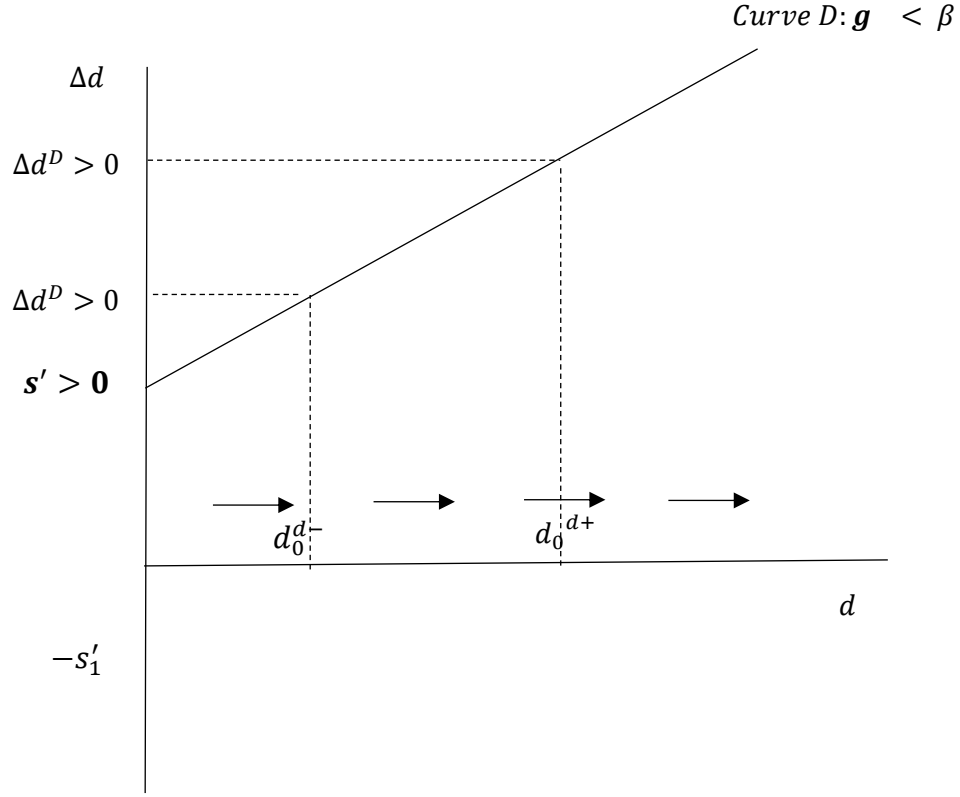


Figure 8 – Domestic Public Sector Dynamic: the relationship between Δd and d

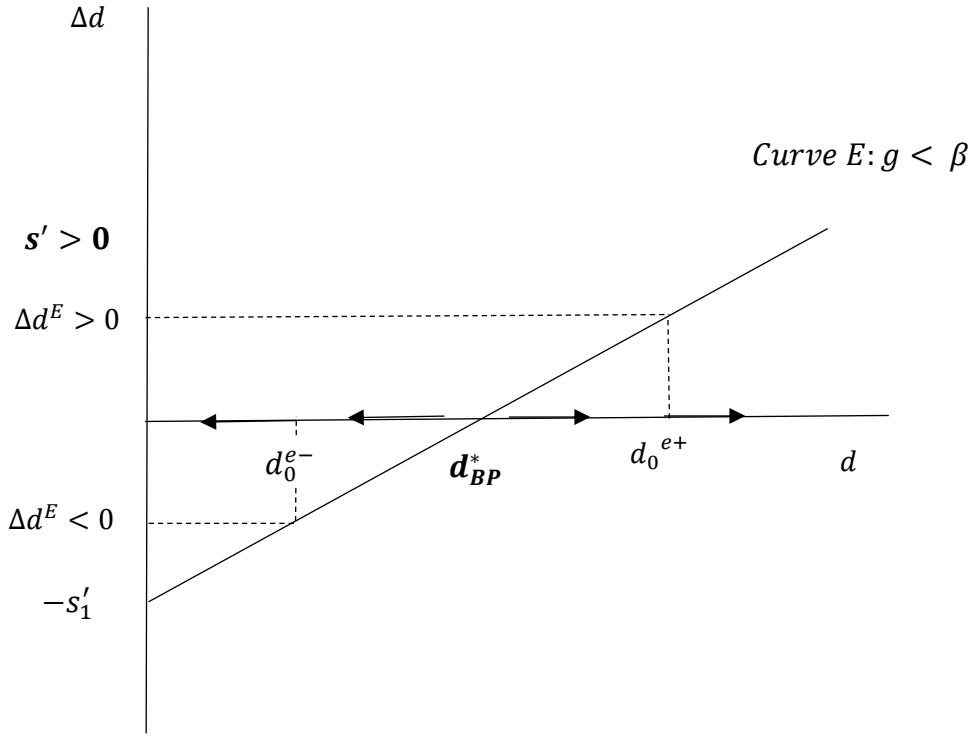
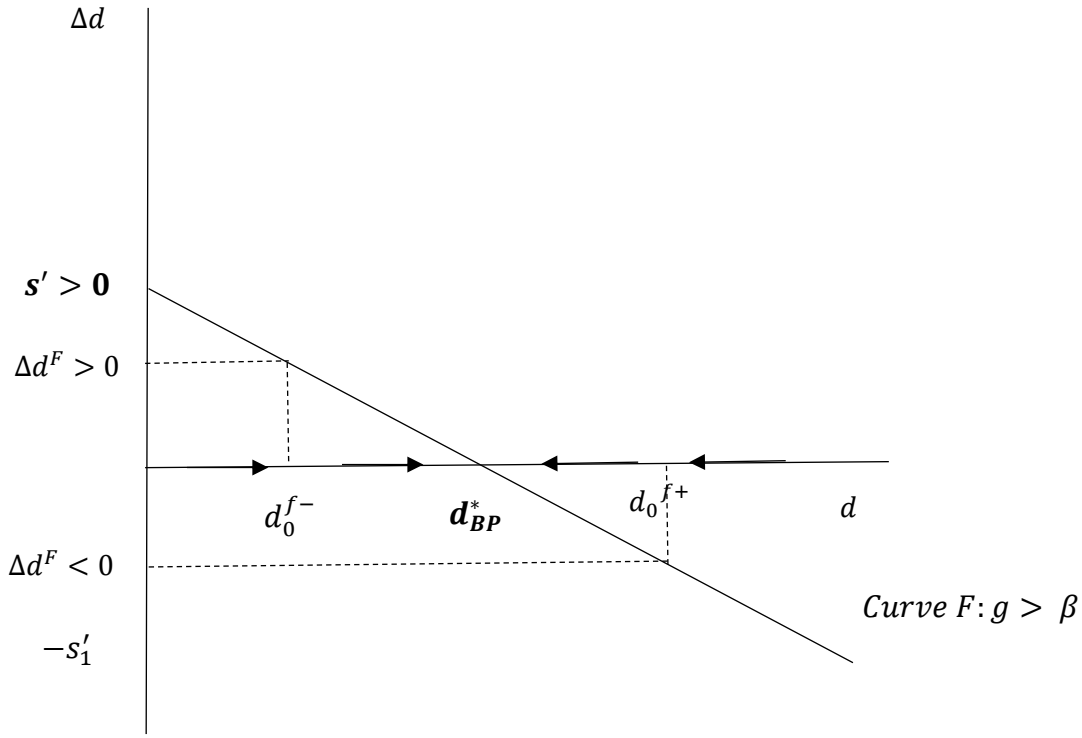


Figure 9 – Domestic Public Sector Dynamic: the relationship between Δd and d



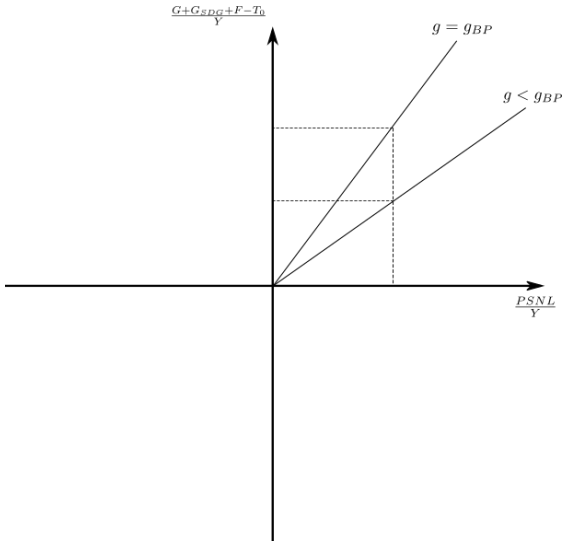
3. Integrated constraint

To connect the external accounts, the public sector accounts and the SDGs, we plug the long-run growth rate constrained by the balance of payment constraint ($\boldsymbol{g_{BP}}$) into equation 2 and split government spending in government spending in SDGs 1-4 ($\boldsymbol{G_{SDG}}$) and another government spending ($\boldsymbol{G}$), getting the following equation:

$$\frac{\boldsymbol{G + G_{SDG} + F - T_0}}{\boldsymbol{Y}} = \left(\frac{\boldsymbol{g_{BP} - \beta}}{\boldsymbol{1 + g_{BP}}}\right)\frac{\boldsymbol{PSNL}}{\boldsymbol{Y}} \quad \textbf{(3)}$$

Equation 3 is the public sector sustainability condition applied to $\boldsymbol{g_{BP}}$. Supposing that $\boldsymbol{\beta}$ remains unchanged, two situations are possible. In the first one, g_{BP} is lower than the current GDP growth rate. Therefore, this rate must decrease to achieve sustainability in the external dimension in the long run. Given that standard government expenditures do not change in the short term, the fiscal space to increase SDG-related public investment will reduce. In the second one, the current GDP growth rate is lower than g_{BP}. Thus, the external accounts can accommodate a higher growth rate in the long run, allowing for more public expending on SDGs with sustainability of public sector finance. Figure 5 shows that moving from a situation where the actual growth rate is lower than g_{BP} towards a situation where both are equal allows for more government spending in SDGs.

Figure 10. Actual Growth Rate Compatible with External accounts sustainability



The dynamic solution for the integrated constraint is obtained by substituting g for g_{BP} in the dynamic sustainability solution for the public sector accounts (equation 3). Therefore, we will have figures 7, 8 and 9 with g_{BP} instead of g.

Annex 2. UNCTAD SDFA Dashboard[25]

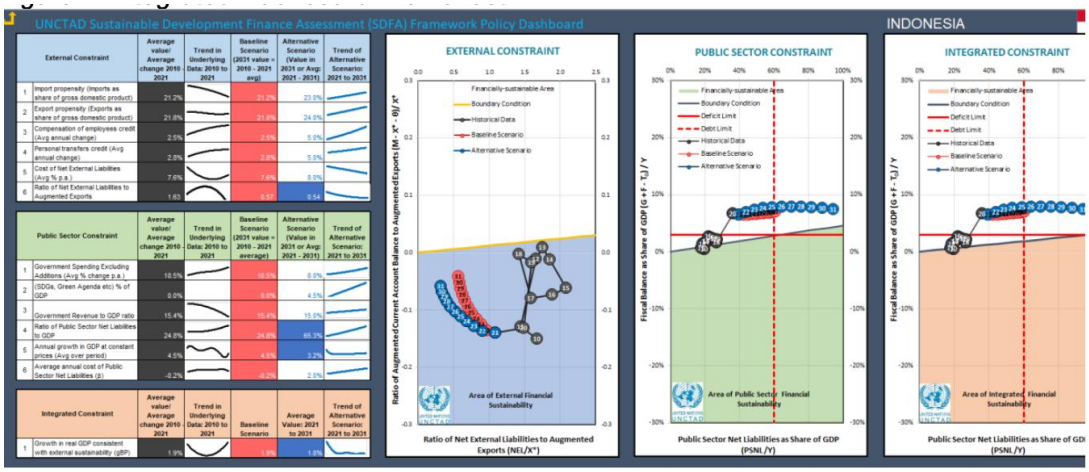
The *UNCTAD SDFA Framework Policy Dashboard* was developed with two purposes, namely:

1. To apply historical data for a selected country to the model to determine trends in the sustainability of their external, public sector and integrated financial positions.

2. To allow policymakers in the selected country to assess the impact of different policy choices on these positions going forward by changing assumptions relating to the future path of the model's key variables.

The *UNCTAD SDFA Framework Policy Dashboard* was developed in Microsoft Excel which is relatively simple in comparison to similar programmes and is usually available for developing countries' policy markers (see Figure 1). The Integrated Dashboard Worksheet reflects historical averages and trends for key variables used in the external, public Sector and integrated sustainability assessments. It makes provision for two forward-looking scenarios: (i) A Baseline Scenario that assumes that the same averages derived from the historical analysis will persist going forward; and (ii) An Alternative Scenario that allows the user to make policy and other assumptions that will change key model variables over the forecast period. The assumptions made reflect the value for the end of the forecast period (e.g. 2031). The intervening forecast values are generally calculated using the compound average annual change between the last (most recent) historical value and the last year of the forecast.

Figure 1. Integrated Dashboard Worksheet for a hypothetical country



Source: Lockwood (2022)

[25] For more details, see Lockwood (2022).

Once the Workbook has been populated with the required data for the selected country, the Integrated Dashboard becomes the primary interface for users of the *UNCTAD SDFA Framework Policy Dashboard*. It allows users to observe the application of historical data to the external, public sector and integrated constraints, and to assess the future impact of policy choices relating to key variables of the SDFA framework. For instance, which would be the impact on the external, public sector and integrated constraints of an increase in government spending in SDGs? Or of a higher GDP growth? Or of an increased share of concessional finance in the external net liabilities in the cost of NEL?