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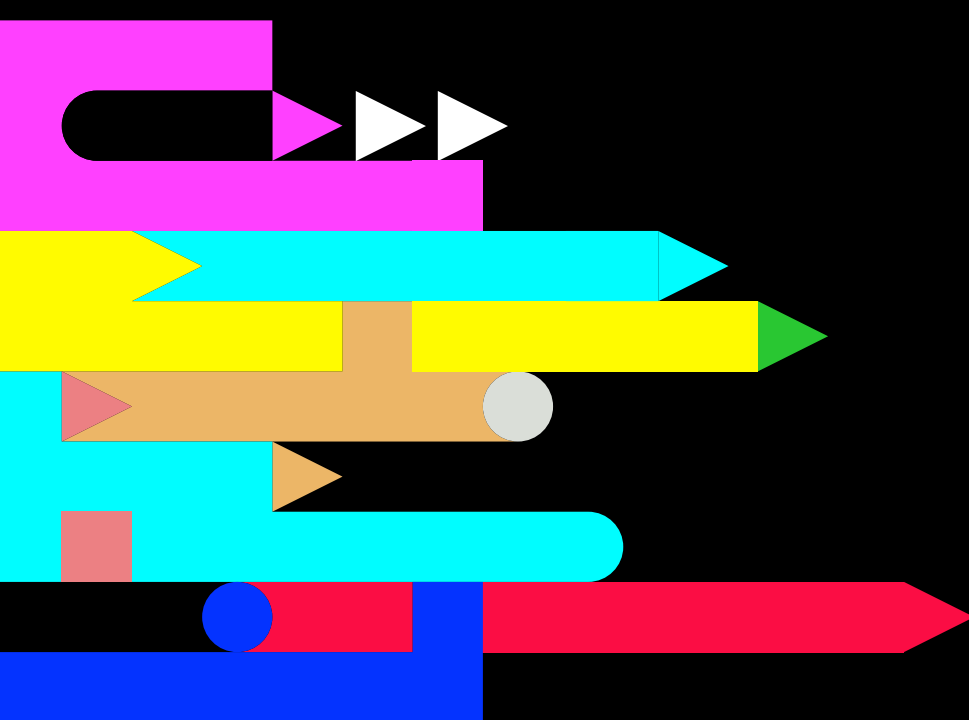
FUNDAMENTAL AND PROXIMATE DRIVERS OF PUBLIC DEBT IN ETHIOPIA

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FUNDAMENTAL AND PROXIMATE DRIVERS OF PUBLIC DEBT IN ETHIOPIA

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Working Paper No 14/2023	A Two-Edged Sword: The Impact of Public Debt on Economic Growth: The Case of Ethiopia	Addis Yimer, African Child Policy Forum (ACPF) and Department of Economics Addis Ababa University (AAU) and Alemayehu Geda, Addis Ababa University (AAU)

CONTENT

Abstract

Despite the ensuing fiscal and trade deficits marred by structural problems of backward agriculture, technological deficiency (and hence significant importing of capital goods), and primary commodity dependence, Ethiopia attained respectable growth in the last two decades. However, this is achieved at the cost of severe macroeconomic instability, including debt accumulation. This study investigates the fundamental and proximate drivers of public debt in Ethiopia using annual data covering the period 1980–2021. Based on the Autoregressive Distributed Lag (ARDL) modelling approach, the trade deficit, terms of trade deterioration, fiscal deficit, and the saving-investment gap are found to be the primary drivers of public debt in Ethiopia. In addition, growth (and inflation in the short run) are found to have a negative impact on public debt in Ethiopia. The Ethiopian debt problem is a trade and development strategy problem. Thus, a sustained way out of such debt problems, especially the structural insolvency issue, is to direct developmental finance to address the structural problems that led to indebtedness in the first place. More specifically, it requires diversification and growth of exports at a higher pace, increasing agricultural productivity (to ease the cost of domestic debt), and bringing about structural transformation through import substitution. In addition, this requires improving or building government institutions and skilled human capital to manage the macroeconomy, which includes debt management.

Keywords: Determinants of debt, domestic debt, external debt, financing development, Ethiopia, Africa
JEL Classification: F21; F34; F36; G15

1. BACKGROUND TO ETHIOPIA'S INDEBTEDNESS

Ethiopia has registered impressive growth in the last two decades. This is attained under an authoritarian regime that describes its strategy as a 'developmental state' model (2000–2018). The government was led by the Ethiopian People's Revolutionary Democratic Front (EPRDF), whose *de facto* leader was the Tigray People Liberation Front (TPLF). This regime (TPLF-led regime, henceforth) was in power between 1991 and 2018 before being ousted by a popular revolt in 2018. The group came to power through a protracted guerrilla war for 17 years, finally succeeding in ousting the other authoritative military regime of the time, called the "Derg" (1974–1991). The Derg also described itself as a 'socialist state,' but essentially a military dictatorship. Before the Derg, Ethiopia was led by its last king, Emperor Haile-Selassie I (1930–1974), and dominated by a land-owning aristocracy. Each of these regimes pursued different economic policies and geopolitical alliances with global powers, where aid (debt creating external flows) was essential in their approach and relationship with international forces that determined each regime's survival.

This study focused on the TPLF-led regime, where significant debt buildup occurs. During the TPLF-led regime, using the official data, the economic growth in the last two decades of the regime (2000–2018) was impressive, with an average annual growth rate of about 9% for over a decade and a half (2000–2018). If the abnormal first three years are left out, and the growth rate is computed from 2003, this average annual growth rate could have been 11% per year for nine consecutive years in the first decade of the 21st century. This has continued in the second decade (2011/12–2018/19), with an average annual growth rate of 9.2%.[1] Significant investment in infrastructure and the social sector has been carried out during this time. As a result, the government allocated about 65% of its budget to poverty-focused sectors—infrastructure, education, health, water, etc. (see Alemayehu & Addis, 2018).

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[1]   Alemayehu and Addis (2016) have critically reviewed this double-digit growth rate. The saving rate that jumped suddenly from 9 to over 20% just in one year since 2009 is also suspect. Using models and strangulating the data from different sources, they estimate this period's growth not to exceed 6% per annum, which itself is impressive given the continent's growth rate of about 5% during the same time.

This is accomplished, *inter alia,* with the help of a significant capital inflow (debt-creating flows) from IFIs and Western countries first and China later. This financing, accompanied by a limited liberalization policy and excellent weather conditions (as the economy is dependent on rain-fed agriculture), explains the growth success, which was better than the two regimes before it (see Alemayehu & Addis, 2017; Alemayehu, 2008, 2005).

The growth "success" was, however, accompanied by severe macroeconomic instability: high inflation, significant depreciation of the currency, a severe shortage of foreign exchange, substantial public debt, and a debt servicing burden. These macroeconomic challenges are related, among other things, to the strategy of financing pursued (Alemayehu, 2020). More concretely, this growth is primarily attained by the significant monetization of the deficit (hence leading to substantial domestic debt and inflation) and the accumulation of external debt (see Alemayehu, 2020).

As a result, as can be read from Table 1, the total public debt reached USD 56.5 billion (50.7% of GDP) on March 31, 2022, and about $60 billion in 2023. This public debt is equally divided between domestic (USD 28 billion) and external (USD 28.5 billion). According to the data of the Ministry of Finance's "Annual Debt Statistics Bulletin" (MoF-DSB-, henceforth), the total outstanding external debt is held by the central government and state-owned enterprises (SOEs) in proportions of 67.5 and 32.5%, respectively, in 2022. Similarly, the central government's and SOEs' share of outstanding domestic debt was 58% and 42%, respectively, during the same period in 2022. The SOEs' share in the total domestic debt was higher, at an average annual share of 52%, during the ten years (2010–2020) before this time.

Table 1: Profile of public debt and debt burden (in billions of USD, unless otherwise stated)

(in Billions of USD)	2010/ 2011	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022
Total Public Debt (USD, bln)	**15.0**	**34.8**	**39.8**	**46.4**	**50.8**	**53.8**	**55.16**	**56.4**	**57.4**
External Debt	**7.8**	**19.1**	**21.3**	**23.3**	**25.8**	**27.1**	**28.8**	**29.5**	***27.9***
Central Government (CGov)	4.7	10.0	11.6	13.0	14.8	16.0	18.0	19.5	19.03
CGov (% of External)	60.3	52.4	54.5	55.8	57.4	59.0	62.5	66.1	68.2
State Owned Enterprises(SOE) USD bln	3.1	9.1	9.7	10.4	11.1	11.1	10.9	10.0	8.89
SOE (% of External)	39.7	47.6	45.5	44.2	42.6	41.0	37.5	33.9	31.8
EAL & Ethio-Telecom (% SOEs)	34.0	54.0	63.1	66.9	68.7	65.5	66.3	66.7	66.6
Other SOEs (% SOEs)	66.0	46.0	36.9	33.1	31.3	34.5	33.7	33.3	33.4

Domestic Debt (USD, bln)	**7.2**	**15.8**	**18.6**	**23.1**	**25.0**	**26.75**	**26.3**	**26.9**	**29.4**
CGov (% domestic debt)	55.5	43.3	42.7	46.1	50.1	46.8	47.1	51.07	57.0
SOE (% domestic debt)	44.5	56.7	57.3	53.9	49.9	53.2	52.9	48.9	42.9
Total External Debt Services, USD bln	**0.242**	**0.975**	**1.131**	**1.288**	**1.602**	**2.036**	**2.003**	**1.903**	**2.130**
Public Debt to GDP ratio (%)	46.9	53.9	53.6	58.5	63.0	57.8	57.4	56.8	50.5
External Debt to GDP (%)	24.4	29.5	28.6	29.4	32.0	29.1	30.0	29.7	24.6
Domestic Debt to GDP (%)	22.5	24.4	25.0	29.1	31.0	28.7	27.4	27.1	25.9
Debt Service to Export of goods (%)	8.8	31.1	39.4	45	57.4	77.8	68.4	52.1	52.8
Debt Service to Export of Goods & Services (%)	5	16	19	21	23	27	26	22.4	20.4
Memo									
Reserve in months of import		**2.5**	**2.6**	**2.4**	**2.1**	**2.4**	**1.7**	**1.5**	**1.1**
GDP Current Market Prices ($ bln)	32.0	64.7	74.5	79.3	80.6	93.1	96.0	99.3	113.4
Export of Goods (USD bln)	**2.8**	**3.0**	**2.9**	**2.9**	**2.8**	**2.7**	**3.0**	**3.6**	**4.1**

Source: Authors' computation based on MOF, Debt Statistics Bulletin, various issues &NBE, 2022.

Ethiopia's external debt is not that large compared to its GDP, which is just 25.6% (and 18.2% in present value terms). However, combined with its growing interest-bearing domestic debt, servicing public debt is putting significant pressure on the country's narrow fiscal space and limited foreign exchange earnings. In Table 1, total public debt as a share of GDP reached as high as 63% in 2017/18 and 57% in 2021 before declining to 51% in 2022. This rate does not indicate a debt sustainability problem, as the total debt-to-GDP ratio in present value terms is just 44.3%, well below the threshold level of 55%. It is also not significant compared to the average in the SSA (about 58% of GDP in 2021, AfDB, 2021) and neighbouring countries such as Kenya and Rwanda (68% in 2021) and highly indebted countries in Africa in 2021 such as Zambia (123%), Egypt (93%), Angola (86%) and Ghana (82%).

However, compared to exports, which stagnated at about USD 3 billion for more than a decade, its external debt was 347% of exports in 2022, nearly double the threshold level for sustainability, which is 180% (MOF, 2021a). Similarly, its debt service ratio of 22% in 2022 is also above the threshold ratio for sustainability, which is 15% (MOF, 2019; 2021a; NBE, 2021). These statistics indicate that liquidity, as opposed to solvency, is the major problem with Ethiopian debt. However, the high debt service to exports (of goods) ratio of 76.4% in 2018–19, despite its slight decline to 68.4% in 2019/20 and further to 53% in 2020/21, still shows the significant pressure debt servicing is putting on the meagre export earnings of the country. Debt servicing has claimed about half to two-thirds of the country's annual exports in the last decade[2]. This has put significant pressure on the country's foreign reserves, aggravating the foreign exchange shortage, which has become an endemic feature in the past decade.

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[2] Since "net exports" of services have been generally zero or negative in the last two decades (owing to the excellent performance of Ethiopian Airlines), the debt service ratio (debt service to export of goods and services) is not a good indicator of the debt burden in Ethiopia.

The latter can also be read from the low level of reserves, which remained below two months of imports in the last five years (Table 1).

Similarly, external debt is exceptionally high compared to public revenue and has increased significantly in the last five years (from 485% of public revenue in 2018/19 to 719% in 2021/22). Servicing debt has also put enormous pressure on the country's fiscal space. In the national budget, external debt servicing payments that grew from Birr 14.3 billion five years ago in 2018/19 to Birr 31 billion in 2021/22 are expected to grow further to Birr 56 billion in 2022/23. Combined with similar but sharper growth of domestic debt servicing, from Birr 8.3 billion in 2018/19 to Birr 70 billion in 2022/23, debt servicing is putting significant pressure on the government's fiscal space. As a result, debt servicing accounted for 8% of the 2021/22 budget. Thus, debt servicing was the third-top spending category, following spending on the construction of roads (12%) and education (11.8%). This, however, reached a staggering 16% in the 2022/23 budget, overtaking all and being about equal to the combined budget for education and roads (see below, Table 3a). Apart from the fiscal pressure, one of the implications of this debt servicing burden (or its opportunity cost) is to reduce spending on other vital social services, such as those required to attain the SDGs.

Given the pressing problem of servicing external debt, the indispensable role external debt-creating flows (or external loans) play in financing development, and the strong link such inflows have with Ethiopia's geopolitical development, this study focuses primarily on external debt. However, domestic debt will also be discussed when deemed necessary to understand the public debt issue in general.

The total external debt of Ethiopia in 2022 reached USD 28.5 billion. Figure 2 shows that 80% of the total outstanding external debt (USD 23 billion in 2022) is owed to official creditors. Among these official lenders, 52% is owed to multilateral lenders, with the IDA wing of the World Bank being the dominant one at 39.1% of total external debt. Bilateral and private lenders accounted for 28.3% and 19.5% of the total, respectively. Bilateral sources are dominated by non-Paris club sources that account for 25.1% of the total external debt (Figure 2). The latter is dominated by China, accounting for 86% of the total non-Paris sources or 21.5% of the total external debt in 2021 (MOF, 2021a). Paris-Club lenders are insignificant, accounting for only 3.5% of total external debt.

Figure 2: Debt outstanding by lenders, 2022 (% of total external debt, USD 28.5 billion)
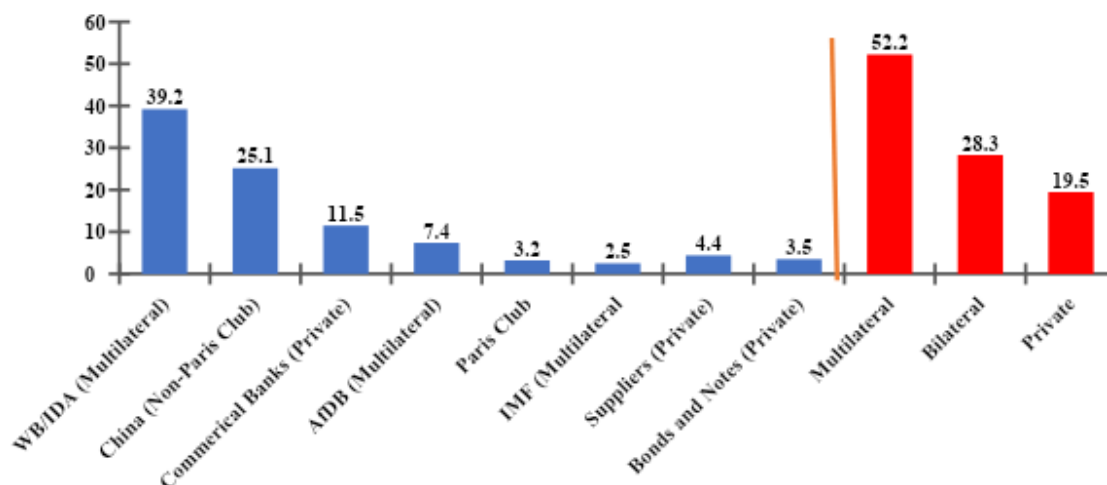
Source: Authors' computation based on MOF Debt Bulleting Statistics, 2022.

Private lenders that accounted for 19.5% of the total, or USD 5.5 billion, in 2022 (MOF, 2022; Figure 2) are dominated by commercial banks that account for 11.5% of the total external debt (supplier's share is 8%). The bulk of this private debt consists of loans from Ethiopian Airlines' commercial bank lenders. Loans from the private sector also include debt contracted, primarily to Chinese suppliers (MOF, 2021a; see also Table 7).

In terms of sector destination, the average annual external debt outstanding figure in the last five years (2017/18 to 2021/22) shows the bulk of these external debt-creating flows were destined to the "highway and railway infrastructure" (23.5%), followed by "electric, gas and steam" (16.5%) (MoF, 2022). The "transport and communication" and "agricultural" sectors followed at 12% and 10%, respectively. "Industry and tourism," at 9.5%, also fared well, getting a closer share to that of agriculture. The rest of the debt-creating flows were destined for the "provision of basic services", "public and social administration," and the "financial" sectors; these various sectors secured a share that ranges from 4% to 7% of the total each from the cumulative (outstanding stock) data in the last five years. The health sector secured the least, 1.5% of the total (MoF, 2022). We generally note that infrastructure accounts for over half of the total debt outstanding (52%). Another 20% was also destined for productive sectors with significant potential for employment and the welfare of citizens (agriculture, industry and tourism).

With this background, the rest of the study is organized as follows:[3] In Section 2, the analytical framework of the study is briefly discussed. This is followed by Sections 3 and 4, where the "fundamental" and "proximate" causes of Ethiopia's indebtedness are examined using a data exploration approach. Section 5 is devoted to an econometric-based examination of the issues and patterns unravelled in Sections 3 and 4. Finally, Section 6 concludes the study by drawing out the policy implications.

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[3]   This profile of Ethiopian debt, including its institutional dimension, is given in detail in the companion study by Alemayehu and Getnet (2023).

2. THE ANALYTICAL FRAMEWORK: PROXIMATE AND FUNDAMENTAL CAUSES OF INDEBTEDNESS

2.1   THE MESSAGE FROM THE AFRICAN DEBT LITERATURE

Several factors have contributed to a rise in new borrowing in Africa recently. These factors include debt reduction initiatives such as the Heavily Indebted Poor Countries (HIPC) Initiative, the resilient growth of low-income countries, especially those in Africa, since the early 2000s, improved solvency related to this high growth and high commodity price opportunities between 2002 and 2013, and the emergence of non-traditional lenders over the last two decades (AfDB, 2021; Alemayehu, 2019). However, despite these developments, current trends show that African countries have taken up more debt, driving Africa's median public debt-to-GDP ratio to about 58% by 2019 (AfDB, 2021). The economic effects of the COVID-19 pandemic and the Ukraine-Russia war have worsened this situation. For instance, the COVID-19 pandemic led to the contraction of African GDP by 2% in 2020 and the deterioration of the average primary budget deficit from 1.5% of GDP in 2019 to 3.5% in 2021. These external shocks further accelerated the debt burden across Africa, where the median debt-to-GDP ratio is expected to reach close to 70% in 2022/23 (AfDB, 2022, 2021).

Out of the 36 SSA countries for which Debt Sustainability Analyses (DSAs) were conducted between 2008 and 2018, some 44% (or 16 countries) were classified as either "in debt distress" or facing "high risk" of debt distress in 2018, up from 31% (or 11 countries) in such categories at the end of 2011 (Ndung'u et al., 2021). The latest such assessment in 2020 put this percentage at 56% (or twenty countries), partly driven by the effect of the COVID-19 pandemic (Ndikumana et al., 2020).[4] Thus, given its recent importance, it is imperative to examine the major drivers and impact of external debt on countries on the continent. We begin this exercise by looking at the main drivers of debt in the African debt literature before going into the Ethiopian case.

The African debt literature lists several factors behind the recent debt build-up on the continent. These factors, though they vary across countries, include, among other things, external shocks that include a decline in global commodity prices and related terms of trade shocks (Ndung'u et al., 2021; Coulibaly et al., 2019; Adeniran et al., 2018; Christine, 2016; Alemayehu, 2003; Greene & Khan, 1990). The changing composition of debt towards more expensive sources, which includes the international bond market and non-traditional bilateral lenders, is the other factor identified (AfDB, 2021; Ndung'u et al., 2021; Alemayehu, 2019; Ndikumana et al., 2020; World Bank, 2018). In addition to the failures of the SAPs policies in the 1980s and 1990s, the continuous supply of debt-creating flows by IFIs that accompanied the SAPs and PRSP policy packages was also considered another driver of debt in Africa (Alemayehu, 2019; 2003; Jaunch, 1999).

Domestic factors identified in the literature relate to weak fiscal and macroeconomic management, which includes elevated levels of public spending and related budgetary deficits and a low level of domestic saving (Ndung'u et al., 2021; Ndikumana et al., 2020; Coulibaly et al., 2019; World Bank, 2018; Greene & Khan, 1990). Moreover, African countries' current efforts at the structural transformation that necessitated significant borrowing, especially for infrastructure, have created more external debt (Coulibaly et al., 2019; Atta-Mensah, 2015). In addition, current global events, including lower interest rates in the last decade, COVID-19-related shocks, and the 2014 commodity price decline, are also significant factors that heightened the current debt problem (Alemayehu, 2021a, 2021b; Coulibaly et al., 2019; Christensen, 2016).

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[4] https://www.imf.org/external/Pubs/ft/dsa/DSAlist.pdf

In addition to this list, the AfDB's (2021) comprehensive study in the East Africa region has also identified the following vital drivers of debt in the region: the growing importance of non-traditional commercial lenders (both domestic and external), the development of the banking system and domestic debt market in some of the countries, and the significant growth of non-Paris Club bilateral lenders from emerging economies such as China with geopolitical interest in the region. In addition, the negative trade balance position of most countries, where export growth stagnated for years while imports remained significantly higher than exports (e.g., Kenya, Ethiopia, and Zambia), is another major factor. Rising debt was also triggered recently by the spending effect of the recovery from COVID-19 (AfDB, 2021; Alemayehu, 2021a, 2021b, 2021c, 2019, 2002; Ndikumana et al., 2020). In addition, the World Bank's (2018) study on its IDA borrowing countries (that includes Ethiopia) identified weak fiscal management, weak macroeconomic policy frameworks to support growth, adverse shocks (commodity price volatility, security challenges, natural disasters), and greater reliance on costlier and riskier sources of finance as primary drivers of debt in these countries.

A recent study by AERC also found systematic optimism bias in the past Debt Sustainability Analysis (DSA) resulting from optimistic macroeconomic projections such as high GDP growth as another factor. The latter led to a forecast of higher debt-carrying capacities and a faster pace of debt accumulation that became another driver of the recent debt build-up in Africa, especially when such rosy growth projections are frustrated (Atingi-Ego et al., 2021). This is compounded by the rising average interest rates on new debt commitments that were growing faster relative to GDP growth while the necessary fiscal adjustment to counter this development remained insufficient (Atingi-Ego et al., 2021; O'Connell and Ndulu, 2021; Ndikumana et al., 2020). The AERC studies point out, *inter alia*, the importance of capacity building for macroeconomic and debt management, including its projection in the short run (Atingi-Ego et al., 2021; O'Connell & Ndulu, 2021). However, in the long run, a sustainable exit strategy from the cycle of debt crisis needs to be addressed by relating the debt problem with the trade problems of these countries and the structural transformation of the continent to manage its growth and debt problems (O'Connell & Ndulu, 2021; Ndikumana et al., 2020; Alemayehu, 2019, 2003; Alemayehu et al., 2018).

Institutional quality is related to debt and macroeconomic management capacity, such as the institutionalization of accountable public finance. The other AERC study by Devarajan et al. (2021) questioned whether African countries' quality of institutions and policies, critical to sustaining higher levels of debt, had improved since the debt relief of the early 2000s. They found this not to be the case. They recommended preventive measures involving full transparency in debt accounting, greater realism in growth forecasts, and diligence in matching the region's high public investment needs with weak public sector capacity to manage infrastructure investments and avoid another debt crisis. Thus, from the institutions' perspective, the African debt literature underscores, inter alia, the importance of capacity building in macroeconomics and debt management. In addition, working on medium-term strategy and policy direction to address the root cause of the African debt problem is also recommended. Finally, it is also interesting to note that the primary drivers of the African debt identified in the late 20th century (see Alemayehu 2003) remain unchanged today. This shows the persistence of the principal (structural) drivers of the debt problem to date.

The findings in the recent African literature discussed above are based on analytical approaches, historical data exploration, and descriptive statistical analysis. Econometric-based empirical studies to substantiate the conclusions made in these recent studies are limited. Nonetheless, the available empirical studies confirm the significant drivers of debt identified in the above studies. However, the importance of various driving factors depends on the nature of the data used (such as across-country

versus country-level), the econometric approach used, and the country coverage of the study. Some country case studies also found specific factors relevant to the country only.

Among the recent econometric studies using cross-country regression for African countries in the period 1990–2018, Ndung'u et al. (2021) found a statistically significant association between external debt, trade shocks (captured through terms of trade), growth in real per capita GDP, current account deficits and tax mobilisation efforts. These factors are found to explain over 80% of the variation in external debt in these countries. Using a similar cross-country study of 47 African countries, Appiah-Kubi (2022) found that corruption and public investment have statistically significant relationships with public debt, while tax revenue and government consumption negatively correlate with public debt. Using a similar cross-country econometric model with 51 African countries for the period 1990–2018, Nagou et al. (2021) found the following variables to be robust drivers of debt: foreign aid, fiscal deficit, trade openness, military expenditure, interest and exchange rates, debt service, domestic credit, government stability index, and the type of political regime.

Country-level econometric studies are also minimal. The available studies confirm the above cross-country findings. They also occasionally find some unique factors more important in one country than another. For instance, a study in South Africa (Nyiko & Daw, 2022) found inequality, inflation, government revenue and unemployment to be positively associated with public debt, while economic growth is negatively associated with it. The inequality finding is uncommon in other studies.

Similarly, in an empirical study of Nigeria and Morocco, Edo (2002) found low domestic savings, excessive government expenditure, terms of trade, international lending rate, and a fall in the exportable products explaining indebtedness in these countries. Matiti's (2013) study of Kenya also found a positive relationship between public debt and exchange rate depreciation, the balance of payments and the budget deficit. In a similar country-level study on Tanzania, Were and Mollel (2020) identified lagged levels of debt and the primary (fiscal) deficit as drivers of debt. In an econometric study of Tunisia, Belguith and Omrane (2017) found inflation and investment to reduce public debt, while the real interest rate, budget deficit and trade openness led to an increase in public debt.

These briefly summarised African-based studies help determine what variables to examine in our research and are especially useful. However, these studies lack a clear analytical (theoretical) framework from which the variables identified for the empirical analysis and gathered on the right-hand side of the debt equation are derived. We have addressed this gap in the literature by framing our study (research question) in the context of growth theories of gap models in the African context (Alemayehu, 2002; Taylor, 1994; Taylor & Bacha; Ndulu, 1991, 1983). Furthermore, we have complemented the gap models with the Kaleckian theory of the "problems of financing development in developing countries" (FitzGerald, 1993; Kalecki, 1976, 1954).

2.2   READING INDEBTEDNESS FROM THE NATIONAL ACCOUNTING FRAMEWORK

We used the Keynesian 1930s version of the open national income accounting framework to locate the debt issue in the context of the macroeconomy.[5] This has implications for the design of macroeconomic and trade policies in small open economies in Africa. It entails the need to describe these countries' major macroeconomic and trade features and how they relate to indebtedness. Thus, the framework shows debt's intricate relationship with major macro variables. Following Alemayehu (2002), Lensink (1996), Trap (1993), FitzGerald et al. (1992) and Harvey (1985), in an open economy macro database, gross domestic production [GDP], Y, and imports of goods and services [M] should be either consumed (both by private economic agents, C, and the public sector, G), invested (I), or exported (X).[6] Thus:

$$Y + M = C + I + G + X \qquad [1]$$

Taking the M to the right-hand side and adding 'Net factor payments [such as wages and profit] and current transfer [such as grants and remittances]' from abroad (N), which is analogous to export receipts (X), will give us:

$$Y = C + I + G + X - M + N \qquad [2]$$

[Note: Had **N** been 'net factor payments and current transfer to abroad,' it would have appeared with a *negative* sign, being analogous to imports].

The cornerstone of an open economy macroeconomics accounting framework that is relevant to our study is the identity that links the internal balance (income and how it is spent) with the external balance (imports and exports). This identity can easily be derived from equation 2. This equation, inter alia, offers a picture of indebtedness by helping to examine how investment is financed because investment is more than domestic savings in most developing countries. A primary macro policy concern in many African countries, including Ethiopia, is how to finance the investment required to attain the high rate of growth these countries typically wish to achieve, which is usually above their domestic saving capacity. This can be seen by rearranging equation 2 and using the notion of accumulation balance, which could be defined as (Alemayehu et al.*,* 2002, 1992; FitzGerald, 1993):

$$I = S + F \qquad [3]$$

where "I" is gross domestic investment, "S" is gross domestic savings and "F" is net capital inflows. "F" is defined as the net change in the assets and liability position of the country and is equal to the deficit of the current account of the balance of payments (i.e., the external balance), which is given as:

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[5]   The national economy accounting framework has its historical roots in the work of the French 'Physiocrat,' Qusenay. A rigorous discussion of national accounting was also undertaken in England, during the 17th Century, based on the work of William Petty. This was followed by the work of Gregory King (1696, cited in Luttik 1992), who developed national income estimates for England and Wales showing per capita income, expenditure and saving. Numerous other writers have built on this work over the centuries, culminating in the pioneering work of R. Stone and J. Meade in collaboration with J.M. Keynes. The UN has also played a useful role in standardizing this work through its recommendation of a 'System of National Accounts (SNA)', which was first introduced in 1953 (Luttik, 1992: 16–17). The SNA (UN et al., 1993) tackled many of the problems that have been discussed since. This has led to analytical consistency between the balance of payments (BoP) and SNA at the international level. We have used that framework here.

[6]   Though it is not widely used today, Gross National Product (GNP) can be obtained by adding Gross National Saving [Sn] to GDP. Note that GDP is produced by residents (whether nationals or citizens or not), but GNP is produced by nationals or citizens only, wherever they are.

$$F \;=\; M \;-\; X \;+\; N \hspace{8cm} [4]$$

This equation is relevant to understanding the international economic interaction that includes indebtedness and external financing (F) when countries are in deficit. Combining these, disaggregating into public (g) and private (p) sectors, and rearranging [3] and [4] yields the domestic macroeconomic gap (internal gap) with the current account deficit or surplus (M-X+N), the external gap, and hence the resulting capital inflow or outflow (Fg+Fp) required to finance it (the realm of the international economy, external financing) (see Eq. [5]):

$$(Ig \;-\; Sg) \;+\; (Ip \;-\; Sp) \;=\; M \;-\; X \;+\; N \;=\; Fg \;+\; Fp \hspace{3cm} [5]$$

Further disaggregation of each variable in equation [5] may be done to get a more detailed picture. For instance, N and capital inflows may be disaggregated using Balance of Payment' (BoP) statistics. Public savings and investment may be further disaggregated using government financial statistics to understand the sources of the government deficit in detail (Alemayehu, 2002, 1992).

From the perspective of external indebtedness, the focus of our analysis is on (F_g + F_p), net of FDI (borrowing by the public and private sectors), and how these flow variables build up over time into indebtedness (i.e., $D_t = D_{t-1}$ + F, net of FDI, and form the stock of debt, D). The left-hand side of the equation [5] also shows the deficits of the public (I_g - S_g), the fiscal gap, plus the private (I_p - S_p) sectors, which is equal to the current account deficit (**M - X + N**). We will examine next the components of this macroeconomic balance by designating them as *proximate causes* of indebtedness in Ethiopia.

Before winding up this section, it is worth indicating flaws in the national accounting framework, such as the one above, currently in use across developing countries, including Ethiopia, for debt analysis. The first issue is whether to include predictable aid in government revenue. This may indicate if a country has a high or lower deficit, with implications for the policy of the government and IFIs in Africa; this issue, for instance, has led to a disagreement between the IMF/World Bank and the government of Ethiopia (see Stiglitz & Ocampo, 2006). Second, state-owned enterprises (SOEs) are important in Ethiopia. Thus, whether to include SOEs' debt in government debt is debatable since they are independent firms. In addition, counting SOEs' debt without counting the asset they have created with the loan is also problematic (referred to as 'flows versus balance sheet difference'; see Stiglitz & Ocampo, 2006). Including SOEs' debt in government debt statistics and neglecting these flaws in the international accounting system entails unwarrantedly high government indebtedness indicators. This, in turn, has implications for policy conditionalities such as austerity and privatization that the IFIs use to lend to developing countries in such circumstances. As noted by Stiglitz and Ocampo (2006), the IMF used to include the debt of SOEs in government debt statistics in Latin America (calling it "consolidated public sector debt") but not when it deals with European countries, with different implications for the level of government debt. For instance, if such accounting practice is avoided, the Ethiopian external debt outstanding in 2020 will be lowered by 32%, and debt will not appear as a problem using the standard debt sustainable analysis of the IMF (Table 1). Thus, in using the standard accounting framework outlined above in the rest of the paper, we need to be cautious about such implications and the related policy inferences.

2.3   THE ANALYTICAL FRAMEWORK: THE GAP MODELS, STRUCTURAL PROBLEMS OF FINANCING DEVELOPMENT AND INDEBTEDNESS

Except for the casual mention of the "Ricardian Equivalence" (O'Driscoli, 1977; Buchanan, 1958; Ricardo, 1951a, 1951b) and the classic Barro's article that itself builds on the "Ricardian Equivalence" (Barro, 1979), the debt literature in Africa (briefly summarized above) hardly used an elaborated analytical framework. The existing framework is not well grounded in the reality of developing countries, including Africa, either. The standard identification of drivers of debt is generally taken from a decomposition algebra (for instance, AfDB, 2021; Atta-Mensah & Ibrahim, 2020). However, this is less grounded in the fundamental structural problems of Africa, such as primary commodity dependence for export earnings in most countries. In this section, we have attempted to redress this gap in the literature by framing our study in a framework that blends the "three gap model" approach (Taylor, 1994, 1991; Bacha, 1990) with the Kaleckian theory of "the challenge of financing development in developing countries" (Osiatynski, 2006; FitzGerald, 1993; Kalecki, 1976, 1954).[7] We believe this is relevant in the Ethiopian context and perhaps also for other African countries.

Reducing pervasive poverty in many African countries requires a significant growth rate for a sustained period. This, in turn, necessitates significant investment well beyond domestic saving, as domestic saving is limited by low-income or extreme poverty. Thus, given the considerable gap between investment and domestic saving, which includes the fiscal deficit and the resulting export and import gap (trade or current account deficit), capital inflows (including debt-creating flows) are crucial in Ethiopia (Equation 5). Even if a country such as Ethiopia's internal resource gap (I-S) is zero, the foreign exchange-constrained nature of its growth will make it vulnerable to indebtedness. Thus, external inflows are crucial to addressing the export-import gap dictated by technological deficiency (hence imports), ambitious growth and export stagnation (structural issues). Such inflows in Ethiopia take the form of FDI, remittances, and short- and long-term borrowing, both on concessional (hence, aid or ODA) and non-concessional forms. Among such capital inflows, this study focuses on debt-creating flows, both ODA and non-ODA. These external debt-creating flows in Ethiopia are generally "sovereign" debt or borrowing, including borrowing by state-owned enterprises (SOEs) guaranteed by the central government.

Notwithstanding the existence of various theories (systemic explanations) about the determinants of the supply of such flows to developing countries (see Alemayehu, 2002 for details), this study focuses on the demand side only. Since Ethiopian debt is generally sovereign debt, as noted, the fundamental research question that we attempt to answer is: what are the major drivers of sovereign indebtedness in Ethiopia?[8]

Building on the stylized facts about drivers of debt in Africa noted and the accounting framework briefly described above, Ethiopia's major drivers of indebtedness could be classified into two broad categories: *fundamental* and *proximate* causes of debt. While the fundamental causes are primarily related to solvency issues, the proximate causes are generally more related to liquidity issues. Fundamental causes refer to the root causes of indebtedness (or the dynamic factors that govern the proximate causes). These are related to the political and economic structure of the country in question and, in turn, inform a country's development strategy. Proximate causes are those factors that reflect how the

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[7]   See also Alemayehu (2020/2012 Ethiopian calendar) for an Amharic translation of this Kaleckian work, "Essay on Developing Countries: With a Critical Evaluation of the Government of Ethiopia's Conception and Implementation of the Developmental State Model" during the period under analysis, 2000-2020).

[8]   The impact of this debt is addressed empirically in a companion paper by Addis and Alemayehu (2023).

fundamental causes manifest themselves generally, measurably, and immediately. In this sense, we note that the two are not unrelated either.

The fundamental factors of indebtedness in this study thus refer to the nature of political regimes, governance or institutional conditions, including development strategy, the geopolitical position of the country, and structural features of the economy such as dependence on limited primary commodities for exports, backward agriculture, heavy import dependence, low savings, and severe poverty, among others. On the other hand, the proximate causes manifest these fundamental causes in a reasonably measurable manner, such as through trade and fiscal deficits, the nature of financing growth, and their macroeconomic and public debt implications (such as through monetarization of deficits or external loans). These proximate causes are also invariably considered in the empirical and econometric literature about determinants of debt without properly locating them in the broader context of fundamental causes. Figure 1 summarizes this conceptual framework.

Figure 1: The analytical framework: Proximate and fundamental causes of indebtedness
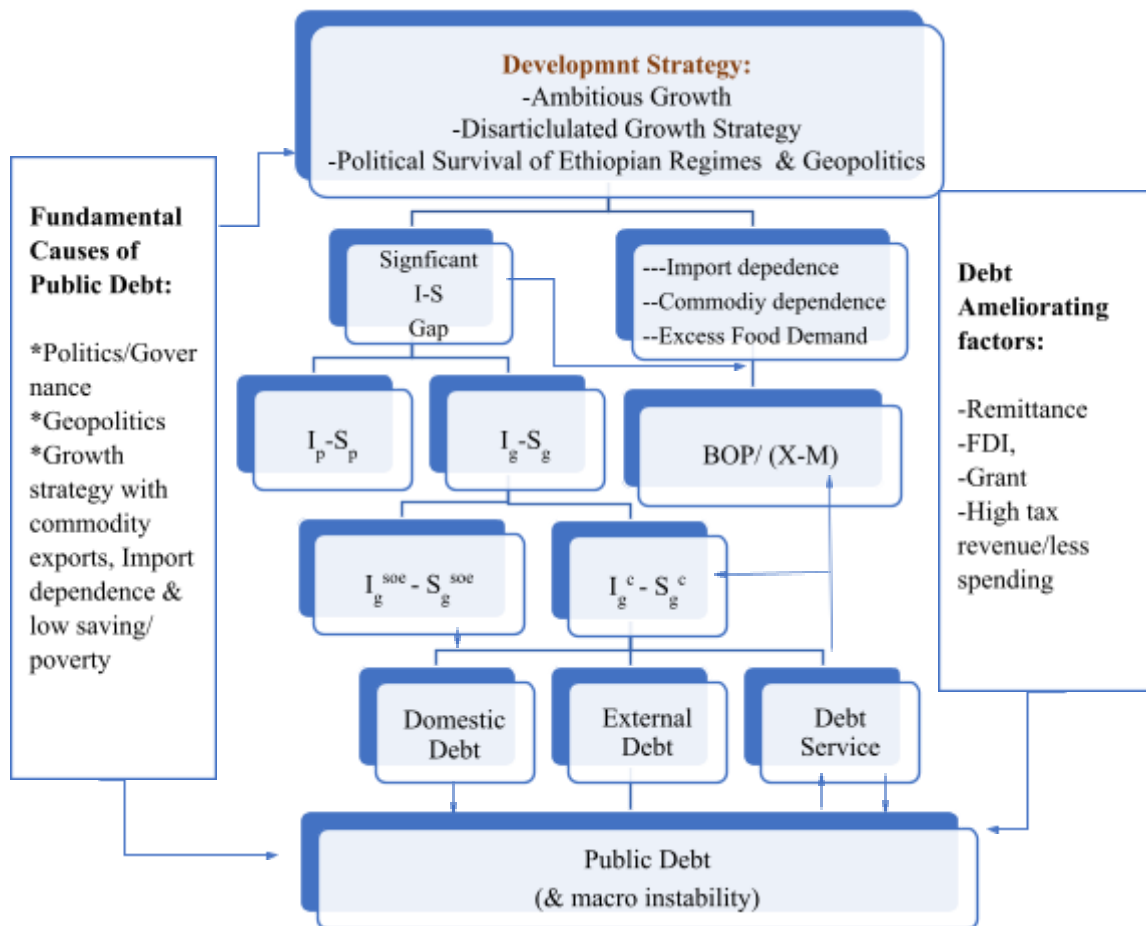
Figure 1 also shows the debt problem would have been much more severe had it not been for other external capital inflows (such as remittances, FDI and grants) with ameliorating impacts on the debt burden (Figure 1, right side). The rest of this study is, thus, devoted to an in-depth look at these factors first using a data exploration approach, which an econometric analysis will follow.

It is imperative to organize our conceptualization of the debt problem, as summarized in Figure 1, in a macro-analytical (theoretical) framework to develop systemic and theoretical explanations about indebtedness in developing countries. The starting point is to reflect on how decision-makers (in

governments) decide on being indebted. As is the case in many African countries, such a decision is arrived at in the context of a growth strategy. This strategy outlines the investment and financing required to attain the growth target. This is technically done in many African countries in a typical Harrod-Domar growth framework using an incremental capital-output ratio (Alemayehu, 2002; Easterly, 1999). Once the investment need is identified, the options for financing come into play. Among the alternative financing options that include tax and non-tax revenue (including grants), foreign borrowing (be it in ODA form or not) comes in as one of the options, as these countries are usually characterized by fiscal and trade deficits (see Alemayehu, 2002; Easterly, 1999).

Since the indebtedness option in this framework is driven by the gap between domestic saving and investment required to attain the ambitious growth target, as well as the resulting foreign exchange gap owing to the significant demand for importing capital goods compared to export capacity, 'gap models' are best to capture this phenomenon.

2.3.1   Gap models and indebtedness

One of the implications of equation [5] is to show that the domestic resource gap (I-S) is equal to the external gap (X-M+N). This relationship also indicates the importance of two theoretical macro-cum-growth models in developing countries, referred to as the "two-gap" and the "three-gap" models. The two-gap model (Chenery & Strout, 1966) links a simple Harrod-Domar (HD) growth model with flows of external assistance as given by equations [4 and 5]. The essential point of the model is that a sequence of gaps constrains growth. At this early stage of development, domestic savings are extremely low. Thus, the investment must also be low to avoid resorting to inflation-based financing. If an investment is raised above saving, this will lead to the first stage's saving gap. In the second stage, growth is not constrained by domestic saving as before but by the economy's structure. That is, most developing countries cannot produce producer goods and intermediate inputs domestically and hence need to import them. This is required to attain the target growth and realize higher capacity utilization in existing firms. This entails running a trade deficit in a country with a low and stagnant exporting sector, which requires external capital inflows to bridge this gap. Thus, in this stage, growth is set by the capital inflow needed to fill the trade gap. The tapering of this gap requires exports to grow faster than imports. However, this is difficult for most developing countries, such as Ethiopia; hence, the new set of restrictions (foreign exchange), which is binding in this event, is introduced as the second gap. This model assumes that foreign capital inflows (such as aid or other debt-creating flows) are productive, either by supplementing domestic savings (in the first stage) or by relieving the foreign exchange constraints on growth (in the second stage) (see Alemayehu, 2002; Chenery & Strout, 1966; Bacha, 1990, 1984; Taylor, 1993, 1991). In short, this model emphasizes the structural problems of these economies and how that leads to saving and foreign exchange constraints, and hence, indebtedness to cover these gaps.

The Chenery-Strout dual-gap approach was criticised from a host of different angles. Early on, Griffin (1970)[9], Griffin and Enos (1970), Papanek (1972) and Easterly (1999) argued that external inflows or aid might not increase saving one-for-one. Moreover, an investment may not lead to linear, constant GDP growth as in the HD model deployed in these models (Easterly, 1999). The earlier authors argued it could displace, rather than supplement, domestic savings. A further argument against the two-gap model, usually coming from neoclassical economists (see Alemayehu, 2002; Easterly, 1999), is that the model adopts an extreme disequilibrium framework and neglects relative price effects. These effects are

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[9]   Griffin's hypothesis, that there exists a negative relationship between aid and domestic savings, has been severely criticized from a host of different angles. His approach is found to be weak, owing to misspecification in the definition of savings and consumption within his model. Thus, consumption is assumed to be a function of income plus aid, while saving is not. This assumption effectively overlooks the feedback effect of aid on savings, via income, through the multiplier effect (see White, 1992, for a full survey of the macroeconomic effect of external finance).

explicitly covered in the "getting the price right" literature (i.e., the idea of the neoclassical economists who 'thought resource allocation to be more important than resource quantity', using Easterly's (1999) words). These neoclassical economists argued about the existence of growth failures that had high investment but "wrong" prices (Easterly, 1999); this belief informed the IFIs policy in Africa in the 1980s and 1990s (Alemayehu, 2002). This view has continued to this day in Ethiopia, as the 2018 agreement between the IMF and the government of Ethiopia on "liberalization reform" shows. Similarly, the relative price role, especially concerning the exchange rate, is also expressed as a critique of the gap models in the 'Dutch disease' literature. The latter, adopted from the 'resource curse' literature, became an essential aspect of the discussion on the macroeconomic impact of external resource inflows, including aid (Alemayehu, 2002; White, 1992; Edwards & van Wijnbergen 1986; Corden, 1984).

The two-gap model later developed into the "three-gap" model (Taylor, 1993, 1991; Bacha, 1990). The latter adds to the two-gap model a third gap, the "fiscal gap" ([Ig-Sg], in equation 5). The fiscal gap refers to the gap between public spending and public revenue. As Bacha (1990) and Taylor (1993, 1991) noted, while developing the "three-gap" model, debt-ridden developing countries in the 1990s confronted a financial constraint rather than an external real resource constraint only (Taylor, 1993; Bacha 1990), the latter being the emphasis of standard two-gap models. As a result, these developing countries had to allocate scarce hard currency to debt service (i.e., governments are also facing their own foreign exchange constraints à la Chenery Chenery-Strout, Alemayehu, 2002), which required generating a trade surplus. When this is difficult, the government must either run a fiscal deficit or find local and external finance through public sector borrowing, a phenomenon that aligns with Ethiopia's stylized facts today. This has also reduced public investment, with adverse consequences for long-term growth, and led to the accumulation of domestic and external debt (Taylor, 1993, 1991). We note here that the three-gap model "drops 'the older gap models'-maintained hypothesis that output is predetermined by accumulation as it could also be an adjustment mechanism to correct the ensuing disequilibria" (Easterly, 1999; Taylor, 1993).

Thus, a typical developing country such as Ethiopia, with a heavy debt burden, suffers from low-capacity utilization (the capacity utilization of firms in Ethiopia today is below 50%) due to foreign exchange constraints for importing inputs. It also faces inflation due to the monetization of the deficit to finance a high level of public spending (inflation currently in Ethiopia is also one of the highest in Africa, reaching 40% in June 2022). Alternatively, it might suffer from declining public investment and slow growth if such financing is unavailable (Bacha 1990, Taylor 1994), which has again been a trend in Ethiopia in the last five years. This was the experience of many African countries in the 1980s and 1990s (see Alemayehu, 2019, 2002; Taylor, 1993, 1991).

Notwithstanding the critics of the gap models, most ministries of finance and planning in Africa (see Alemayehu, 2002) and IFIs, such as country economists of the World Bank (see Easterly, 1999), widely use gap models in their efforts to identify the financing gap of a country.

Some critiques of the gap models (evaluating them from a neoclassical perspective) claimed that they were dead (Bender & Löwenstein, 2005; Easterly, 1999).[10] For example, Easterly (1999), using cross-country regression (though it has several problems from a modern panel data-econometrics perspective), claimed that neither of the model's fundamental assumptions is empirically valid. These

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[10]   Models don't generally die everywhere at the same time. They may not work in one context or period (say, today in advanced countries) but could work in another context and time (say, in many African countries today). It is the desire to have a one-size-fits-all model, common in neoclassical economics, that leads to such a conclusion. As could be read from Ethiopia's condition in this study, gap models, including their implicit Harrod-Domar growth model, are very relevant and hence alive.

assumptions are: aid increases saving and investment one to one, and growth is a positive linear function of investment with a constant rate, the Incremental Capital Output Ratio (ICOR). However, seventeen detailed country case studies of developing countries, ten from Africa, conducted during the early 1990s and given in Taylor (1993) reported the opposite result from Easterly's cross-country study at the time.

Another critique of Easterly (1999) and Bender and Löwenstein (*2005*) on the gap models is the alleged failure of the models to employ neoclassical/Solow and endogenous growth models. This has also prompted these critics to declare these models dead. However, this claim is problematic for many reasons. First, with its fixed-proportion production function, the HD model is still more relevant to developing countries that are foreign exchange constrained and technologically deficient, and the capital-labour substitutions assumed in the neoclassical growth models hardly hold. Thus, this critique seems to emerge from the dominance of neoclassical growth models in advanced countries and attempts to impose this on developing countries with different structures. Second, as a recent endogenous growth-based model for Africa shows (Addis, 2022), (a) domestic capital formation is the second top determinant of growth in Africa, both in the short and long run (and investment and growth are positively related); and (b) growth in Africa is strongly constrained by the availability of foreign exchange, as could be inferred from the commodity price variable used in this study (Addis, 2022). These findings show Easterly's (1999) assertion about the death of gap models is unwarranted. In addition, on the aid-saving relationship, a recent meta-analysis shows the positive effect of aid on growth (Tseday & Trap, 2019).

Even today, countries such as Ethiopia, aspiring to structural transformation and high growth, find their growth constrained by a shortage of imported capital and intermediate goods. In addition, the country's import substitution effort strengthened foreign exchange demand. Thus, the foreign exchange constraint either puts a trade-off between capacity creation and utilization (that lowers output and growth) or could lead to the accumulation of external debt to attain the planned growth when external loans are available. Nevertheless, given the emergence of the debt problem in many African countries, including Ethiopia, and the similarity of the stylized facts in Ethiopia with the condition captured in the three-gap model, it is still a relevant analytical framework for our study.

2.3.2   *The Gap models in Africa, structural constraints of growth, and indebtedness*

The African application of the "two-gap" (and later three-gap) model began with researchers' attempts to describe the economic structure of Africa in the 1980s and 1990s. It focused on these countries' foreign exchange constraint problem and its effect on compressing imports and growth (Alemayehu, 2002; Rattso, 1994; Ndulu, 1991, 1986). This structure has hardly changed in many African countries today, and neither has exchange rate liberalization solved the problem in many countries. The trade deficit, thus, has been limiting the level of imports. Given such constrained import capacity, governments were forced to prioritize the types of goods they were importing. This puts in place a trade-off between capacity utilization (a function of intermediate imports) and capacity expansion or creation, which is a function of imports of capital goods (Taylor, 1993; Rattso, 1992; Ndulu, 1991, 1986).

The African studies also later incorporated the third gap, the fiscal gap (see Taylor, 1993). The inclusion of intermediate imports as determinants of capacity utilization has the effect of relaxing the fixed import coefficient assumed in the two-gap models in Africa (Rattso, 1994: 36). Concerning this, Ndulu (1991) has extended his original work, which was based on Tanzania's experience (Ndulu, 1986), to several other African countries (Ndulu, 1991). Ndulu (1991) noted that the process of growth in African countries at the time entails not only the trade-off between current consumption and capacity growth, which was

the focus of most labour-surplus-based models such as Lewis (1957), but also between capacity growth and capacity utilization in an import-compressed situation (Taylor, 1993; Ndulu, 1991: 288). Ndulu argued that the idleness of capacity in industry has resulted from structural bottlenecks and a mismatch between the rate of expansion of capacity and the availability of operational resources (Ndulu, 1991; 1986). This, combined with a "cost plus" or "mark-up" pricing system, implies that output growth in the short run will depend on capacity utilization, which, in turn, will depend not only on the level of imports but also on their composition (Alemayehu, 2002; Ndulu, 1991, 1986).

From this analysis, Ndulu (1991) stressed the strong dependence of African growth on exogenous factors that include terms of trade and external capital inflows vis-à-vis the endogenous generation of foreign exchange (i.e., increase in the volume of exports, which he took as endogenous) (see also Alemayehu 2002 for details and critique). Rattso (1994) has also modelled the foreign exchange constraint and import compression issues in his model for Zimbabwe (see Alemayehu 2002). Six African countries' case studies conducted during this period using the three-gap modelling approach and African data confirmed the importance of the gap models in capturing the stylized facts of Africa during that time (these are: Tanzania, Nigeria, Senegal, Uganda, Zambia, and Zimbabwe, documented in Taylor, 1993). These structural features of the African economy of the time did not change substantively by mid-2000, as can be read from 27 case studies about the political economy of growth in Africa documented in Ndulu et al. (2008a, 2008b). They also still exist in Ethiopia today, with implications for indebtedness, as will be demonstrated below.

In sum, the gap models were important historically in African growth studies, as shown above. However, their subsequent use in the 21st century is muted, despite the persistence of (a) the structural problem that gave birth to their use at the time: the dependence of growth on global commodity prices and foreign exchange generation (see Addis, 2022; Alemayehu, 2019; Christensen, 2016), as well as the related issue of (b) the fiscal and trade deficit and growing indebtedness of countries in the region (AfDB, 2021; Ndung'u et al., 2021). A flexible exchange rate policy was introduced in most African countries through the liberalization policy that began in the 1980s to absorb the external shocks related to such external trade deficit problems. As a result, the exchange rate often depreciates following rising trade deficits and related shocks. However, it fails to absorb the shock fully and solve the structural problems through export growth or cutting imports. Instead, the depreciation invariably led to inflation in many countries, setting an inflation-depreciation spiral (see Alemayehu, 2022b, 2021a, 2020). The recurrent nature of the trade and fiscal deficit problems and their persistence can also be read, for instance, from the annual macroeconomic reports of continental institutions (e.g., AfDB, 2021; UNECA, 2019). Thus, the three-gap framework is not simply a thing of the past. It is still relevant for many African countries where growth is constrained by foreign exchange (import) problems that are, in turn, related to global commodity price dependence, indebtedness and fiscal stress.

In addition to the issues discussed above, two additional points in Ethiopia are less emphasized in the three-gap model. Nevertheless, they need to be taken as part of the analytical framework of this study. These are: (i) the structural problems of backward agriculture and its effect on inflation, fiscal and trade deficits through food imports (Kalecki, 1976, 1954), with implications for public debt. Second (ii), the dependence of growth on limited primary commodity exports (and their global price) and its implications for indebtedness in the context of financing growth (Christensen, 2016; Alemayehu, 2003; Deaton, 1999).

Beginning with the first one, as argued by Kalecki, the fundamental challenge of financing growth and development in developing countries is not a lack of credit (i.e., debt-creating flows). It is instead the inflationary consequence of such financing because of the structural problems of the supply of

necessities in general and food supply in these economies (from the agricultural sector) in particular (FitzGerald, 1993; Kalecki, 1976, 1954). To some degree, this might be alleviated through international trade (the import of necessities). However, as argued by Kalecki, this will make the country vulnerable to external indebtedness, especially if exports keep growing below imports, which happened to be the case in Ethiopia. Since inflation (especially food inflation) disproportionately hurts the poor in developing countries, it is imperative to manage growth financing carefully (FitzGerald, 1993; Kalecki, 1976, 1954).

Second, undiversified primary commodity exports with stagnant growth that invariably fall below the growth of imports also trigger a sustained demand for external debt. It also makes growth vulnerable to such external inflows of capital. This has again been a feature of Ethiopian growth in the last two decades (see below). Thus, the three-gap model must be linked to these structural challenges of financing development to adequately capture the dynamics of debt, growth, and macroeconomic instability in Ethiopia.

This analytical framework is deployed in the rest of the study to identify Ethiopia's drivers of indebtedness in the last two decades. We have categorized them as fundamental (Section 3) and proximate (Section 4) causes of debt. The analysis uses a data exploration technique in Sections 3 and 4 and an econometric model in Section 5 (Alemayehu, 2017).

3.   FUNDAMENTAL CAUSES OF INDEBTEDNESS IN ETHIOPIA

3.1   POLITICAL GOVERNANCE, GEOPOLITICS, AND INDEBTEDNESS

Ethiopia's debt is primarily a sovereign debt (Table 1). Thus, each successive regime's decisions on financing growth and development, political ideology, and relationships with global powers that provide such loans are crucial in explaining the nature of debt in Ethiopia. These factors determine the level, composition, and sources of such debt-creating flows (loans and aid). Furthermore, Ethiopia's relationship with contending global powers has shaped the nature and sources of debt-creating flows to the country because the Horn of Africa and the Red Sea region are geopolitically important and contested regions. This was particularly true during the Cold War confrontation between the West (USA) and the USSR (Russia) in the region and between China and the West for greater influence today.

Given its socialist ideology and its alliance with the USSR, the USSR was the primary source of loans for the military regime, the Derg (1974–1991). This source has changed to the World Bank and IMF (the West/US) in the TPLF/EPRDF regime (1991–2018), following the TPLF's alliance with the US/West and the collapse of the USSR since 1991. China has also become increasingly important since the first half of the 2000s. The change in the sources of debt-creating flows affects the nature and composition of the debt. These episodes of regime change, and the source of loans and aid testify to the importance of domestic politics (government ideology) and global geopolitics in determining the source countries of Ethiopia's debt and its debt composition. This is shown in Figures 3a and 3b.

Figure 2: Fundamental cause of indebtedness in Ethiopia: Politics and Geopolitics
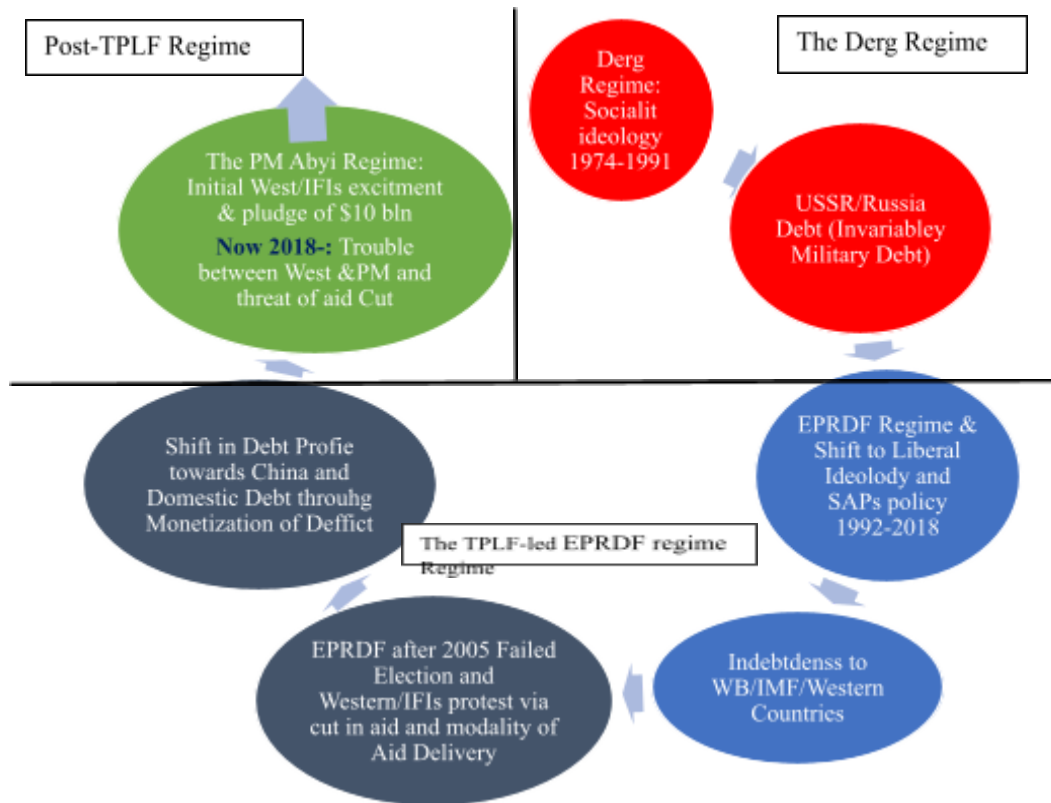
During the Derg regime, the country's debt was dominated by military-related debt owed to the USSR (Russia). In 1992/93, following the fall of the Derg in 1991, the TPLF/EPRDF inherited the military debt owed to the USSR, which was USD 4.3 billion. Combined with the debt owed to non-USSR countries of USD 2.9 billion, the total external debt was USD 7.2 billion at the time, which was 168% of GDP (MOF data, 2022). However, by 1999, the USSR debt had reached USD 6 billion and seemed to be cancelled by the year 2000 since the government had stopped reporting it in the official MOF data. As a result, the Ethiopian total outstanding debt stood at USD 5.4 billion (67% of GDP) in 1999/2000 (1992 Ethiopian Calendar), dropping by nearly half from the level a year before, when it was USD 10.1 billion (133% of GDP). We note here how domestic and global (geopolitical) political changes were fundamental causes that determined Ethiopia's level, nature, and source of debt. This evolution of local politics and ideology and how it is related to geopolitics and indebtedness over the last four decades is summarized in Figure 2.

With this brief picture of debt during the Derg regime, this study focuses on the TPLF/EPRDF regime, 1991–2018 (the TPLF regime, hereafter), during which time a significant level of debt was accumulated. The TPLF regime adopted the typical IFIs liberalization policies in 1992, which were also carried across the continent at the time. These were also policies African countries needed to implement to get concessional loans or financing from the IFIs. The latter has turned into debt. This is shown in Figure 3a, where multilateral flows (primarily from the IFIs) grew by 140% in 1992/93, following TPLF's hold on power and acceptance of the liberalization policy of the IFIs and West.

Similarly, bilateral flows from Paris club members (Western countries) grew by 97% simultaneously. In the same year, commercial credit from the private sector also increased by 131%. All these lenders were entities that could not lend to the socialist regime of the Derg, which was also an ally of their

enemy during the Cold War (the USSR or Russia). Thus, following the demise of the Derg, total external flows to Ethiopia grew at a staggering rate of 123% in 1992/93, followed by a moderate growth rate of 21% in 1993/94 (Figures 3a and 3b). Again, this evidence shows how politics and geopolitics were fundamental causes of indebtedness that also determined the level, composition, and sources of debt-creating flows.

Figure 3a: Growth of external debt, political regimes, and geopolitics (1992-2021)
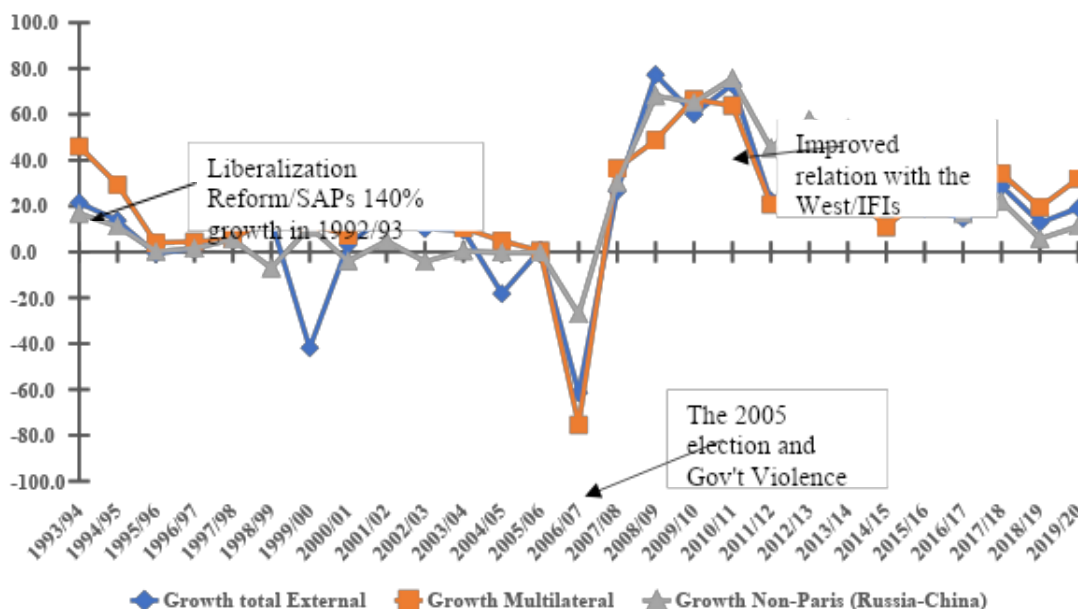
Source: Authors' computation based on MOF data.

Over the last three decades, another vital source of public domestic debt in Ethiopia has been direct advances from the National Bank of Ethiopia (the central bank and NBE, henceforth) to the government. However, this grew at a very modest rate in the early days of the TPLF regime, growing at 25 and 17.5% in 1992/93 and 199/94, respectively (Figure 3b). Moreover, this growth decelerated steadily in the late 1990s, registering a negative 17% growth in 2000/01 (Figure 3b). This pattern shows monetization of the fiscal deficit through direct advances from NBE (hence domestic debt creation) was not that important in the 1990s. This is especially true compared to external debt-based growth financing, such as multilateral flows, which had the highest growth rate until 2005 (Figure 3a).

In sum, the country's debt profile shows two significant drops in debt in the first half of the 2000s. First, there was a substantial drop in external debt outstanding from Birr 76 billion ($10.1 billion) in 1998/99 to Birr 44.9 billion ($5.4 billion) in 1999/2000, a drop of 42%. This was chiefly because of the cancellation of debt owed to the USSR (Russia), which dropped by 78%. Similarly, following the 2005 democratic but failed election,[11] there was again a significant drop in debt-creating flows from Western countries and

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[11]   The ruling TPLF/EPRDF government (through the direct and televised order of its chair, the late PM Melesse Zenawi) killed over 800 unarmed youth in the capital in one day simply because they protested the rigging of the election result, according to Judge Frehiwot, the chair of the committee set up by the government to "investigate" the government's violence. Judge Frehiwot himself had to flee to the US in a dramatic manner that looks like a thriller movie, fearing for his own life. The death figure of Judge Frehiwot here is much higher than the official figure of about 200 youth, which itself is huge. The regime also imprisoned thousands of youths (estimated at over 50,000) in inhospitable parts of the country. It also imprisoned the leaders of the winning opposition party for two years.

IFIs (Figure 3a). This was related to the protest by Western countries and IFIs against the government's violence. The West and IFIs also changed the modality of their aid and concessional loan delivery as part of their protest (from direct budget support to the 'provision of basic services (PBS),' directly). Thus, compared to the pre-election period, where the total external debt disbursement was extremely high at Birr 63 billion in 2003/04, disbursement dropped by 19% and 17% in 2004/05 and 2005/06, respectively. This has declined further by 68%, 60% and 28% in 2006/07, 2007/08 and 2008/09, respectively. Following the improvement of TPLF's relations with Western countries, the disbursement of loans from the IFIs began to pick up, growing by 15% in 2009/10 compared to the pre-election period in 2003/04 (multilateral loans alone grew by 36% in 2007/08 from their sharp decline of 75.4% in 2006/07) (Figure 3a).

The decline in loans from the IFIs and West and the change in the modality of their delivery following the failed 2005 election have pushed the government in two directions (Figure 3b).

Figure 3b: Growth of external debt, political regimes, and geopolitics (1992-2021)
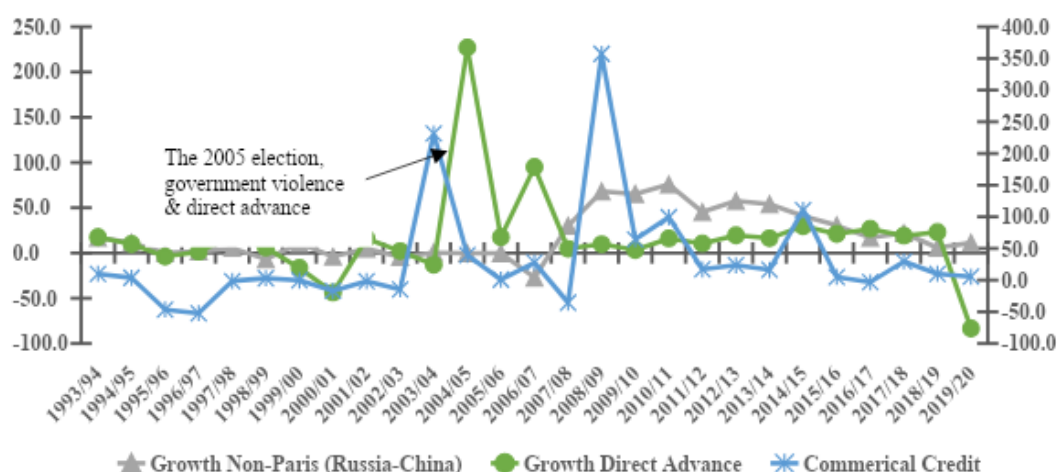
Source: Authors' computation based on MOF data.

First, since it has retained its growth ambition (because the regime was undemocratic and could only drive its legitimacy from the 'high growth' narrative), it has begun monetizing its fiscal deficit. This has led to the building up of domestic debt and, later, to sustained inflation that has remained to date (Figure 3b). Second, it resorted to non-traditional external financing, especially towards Chinese and commercial private credit. This became easier as resources became readily available from China, which showed a great interest in Africa owing to its geopolitical interests. Thus, during this period, the composition of external debt began to change towards China with a direct advance from NBE. This is shown in Figure 3b, where direct advance from NBE (monetization of deficit) grew by a whopping 227% first in 2004/2005 and by 17.5% and 95% in 2005/06 and 2006/07, respectively.

Similarly, borrowing from non-Paris club lenders, primarily from China, which accounts for 86% of the total debt outstanding to non-Paris club lenders by June 2021, has grown significantly since the 2005 election. Non-Paris club debt that was stagnant until 2005/06 (being just about USD 445 per annum between 2000/01 and 2006/07) began to grow significantly after the 2005 failed election, growing by an average annual rate of 40% during the period 2007/08–2019/20 (Figure 3b). The TPLF regime shifted to China and domestic debt for loans when its relationship with Western countries deteriorated. Again, we note here that this changing composition of sources of borrowing has its roots in the political and geopolitical aspects of the country. This shows the fundamental causes of indebtedness, as shown in

Figures 1 and 2, were at work. One implication of the change in Ethiopia's debt towards China is to raise the debt burden, as the loans from China are contracted relatively at expensive terms. However, on the positive side, the country got much-needed development finance from China without any conditionality (the issue is discussed in detail in Section 4 below). Yet, since loans from IFIs resumed after 2007/08 and remained large, they made the new government that came after the TPLF vulnerable to the geopolitical interests of the West, as has been demonstrated in the recent war between the Federal government and the TPLF in 2021–2022, where the IFIs stopped lending.

Commercial private credit grew by 231% a year before the failed election year in 2003/04 because of Ethiopian Airlines' (EAL. Henceforth) loan and credit that grew 9.5-fold in that year, grew further by 40% in 2004/05, and remained at that level in 2005/6. It then increased by 28% in 2006/07. During these years, borrowing by EAL accounted for 90% of the debt owed to private creditors. Thus, the EAL loan was the main driver of this growth. After dropping by 35% in 2007/08, it rose again in 2008/09, growing by 357%. This volatile growth pattern is related to the seasonality of EAL's demand for a loan, which is usually associated with the timing of placing an order to acquire new aircraft (and aircraft parts). After this period (2008/09), this type of debt, despite wide fluctuation, continued to grow significantly as the data also included suppliers' credit, especially from China. Thus, debt from private creditors grew by an average annual growth rate of 61% between 2008/09 and 2019/20, according to MoF official data (Figure 3b). This has negative implications for debt burden, as this type of loan is secured on expensive commercial terms.

3.2 GROWTH STRATEGY, STRUCTURAL PROBLEMS, AND INDEBTEDNESS (2000-2022)

Development strategy and structural problems: Next to political and geopolitical issues, Ethiopia's second major debt driver is the regime's *development strategy*. Despite the high GDP growth in the last two decades, as alluded to above, Ethiopia is still one of the poorest countries in the world. Using official data and a local poverty line (which is problematic as it is extremely low, being just Birr 29 per adult per day; that is $0.56 at the current exchange rate), the poverty rate was 23.5% in 2021. Using the official data, this was 45% in 1994 and 30% in 2010. The TPLF regime attributed this "success" in reducing poverty to the high growth it has attained.

In contrast to such official narration, using the same data and the World Bank's US$PPP 3.20 per day poverty line (Birr 50 or US$1 at the current exchange rate), the current poverty rate will be 70% instead (World Bank, 2021). This figure is closer to the multidimensional poverty (MDP) rate of the country, which is 68.7% (with significant inequality of 80% MDP in rural areas and 39% MDP in urban areas) (OPHI, 2021). Given such pervasive poverty, it is understandable that the government of Ethiopia should aspire to register the highest growth rate possible to reduce poverty, which logically had to be much more ambitious two decades ago. This has been the official narrative for the ambitious double-digit growth plan.

With this ambitious high-growth strategy, the government has also envisaged bringing about structural transformation, as detailed in the five-year plans drawn between 2002 and 2020.[12] This growth strategy was carried out, however, in the context of three severe structural problems (and also because of them): first (i), a low level of saving, as could be inferred from the poverty figures above, and hence, a saving

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[12] The list of plans includes the Sustainable Development and Poverty Reduction Programme (SDPRP) (2002–2005); the Plan for Accelerated and Sustained Development to End Poverty (PASDEP) (2005–2010); and the Growth and Transformation Plans I and II (GTP-I, 2010–2015; and GTP-II, 2015–2020).

rate of below 5% of GDP in the first three years of the start of these plans, e.g., in the first three years (2005–2007) of the second plan, PASDEP. This 5% saving rate was significantly below the investment rate, averaging about 37% of GDP in the same period (NBE, 2021), a staggering saving-investment gap of 32%.

Second, (ii) Ethiopia faced significant foreign exchange constraints due to its dependence on exports of limited primary commodities with low and often negative growth. Exports were also significantly below imports. Imports are dominated by imports of capital and intermediate goods needed to attain the targeted growth (which is required owing to a structural and technological deficiency at home). This, in turn, led to a significant trade deficit that needed to be financed by external finance in the form of foreign currency (that includes external debt).

Third (iii), subsistence agriculture failed to feed the growing population and satisfy the food demand triggered by high investment and growth. As noted by Kalecki, the limit to the financing of ambitious growth such as this and related investment was not credit but backward subsistence agriculture, which cannot cope with the growing demand for food triggered by the financing of growth, which could result in high inflation—another structural constraint to growth. Ethiopian agriculture was subsistence and rain-fed (98%) and characterized by low productivity, making the country food insecure in the last 50 years (see Alemayehu & Addis, 2023a). This agrarian constraint, combined with the monetarization of deficits to finance growth over the previous two decades, has led to significant domestic debt accumulation and inflation that have persisted to date (see Alemayehu & Kibrom, 2020). Inflation has become a significant problem since 2005 and has become more pressing lately. As a result, inflation by June 2022 stood at 40%, with food inflation at 43% as the lingering effect of this financing strategy and backward agriculture (the average inflation in the last ten years, 2011/12–2020/21, had also been about 15% (NBE, 2021).

Moreover, the country also became dependent on importing cereals and edible oil to fill the food deficit and minimize the inflationary impact, spending over USD 1 billion each year. Cereals imports alone, for instance, claimed as much as USD 1.4 billion (about 40% of exports) at the height of inflation in 2021. It also claimed, on average, USD 700 per annum in the last ten years, 2011/12–2020/21, which is 23% of the country's annual export earnings (NBE, 2021). This has further aggravated the country's structural import dependency, created a shortage of foreign exchange, and exacerbated the demand for external loans (debt-creating flows). This is further heightened by external shocks, such as the global commodity price decline in 2012–2016, the COVID-19 effect in 2020–21 (Alemayehu, 2021c), the effect of Ukraine–Russia war (Alemayehu & Musyoka, 2023; AfDB, 2022), and climate shocks such as frequent drought (Alemayehu & Addis, 2023a).

In sum, low domestic savings owing to pervasive poverty, an ambitious high growth strategy (and hence high investment and imports) to reduce this extreme poverty fast, combined with structural constraints in the agriculture and primary commodity-based exporting sectors, were the other fundamental causes of public debt in Ethiopia. In addition, governance problems such as corruption and poor management of debt-financed development programmes and projects (Alemayehu, 2023a) aggravated this problem.

Governance issues in debt-financed programmes and projects: The ambitious high-growth strategy also meant debt-creating flows financed mega projects in infrastructure building (rails, roads, power, and telecom sectors) and installing and running manufacturing firms (e.g., sugar factories). Such projects are owned and run by the government. Court cases, local media reports, and academic studies on corruption and cronyism indicate the prevalence of grand corruption in the execution of such developmental projects (see Alemayehu, 2023a; Seid, 2019; Addis Standard, 2018; Plummer, 2012;

Vaugha & Gebre-Michael, 2012). Available information also shows significant delays in implementing projects financed by public debt. Thus, some major mega projects funded by debt-creating flows saw the commencement of servicing the debt before making substantive progress in their implementation—a project to build ten sugar firms financed by a loan from EXIM Bank of India being a case in point. The military generals of the ruling party (the TPLF) in charge of this project embezzled all the project money without building a single factory, as reported to the parliament by the management (see Alemayehu, 2023a). Apart from such evidence, which is already a court case, the systemic data in Table 2 also shows the problem of corruption and related governance problems in the country.

Table 2: Political and governance indicators in comparator countries in 2019

(For the year 2019)	Kenya		Ethiopia		Tanzania		Uganda		Rwanda	
(Rank from -2.5 lowest to 2.5 highest)	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019
	Estimate	Rank	Estimate	Rank	Estimate	Rank	Estimate	Rank	Estimate	Rank
Voice and Accountability	-0.29	36.45	-1.05	19.70	-0.50	32.02	-0.62	30.05	-1.08	18.72
Political Stability and Absence of Violence	-1.12	12.38	-1.28	10.95	-0.36	32.86	-0.65	22.86	0.12	52.38
Government Effectiveness	-0.38	25.00	-0.63	28.37	-0.88	17.31	-0.59	31.25	0.19	60.58
Regulatory Quality	-0.28	41.35	-0.89	16.83	-0.64	27.88	-0.37	37.98	0.08	58.17
Rule of Law	-0.45	35.58	-0.47	34.62	-0.58	29.33	-0.31	43.75	0.08	56.25
Control of Corruption	-0.78	24.52	-0.41	39.90	-0.39	40.87	-1.17	11.54	0.56	70.67

Source: Based on World Governance Indicators, 20220 updates at www.govindicators.org
Note: For all indicators, the estimated score ranges from -2.5 (weak) to 2.5 (strong). Rank shows the percentile rank among all countries, which ranges from 0 (lowest) to one hundred (highest).

Table 2 shows that Ethiopia's governance indicators are among the lowest in the region, especially in terms of voice and accountability, political stability, and regulatory quality. It is better than that of Tanzania in upholding the rule of law. The political stability ranks of 19 in 2000 had deteriorated over the TPLF/EPRDF regime, going as low as 5.8, 8.1 and 10.9 in 2005, 2010 and 2015, respectively. Similarly, the "lack of voice and accountability" rank shown in Table 2 (19.7 in 2019) is a significant improvement compared to the condition during the TPLF/EPRDF regime, where this indicator deteriorated to an average rank of just 11.7 between 2001 and 2018. All these indicators have implications for corruption since undemocratic regimes are invariably unaccountable and corrupt. The regime's record is also abysmal in controlling corruption, especially when compared to Rwanda (Table 2). The better performance on control of corruption shown in Table 2 at the rank of 39 and better than Kenya and Uganda was also a recent phenomenon (2015–2019); it was very low, with a rank of 23rd in 2005 and 28th in 2010, for instance. The data also fails to capture the systemic corruption through 'ethnic capture' in Ethiopia, which is documented in detail in Alemayehu (2023a).

Similarly, the latest enterprise survey data from the World Bank (2015) shows that access to finance, followed by access to electricity, customs-related problems, and the tax rate, are significant constraints

to firms' operations in Ethiopia. These constraints create a conducive environment for corruption, as the government is the primary provider of these services. As a direct measure, corruption ranks fifth on the list of business constraints in this survey. From the top-ranking position of finance as a constraint, we could also infer the contest over getting access to this finance, be it obtained from domestic or external sources (foreign exchange), which opens the avenue for corruption. All this micro-level evidence points to governance and management problems in handling debt-creating flows. In addition, these indicators of corruption also fail to capture systemic corruption, as noted. This, for instance, includes the abuse of IDA and related loans through the state-owned policy bank (the Development Bank of Ethiopia) that was serving party-owned firms during the TPLF regime, an issue discussed in detail in Alemayehu (2023a) and Seid (2019), among others.

Moreover, Alemayehu and Addis (2016) also found a significant capital flight, about USD 1 billion per annum during the TPLF regime of about 30 years, which is related to corruption. In fact, their econometric evidence shows, inter alia, that (i) corruption was one of the factors that explained capital flight and (ii) external debt was used to enable this capital flight by availing resources and also resources in foreign exchange form—referred to as the "revolving-door" hypothesis. Thus, Alemayehu and Addis (2016) found that a 1% increase in the stock of debt leads to a 0.65% increase in capital flight in the short run. Moreover, a 1% increase in debt flows (in disbursement or change in the stock of debt) also leads to an increase in capital flight of 0.28 and 0.15% in the short and long run, respectively (Alemayehu & Addis, 2016).

To sum up, the TPLF regime's ambitious but vague growth strategy over the past two decades has neglected to consider the need for imports necessitated by the ambitious growth and the potential of the planned growth to generate foreign exchange to finance these imports. Second, the planned growth was not aligned with the supply of necessities (e.g., food supply) needed to carry out this development financing without inflation. This has led to the significant growth of public debt (both domestic and external), necessitated by low savings and exports and high imports. It also led to governance problems such as corruption and severe macroeconomic instability (inflation, shortage of foreign exchange and accumulation of debt being the main ones). These are hunting the country today as the cumulative effect (by-product) of the growth and financing strategies pursued. In the last five years alone, inflation has stood at an average annual rate of 20%. In June 2022, general inflation stood at 40%, while food inflation was 43%. Similarly, available reserves in terms of months of imports also remained below 2.5 months in the last ten years (the SSA average being about four months) and about 1.5 months in 2022. All these, in turn, fuel the demand for more foreign exchange and, hence, potentially more indebtedness.

The effects of the above fundamental drivers of indebtedness (geopolitics, political governance, development strategy, and structural constraints in agriculture and exporting and importing) manifested themselves in (i) the fiscal deficit, (ii) the trade deficit, and (iii) the changing composition of debt and its effect. These are, thus, proximate causes of debt and indicators of pressure for further indebtedness. This is discussed in detail next.

4. PROXIMATE CAUSES OF INDEBTEDNESS: FINANCING GROWTH AND INDEBTEDNESS

4.1 FISCAL DEFICIT AND INDEBTEDNESS

The fiscal deficit directly affects the public debt, which is also affected by it. The African empirical literature reviewed above also found a 'primary deficit' as one of the determinants of indebtedness in many countries. Table 3a shows Ethiopia's tax ratio (tax to GDP ratio) remained very low, with an average annual rate of 9.3% in the last five years.

Table 3a: Federal budget, fiscal deficit and indebtedness (% GDP)

% GDP, unless stated otherwise	2010 /11	2014 /15	2015 /16	2016 /17	2017 /18	2018 /19	2019 /20	2020 /21	2021/ 22*
Total Revenue and Grants	**16.6**	**15.4**	**15.6**	**14.7**	**13.1**	**12.8**	**11.7**	**11.0**	**9.20**
Revenue	13.4	14.4	14.8	14.1	12.3	11.6	10.5	10.2	8.8
Tax revenue	11.5	12.7	12.2	11.5	10.7	10.0	9.2	9.0	7.8
Non-tax revenue	2.0	1.6	2.6	2.6	1.6	1.6	1.3	1.3	1.0
Grants	3.2	1.0	0.8	0.7	0.8	1.3	1.2	0.8	0.004
Expenditure	18.2	17.3	17.9	18.0	16.1	15.3	14.5	13.8	12.7
Current expenditure	7.9	8.3	8.7	9.6	9.6	8.8	8.3	8.4	8.4
Poverty-targeted current expenditure	3.7	4.3	4.6	4.9	4.7	4.5	4.4	4.1	
Capital expenditure	10.3	9.1	9.2	8.4	6.5	6.5	6.2	5.4	4.2
Poverty targeted capital expenditure	8.4	7.2	7.2	6.2	4.9	4.6	4.4	3.8	
SDG support to regions	0.0	1.1	0.8	0.4	0.3	0.2	0.2	0.1	
Financing**	**1.6**	**2.0**	**2.3**	**3.2**	**3.0**	**2.5**	**2.8**	**2.8**	**3.5**
External (net)	1.5	1.4	1.7	1.6	1.3	1.3	1.8	0.5	0.001
Domestic(net)	0.02	1.4	1.0	1.8	2.3	1.4	1.3	2.5	4.3
Privatization	0.3	0.04	0.06	0.6	0.4	0.0	0.0	0.0	0.0
Domestic financing % total financing	6.3	30.0	26.1	50.0	56.7	48.0	35.7	82.1	100.0
Capital Expenditure/Total expenditure, %	56.7	52.3	51.3	46.4	40.6	42.4	42.5	39.3	33.6
Total Revenue and Grants, billions of Birr	85.6	199.6	244.8	270.2	287.6	344.9	395.0	478.9	566.8
Total Expenditure, billions of Birr	93.9	224.9	280.9	329.7	354.2	413.1	488.2	599.0	779.1
GDP at current market price, billions of Birr	515.1	1298.0	1568.1	1832.8	2200.1	2696.2	3374.3	4341.4	6137.04

Source: MOF and NBE, various years.
Note: *The data is pre-actual and from NBE, 2022; **Domestic, external and privatization-based finance may not add to total financing due to unexplained residuals that are unaccounted for and need to be studied

The tax ratio was about 11.5% a decade ago.[13] On the other hand, public expenditure was higher, with an average annual share in GDP of 14.5%, which was as high as 185 a decade ago (Table 3a; NBE, 2022). Notwithstanding the low tax share, the level of budget deficit in Ethiopia (even excluding grants) is moderate by the standards of many countries in SSA. On average, it has been 3.5% of GDP, excluding grants, and 2.4%, including grants, in the last ten years (2011/12–2020/21) (Tables 3a and 4). However, this is a significant improvement from the level a decade ago, where the average annual fiscal deficit stood at 8% of GDP, excluding grants (3.5% including grants) between 2003/04 and 2007/08 (NBE, 2022).

The fiscal deficit is financed using both domestic and external borrowing. External borrowing was very significant in financing this fiscal deficit two decades ago, accounting for about 93% of the financing in 2010/11 and about 70% in 2014/15. There has been significant growth in domestic financing recently, however. The latter is partly related to the worsening relationship between the government and its Western development partners over time, the effect of COVID-19 on source countries, and the significant rise in public spending. As a result, the last decade saw the growing role of domestic sources of financing. The latter's share increased to nearly 100% last year and 825% a year before that in 2020/21 (Table 3). The combined effect is to raise public (domestic and external) debt, as shown in Table 1.

Fiscal deficit, domestic debt and debt servicing burden: The cumulative effect of financing the fiscal deficit over time is the accumulation of both domestic and external debt. Postponing the discussion about the external debt to the next section, we focused on the domestic debt after we discussed the external sector. By March 31, 2022, the total domestic debt will have reached US$28 billion, or Birr 1.43 trillion, equal to the external debt. Moreover, the 2022 domestic debt witnessed a 400% (or four-fold) growth from a decade ago in 2011/12 (MOF, 2022). Out of this outstanding domestic debt in 2022, 58.4% was held by the central government, and the rest, 41.6%, was held by SOEs.

Regarding the source of this debt, 73.4% of the central government's domestic debt came from the banking sector. The pension fund authority is the other primary lender to the central government, accounting for 26.6% of its domestic debt (MOF, DS bulletin, 2022). The borrowing from the banking sector is dominated by the loan (direct advance) from the Central bank (NBE), which accounted for 57% of the outstanding domestic debt of the central government from the banking sector in 2022. The share of CBE follows this at 23% and DBE at 8.8%. The dozen and a half private commercial banks accounted for only 11.4% of this total (MOF, 2022). This rising role of the two public banks (CBE and DBE) is a recent phenomenon, as the outstanding debt owed to CBE in 2022 grew five-fold from the level in 2017/18–2019/20 and twice from the amount a year ago in 2020/21. Similarly, the debt owed to DBE in 2020/21 and 2022 is nearly double (1.6 times) the level in 2017/18 (MOF, 2022).

On the other hand, the primary domestic lender to the SOEs is CBE, which accounts for 99% of their total outstanding domestic debt in 2022 (MOF, 2022). CBE lending to the SOEs takes the form of corporate bonds (73%), and long-term loans (27%). It is also dominated by lending to the Ethiopian Electric Power Cooperation, which holds 72% of CBE's outstanding bonds in 2020/21 (NBE, 2021; MOF, 2022). Since December 31, 2020, about 80% of these SOEs' debt has been transferred to a new corporation mandated to manage the debt of SOEs, the Liability and Asset Management Corporation (LAMC).

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[13]   This may not show that Ethiopia is under-taxed compared to other countries in Sub-Saharan Africa (the SSA average for 2020 being 16.5), if the Ethiopian GDP figure is vastly exaggerated, as suspected and estimated by Alemayehu and Addis (2017; Table 1). Thus, it is perhaps better to see the tax share in total revenue, which is about 77% in 2021/22, which may show the importance of tax in government revenue.

It is difficult to judge whether this SOEs' debt is too much and whether it is also desirable or not. IFIs in Ethiopia, however, usually pose the SOEs' debt as a factor behind the country's significant indebtedness and make rationalization of this debt, including through privatization, a condition of their lending (see IMF, 2020). However, such judgement is unwarranted because the global debt accounting practice disregards the asset side of the SOEs account, as discussed in Section 2 (i.e., what the SOEs did with the loan and whether they are spending the money on socially desirable projects are considered). For instance, the Ethiopian Electric Power Authority (a SOE) is the dominant borrower from CBE. It spends its loan on electric power generation projects in a country where 60% of households cannot access electricity. Thus, judging SOEs' level of debt requires evaluating the asset side of their spending. Similarly, the other dominant borrower is Ethiopian Airlines (another SOE), an efficient and profitable public firm on a global scale when its asset and liability sides are analysed.

In terms of borrowing instruments, the government has resorted to borrowing through Treasury bonds and bills recently, moving away from the dominant role of direct advances from the NBE. Thus, government bonds that merely accounted for 4.7% of the total domestic public debt in 2018/19 accounted for 17.4% in 2022. Similarly, treasury bills, which accounted for a mere 2% of the total public domestic debt outstanding in 2018/19 and 10% in 2019/20, grew to 20.2% in 2022. In contrast, government borrowing from the NBE through direct advance has declined from 24% of public domestic debt in 2017/18 and 2018/19 to a mere 3% in 2019/20 and to 10.5% in 2022 (MOF, 2022), showing the government's changing policy of deficit financing towards indirect monetary policy tools.

These bonds and bills are increasingly being held by commercial banks, which have begun buying them aggressively since 2019/20. Before 2019/20, the public pension fund was the primary holder of these bills and bonds (over 85%; that dropped to 16.5% in 2021/22). In tandem with this development, the weighted average yield on treasury bills grew from about 1.2% (for the 90-day T-bill; the variation across different bills is negligible) in 2018/19 to 8.9% in 2022 (MOF, 2022). This trend shows the potential debt burden and fiscal pressure as the government moves from non-interest-bearing NBE finance towards an interest-bearing one. On the positive side, this new trend in deficit financing is expected to ease the inflationary impact of the monetization of the fiscal deficit that dominated government borrowing in the last two decades. The latter was one of the factors behind the high inflation that remains to date (Table 4).

The fiscal burden of indebtedness: One of the channels through which the fiscal deficit and its financing put pressure on public debt and the fiscal space of the government is through the cost of servicing debt. First, debt servicing puts significant pressure on the government's fiscal space. Second, servicing the external part of the public debt puts considerable pressure on the meagre foreign exchange earnings of the country. This information is provided in Table 3b.

As can be read from Table 3b, debt service has become among the top three major spending categories in the government budget in the last five years. Before the 2022/23 budget, debt servicing, at an average annual share of 7.4% in the total government budget, was the third top spending item, next to education (at 12.3%) and road construction (at 12.1%). It was also higher (nearly double) than the spending on socially important budgeting items that include health (3.6%), agriculture and rural development (3.3%), and defence (3.8%) (Table 3b). In fact, in 2022/23, the budgeted amount for debt service payments became the top spending item in the budget. As a result, its budget share also doubled from a year ago. This is driven mainly by the growth in the domestic debt burden (Table 3b).

Interest payments accounted for 83.3% of the domestic debt service payment in the recent four years between 2016/17 and 2020/21 and 61% in the last five years, including 2021/22; the rest is the principal

payment. This dominant share of interest payments was the same for the central government and the SOEs.

Table 3b: Top expenditure categories in the total budget expenditure and debt repayment

Top Expenditure Categories (% total budgeted government expenditure)	2019/20 [2012]	2020/21 [2013]	2021/22 [2014]	2022/23 [2015]
Education	13.1	11.9	11.8	8.2
Road Authority	12.1	12.3	12	8.4
Defense,	3.9	3.5	3.9	10.7
Health	3.3	4	3.6	2.5
Agriculture and rural development	3.7	3.2	3.3	2.3
Debt service, repayments	6.5	7.8	8.0	16
External debt	3.9	4.5	5.7	7.1
Domestic debt	2.5	3.2	2.4	8.9
Total budgeted expenditure (Birr, billions)	**387**	**476**	**516.7**	**786.6**

Source: MoF Budget document and Cepheus Research for 2022/23.

From 2017/18 to 2019/20, SOEs used to pay the bulk of the government debt service payment (80% of the total). This has sharply declined to 13.4% in 2020/21 but picked up to 66.5% in 2021/22 (MOF, 2022). The rising level of government debt service payments is related to the government's increased use of interest-bearing T-bills and bond-based financing of its fiscal deficit. Thus, this changing composition of the government's domestic debt is raising the debt servicing burden, increasing the fiscal deficit further, and leading to further debt accumulation. This issue requires proper forward-looking debt and macroeconomic management.

Why a persistent fiscal deficit? The structural problem of poverty, saving and high investment demand: Once we have demonstrated the budgetary deficit as a proximate cause of indebtedness, the crucial question is why Ethiopia indulges in such a deficit and remains in such a position. The answer to these questions will take us to the fundamental causes of indebtedness addressed before: low savings because of prevalent poverty, a development strategy that aspires for high growth and investment rates, and stagnant primary commodity-based exporting and import dependency. We can read how the fiscal deficit is associated with the other "structural factors" from the trend of "the internal (resource) gap" given in Table 4.

Table 4: Recent trends of resource gap in Ethiopia (Ethiopian fiscal year, July-June)

Macro Indicator (2020/21=2013 Eth Calendar)	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Real GDP Growth Rate (%) *	10.3	10.4	7.6	10.1	7.7	9.0	6.1^	6.3	6.4
Internal and External Gap									
Gross Domestic Saving (%GDP) *	20.7	22.5	22.4	22.4	24.3	22.3	20.8	19	15.3
Gross Domestic Investment (% of GDP)	36,8	38.2	37.3	38.4	34.1	35.2	30.6	28	25.3
Internal (resource) Gap (I-S), % GDP	16.1	15.7	14.9	14.0	9.8	12.9	9.8	9.0	10.0
External (resource) Gap (X-M), goods	-17.0	-20.4	-19.3	-16.0	-14.4	-13.0	-9.8	-9.1	-10.1

& services, % of GDP								
Trade balance (X-M) goods, % GDP	-18.7	-21.0	-19.1	-16.0	-14.7	-13	-10.1	-9.6	-11
Budget Deficit/Primary Deficit (% GDP)	-3.8	-3.6	-2.7	-4.0	-3.8	-3.8	-3.7	-3.6	-3.9
Budget Deficit/Primary deficit, including grants (% GDP)	-2.6	-2.5	-1.9	-3.28	-3.03	-2.5	-2.5	-2.8	-3.4
Current Acct Deficit (%GDP)	-10.7	-11.5	-11	-9.9	-7.8	-7.3	-5,5	-4.1	-4.9
Current Acct Deficit, including official transfer (%GDP)	-7.7	-11.4	-10.4	-8.0	-6.3	-5.2	-4.1	-2.8	-4.0
Macroeconomic Impact Indicators								
Inflation rate (CPI, % Change, y-on-y)	8.1	10.4	7.5	8.8	16.8	15.3	21.5	24.5	34
Food Inflation (CPI, % Change, y-on-y)	10.3	12.5	7.2	11.2	14.1	19.8	23	29	38
Reserve (Month of Imports)	2.3	2.5	2.6	2.4	2.1	2.4	1.7	1,5	1.1
End of period Exchange rate Br/$	19.6	20.6	21.8	23.1	27.4	28.9	36	43.9	52
Total Public Debt (% GDP)	53.2	53.9	53.6	58.5	63.0	57.8	57.4	56.8	50.5
Money Supply Growth (M2, in %)	26.6	24.7	28.8	29.2	29	19.7	25.9	30	27.2

Source: NBE, Annual Report (Various Years, till 2022); MOFED (2016-2019)
*See Alemayehu and Addis (2016) for a critical review of this growth and saving figures. ^The WB estimated this growth rate in COVID year to be 4%, while the IMF was 3.2% in June 2020. My estimation is about 2.5% and closer to that of the IFIs' forecast (Alemayehu, 2021).

Table 4 shows the significant domestic (internal) resource gap that averaged 12% of GDP (2013–2022) and was as high as 15% between 2013 and 2017. This, in turn, is partly caused by the government budget deficit shown in Table 4. This exceedingly high "internal gap" is caused by the ambitious high growth required to reduce poverty quickly. This has led to a significantly higher investment GDP ratio that was substantially higher than the low domestic saving-to-GDP ratio, resulting from pervasive poverty and low saving capacity (Table 4). This has led not only to public debt through deficit financing but also to an elevated level of imports over exports and a declining level of reserves, as shown in Table 4 (these external dimensions are discussed in detail next). Moreover, monetising the deficit has led to significant general and food inflation. Food inflation, in particular, is related to the structural problem of subsistence agriculture, which cannot cope with the food demand created by the high investment spending and the resulting growth (Table 4; Kalecki, 1976).

In sum, the significant gap between investment and saving, which includes the fiscal deficit and its financing, has led to substantial public debt accumulation. From the analysis in this section, working on the tax base and rationalising expenditure are crucial to narrowing the internal gap and fiscal deficit. However, caution is required not to slow down growth. In addition, re-examining the growth strategy and the changing composition of debt is also helpful. Moreover, since significant investments are carried out first in infrastructure building or other activities that require imported technology, which requires the

momentous import of capital goods, this has pushed the import bill beyond the meagre export earnings of the country, leading to a substantial trade deficit. In addition, some of the manufacturing firms established to achieve structural transformation were also import-intensive (the median imported input needed by Ethiopia's manufacturing firms was about 65% of the total input in the manufacturing sector). This has also contributed to the trade deficit problem, as shown in Table 4. Thus, imports today are, on average, about five times that of exports, creating a severe shortage of foreign exchange (2018–2021). This pattern remained unchanged in the last 15 years and was the other driver of external debt. These issues are discussed in detail next.

4.2   TRADE DEFICIT AND EXTERNAL INDEBTEDNESS

4.2.1 Source and uses of foreign exchange in Ethiopia: Implications for indebtedness

The internal resource gap, including the fiscal gap, is also reflected in the country's external gap (trade deficit), as given in Table 4 (see also equation 5, section 2). External transfers and other capital inflows, including debt-creating flows, financed this external gap. In other words, since the level of exports, which was supposed to be the primary source of foreign exchange, is lower than the payment for imports and external debt servicing each year, a structural trade deficit characterizes Ethiopia. Given the enormous gap between imports and exports, the level of loans required to fill this external gap would have been very substantial had it not been for the existence of other sources of foreign exchange such as remittances, grants and FDI. Figure 4 depicts the structure of the "sources" (supply of) and "uses" (demand for) of foreign exchange (FX, henceforth) in Ethiopia in the year 2020/21 (Panels a and b). It also offers the average annual picture in the last ten years, 2009/10–2019/20 (Panels c and d), to show the profile and structure of the external sector and how it is related to debt.

Figure 4 shows that remittances, followed by the export of services, are the country's primary source of foreign exchange. FDI and official grants follow this. However, since these types of flows of resources were not enough to finance the demand for foreign exchange each year, the country resorted each year to long and short-term loans (debt-creating flows) to finance its imports and debt repayment.

Regarding the use of the FX generated, the lion's share of these FX earnings is used to pay for imports of goods (63 to 79% of the total) and services (17 to 19% of the total). This is followed by debt repayment, which accounted for 5% of the last decade and about 8% in 2020/2021 (Figure 4).

Comparing the current profile of the sources and use of FX (panels a and b) with the trend in the last decade (panels c and d) reveals the pattern has remained unchanged. In addition, the pattern also shows that service exports and imports are about equal, and net service exports were negligible in the last decade. Therefore, assuming "net services exports" will remain at this equilibrium level or get better,[14] remittances remain the most crucial FX source to finance the growing FX demand and reduce the pressure of indebtedness. FDI and the export of goods follow this. On the other hand, suppose remittances and FDI inflows declined for any reason, given the level of imports and exports. In that case, it will put significant pressure on indebtedness (demand for loans) because more loans are needed to finance the resulting higher external gap, given the inelastic demand for and supply of imports and exports, respectively. The growing cost of debt repayment further aggravates this.

Given the country's limited power to increase the size of FDI and remittances (except by motivating foreign investors and remittance senders), focusing on exports and import substitution policies that are

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[14]   This is likely to be the case given the excellent performance of Ethiopia Airlines, which dominates service exports.

within reach of the government is crucial to narrowing the external resource gap and reducing the pressure on indebtedness. In addition, reducing the burden of debt servicing helps this.

In sum, leaving aside the spending on service imports (since service exports finance them),[15] external debt servicing is the second most important source of demand for FX and hence indebtedness, with implications for further indebtedness. The severity of the "debt servicing" burden and the vulnerability to additional indebtedness could be appreciated better by looking deeper at the nature of the country's exports and its stagnant growth (a significant source of FX) as well as the high growth of imports and the inelastic nature of this demand.

Figure 4: Sources and uses of foreign exchange (latest & last ten years, % of total)

Panel (a): Source (US$22bln, 2020/21)

Private, others,5%   Others,4%
Loans,5%
icial
I,18%
Exports of goods
Exports of Services,22%
Remitance,23

Panel (b): Uses (US$22bln, 2020/21)

Change in Reserve,1%   Other, Residuals,8%
Debt repayment,8%
Service Imports,19%
Imports of goods,63%
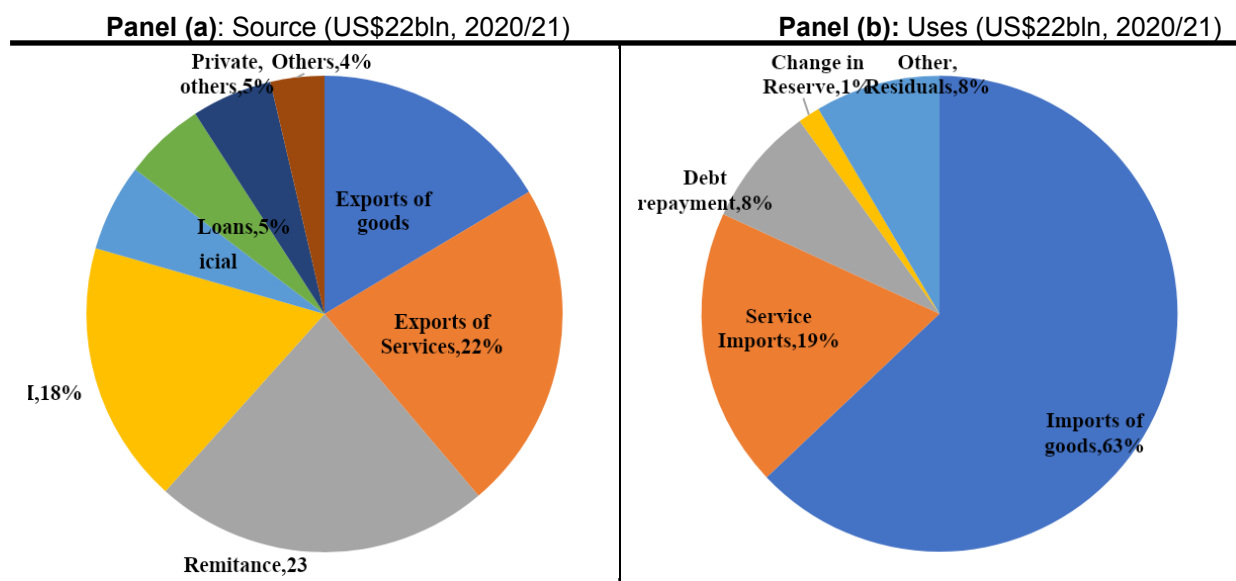
Source: NBE, BOP.

Panel (c): Source of FX $18.4 bln (average annual) **Panel (d)**: Uses of FX$18.4 bln
(Share in %, average annual value, 2009/10-2019/20

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[15]   This equiliburm assumption and, hence, absence of a potneital pressure on indebtdness, depends on the export performance of the Ethiopian Airline (EAL) and Eethiopian Shipping Line (ESL) and other service exports that need to remain as strong as they are today or better, and service imports need not to growth over servcie expors either.
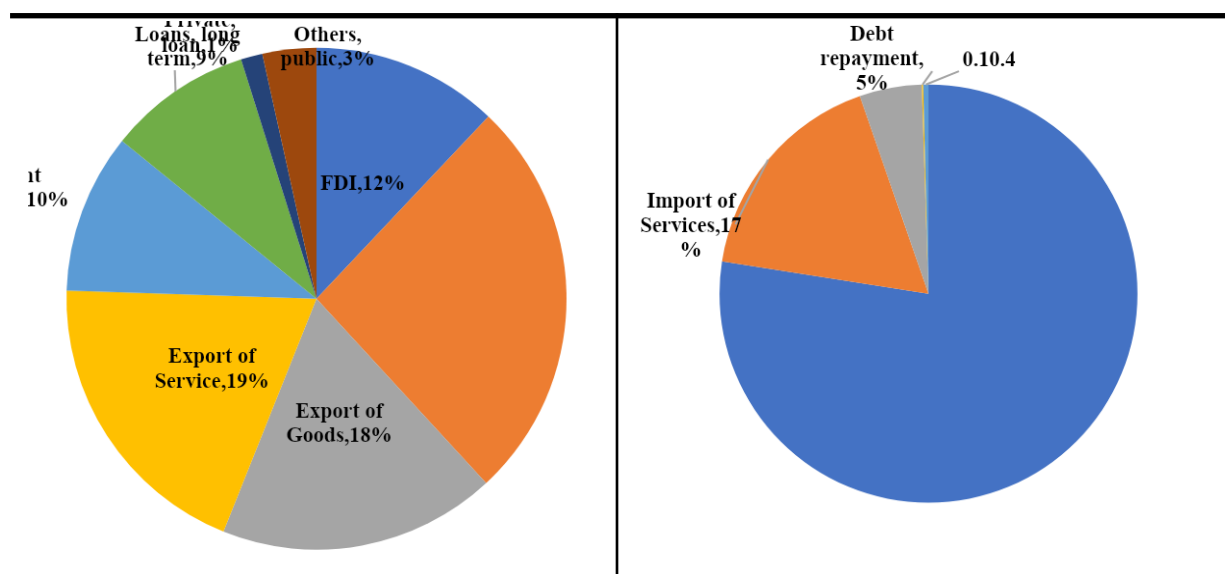
The precarious export earnings of Ethiopia: Ethiopia is a primary commodity exporting country, with coffee being the dominant export, accounting for 27% of total exports in the last ten years (2011/12–2020/21) and about 35% in 2020/21 (Table 5). Oilseeds (15%), gold (11%), chat (9.5%), flowers (8.7%) and pulses (8.1%) followed coffee in the same period (Table 4). These top five commodities accounted for 71% of total merchandise exports in the last ten years (Table 4). However, the average annual earning from exports is very small (both compared to imports and GDP) and has remained at USD 3 billion in the last ten years (2011/12–2020/21. It reached the USD 3 billion mark only in 2020/21 and 2021/22, registering USD 3.6 and 4 billion, respectively (Table 5).

Table 5: Structure of Ethiopian Exports (Percentage of total exports)

% Total exports	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Coffee	24.0	21.6	25.9	25.2	30.4	29.6	28.7	28.6	25.3	34.9
Gold	18.6	13.8	10.2	10.1	7.2	3.5	1.0	6.6	18.1	13.3
Flower	6.0	6.1	6.8	7.9	7.5	8.1	9.6	14.1	13.1	13.2
Chat	8.7	9.0	9.1	9.2	9.4	9.3	11.4	10.9	11.2	9.5
Oil Seeds	14.2	19.8	17.0	16.6	12.1	14.9	14.5	11.5	9.3	6.5
Pulses	7.5	7.6	7.3	8.1	9.6	9.5	10.2	7.9	6.5	5.3
Textile & Textile Products	3.1	3.3	3.3	2.7	3.1	3.7	5.7	5.7	4.1	4.3
Meat & Meat Products	2.4	2.3	3.1	3.4	3.4	3.6	3.3	2.3	2.1	2.7
Electricity	1.1	1.4	1.4	1.1	2.5	2.8	2.1	2.2	2.5	2.3
Fruits & Vegetables	1.4	1.4	1.6	1.9	1.9	2.2	2.3	2.0	1.9	2.1
Leather and Leather Products	3.9	3.9	4.4	4.0	3.9	4.7	4.4	2.4	1.0	0.8
Live Animals	5.3	5.7	4.9	5.2	2.3	2.2	1.7	1.8	1.2	0.7
Others	3.8	4.2	5.1	4.7	6.7	6.0	5.0	4.1	3.6	4.4
Total Export	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Non-Coffee Exports	76.0	78.4	74.1	74.8	69.6	70.4	71.3	71.4	74.7	65.1
Total Export, bln $	3.12	3.30	3.01	2.87	2.91	2.84	2.67	2.99	3.60	4.10

Not only did exports exhibit a dramatic and secular decline as a share of GDP in the last decade (declining at a rate of 0.5% per annum, Figure 5a), but they were also characterized by erratic growth that fluctuated widely between positive and negative growth rates during this period (Figure 5a).

Figure 5a: Export Growth and Its Share in GDP (Export of Goods, 2011/12-2019/20)
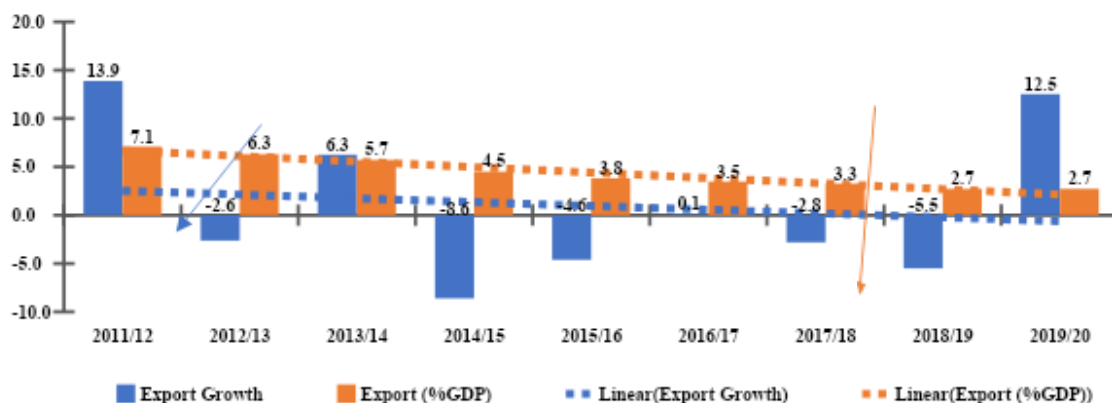
Source: Authors' computation based on NBE data.

The significant negative export growth observed between the years 2014/15 and 2017/18 in Figure 5a is striking and related to the stagnation of the supply of exports and the volatile and declining trend of the global price of Ethiopian exports. Generally, export growth became positive only recently, growing by 12 and 21% in 2019/20 and 2020/21, respectively. However, this has more to do with a recovery in gold export supply from its free fall due to conflict in gold mining areas and related legal problems (Figure 5b) and a rise in commodity prices, especially coffee and gold, since 2019 (Figure 5c).

Stagnant export supply growth: The structural inelastic export supply problem of Ethiopian exports has led to wide fluctuations and generally negative growth of export volume for the major export commodities of the country, which include coffee, gold, oil seeds, pulses, as well as leather and leather products, between 2007/08 and 2013/14 (Figure 4.3b).

Figure 5b: Volume growth of major exports (2007-2021, in %, gold on the right axis)
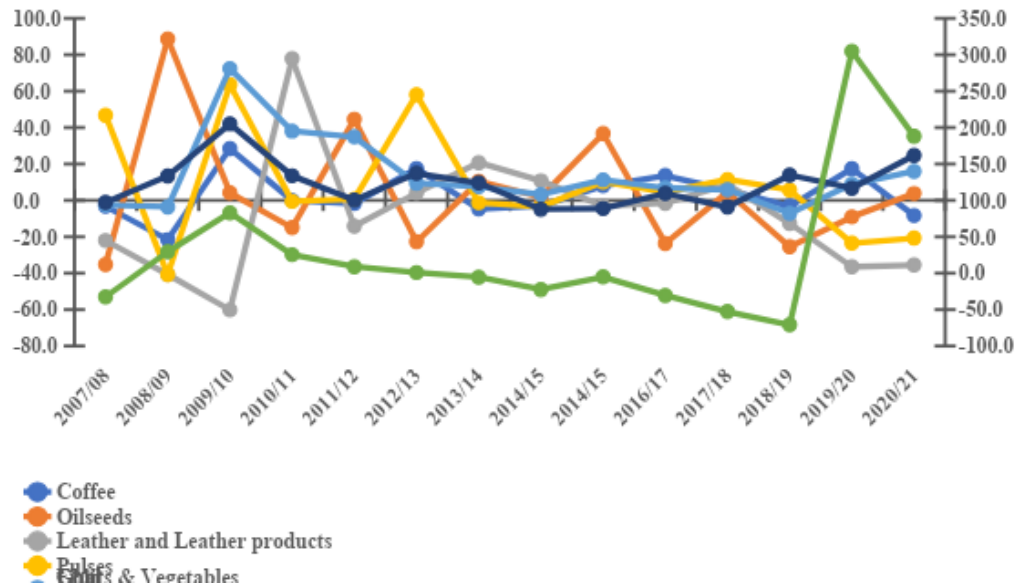
Source: Authors' computation based on NBE data.

The supply problem for gold began to change only in 2019/20 after the government resolved some of the supply issues. This pattern generally shows the dependence of the country's export earnings on primary commodity exports known for their volatility of prices and deterioration of terms of trade (TOT) vis-à-vis manufacturing goods.[16]

The general decline in the volume of exports from its highest growth rates between 2008/9 and 2010/11 for most commodities and their subsequent decline and stagnation since 2011/12 for most (Figures 5b) is one of the reasons for the declining growth of export earnings and their share in GDP (Figure 5a). In addition, the supply of these export commodities is characterized by significant fluctuation, swinging from a negative 60% growth rate in 2009/10 to a positive growth rate of 77.8% in 2010/11 and a further decline of 14% in 2011/12. Moreover, it continued to decline by an average annual rate of 1.2% between 2012/13 and 2019/20, falling by 36.5% in 2019/20 (Figure 5b).

In addition to such volatility and a declining (negative growth for almost all since 2017/18, except for Chat and vegetables, Figure 5b) trend of volume, the decline in export earnings is also related to the country's dependence on limited primary commodities and the nature of their global price.

Global commodity prices for Ethiopia's exports: In tandem with the trend of the global commodity price for African exports that have begun rising since 2002, chiefly because of a surge in demand for primary commodities from China and India (see Alemayehu, 2019; Figure 5c), the price of major export commodities in Ethiopia has also been on the rise until 2011. This began to fall sharply after this period and remained stagnant until 2019. It then began to recover. (see Figure 5c).

Figure 5c: Global Commodity Price of Coffee and Gold (2000-2022, gold on the right axis)

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[16] The TOT of primary commodities in developing countries (of Africa) had deteriorated by an average annual rate of 0.8% for the last 100 years before its improvement between 2002 and 2013 (see Alemayehu, 2019).
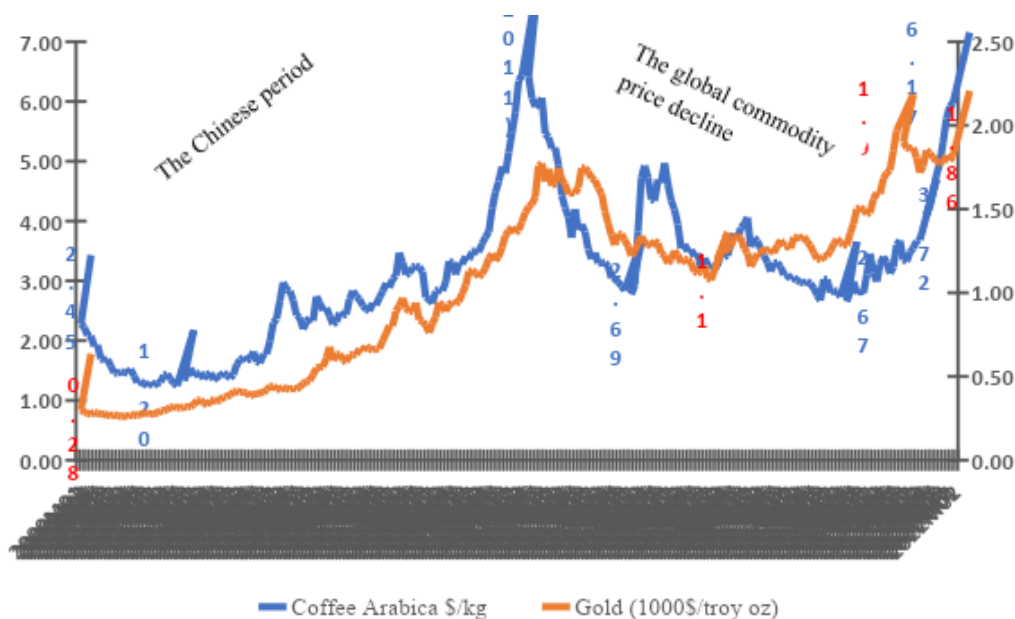
Diversification away from primary commodities is crucial to escape the vulnerability of global commodity prices and ensure structural transformation. However, despite the government's plan (and, hence, policy) to bring about structural change through raising labour-intensive manufactured goods exports such as textiles, leather and leather products in the last two decades, diversification and structural transformation remained elusive in Ethiopia over the previous four decades (Table 5b). Thus, the manufacturing sector's share of GDP has remained below 5% in the last four decades. In addition, the composition of exports remained fundamentally agricultural and exports of manufactured leather and leather products, for instance, declined sharply (Table 5b), chiefly because of a shortage of foreign exchange to import inputs. Thus, textiles, textile products, and leather and leather products (the country's manufacturing exports) accounted for just 5% of exports in 2020/21 and remained stagnant at that level in the last decade (Table 5; Figure 5b).

In sum, such precarious and largely stagnant growth of exports means a growing demand for debt-creating flows if the demand for imports is growing and this demand for imports is price-inelastic.

The nature of Ethiopia's imports: Notwithstanding the poor performance of exports, imports remain significant and have thrived over the last two decades. For example, in the previous decade (2011/12–2020/21), imports accounted for 13–27% of GDP, with the average figure for the period being 20.2% (NBE, 2021/22). Thus, by 2021/22, the total value of imports was USD 18 billion, about five times that of exports. In addition, imports have grown by about 6% per year in the last decade (2012/13–2020/21), compared to the average annual growth rate of exports, which was about 3.5% in the same period (Tables 5 and 6).

Most imports of Ethiopia could be considered strategic imports (such as capital and semi-finished goods that accounted for 33 and 18% of total imports in the last ten years; Table 6), which are not amenable to reduction. They have inelastic price demand, given the country's ambitious growth strategy and inability to produce necessities crucial for the population's welfare (such as pharmaceuticals and fertilizers). Moreover, since Ethiopia is an oil-importing country, fuel imports alone account for about 15% of its total imports annually (Table 6).

Table 6: Structure of Ethiopian Imports (% of total imports)

% of total imports	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	Average
Raw materials	1.3	1.2	1.0	0.9	0.8	0.9	1.0	1.2	1.0	0.6	1
Semi-finished goods	16.6	16.3	15.7	17.3	16.6	16.6	18.4	22.4	18.8	20.6	18
Fuel	19.0	18.8	12.4	8.0	11.5	15.2	17.2	15.0	13.6	19.1	15
Capital goods	33.4	35.3	41.8	40.8	38.2	34.5	33.3	29.7	27.2	16.8	33
Consumer goods	28.0	26.9	27.4	31.5	31.0	30.9	28.3	28.9	38.3	42.1	31
Durables	7.0	8.6	9.8	9.4	10.8	8.9	7.9	6.6	5.6	4.5	8
Non-durables	21.0	18.4	17.6	22.1	20.2	22.0	20.3	22.3	32.7	37.6	23
Cereals	4.9	3.2	3.7	6.2	3.5	5.1	4.0	6.1	9.4	12.0	6
Other food	3.4	2.8	2.7	3.7	3.7	4.1	3.7	3.9	5.9	7.9	4
Miscellaneous/ Unidentified	1.8	1.5	1.7	1.5	1.9	1.9	1.8	2.8	1.2	0.8	2
Total imports (c.i.f, Bln of USD)	11.5	13.7	16.5	16.7	15.8	15.3	15.1	13.9	14.3	18.1	

Source: Source: Authors' computation based on Ethiopian Revenue and Customs Authority data

The backward agriculture that failed to supply adequate food items has also led to significant imports of grain (cereal) and edible oil that are crucial for the welfare of the majority and to contend with inflation ("cereal and other foods" imports accounted for about 10% of total imports, Table 6). Even "consumer goods" imports, which accounted for 31% of the total imports annually (Table 6), are not entirely luxury imports (they included items such as medicals and textiles).

This import profile shows that the country's planned ambitious growth depends on imports of capital and semi-finished goods owing to the country's technological deficiency. Other imports with a significant share, such as fuel, are not luxury imports. Thus, it isn't easy to reduce these imports without jeopardizing targeted growth and the welfare of citizens. The ambitious growth also raised the demand for necessity commodities that could not be supplied by the backward subsistence agriculture that

increased such imports, including grain and edible oil imports. Thus, the effect of such structural factors manifested itself in the form of a trade deficit. Given the inelastic nature of the demand for imports, relative price changes such as devaluation cannot reduce imports (though they have been repeatedly tried in the last ten years). It led to high (imported) inflation instead. The external deficit effect of such inelastic import demand will worsen if import prices rise simultaneously.

Rising import prices of Ethiopia: The trend of the prices of Ethiopia's major imported goods are given in Figures 6a and 6b. Figure 6a shows the price trend of fuel (one of the dominant imports) and imports related to the agricultural sector (wheat and fertiliser).

Figure 6a: Major import price of Ethiopia (crude oil, right axis)
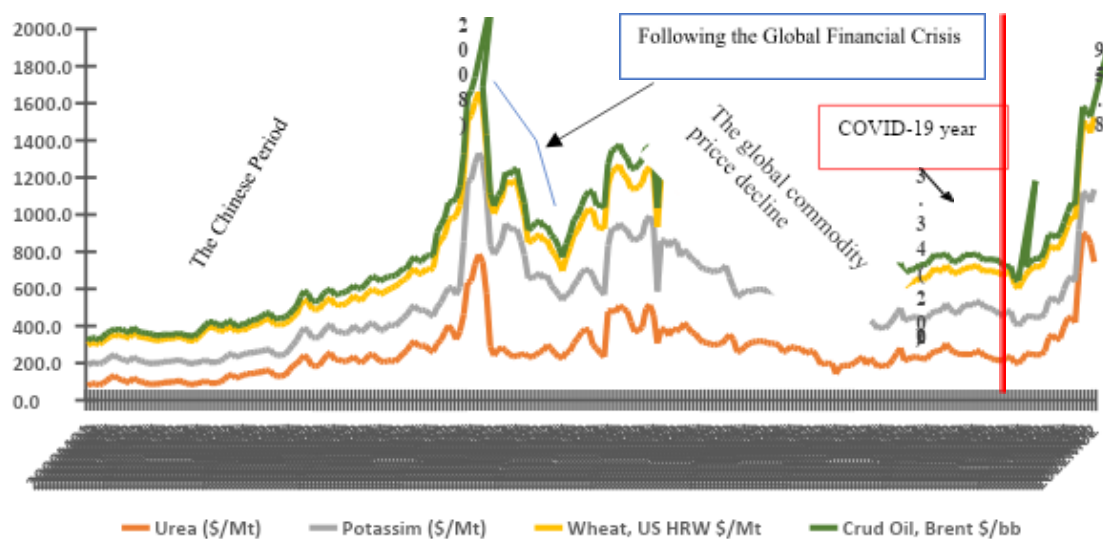
Source: Authors' computation based on World Bank (2022).

Although global fuel prices and those related to the agriculture sector (fertilizer as input and wheat to complement the deficit in domestic production) generally rose until the 2008/09 global economic crisis, they declined sharply before rising again in 2011. Between 2012 and 2016, these prices dropped sharply in tandem with the sharp global commodity price decline that lasted until 2016. All these prices began rising sharply after 2016. Since the volume of imports of these goods did not decline during the high price period, they put significant pressure on the trade deficit by raising the import bill. Conversely, the government enjoys lower import bills when their prices decline. However, such episodes are generally shorter than the rising prices episode, as shown in Figure 6a.

In addition to these import prices, the price of manufactured goods, which account for over two-thirds of imports, has generally shown a rising trend between 2003 and 2022 (Figure 6b), despite some declining episodes such as between 2015/16 and 2016/17, which is a very brief period. This general, rising unit import price trend has put significant pressure on the country's import bill, with implications for the trade deficit.

The combined result of this pattern of imports and exports and their prices is to put significant pressure on the trade balance deficit continuously, with implications for indebtedness.

Figure 6b: Manufacture unit import price of major imports (metal & metal mfg, right axis)
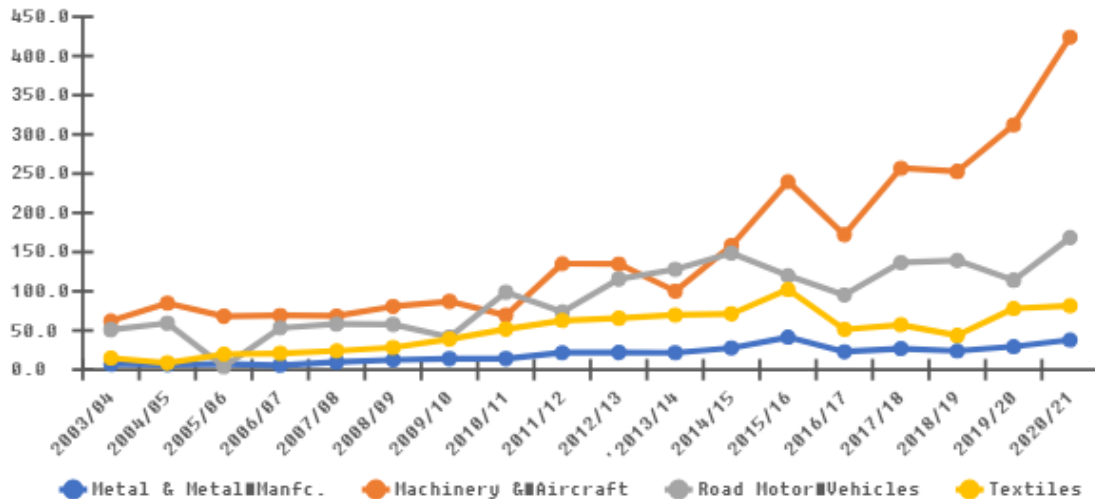
Source: Authors; computation based on NBE Annula Report, various years.

Note: Due to the unprecedented increase in volumes for road motors that jumped from 211,528 in 2014/15 to 1,435,282 in 2015/16 in the NBE 2017/18 report (while another NBE report for 2015/16 gives just 128,377 mt in the same year, which is highly likely a mistake for the years 2015/16), we took the average of the two adjacent years of 2015/16 instead.

Implications for external debt: the poor performance in exporting and diversification, combined with the relatively high but downwardly inflexible level of imports that persisted for decades and have been described thus far, have led to a large structural trade deficit for years that has to be financed somehow. External loans (debt-creating flows) became one of the sources of finance, as they also directly served as a source of foreign exchange. This persistent and structural trade deficit is one of Ethiopia's other significant drivers of debt.

This can be looked at from two angles. First, the internal gap described in the previous section (I-S) must be filled by debt-creating flows that take domestic and external forms. We have shown the domestic debt part in the last section and the external debt part in this section. Thus, the (internal) investment-saving gap has its counterpart in the external sector (the external gap), which must be financed to maintain the excess of investment over domestic savings and imports over exports. This has led to both domestic and external debt. Second, the external loan also has a related unique importance because it fills the foreign exchange gap of the country that emerged owing to stagnant export growth and significant growth of imports, as described above. That is, even if the fiscal deficit (as well as the deficit of the private sector, given [I-S]=[(Ig-Sg)+(Ip-Sp)], Equation 5) could be financed entirely domestically, it would still be reflected in the trade deficit because it has a foreign exchange component, i.e., growth is FX constrained. Thus, unless this structural trade deficit problem is addressed in a lasting manner, there will be a persistent demand for external indebtedness if the high level of growth is to be maintained. This will be further aggravated by the debt service payment on the external debt that must be paid in FX, setting off a vicious cycle of debt.

The pressure to be indebted would have been much more severe had it not been for the sustained inflow of other external inflows, including remittances, FDI and official and non-official grants. Given the importance of these types of capital inflows in financing the trade deficit in Ethiopia, a potential decline and volatility of such capital inflows show the risk of financing the trade deficit and hence the vulnerability to indebtedness if such loans are available.

4.2.2   The changing compositions of debt and debt burden as drivers of debt

Most Ethiopian debt is owed to multilateral lenders, with the World Bank/IDA being the most prominent. One of the implications is that these loans are secured with generous terms, although they are accompanied by intrusive policy conditionalities (see IMF, 2020). As given in detail in the companion study (see Alemayehu & Getnet, 2022), this means, using the debt data in the last five years (2017/18 to 2022): first (i) 72% of the external debt outstanding is contracted on a fixed interest rate, while the rest, which SOEs' hold, is secured at a variable interest rate (LIBORM6, LIBORM3) with some margin (MOF, 2019). About 1.7% of this external debt is obtained at a free interest rate. However, this national picture dramatically changes regarding the loans of the SOEs. For the latter, 75% of their outstanding debt is contracted at a variable interest rate, with the rest at a fixed rate.

Second (ii), the general terms of these debts are also generous, although they are more generous to the central government than the loans to the SOEs. As can be read from the terms of external debt contracted from 2016/17 to 2020/21 (MOF, 2022), the average interest rates on central government and SOEs' debt in this period were 1% and 3% per annum, respectively. The average maturity and grace periods for the central government loans were also 33.7 and 7.2 years, respectively, while they were 12 and 2.1 years for the loans to the SOEs. As a result, the average grant element for central government loans during this period was 49%, while this was just 13% for the loans to the SOEs. The grant element of the loans to SOEs would have been lower (about 7%) had it not been for the 25% and 18% grant elements of SOEs debt contracted in the last two years, 2020 and 2021. This makes the central government's loan an aid/ODA, using the OECD definition of grant element, while the loan to the SOEs is not. Thus, the debt composition (regarding creditors and debtors) has implications for the debt servicing burden. Regarding the debtor, even if SOEs' debt is part of the public debt, it is relatively expensive. Notwithstanding the concessionality of the Ethiopian debt, servicing even this debt is putting significant pressure on the country, as discussed, and shown in Table 7.

Table 7: The changing composition of debt: The cost of interest from different lenders

All in Billions of US$	2016	2017	2018	2019	2020	Share in total debt & interest. (2016-20, %)	Average Interest Rate (2016-20),
Bilateral (INT, current US$)	0.042	0.029	0.057	0.052	0.030	8	1.21%
Bilateral (DOD, current US$)	3.091	3.414	3.465	3.620	3.848	**12.7**	
Bonds (INT, current US$)	0.066	0.066	0.066	0.066	0.066	12.6	6.6%
Bonds (DOD, current US$)	1.000	1.000	1.000	1.000	1.000	**.3.3**	

	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/22	Average
Commercial banks (INT, current US$)	0.086	0.063	0.088	0.146	0.147	20.2	
Commercial banks (DOD, current US$)	2.738	3.423	4.255	4.216	4.022	**13.2**	2.84%
Multilateral (INT, current US$)	0.059	0.069	0.079	0.089	0.099	15.1	
Multilateral (DOD, current US$)	8.145	9.934	10.905	12.037	13.881	**45.7**	0.72%
Interest payment Non-Paris Bilateral/China	0.163	0.218	0.172	0.333	0.268	44.0	
Ext Debt Non-Paris bilateral/China (DOD)	8.422	8.398	8.218	7.502	7.614	**25.1**	2.87%
Total Interest payments on external debt	0.416	0.445	0.462	0.687	0.610	100	
Total External Debt, DOD (all)	23.396	26.170	27.842	28.375	30.364	**100**	

Debt Servicing Burden*	**2016/2017**	**2017/2018**	**2018/2019**	**2019/2020**	**2020/2021**	**2021/22**	**Average**
Debt Service, in Billons USD	1.288	1.604	2.036	2.003	1.903	1.645	1.746
Exports, in Billions of USD	2.908	2.84	2.663	2.988	3.617	4.10	3.19
Debt Service to Export of Goods Ratio (%)	44.3	56.5	76.5	67.0	52.6	40	56.2
Debt Service Ratio (%)	20.6	22.7	25.9	26.0	22.4	20.4	22

Source: Authors' computation based on WB DRS data. The Interest rate is computed as an average annual ratio of interest payments to outstanding debt for each lender category from 2016 to 2020. *Debt service and export data are from MOF (2022) for debt service and the NBE Annual Report for exports. This data also used the Ethiopian fiscal year.

In addition to the nature of such official flows, as noted briefly in Section One and discussed in detail in Alemayehu and Getenet (2023), the composition of Ethiopian external debt from lenders' perspectives has also changed towards China (non-Paris club members) and private creditors since the 2005 failed election.

Table 7 shows the non-Paris club debt. These are primarily owed to China, accounting for 86% of non-Paris bilateral debt by June 2021 (MOF, 2021a), that is about USD 7.6 billion by 2020/21 (Table 7). However, according to the report of the MOF (2021a), the debt owed to China, including suppliers' credit from China, stood at USD 8.9 billion in the same year. More specifically, the stock of debt to Chinese policy banks (CDB, Exim-Bank of China, ICBC, and the Chinese government) accounted for 75% of total bilateral debt and 22% of total public sector external debt (US6.5 billion). This makes the debt

owed to China the second-highest external debt, next to that of the IDA/World Bank (MOF, 2021a). When the debt owed to Chinese suppliers like China Electric Power and ZTE (Telecom) is added to the above figure, the total outstanding debt owed to China becomes USD 8.9 billion. This became 30.15% of the total external public sector debt outstanding (total external debt by June 2021 was USD 29.5). This figure is different from the USD 13 billion Chinese loans to Ethiopia reported by the John-Hopkins University database, which is not based on actual data on the ground.

The terms of loans from the non-Paris club (China) and private lenders are not as generous as those from official lenders. However, they do not have intrusive policy conditionality like loans from multilateral and Paris-club bilateral (the West's) lenders. As can be read from Table 7, the average interest rate on loans from China (and other non-Paris club lenders) is about 2.9% per annum, which is expensive compared to the 0.7% from multilateral loans and 1.2% for the loans from bilateral Paris club lenders. Private commercial bank creditors also charge a rate closer to the non-Paris club lenders, at 2.8%. Yet, these interest rates are much lower than the rate on Euro bond loans the country has contracted with, which is 6.6% (Table 7). In addition, these loans also have noticeably short grace and maturity periods. Since most of the loans from China and other non-Paris club lenders went to SOEs, the average grace (2 years) and maturity (12 years) periods noted for the SOEs above are related to Chinese credit to Ethiopia.

Owing to the lack of transparency about the Chinese loan terms, the information in Table 7 is the only publicly available information about the terms of Chinese loans. Notwithstanding this, the 2015 official information in MOF (2015) confirms the realistic nature of our inference from Table 7. In that year, the grace and maturity periods of Chinese loan commitment were 3 and 8 years, respectively. It also carried an interest rate of LIBORM6+2.9 percentage points. Similarly, the MOF (2021a) debt analysis report also shows that the Chinese loan terms for loans to SOEs provided between 2016 and 2021 had an average grace and maturity period of 3.25 and 11.26 years, respectively.[17] On the positive side, Chinese and private creditors do not interfere with the government's policy and politics through loan conditionality, unlike official creditors (IFIs) and Western countries.

As noted, this changing composition of Ethiopia's debt towards China and private creditors, intensified after the 2005 failed election, had implications for a rising debt burden. This general picture can be read in Table 7. The combined effect of servicing all types of external debt is to put significant pressure on the country, especially when compared to its capacity to pay from its meagre exports and other sources of FX. This, in turn, leads to more demand for new debt and capitalisation of unpaid debt services when debt restructuring opportunities arise, setting a cycle of indebtedness.

Although Ethiopia's total external debt to GDP ratio is not exceptionally large, ranging from 26 to 31% of GDP in the last five years (2017–2022), it is a significant burden compared to the country's export earning capacity (hence, from a liquidity perspective). Table 7 shows debt servicing claimed up to 75% of the country's annual merchandise exports and on average about 56% in the last six years (2016/17–2021/22). The debt service ratio, which is 22% in the same period, is not significant; however. Given that net service exports are generally about zero, as noted, the debt service ratio is not a good indicator of the actual debt burden in Ethiopia.

The changing composition of debt has also contributed to this burden. The loans from China (and other non-Paris club creditors), which was not growing as such before 2005/06, grew dramatically, growing by

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[17]   During this time, the average interest rate and grace and maturity periods for multilateral loan commitments were 1.2% and 17 and 32 years, respectively. This was also 1.72%, as well as 8 and 32 years, respectively, for bilateral loans (MOF, 2015).

30% in 2007/08 and further by 68, 65 and 75% in 2008/09, 2009/10 and 2010/11, respectively. Though this growth rate declined to 40% in 2014/15 and 11% in 2019/20, it remained positive throughout (Figure 3a). Similarly, commercial credit, which was growing by 1.3% between 1992/93 and 2002/03 with wide fluctuations between positive and negative rates, increased by a whopping 231% in 2003/04 and by 357% in 2008/09 (with an average annual growth rate of 8.2% in between). It has widely fluctuated since 2003/04, ranging from a low growth rate of 5.5% in 2019/20 to a high of 110% in 2014/15, with an average annual growth rate of 34.3% between 2009/10 and 2019/20 (Figure 3b).

Since the terms of the loans from private lenders and commercial banks (Table 7) are also relatively expensive, their significant growth since 2005 has contributed to the rising debt servicing burden of the country. This can also be read from the pattern of debt service in the last five years (2017/18 to 2022). During this time, on average, about 80% of the debt service payments are made annually by SOEs that are clients of these private commercial banks. Of this total, EAL and Ethio Telecom paid about half the total debt service each year. Since these SOEs' debt is generally owed to banks and suppliers (both from China and Paris-club/Western countries), the SOEs' significant share in total debt service payment shows the burden of the changing composition of debt towards private (commercial) and non-Paris club lenders. However, since about 65% of the SOEs' debt in the last five years was held by EAL and Ethio Telecom, profitable firms, it cannot be inferred from their debt profiles that these SOEs are the culprits behind the country's debt burden. Therefore, we cannot assume the need to cut their debt or privatize them (as the IFIs often demand; see IMF, 2020). Since we are reporting only the liability side of these firms (without reporting the asset side and their profitability), it is difficult to rigorously evaluate their net asset position from the debt data which is officially provided. This is one of the limitations of the international debt accounting and reporting practices we noted in Section 2.

In sum, given the precarious nature of export growth, the inelastic demand for imports, and the rising debt servicing burden due to the changing composition of domestic and external debt lately, servicing debt has become another factor that drives the country further into indebtedness. In addition, the fiscal burden of servicing debt is aggravated because of the changing composition of domestic debt towards interest-bearing loans and the rising local currency value of the external debt services due to the significant depreciation of the Birr (which has depreciated by about 100% since 2020). In addition, the Ethiopian debt is vulnerable to the risk of a change in interest rate as the bulk of the SOEs' debt is contracted at a variable interest rate. Furthermore, there is also the risk of exaggerated GDP and GDP growth that conceal the actual debt-carrying capacity of the country by rendering a low debt-to-GDP ratio. Moreover, there could also be unknown (unreported) military spending and external borrowing related to the two-year war (2021–2022) in northern Ethiopia, which we do not have information about. Thus, there are many factors contributing to the debt burden in Ethiopia. Therefore, we have conducted an econometric examination of the relative importance of all the factors identified in the next section.

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5. MAJOR DRIVERS OF DEBT IN ETHIOPIA: THE ECONOMETRIC EVIDENCE

Given the identification of the significant drivers of debt in Ethiopia in the previous section, it is time to examine them using a formal empirical model of the determinants of debt. This aims to substantiate further the debt-driving factors identified in the previous sections. The final econometric result obtained using this model will also be part of the macro-econometric model built in the context of this study. The latter could be used to analyze the debt problem further, debt-related policy analysis, and the implication of debt and debt servicing on the broader (macro) economy in the future. It can also be used to analyze different policy scenarios concerning debt, the impact of external shocks on debt, and its economic impact.

5.1 THE THEORETICAL MODEL

Following the discussion in Sections 3 and 4, to identify the main drivers of debt in Ethiopia, the following model is specified (see also Dawood et al., 2021; Bittencourt, 2015):

$$pd_t = \beta_0 + \beta_1 p_t + \beta_2 f_t + \varepsilon_t \qquad \text{[6]}$$

Where: pd is the stock of public debt, p is the vector of proximate causes of indebtedness indicator and f, is the vector of the fundamental cause of indebtedness; ε is a white noise error term.

The set of proximate and fundamental explanatory variables included are real GDP per capita growth (y), terms of trade, price of exports to imports (tot), the [negative of] trade deficit (imports minus exports as percent of GDP) (td), fiscal deficit as percent of GDP (fd), the saving-investment gap as percent of GDP $(sigap)$ and consumer price index (cpi)—all in natural log form. In addition, alternative

specifications for different sets of control variables for the basic model are also tested to check the robustness of the results.

5.2   THE ECONOMETRIC APPROACH

The study employed the ARDL approach to empirically examine the drivers of public debt in Ethiopia from 1980–2021. The ARDL approach has several advantages over other co-integration techniques. First, it can be used irrespective of whether the variables are I(0) or I(1) or have a mix of these integration orders. Traditional approaches require that all the series have identical orders of integration (Phillips & Hansen, 1990; Johansen & Juselius, 1990; Engle & Granger, 1987). The ARDL approach will, however, be inefficient in the presence of I(2) or higher-order series. Second, unlike other multivariate cointegration techniques (e.g., Johansen & Juselius, 1990), it is relatively simple and allows for estimating a cointegration relationship in a single equation framework using the ordinary least squares (OLS) method. Third, it is comparatively more robust and efficient in small samples of 30 to 80 observations (Pesaran et al., 2001). In addition, traditional cointegration techniques may also experience problems of endogeneity, whereas the ARDL technique generally provides unbiased estimates of the long-run model and valid t-statistics even when the regressors are endogenous (Narayan & Smyth, 2005; Harris & Sollis, 2003; Pesaran et al., 2001; Pattichis, 1999; Pesaran & Shin, 1999; Pesaran et al., 1996). Furthermore, the ARDL cointegration approach allows for the simultaneous estimation of short- and long-run relationships and provides unbiased and efficient estimates (Pesaran & Shin, 1999). An error correction model (ECM) can also be derived from an ARDL model through a simple linear transformation (Pesaran & Shin, 1999). As Pesaran and Shin (1999) noted, an ECM integrates short-run adjustments with long-run equilibrium without losing long-run information. These advantages of the ARDL technique over other standard cointegration techniques justify its application in this study.

The standard ordinary least squares model derives the coefficient variance-covariance matrix, assuming that the error terms are conditionally homoscedastic and serially uncorrelated (White, 1980). In cases where these assumptions fail to hold, the inference based on the resulting error-correction model (ECM) will be misleading (Wooldridge, 2000; Roecker, 1991; White, 1980). Given that the problem of heteroskedasticity and serial correlation is expected in time series analysis of this nature, it is necessary to estimate the coefficient covariance under the assumption that the residuals are conditionally heteroskedastic and autocorrelated (Newey & West, 1987). The coefficient covariance estimator under this assumption is what is referred to as the Heteroskedasticity and Autocorrelation Consistent Covariance (HAC) or Newey-West estimator. This approach does not change the coefficients. Instead, it only alters the coefficients' standard errors without changing the coefficients (Newey & West, 1987). This study has followed this procedure.

The ARDL specification of the model can be written as follows:

$$\Delta pd_t = \alpha + \beta_1 pd_{t-1} + \beta_2 y_{t-1} + \beta_3 tot_{t-1} + \beta_4 td_{t-1} + \beta_5 fd_{t-1} + \beta_6 sigap_{t-1} + \beta_8 cpi_{t-1} + \sum_{i=0}^{p_1} \gamma_{1i} \Delta y_{t-i} + \sum_{i=0}^{p_2} \gamma_{2i} \Delta tot_{t-i} + \sum_{i=0}^{p_3}$$

5.3   THE ECONOMETRIC RESULTS

Before estimation is carried out for the econometric analysis, a test for stationarity of the variables (Table 8, with p-values reported) is undertaken. While most of the variables are found to be I(1), others are found to be I(0) (see Table B1 in Annex B for the descriptive statistics of the variables in the model).

Table 8: ADF unit-root test results

Variable	Level		First difference		Inference
	Intercept	Intercept &trend	Intercept	Intercept & trend	
pd	0.10	0.17	0.00	0.00	**I(1)**
ed	0.30	0.30	0.00	0.00	**I(1)**
dd	0.10	0.17	0.00	0.00	**I(1)**
y	0.00	0.00	0.00	0.00	**I(0)**
tot	0.20	0.00	0.00	0.00	**I(1)**
td	0.13	0.23	0.00	0.00	**I(1)**
df	0.35	0.43	0.00	0.00	**I(1)**
$sigap$	0.31	0.17	0.00	0.00	**I(1)**
cpi	1.00	0.98	0.00	0.00	**I(1)**

Note: pd denotes the natural log of total public debt as a percentage of GDP; y denotes real GDP per capita growth; tot denotes the natural log of terms of trade; td the natural log of trade deficit as a percentage of GDP; df denotes the natural log of fiscal deficit as a percentage of GDP; $sigap$ denotes the natural log of saving-investment gap as a percentage of GDP; and cpi denotes the natural log of consumer price index.

The bound test for cointegration is undertaken after determining the order of integration of the variables of our empirical model given in Eq. [7]. The results from the bounds test are presented in Table 9. The result shows that the null hypothesis of no long-run relationship among the model's variables is rejected as the computed F-statistic for the test equation is greater than the upper-bound critical value even at the one-percent significance level.

Table 9: The bound test to cointegration

ARDL Bounds Test
Sample: 1980–2021
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	9.13	6

Pesaran, Shin, and Smith (2001) bounds test critical values.		
Significance	**I0 Bound**	**I1 Bound**
10%	2.12	3.23
5%	2.45	3.61
1%	3.15	4.43

Note: The cointegration test equation consists of the dependent variable (pd) and regressors: $y, tot, td, fd, sigap,$ and cpi. All the variables are as defined before.

5.3.2 The long-run and short-run models results

Table 10 shows the short-run and long-run estimated results of the public debt determinants model (see Table C1 in Annex C for a robustness check using external debt as a dependent variable).[18] As Table 10 shows, the results are generally in line with our analysis in the previous sections as well as the empirical literature noted previously.

Table 10: The short run and long run Model Results

ARDL Cointegrating And Long Run Form

Dependent Variable: Δ(ln Total public debt as a percent of GDP)

Selected Model: ARDL(1, 1, 1, 2, 1, 2, 2)

Sample: 1980 2021

The short-run model (Error Correction Model (ECM)) result				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Δ(Real GDP per capita growth)	-0.021***	0.004	-6.026	0.000
Δ(Real GDP per capita growth(-1))	0.008	0.005	1.467	0.157
Δ(ln Terms of trade)	0.004	0.071	0.062	0.952
Δ(ln Trade deficit as percent of GDP))	-0.175	0.465	-0.376	0.711
Δ((ln Trade deficit as percent of GDP(-1))	-1.453	1.032	-1.407	0.174
Δ(ln Fiscal deficit as percent of GDP)	0.077***	0.017	4.474	0.000
Δ(ln Saving-investment gap as percent of GDP)	0.049	0.030	1.660	0.112
Δ(Consumer price index)	-1.186***	0.216	-5.496	0.000
Δ(Regime dummy. The TPLF regime)	0.098**	0.042	2.295	0.032
EC(-1)	-0.510***	0.074	-6.888	0.000
The long-run model result				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Real GDP per capita growth	-0.067***	0.007	-9.142	0.000
ln Terms of trade	-0.561*	0.291	-1.930	0.067
ln Trade deficit as percent of GDP	5.227***	1.368	3.822	0.001
ln Fiscal deficit as percent of GDP	0.151***	0.044	3.431	0.003
ln Saving-investment gap as percent of GDP	0.498***	0.075	6.670	0.000
ln Consumer price index	0.020	0.154	0.132	0.897
Regime dummy (the TPLF regime)	0.191**	0.084	2.268	0.034

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[18] To check the robustness and reliability of the ARDL model, a battery of diagnostic tests that include tests for normality of the error term, serial correlation, heteroscedasticity, and the functional form of the empirical model are applied. The model reported has passed these tests. The model reported is, thus, the best model that we came up with after experimenting by estimating various models with different specifications, data points and the battery of diagnostics test noted.

Constant	-20.526**	6.779	-3.028	0.006

Note: Δ denotes change. ***, **, * indicates 1 %, 5% and 10% significance level, respectively. EC is the adjustment coefficient (the error correction term). Std. Error is HAC standard error.

For instance, per capita income growth is found to have a significant negative relationship with public debt both in the short and long run, highlighting the importance of economic growth in reducing public debt. The trade deficit is found to have the highest effect (in the long run) and to be one of the strongest determinants of public debt. This result is in line with the a priori expectation, as a lower trade deficit and favourable terms of trade create a lesser need for debt-creating flows to finance government expenditure. The trade deficit and terms of trade are also two of the best proxy variables that show the fundamental cause of indebtedness as they are related to Ethiopia's structure of exports (undiversified primary commodities) and imports (with structurally inelastic demand). Similarly, the saving-investment gap, which includes the fiscal gap, is found to have the third significant (potent) relationship with public debt. The general price level (the CPI) is found to have a positive effect on the country's public debt in the long run, though it is not statistically significant. Its short-run impact, however, is negative and statistically significant. The general result underscores that the Ethiopian debt problem is essentially a trade problem, as has been found for other African countries before (Alemayehu, 2003; 2002).

The TPLF/EPRDF-regime dummy has a positive relationship with public debt, indicating that Ethiopia's public debt has substantially increased during the TPLF/EPRDF regime, partly for geopolitical reasons—one of the fundamental causes. As Table 10 further shows, the estimated coefficient for the error-correction term (EC) is significant, with a value of -0.51. The latter also indicates that positive developments in debt, such as debt restructuring or relief, significantly and quickly impact reducing the debt challenges, as 51% of the deviation from equilibrium could be corrected in just one year. Conversely, adverse shocks do worsen the debt burden quickly.

5.3.3 Model diagnostic and tests

A battery of model diagnostic tests was applied to check the robustness of the estimated model (see Table 5).

Table 11: Model diagnostic tests: The growth model

| Tests	Value
R-squared	0.95
Adjusted R-squared	0.92
F-statistic	27.72
Prob(F-statistic)	0.00
Jarque - Berra	0.50
Prob(Jarque - Berra)	0.78
Breusch-Godfrey Serial Correlation LM Test*	0.12
Heteroskedasticity Test: ARCH*	0.55
Ramsey RESET Test*	0.89

*The P-value F-Statistics is reported.

The tests indicate that the estimated model has the desired statistical properties. The model has a good fit, as can be read from the highly adjusted R-square value. In addition, the model passed a battery of tests, including those for normality, heteroskedasticity, serial correlation, model specification, and stability. The Jarque-Bera statistic confirms the normality of the residuals, as the null of "errors are normally distributed" is not rejected. From the results of the Breusch-Godfrey Lagrange Multiplier (LM) test and the Autoregressive Conditional Heteroskedasticity (ARCH) test, we fail to reject the null hypotheses of no serial correlation and no heteroscedasticity of the residuals, respectively. Thus, the estimated model has no serial correlation or heteroskedasticity problem. The Ramsey Regression

Equation Specification Error Test (RESET) supports the correct functional form used for the estimated model.

Model parameter stability is one of the econometric requirements for a well-specified and performing ARDL model (Murthy & Okunade, 2016). The stability of the regression coefficients is evaluated by stability tests that can show whether the regression equation is stable over time (Pesaran & Pesaran, 2009).

To test for the stability of the short-run and long-run estimated coefficients, the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) tests on the recursive residuals from the estimated ARDL model were performed. Figure 7 presents the results of these tests. The plots of CUSUM and CUSUMSQ statistics both lay between the critical bounds at the 5% significance level. They did not cross the lower and upper critical limits in all the estimated models (Figure 7). This indicates that the estimated coefficients have the desired characteristics of parameter stability over the sample period in the estimated model.

Figure 7: Parameter stability tests: The growth model
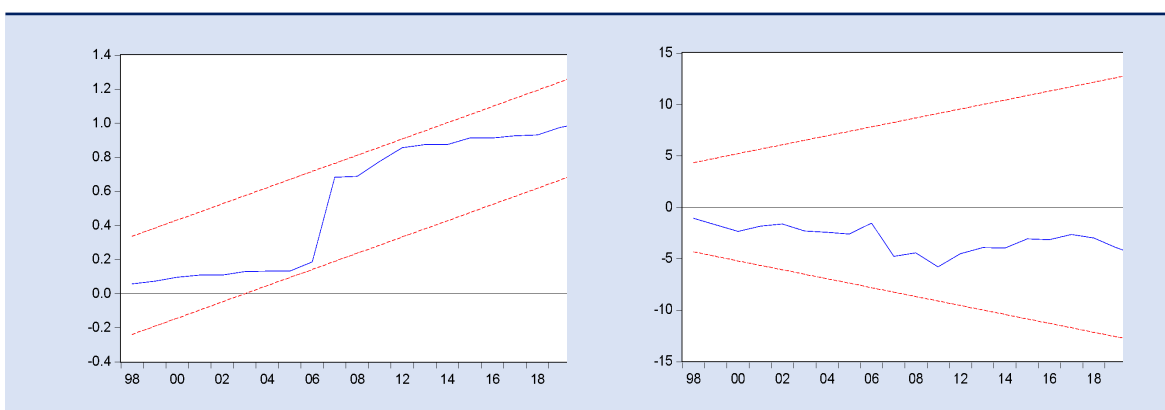
6.   CONCLUSION: IMPLICATION FOR POLICY

The study's major finding is that both proximate and fundamental causes of indebtedness are important in explaining the evolution of debt in Ethiopia. We found concrete and measured effects of each factor in our empirical model. Moreover, the result also generally shows that the fundamental causes are more important (in terms of potency, too) than the proximate causes (such as fiscal deficit and inflation) in explaining Ethiopian debt, especially in the long run. The result also shows that although all factors considered were found to be important drivers of indebtedness in Ethiopia, the impact of the trade deficit, terms of trade, the domestic saving gap, and the fiscal deficit, especially government expenditure (not reported), were the major factors in the empirical analysis.

More specifically, as the top driver of indebtedness, a 1% increase in the trade deficit (as a percentage of GDP) is found to lead to a growth of public debt of 5% in the long run. This underscores the importance of focusing on export growth and diversification as well as aggressive import substitution as policy directions. Related to the trade deficit, terms of trade deterioration (another structural problem) is also found to aggravate indebtedness. In addition, rationalizing government expenditure and prudent management of public spending and domestic resource mobilization (as can be inferred from the saving-investment gap) help a lot in addressing the debt problem.

One of the most important findings of this study is that the Ethiopian debt problem is essentially a trade problem. The economy is characterized by a structural trade deficit that makes it vulnerable to indebtedness. That is, this trade deficit has led to a persistent shortage of foreign exchange, which is hunting the country today and propelling it to more external indebtedness year after year. One of the implications of this finding is that the government's growth strategy needs to investigate the nature and growth of exports and imports to narrow the structural trade deficit and address these root causes of indebtedness. Using a simple model, we have attempted to simulate the conditions needed to realize that in the medium term. This aims to summarise the impact of these fundamental causes of indebtedness and the importance of a comprehensive approach to address them.

Furthermore, the analysis focuses on the external sector, mindful of its direct impact on external debt and the foreign exchange constraint nature of growth in Ethiopia, i.e., the foreign exchange gap is the binding constraint of growth today. Thus, we considered narrowing the internal gap less effective (or secondary) since it can stifle growth and does not directly address the structural trade deficit problem. Therefore, the best policy direction that can be taken regarding the internal gap is to direct investment towards addressing both the structural trade deficit problems and the structural supply problems of agriculture, especially food supply. The latter is crucial to lessen the inflationary effect of domestic debt accumulation, which is invariably created through the monetization of deficits.

Ethiopia's severe foreign exchange (FX) problem makes it vulnerable to external indebtedness. This relates to the structural trade deficit that has persisted for at least two decades. The conflict in Northern Ethiopia exacerbates the FX problem, primarily through its effect on the inflow of debt-creating flows from IFIs (WB/IMF in particular) and, perhaps, through the build-up of unknown military-related debt. Thus, dependency on debt-creating flows is a major problem related to the structural trade deficit problem noted. Both need a strategic policy direction.

The sure way out of this challenge (shortage of FX and indebtedness) is to reduce the trade deficit by at least half in the medium to long term (next 5 to 10 years).[19] This could be done only by aggressive merchandise export growth and import substitution, which Weeks (2003) calls the "export-based stabilization" that Vietnam successfully used when in a similar predicament to that of Ethiopia. The trade deficit in the last decade averaged 14.5% of GDP per annum (2013–2022), although it declined to about 12% over the previous five years (2017–2022) (Table 5). Different scenarios to reduce the 12% (of GDP) trade deficit by half are presented in Figure 7. These scenarios are based on an assumed average annual GDP growth rate of 7% and a limit to the export-to-GDP ratio of 50% (taken from the history of the African and other LDC literature; see Alemayehu & Weeks, 2004). The scenarios are, then, based on different assumptions about the extent of import substitution and export growth.

Figure 8 shows that in the ***first policy scenario*** if a realistic import-to-GDP growth rate ratio of two (imports grow at twice the GDP growth rate) is assumed, it will take 6.5 years and average annual export growth of 35% to reduce the current trade deficit by half (blue line," "trade deficit_1").

Figure 8: Policy scenarios for reducing the current trade deficit by half (Ethiopian Calendar, 2015=2022/23, trade deficit as % GDP, Y-axis)

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[19] This, however, assumes the trade balance on exports and imports of services remains in equilibrium as it has been for the last ten years or gets better (in a way, boosting service exports and minimizing service imports is the other policy direction worth examining but not covered here). The recent government intervention in the autonomy of Ethiopian Airline management, which generates most of the service export earnings, is a negative development and a signal in this regard.

Since 35% export growth is not feasible given the average export growth rate of 3.5% in the last decade and the recent highest growth of 20% registered in 2020/21, in the **second policy scenario,** this export growth rate is assumed to be 28%. However, this needs an aggressive import substitution or import cut (that restricts the growth of imports to 1.5 times GDP growth) to reduce the trade deficit by half in the same period of 6.5 years (the orange line, "trade deficit-2"). The 1.5 import-to-GDP growth ratio is closer to the rate registered in 2022 and the rate estimated using an import-demand model (see Alemayehu 2023b).

However, since 85% of Ethiopian imports are essential or strategic imports that are not amenable to reduction -have inelastic demand - (fuel alone accounting for about 20% of imports) without high welfare costs and lower economic growth (see Alemayehu, 2023b, and Table 6), the scope for import cuts is limited. Thus, the best policy option is to combine a high export growth rate with an aggressive import substitution strategy and policy.

The final, **third, and best-case scenario** shown in Figure 8 is simultaneously a policy of aggressive exporting and import substitution (dark grey line, "trade deficit_3"). Depicting this scenario with an annual export growth rate of 35% and an import growth rate of 1.5 times the GDP growth rate, the current trade deficit could be reduced by half in about five years or less (by 2027/28 or 2020 Ethiopian Calendar). With the previous two scenarios, by 2027/28 (2020 E.C)- five years from now, the trade deficit can decline only to about 9.1% of GDP. In contrast, this best scenario results in a trade deficit of 5.4% of GDP, a reasonable trade deficit usually suggested in the literature (Figure 8) in 2027/28 (2020 E.C). Such a growth scenario and strategy would reduce the pressure on structural indebtedness (and the medium-term solvency problem) and allow a healthy, sustainable debt level.

Are these scenarios feasible? The current export growth is way below the figures in these scenarios and is erratic. For example, the highest export growth rate attained recently was 20% in 2020/21. Thus, if export growth is limited to this highest rate achieved in the past five years, even if we restrict the growth of imports to 1.5 times that of GDP growth (import substations of about USD 1 billion per annum), the trade deficit will not be reduced by half in 14 years from now. This means the persistent pressure for further indebtedness will continue for many years. This underscores how critical it is to aggressively work on both exports and import substitution as a matter of urgency to ease the country's foreign exchange problem and vulnerability to indebtedness.

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However, addressing such fundamental drivers of debt through this strategy requires rationalising the current short-term debt problem – the liquidity problem – through debt restructuring or cancellation first. It also needs more concessional loans to address the short-term liquidity problem and invest in solving the structural issues noted. Paradoxically, the country needs more debt to get out of its debt problem (more aid to get out of aid-dependencey).

It also needs proper fiscal and debt management and institutional capacity building, which are discussed in detail in the companion paper (Alemayehu & Getnet, 2023). The major policy implications and related capacity-building needed to address the debt problem include:

a) The major policy implication of the study is to underscore the importance of revisiting the country's growth strategy to focus on exporting, divarication and import substitution as an exit strategy from structural indebtedness and the dependency of growth on debt-creating flows/aid.

b) There is a need to create the capacity to realize (a) as well as the capacity to carry out proper GDP (as well as export) growth forecasting both to draw its implications for indebtedness as well as to gauge the debt-carrying and debt-servicing capacity of the economy and tune policy accordingly.

c) There is a need to build capacity to analyze the consequence of debt and debt-servicing on growth and macroeconomic stability (inflation, foreign exchange availability, exchange rate volatility, fiscal deficit, etc.). This could be done best using a comprehensive economy-wide macroeconomic model and by training government experts in its use.

d) Improving (and establishing new ones) the institutional and legal framework for contracting, approval by the parliament and managing debt (see Alemayehu & Getnet, 2023 for detail) is also needed.

Given fiscal dominance in Ethiopia, prudent fiscal management is more crucial than monetary policy, as monetary policy is generally accommodative. Thus, fiscal policy is central to maintain a stable macroeconomy and sustainable debt than monetary policy.

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Annex A: Definition, measurement, and data sources of the variables

Table B1: Definition, measurement, and data sources of the variables

Variable	Definition and measurement	Source
y_t	Real GDP per capita growth	NBE various years annual reports
tot	The natural log of terms of trade is calculated as the export value index divided by the import value index.	World Bank (2023)
pd	The natural log of total public debt as percent of GDP	MOFED various years of annual reports
ed	The natural log of external public debt as percent of GDP	MOFED various years of annual reports
dd	The natural log of domestic public debt as percent of GDP	MOFED various years of annual reports
td	The natural log of trade deficit (imports minus exports as percent of GDP)	NBE various years annual reports
fd	The natural log of fiscal deficit (government expenditure minus government revenue as percent of GDP)	NBE various years annual reports
$sigap$	The natural log of saving-investment gap (gross capital formation minus gross saving as percent of GDP)	NBE various years annual reports
cpi	The natural log of consumer price index	NBE various years annual reports

Annex B: Summary statistics

Table B1: Summary statistics

	pd	*y*	*tot*	*td*	*fd*	*sigap*	*cpi*
Mean	4.1	2.7	0.8	4.5	1.1	2.2	3.9
Median	4.1	5.2	0.7	4.5	1.2	2.3	3.6
Maximum	4.8	10.4	1.5	4.6	2.3	3.1	6.0
Minimum	3.1	-13.5	0.4	4.3	-1.8	-0.2	2.6
Std. Dev.	0.4	6.3	0.3	0.1	0.7	0.7	1.0
Skewness	-0.3	-1.0	0.7	-0.4	-1.6	-1.2	0.6
Kurtosis	2.8	3.2	2.5	1.7	7.7	4.7	2.1
Jarque-Bera	0.9	6.9	4.0	3.8	54.9	14.0	3.6
Probability	0.6	0.0	0.1	0.1	0.0	0.0	0.2
Observations	41	41	41	41	41	41	41

Table B1: Summary statistics

	pd	*y*	*tot*	*td*	*fd*	*sigap*	*cpi*
pd	1.00						
y	-0.25	1.00					
tot	-0.11	-0.34	1.00				
td	0.18	-0.54	0.74	1.00			
fd	0.36	-0.26	-0.04	0.24	1.00		
sigap	-0.14	0.59	-0.55	-0.84	-0.33	1.00	
cpi	-0.24	0.42	-0.71	-0.66	-0.37	0.57	1.00

Annex C: Robustness test

Table C1: Robustness check using external public debt as a dependent variable.

ARDL Cointegrating And Long Run Form

Dependent Variable: Δ(ln public external debt as percent of GDP)

Selected Model: ARDL(2, 2, 2, 1, 0, 2, 1)

Sample: 1980 2021

The short run model (Error Correction Model (ECM)) result				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Δ(ln public external debt as percent of GDP)	0.103**	0.043	2.414	0.027
Δ(Real GDP per capita growth)	-0.023***	0.004	-6.206	0.000
Δ(Real GDP per capita growth(-1))	0.011***	0.003	3.691	0.002
Δ(ln Terms of trade)	0.075	0.095	0.784	0.443
Δ(ln Terms of trade(-1))	-0.167**	0.072	-2.323	0.032
Δ(ln Trade deficit as percent of GDP)	0.016	0.483	0.032	0.975
Δ(ln Fiscal deficit as percent of GDP)	0.063**	0.023	2.769	0.013
Δ(ln Saving-investment gap as percent of GDP)	0.116**	0.050	2.327	0.032
Δ(ln Saving-investment gap as percent of GDP(-1))	0.114**	0.051	2.243	0.038
Δ(ln Consumer price index)	-1.071***	0.218	-4.923	0.000
Δ(Regime dummy)	0.053	0.038	1.395	0.180
EC(-1)	-0.507***	0.041	-12.364	0.000
The long run model result				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Real GDP per capita growth	-0.082***	0.010	-7.884	0.000
ln Terms of trade	-0.408**	0.153	-2.658	0.016
ln Trade deficit as percent of GDP	6.844***	1.114	6.142	0.000
Ln Fiscal deficit as percent of GDP	0.125**	0.047	2.684	0.015
ln Saving-investment gap as percent of GDP	0.759***	0.079	9.644	0.000
ln Consumer price index	-0.020	0.057	-0.349	0.731
Regime dummy	0.104	0.073	1.424	0.171
Constant	-28.518***	5.127	-5.562	0.000

Note: Δ denotes change. ***, **, * indicates 1 %, 5% and 10% level of significance, respectively. EC is the adjustment coefficient (the error correction term). Std. Error is HAC standard error**.**

Table C2: Robustness check using domestic public debt as a dependent variable.

ARDL Cointegrating And Long Run Form

Dependent Variable: Δ(ln domestic public debt as percent of GDP)

Selected Model: ARDL(2, 2, 1, 2, 0, 1, 1)

Sample: 1980 2021

The short run model (Error Correction Model (ECM)) result				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Δ(ln domestic public debt as percent of GDP)	0.114	0.071	1.615	0.121
Δ(Real GDP per capita growth)	-0.019***	0.003	-6.742	0.000
Δ(Real GDP per capita growth(-1))	0.010***	0.003	4.088	0.001
Δ(ln Terms of trade)	0.076	0.094	0.806	0.430
Δ(ln Trade deficit as percent of GDP)	-0.722	0.601	-1.200	0.244
Δ(ln Trade deficit as percent of GDP(-1))	-1.412**	0.561	-2.516	0.020
Δ(ln Fiscal deficit expenditure as percent of GDP)	0.061***	0.018	3.353	0.003
Δ(ln Saving-investment gap as percent of GDP)	0.085**	0.035	2.458	0.023
Δ(ln Consumer price index)	-0.872***	0.229	-3.800	0.001
Δ(Regime dummy)	0.104***	0.035	3.016	0.007
EC(-1)	-0.584***	0.042	-13.922	0.000
The long run model result				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Real GDP per capita growth	-0.062***	0.008	-7.523	0.000
ln Terms of trade	-0.473***	0.147	-3.205	0.004
ln Trade deficit as percent of GDP	5.595***	1.020	5.486	0.000
Ln Fiscal deficit as percent of GDP	0.104***	0.031	3.372	0.003
ln Saving-investment gap as percent of GDP	0.504***	0.061	8.297	0.000
ln Consumer price index	0.039	0.068	0.576	0.571
Regime dummy	0.179***	0.056	3.173	0.005
Constant	-22.275***	4.846	-4.596	0.000

Note: Δ denotes change. ***, **, * indicates 1 %, 5% and 10% level of significance, respectively. EC is the adjustment coefficient (the error correction term). Std. Error is HAC standard error.
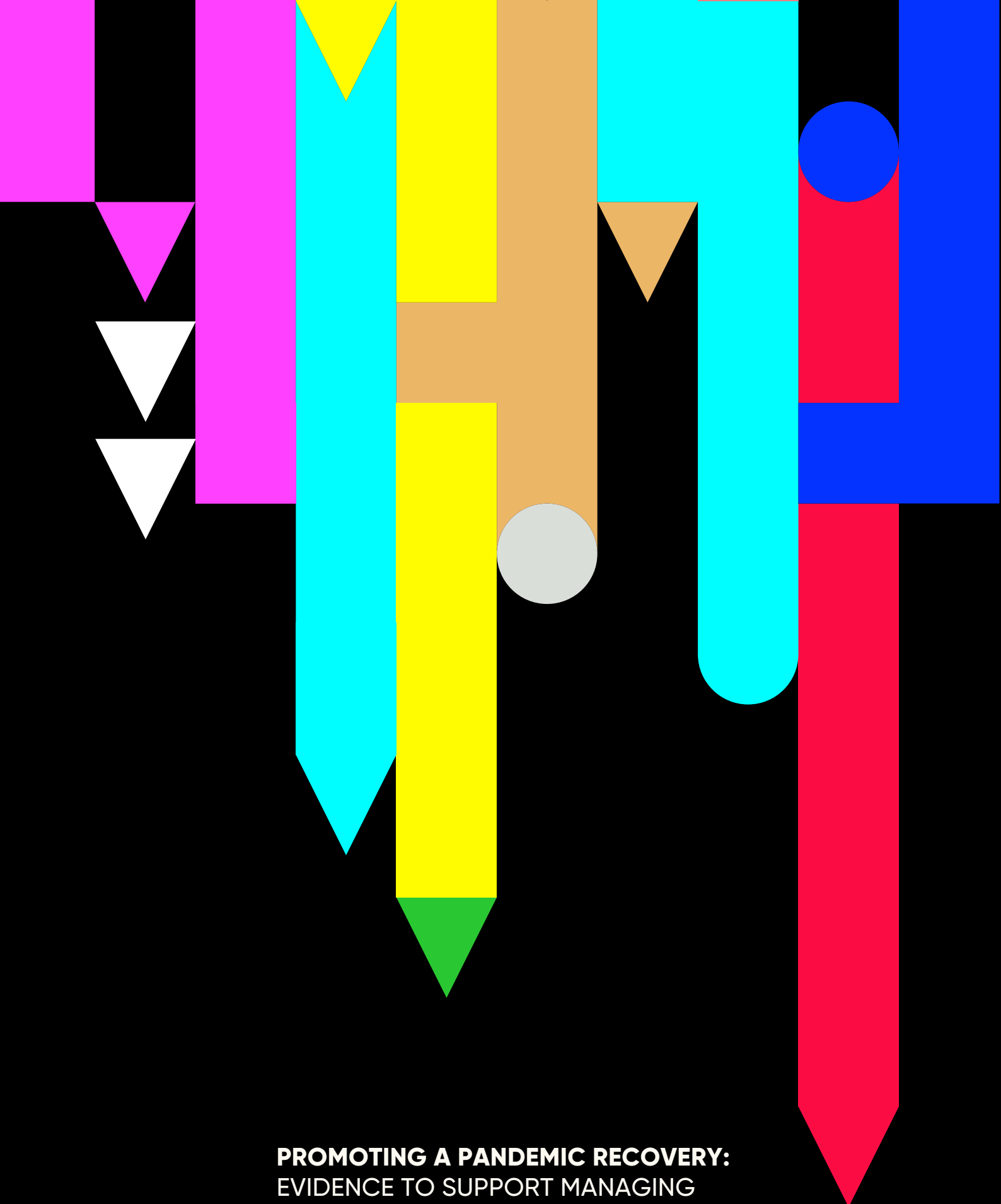
PROMOTING A PANDEMIC RECOVERY:
EVIDENCE TO SUPPORT MANAGING
THE GROWING DEBT CRISIS PROJECT
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