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Graduation Project

Exploring the Impact of External Debt on Economic Growth in Egypt

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Date of Submission: May 2025

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Abstract

This study examines the effect of external debt on economic growth in Egypt from 1983 to 2023, employing the autoregressive distributed lag modelling technique “ARDL” to distinguish short-term fluctuations from long-term trends. Grounded in the debt overhang hypothesis, this analysis allows testing for non-linearity to ascertain whether the influence of external debt varies at different levels. The results confirm the presence of a debt-Laffer curve relationship: external debt contributes positively to growth until the threshold of approximately 19.4% of GDP, and beyond that point, any additional incurrence of external debt exerts a detrimental effect on economic growth. In addition, lags of external debt servicing are found to significantly hamper growth, reinforcing both the crowding-out and debt overhang theories. The findings stress the importance of prudent debt management, effective use of borrowed funds, and sound macroeconomic policies to ensure that external borrowing is a propellant for - rather than a constraint on - Egypt's sustainable economic development.

JEL Codes: F34– G20– C32

Keywords: External Debt, Debt Overhang, Economic Growth, Egypt

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I. Introduction

The relationship between external debt and economic growth has been widely debated in both theoretical and empirical literature, particularly in economies characterized by high dependence on external borrowing and significant debt burdens. Many countries tend to rely on external debt, primarily due to lower risk premiums compared to domestic borrowing, even though domestic debt may provide better hedging against external shocks (Korinek, 2010). Accordingly, this makes countries more vulnerable to external shocks, especially when it comes to current account deficits and currency devaluations. Egypt is no exception to that.

Egypt faces a chronic current account deficit, a history of IMF loan agreements, and struggles greatly with its international reserves and exchange rate valuations. The country has also suffered from two-digit inflation, high levels of poverty, and macroeconomic instability. The reliance of the Egyptian government on external debt poses a question concerning the impact of this debt on economic growth and the channels through which that growth is affected. Therefore, this study aims to investigate the impact of external debt on economic growth in Egypt during the period (1983-2023), using an autoregressive distributed lag (ARDL) regression model. In this study, external debt refers to the total stock of debt owed to foreign creditors, encompassing public and publicly guaranteed debt, private non-guaranteed debt, IMF credit, short-term liabilities, and overdue interest on long-term loans. Between 2013 and 2023, public and publicly guaranteed debt accounted for an average of 79% of Egypt's external debt, with 99.3% of it denominated in foreign currencies (World Bank, 2023).

The existing literature on the Egyptian case provides inconclusive results, with a general acknowledgement of a non-linear relationship. Models analyzing the external debt-growth re-

relationship in Egypt typically control for variables such as gross fixed capital formation, inflation, a measure of human capital such as secondary school enrollment, and trade openness. However, variables like terms of trade and net official development assistance appear to be missing, even though they can influence the relationship by capturing external shocks. Accordingly, this research contributes to the existing literature by controlling for external shocks, which, to the knowledge of the authors, has been mostly ignored in the analysis of the Egyptian case. Additionally, this study incorporates more recent data, as existing studies do not extend beyond 2021. In this study, we test for the validity of the debt overhang hypothesis and the existence of a non-linear relationship in Egypt using an ARDL model. The research findings are particularly important for policymakers in determining the efficacy of policies associated with external borrowing.

The rest of this paper is organized as follows: Section II reviews the existing theoretical and empirical literature. Section III describes the methodology. Section IV discusses the results. Section VI provides policy recommendations.

II. Literature Review

This literature review is composed of a theoretical and an empirical section. The theoretical section begins by explaining the traditional view of debt and growth, then describes the debt overhang hypothesis along with the crowding out theory and concludes with other factors that may influence the relationship. The empirical section synthesizes findings from previous studies, grouped according to their methodological approaches: linear models, non-linear models, and threshold analyses. Special attention is given to identifying consistencies and contradictions across the literature, particularly in the context of developing countries and Egypt, to highlight existing research gaps and better position this study's contribution.

A. Theoretical Review

Traditional Keynesian economics provides insights into how external debt may positively affect growth (Keynes, 1936). In the Harrod-Domar growth model, capital accumulation is the necessary catalyst for growth. Therefore, when a government borrows money to fund capital accumulation, the economy's output grows, and it can achieve economic growth (Domar, 1944).

However, as will be discussed in the next section, several theories challenge this effect and suggest that external debt may hinder rather than promote economic growth.

Debt Overhang Theory and the Debt Laffer Curve

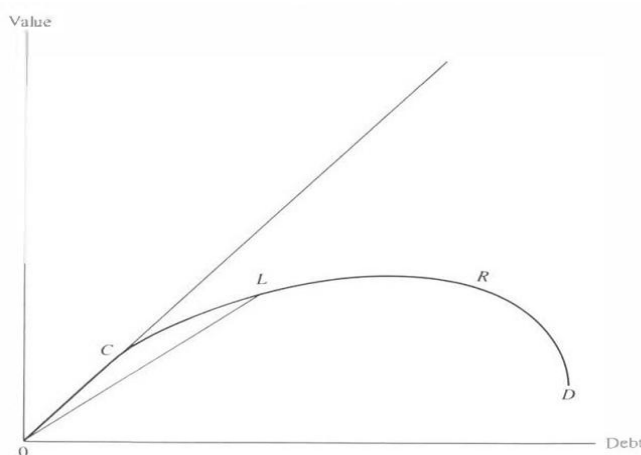
At the heart of the discussion surrounding the relationship between economic growth and external debt is the debt overhang theory. Jeffrey Sachs (1986) is a major proponent of the debt overhang theory. He argues that beyond a certain point, high external debt acts as a marginal tax on investment, as a proportion of the increase in output due to investment accrues to foreign lenders. Consequently, high external debt beyond this threshold may disincentivize investment, leading to low output growth and low debt repayment.

More specifically, disincentives appear both in the public sphere of government and the private sphere of domestic residents, leading to reduced output growth, even if the country is performing better than expected. At the public level, the government of a country suffering from debt overhang will be less inclined to take harsh measures to improve economic performance, such as fiscal austerity measures, if most of the benefits are directed to foreign creditors. At the private level, debt overhang will manifest itself as a tax on the investments of domestic residents, thereby acting as a deterrent to private investment (Krugman, 1988).

Paul Krugman (1988) is another prominent researcher on the debt overhang theory. He defines debt overhang from a slightly different angle than Sachs by focusing on the financial aspect of the problem. He states that debt overhang is the existence of a debt so substantial that creditors cannot be confident it will be fully repaid. Thus, a country has a debt overhang problem when the expected present value of potential future resource transfers is less than its debt.

This argument is encapsulated in the “debt Laffer curve” (Figure 1), first introduced by Krugman (1988). It draws the relationship between the nominal value of a country’s debt (horizontal axis) against its actual expected payments (vertical axis). Krugman postulates that debt obligations are expected to be fully repaid at low levels of nominal debt. However, as nominal debt increases beyond a certain point, the possibility of nonpayment increases too. When countries lie on the wrong side of the debt Laffer curve, creditors are faced with two options: they can either reduce the nominal value of the debt by forgiving part of it to increase expected payments, or they can provide indebted countries with more loans to avoid default. Krugman (1988) demonstrates that creditors often find it profitable to roll over debt or provide new loans to countries that fail to meet their debt obligations, a process known as “defensive lending”.

Figure 1: Debt Laffer Curve



Source: Krugman, P. (1988). *Market-based debt-reduction schemes* (NBER Working Paper No. 2587). National Bureau of Economic Research. <https://doi.org/10.3386/w2587>

Although the debt overhang theory is supported by several arguments, it is worth mentioning that it faces some opposition. Eaton (1990) questions the debt overhang theory's claim that high external debt causes reduced economic growth and suggests that the stagnation of highly indebted countries is not attributable to debt alone, but also to factors such as poor domestic economic policy and exogenous shocks. He studied 17 highly indebted countries following the 1980s debt crisis and found little evidence that debt levels imposed a high enough implicit "tax" on investment to significantly discourage it. Eaton also questions the argument that high external debt creates disincentives to investment, arguing that sovereign debt lacks enforceability. Therefore, there is no reason to conclude that forgiving debt would unlock new investments. Eaton's arguments highlight the need for more empirical research on debt overhang and the direction of causality between economic growth and external debt (Arora, 1993).

Crowding Out, Credit Rationing, and the Role of Debt Allocation

Similar to the debt overhang theory is the notion of crowding out. Clements et al. (2003) explain that when governments borrow excessively, it may increase interest rates and discourage private investment, as the cost of borrowing rises.

This diminishing of private investment leads to a negative impact on growth. This effect becomes more severe when debt servicing obligations grow, diverting financial resources that could have been spent on critical sectors such as health, education, or infrastructure toward interest payments on external debt. Public investment is thus diminished, and economic growth is further hindered.

In addition to the crowding-out effect, credit rationing presents another financial constraint. When a country's debt reaches unsustainable levels, international creditors may limit or refuse new lending, even if investment projects are profitable. As Borensztein (1990) notes, this restricts capital inflows and prevents productive investment, particularly in low-income countries

with insufficient internal financing. Credit rationing complements the crowding-out channel, depriving both public and private sectors of essential funds and further dampening growth prospects.

Other Influential Factors in the Debt-Growth Relationship

Beyond the core theories, other factors can also shape how external debt affects economic growth. One key element is how debt is managed and allocated. The effectiveness of government institutions and the productive use of borrowed funds play a crucial role in determining whether debt supports or hinders growth.

Arjun and Mishra (2024) highlight the crucial role of institutional quality in shaping the effectiveness of external debt. Strong institutions help ensure that borrowed funds are directed toward productive, growth-enhancing projects. In contrast, weak institutional frameworks often coincide with poor governance and corruption, leading to the diversion of debt funds into unproductive or self-serving expenditures. Such misuse diminishes the potential benefits of borrowing and can worsen the long-term economic burden.

A related concept that further explains the consequences of poor institutional quality is moral hazard. When governments expect bailouts from institutions like the IMF or World Bank during crises, they may be less motivated to manage debt responsibly. This can result in excessive borrowing or misuse of funds, under the assumption that external assistance will cushion any negative outcomes. Moral hazard, originally discussed by Arrow (1963) and Pauly (1968) in the context of insurance, was later formalized by Holmström (1979) to describe how a lack of accountability can distort decision-making. In the external debt context, expectations of external support can reinforce irresponsible borrowing behaviors, worsening the debt-growth relationship.

Fiscal and monetary policies also play a supporting role in shaping the external debt–growth relationship. Well-managed policies can enhance debt sustainability, while mismanagement may worsen debt burdens. For example, fiscal consolidation, through tax increases or spending cuts, can reduce debt levels but may also suppress growth if applied during downturns (IMF, 2020). Likewise, tight monetary policy can stabilize inflation or exchange rates but may raise borrowing costs, potentially crowding out private investment (Clements et al., 2003). Exchange rate depreciation further increases the local cost of servicing external debt, while excessive interventions to stabilize the currency can strain reserves. These dynamics illustrate how broader macroeconomic policies can either mitigate or exacerbate the growth effects of external debt.

Given the globalized nature of financial markets, it is crucial to understand external debt within the broader context of international output shocks. Korinek (2010) shows that exchange rates in emerging markets are counter-cyclical, decreasing during booms and increasing during downturns. This behavior magnifies debtor vulnerability, as negative shocks make foreign currency debt harder to service. Conversely, local currency debt provides partial insurance against shocks, as repayments fall during downturns. Nevertheless, despite the associated risks, countries often opt for foreign currency debt due to their lower borrowing costs. However, this exposes them to higher debt servicing burdens during downturns, which can crowd out public and private investment and thereby exert a negative impact on economic growth. As Reinhart and Rogoff (2010) emphasize, emerging markets are particularly vulnerable to high levels of foreign-currency-denominated external debt, which significantly depresses growth once it crosses specific thresholds, largely due to the increased cost of servicing debt when exchange rates move unfavorably during downturns.

Another vulnerability associated with external debt is rollover risk. It is the danger that a country will not be able to refinance (roll over) its maturing debt at affordable interest rates or at all, even if its long-run fiscal position is fundamentally sound. Importantly, rollover risk can be self-fulfilling, meaning that a crisis may occur not because of any immediate deterioration in a country's fundamentals, but simply due to a sudden loss of investor confidence, which puts a country's fortunes in the hands of creditors. This risk is particularly acute when a country's debt has a short maturity, as large portions of the debt stock must be refinanced frequently, exposing the country to fluctuations in market sentiment and global liquidity conditions (Cole & Kehoe, 2000). The Greek sovereign debt crisis of 2009 illustrates this mechanism. Despite gradual fiscal deterioration over prior years, the immediate trigger for the crisis was a sharp reversal in market sentiment. Investors lost confidence in Greece's ability to service and re-finance its debt, leading to surging bond yields and effectively closing off access to international capital markets. The inability to roll over maturing debt forced Greece into a full-blown debt crisis, necessitating external financial assistance (Nelson, 2010). Moreover, even outside of crisis periods, rollover risk can induce governments to adopt austerity measures, such as increasing taxes, to signal creditworthiness. While this may reduce panic-driven refinancing pressure, it distorts labor supply decisions and lowers output, thereby reducing economic growth, especially during downturns (Conesa & Kehoe, 2023).

B. Empirical Review

Numerous studies have thoroughly investigated how external debt affects economic growth, using a variety of approaches. The results showed differing opinions about the effects of external debt, depending on the degree of debt and the development of the nation. Empirical literature is categorized according to important factors like the nature and direction of the debt and growth relationship (linear, non-linear, and threshold effects), the short-versus long-term

impacts, and whether external debt affects growth through mechanisms like debt overhang or crowding-out.

Several studies have conducted meta-analyses on the relationship between debt and growth, with two noteworthy examples. D'Andrea (2024) discovered that while external debt generally had no significant impact on growth in developed countries, it had a negative effect on economic growth in developing countries. This meta-analysis focused on the linear relationship between debt and economic growth. In contrast, Heimberger (2023) examined non-linear effects and discovered that there is no single threshold beyond which debt starts to negatively impact growth. However, his findings point to a linearly negative correlation between growth and external debt.

Several studies confirm the debt overhang theory, showing that increased external debt slows down economic growth since it discourages investment and brings uncertainty. For instance, Turan and Yanikkaya (2020) confirmed that external debt negatively affects economic growth and investment in 61 emerging countries. Similarly, Sen et. al (2007) depicted that the negative impacts were stronger in Latin America than in Asia due to the massive debt service payments, which hindered investment and long-term growth. This argument is further supported by Senadza et al. (2018), concluding that external debt negatively affects growth in 39 Sub-Saharan African countries, and no evidence of a non-linear relationship was found.

Some studies have provided evidence of a threshold effect or a non-linear relationship between external debt and economic growth. For instance, Zaghdoudi (2019) examined the impact of external debt on growth for a panel of middle- and low-income countries. He found that for middle-income countries, external debt had negative effects when it exceeded 15.28% of GDP, while low-income countries could sustain a higher threshold of 39.16% before the growth-enhancing effects of debt began to diminish. Yusuf and Mohd (2021) analyzed the external

debt-growth relationship in Nigeria, distinguishing between short-run and long-run effects. They concluded that external debt accelerated growth in the short term but decelerated long-term growth, while debt servicing negatively impacted growth in both periods, confirming the debt overhang effect. Pattillo et al. (2002) also concluded a non-linear impact of external debt on economic growth, in which, while lower debt levels may accelerate growth, surpassing 160-170% of exports or 35-40% of GDP makes per capita growth decline. Likewise, El Khalfi et al. (2024) discovered a non-linear effect, where debt first enhances growth but later deteriorates it, from their investigation of emerging economies.

Further supporting the same ideas, Pattillo et al. (2004) investigated the transmission channels of external debt on growth, arguing that high debt slows growth by discouraging investment, thereby reducing physical capital accumulation, and damaging total factor productivity (TFP) growth through uncertainty and inefficiency.

The threshold for the relationship between external debt and economic growth varies from 15% to 90% of GDP in the empirical literature, depending on whether overall debt or external debt is considered. Reinhart and Rogoff (2010) found the relationship between growth and debt to be very weak at “normal” debt levels, turning negative after debt surpassed about 90% of GDP. Dawood et al. (2024) validated this view, showing that debt service has a non-linear effect on growth through private and public investment channels in 32 Asian developing countries, also providing evidence of debt overhang and crowding out. Krugman (1988) and Clements et al. (2003) corroborated the debt overhang hypothesis, with the latter examining 55 low-income countries. Alshammery et al. (2020) targeted the MENA region and established that public debt boosted growth below a debt-to-GDP ratio of 58%, but after that, the impact was inconclusive.

Beyond the threshold debate, another important strand of literature focuses on the mechanisms through which debt influences growth. Crowding-out and investment-disrupting mechanisms

are widely discussed in the literature. On one hand, Serin and Demir (2023) in their research on Turkey discovered an external debt service crowding-out effect; on the other hand, public external stock of debt was associated with a crowding-in effect. In this case, external borrowing frees up reliance on internal financing, allowing internal resources to be mobilized for private investment. The crowding-in effect is amplified if the capital borrowed is invested in infrastructure and other complementary sectors.

Iyoha (1999) used the case of Sub-Saharan Africa and found evidence of a debt overhang as well as a crowding-out effect. His evidence shows that high external debt and rising debt servicing negatively affected investment in the region. From a different perspective, Borensztein (1990) demonstrated crowding-out effects, using the case of the Philippines, identifying two main channels by which external debt affects growth: the debt overhang effect and credit rationing. He determined that credit rationing, where nations cannot secure new financing, has a stronger effect on discouraging investment than the debt overhang effect alone. Shah and Pervin (2012), further reinforcing the same idea by examining data from Bangladesh for the period 1974-2010, found that the external debt stock is positively correlated with long-run GDP growth. Debt service and other external obligations, however, were observed to retard growth by diverting funds that otherwise would be used to finance productive investment, hence inducing a crowding-out effect. Yimer et al. (2024) examined Ethiopia's data from 1980 to 2021 and concluded that external debt has a positive impact on economic growth in the short run, but a detrimental effect in the long run. However, the short-run positive effect is partly offset by the adverse impact of servicing, which diverts resources away from investment. Short-term debt inflows encourage investment but have strong negative long-term impacts on growth.

Other studies show the same pattern in both the short and long run. For instance, Nor-Eddine and Driss (2019) studied Morocco and found that public debt hurts GDP per capita growth in

the short and long term. Yasar (2021) studied CIS countries (Commonwealth Independent States) and reaffirmed that external debt had a unidirectional negative impact on economic growth, confirming the debt overhang hypothesis.

Other factors such as the quality of governance, institutional strength, and debt management have also been identified to influence the debt-growth nexus. Although not always directly included in models, these factors are often used as moderating variables in different studies. Arjun and Mishra (2024) found that in 18 emerging economies, institutions with greater strength counteracted the adverse effects of external debt. Similarly, Manasseh et al. (2022) and El Husseiny et al. (2024) found that the interaction between governance indicators, external debt, and its volatility positively affects growth in Sub-Saharan Africa and MENA countries, respectively. Ismael et al. (2024) confirmed that moderate debt can support growth, but gains decrease at higher levels, particularly in countries with poor institutions. Ramzan and Ahmad (2014) found that external debt negatively affects economic growth in both the short and long run for Pakistan. However, when combined with sound macroeconomic policies, the effect of external debt turns positive, indicating that sound policies (such as low inflation, low deficits, and open trade) can be used to raise the growth dividend of external debt in Pakistan. These findings highlight that the quality of institutions and the quality of governance are key in determining whether external debt stimulates or inhibits economic development.

Despite the overwhelming evidence linking high debt with adverse effects, some reports have recorded a positive relationship between external debt and economic growth. Kikuchi and Tobe (2022) argue that rising external debt can foster economic growth in OECD countries, where low sovereign default risk, as indicated by narrow credit default swap (CDS) spreads, encourages external debt inflows and investment. The significant positive effect of external debt on growth in OECD countries can be explained by their relatively stronger financial institutions

and governance mechanisms. This defies the debt overhang hypothesis by suggesting that prudently managed external debt can be growth-inducing. Abuzaid (2011) did not identify any empirical support for the crowding-out impact of external debt on investment across Tunisia, Egypt, and Morocco from 1982 to 2005, citing that there was no immediate influence of external debt on growth, but rather concluded the existence of a positive correspondence between external debt and investment. Further confirming the inconclusiveness of the results is Abbas (2024), who compared 24 developing and 21 emerging economies for the period 2010–2019. He concludes that while the emerging economies were relatively less affected, developing economies incurred significant loss of growth with increasing debt levels, giving mixed support for the debt overhang hypothesis.

Empirical Evidence on External Debt and Economic Growth in Egypt

The relationship between economic growth and external debt in Egypt has been widely debated, with studies presenting mixed findings. While some research highlights positive effects, excessive borrowing poses significant long-term risks. A recurring theme is the non-linear nature of this relationship, suggesting that the impact of external debt depends on specific thresholds, macroeconomic stability, and the effectiveness of debt management.

Sharaf (2021) analyzed the asymmetric and threshold effects of external debt on growth. The study revealed that debt hurts growth in the long run, with negative shocks having a more substantial adverse impact than positive ones. The study determined a 96.7% external debt-to-GDP threshold beyond which growth is severely hindered. The paper further supports the non-linearity hypothesis, claiming that external debt levels in Egypt exceed the sustainable limit, leading to lower investment and productivity, as resources are diverted to service the overwhelming debts. Similarly, Hassanein (2023) observed that while external debt might initially boost growth until a certain threshold, it subsequently begins to have diminished benefits beyond that

point, echoing the debt Laffer curve concept. Similarly, Abdel Aziz (2020) supported the threshold hypothesis by examining the relationship between public debt, economic growth, and inflation. The study validated the relevance of a debt Laffer curve-type relationship in Egypt and recommended keeping the public debt-to-GDP ratio below 70% to preserve macroeconomic stability.

Other studies, such as Moussa (2022), revealed that a 1% rise in external debt results in a 0.12% decrease in GDP per capita in the short term. In the long term, the relationship between external debt to GDP and GDP per capita was shown to be insignificant. Conversely, Safwat et al. (2021) found that total external debt had a substantial long-term negative influence on Egypt's economic growth, whereas the short-run impacts were statistically insignificant.

While some studies stress the potential harm of heavy external debt, others emphasize that its long-term benefits are conditional on sound economic policies, institutional quality, and effective debt management. Alshaib et al. (2023) found that external debt and government spending positively influence GDP per capita growth in the long run, although the short-term effects were negative. Likewise, Yassein and Elakkad (2023) discovered a long-run growth increase of 0.0169% for every 1% rise in external debt.

Some studies emphasized the significant role of macroeconomic variables and institutional factors in examining the relationship between external debt and economic growth. Hassanein (2023) included variables such as savings, investment, and FDI in his analysis and discovered that external debt had a beneficial impact on economic growth when combined with strong savings and investment. Governance quality has emerged as an important aspect in maximizing the advantages of external debt. Yassein and Elakkad (2023) highlighted that effective institutions play a critical role in enhancing the positive impact of debt on economic growth.

Lastly, the overall economic impacts were investigated by Safwat et al. (2021), identifying a negative relationship between debt and growth during periods of heavy dependency on external borrowing. The study emphasized that excessive borrowing hinders productivity and shrinks fiscal space, particularly in the long run.

The literature on external debt and economic growth is varied, with some studies supporting the debt overhang hypothesis and others finding that debt can support growth up to certain thresholds. The impact of debt is influenced by factors like governance quality, institutional strength, and debt management. However, the relationship remains highly non-linear and heterogeneous, relying on both quantitative thresholds and qualitative factors. This complexity highlights the need for further research that considers additional factors to develop country-specific debt strategies tailored to each nation's unique circumstances.

C. Stylized Facts on External Debt in Egypt

This section analyzes the composition of Egypt's total debt. It begins by distinguishing between domestic and external debt trends, followed by a deep exploration of external debt and external debt servicing fluctuations.

The Central Bank of Egypt (CBE) defines domestic debt as the sum of net domestic debt of the government, net debt of public economic authorities, net National Investment Bank (NIB) debt, and intra-debt between these entities. External debt is defined as the total stock of debt owed to foreign creditors. It includes public and publicly guaranteed debt, private non-guaranteed debt, IMF credit, short-term liabilities, and overdue interest on long-term loans (World Bank, 2023).

Figure 2 illustrates total debt broken into domestic and external components as a share of GDP. Throughout 2005-2020, domestic debt consistently exceeded external debt, reflecting Egypt's preference for local borrowing and efforts to limit foreign currency exposure (CBE, 2023)*. Nevertheless, periods of fiscal distress have often prompted shifts toward external borrowing to plug budget deficits, leading to pressures on foreign reserves and exchange rate volatility. Challenges such as weak tax mobilization and inefficient public spending further threaten fiscal sustainability (Abell, 1990; Kearney & Monadjemi, 1990).

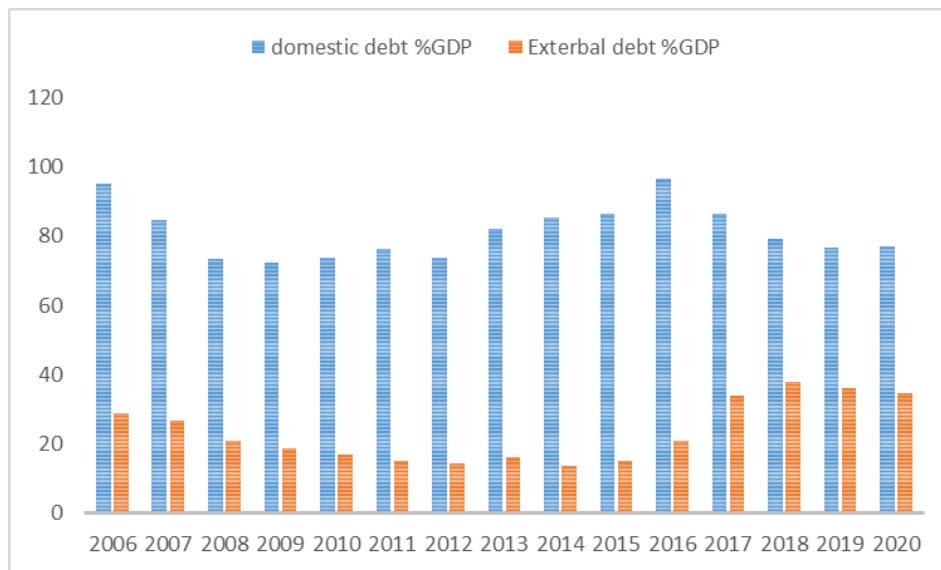
From 2005 to 2010, Egypt's external debt-to-GDP ratio declined steadily, reaching a low of 11.92% in 2010, reflecting moderate borrowing needs and economic stability. In contrast, domestic debt remained high throughout this period, indicating a continued reliance on internal sources (CBE, 2025).

Between 2010 and 2015, external debt rose moderately, with the ratio increasing to 15.14% of GDP. This rise occurred amid political instability post the 2011 revolution and worsening fiscal and current account balances. Domestic debt also expanded, but continued to dominate the overall debt profile.

A major turning point occurred in 2016 when the Egyptian pound was floated under an IMF-backed reform program. The resulting depreciation significantly increased the external debt-to-GDP ratio, which reached 20.81% that year. External borrowing accelerated between 2016 and 2018, driven by IMF disbursements, increased access to global markets, and a weakened local currency (IMF, 2025). Domestic debt peaked at 96.72% of GDP in 2016, but declined thereafter, largely due to inflation and high nominal GDP growth rather than lower borrowing.

** While the overall study begins in 1983, this comparison starts from 2005 and ends in 2020 due to the unavailability of consistent domestic debt data from the Central Bank of Egypt prior or post this period.*

Figure 2: Comparison between the External debt-to-GDP ratio and the Domestic Debt-to-GDP ratio



Source: Authors' own elaboration using the Central Bank of Egypt online dataset.

Figure 3 highlights Egypt's external debt stock as a percentage of GDP from 1983 to 2023. The 1980s were characterized by Egypt's most heavily indebted phase. In 1988, external debt reached \$46.1 billion (133.5% of GDP), fueled by budget and trade deficits, declining oil prices, lower remittances and Suez Canal revenues, and a sharp drop in tourism due to terrorist attacks. Consequently, foreign reserves fell to \$2.5 billion by 1989, and the Egyptian pound lost more than half its value against the U.S. dollar.

During the 1990s, debt indicators improved significantly. By 2000, external debt had fallen to \$29.2 billion (29.01% of GDP), supported by debt forgiveness following Egypt's participation in the Gulf War coalition and the implementation of the 1991 Economic Reform and Structural Adjustment Program (ERSAP) under IMF and World Bank supervision (Alshaib, 2023)

Between 2000 and 2005, external debt increased again, peaking at \$31.4 billion (40.07% of GDP) in 2004. This rise was largely due to the 2003 shift to a floating exchange rate regime,

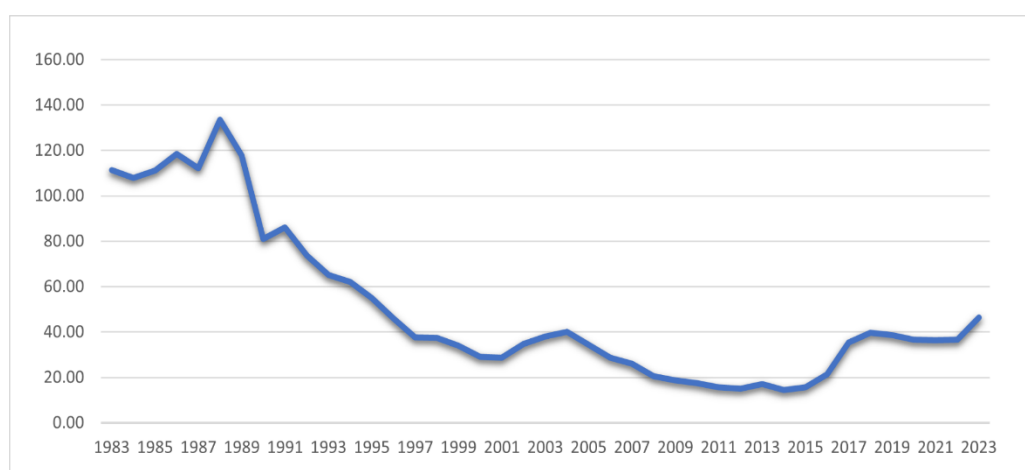
which devalued the currency and inflated the local value of external debt (ERF, 2019; UNESCWA, 2022).

Between 2011 and 2013, external debt increased from \$35.2 billion to \$46.5 billion amid political upheaval. However, in 2014, it dropped to \$41.7 billion (14.35% of GDP), thanks in part to grants from Gulf countries. These inflows temporarily reduced Egypt's external financing needs but did not alleviate long-term vulnerabilities (Alshaib, 2023; IMF, 2016).

Post-2016, external debt expanded sharply. The stock more than tripled from \$41.7 billion in 2014 to \$132.5 billion by 2020, driven by IMF-supported reforms, exchange rate depreciation, and increased external borrowing (IMF, 2016).

The COVID-19 pandemic sustained this trajectory. In 2023, the external debt-to-GDP ratio peaked at 42.44%, reflecting continued reserve depletion, revenue losses, and emergency borrowing. Egypt secured an \$8 billion IMF loan to meet immediate financing needs, further adding to its external obligations (State Information Service, 2024).

Figure 3: External Debt Stock as a Percentage of GDP Spanning from 1983 to 2023



Source: World Bank.

Figure 4 illustrates Egypt's external debt service as a percentage of exports of goods, services, and primary income from 1983 to 2023. In the 1980s, it reflected persistent fiscal

stress rooted in the 1977 Bread Riots, which were triggered by failed subsidy cuts aimed at reducing the budget deficit. Between 1977 and 1986, Egypt experienced chronic budget deficits, financed either through external borrowing or monetary expansion. This fiscal imbalance led to a sharp rise in debt service from 18.9% in 1983 to a peak of 32.9% in 1986. Contributing factors included hyperinflation during 1985-1986 and the mid-1980s oil price collapse, which reduced remittances from Gulf countries and slashed revenues from both the Suez Canal and tourism, further straining the country's ability to service debt (Alshaib, 2023; WB, 2025).

In contrast, the 1990s marked a shift toward fiscal adjustment and external stabilization. The debt service-to-exports ratio declined from 23.7% in 1990 to 10.3% by 1997, driven by structural reforms and partial debt relief. In 1992, a structural shift in GDP per capita aligned with this trend, signalling a transition from crisis and high debt to improved fiscal stability, supported by IMF-backed reforms and the onset of economic liberalization (Alshaib, 2023). This downward trend in debt service continued into the early 2000s, with the ratio falling from 9.9% in 1999 to just 5.5% by 2008, reflecting manageable debt levels and improved export performance.

External debt service rose again after the 2011 Arab Spring, reaching \$46.5 billion, driven by a fall in the country's international reserves and foreign exchange sources. While Gulf aid of \$15 billion in 2013-2015, following the ousting of the Muslim Brotherhood in 2013, provided temporary relief, long-term fiscal improvements and foreign currency liquidity were limited. By 2015, reserves were only \$16.4 billion, just slightly above \$14.9 billion, which was recorded at the time of President Morsi's removal in 2013 (CBE, 2015).

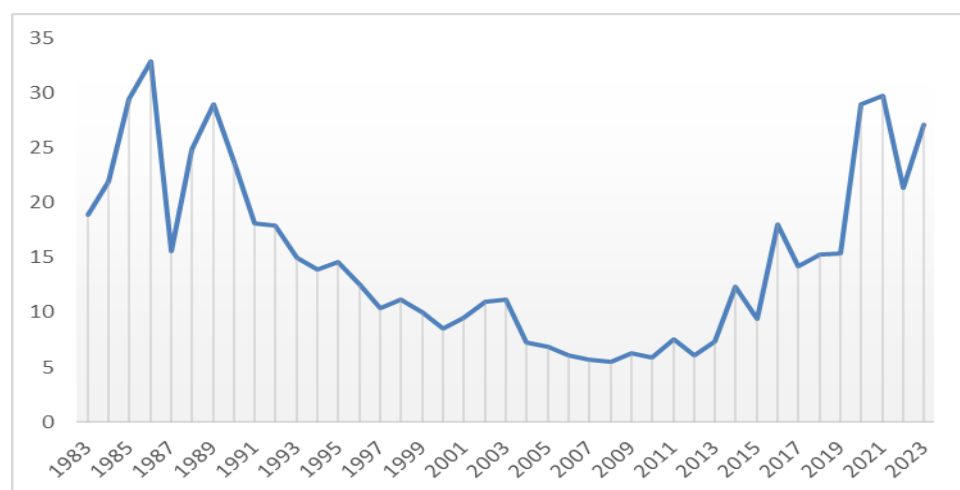
The 2016 currency float led to an immediate rise in Egypt's debt service burden, with the debt service-to-exports ratio nearly doubling from 9.4% in 2015 to 18% in 2016. The higher cost of servicing foreign-denominated debt was exacerbated by declining remittances, weak export

growth, and lower tourism and canal revenues, placing further strain on Egypt's external accounts. This culminated in a record high of approximately \$125.3 billion of external debt in 2020, pushing debt service to nearly 30% of exports by 2021 (Al-Shawarby et al., 2004; Al-shaib, 2023).

Zaki (2023) highlights that debt servicing pressures have intensified due to successive currency devaluations and a widening gap between the official and parallel exchange rates, both of which have significantly raised the domestic cost of servicing foreign-denominated debt. As a result, interest payments have placed additional strain on Egypt's balance of payments, reinforcing a cycle of devaluation and refinancing. This burden remained elevated through 2023, exacerbated by a shift to a more flexible exchange rate regime, declining reserves, heightened investor and creditor uncertainty, and inflationary pressures driven in part by the Russia-Ukraine war (Exchange Rates Historical Data, 2025; IMF, 2025).

In 2023, Egypt faced \$22.8 billion in external debt repayments, with \$28 billion due in 2024. Domestic bond redemptions totaled \$68 billion in 2023 and \$48 billion in 2024, positioning Egypt among the highest debt redemption countries. A \$3 billion IMF loan in late 2022 provided temporary relief but further entrenched dependence on external financing (Zaki, 2023).

Figure 4: Debt Service as a Percentage of Exports Spanning from 1983 to 2023



Source: World Bank.

III. Methodology

This empirical study explores the impact of external debt on Egypt's economic growth from 1983 to 2023, testing for both the validity of the debt overhang hypothesis and the existence of a potential non-linear relationship. We utilize an autoregressive distributed lag (ARDL) regression model for its useful properties that suit our empirical study. It allows us to capture and separate the short-run and long-run dynamics in one equation. This is relevant to our study as the immediate- and long-run equilibrium effects of external debt on growth may vary substantially. Additionally, ARDL models offer flexibility regarding the integration order as they can handle variables with mixed stationarity (Yusuf & Mohd, 2021). It is also especially useful in mitigating endogeneity problems that are inherently present in growth models due to omitted variable bias, measurement errors, or the prevalence of reverse causality between the dependent and independent variables. The ARDL model addresses this by including lags of both the dependent and independent variables that are correlated with the endogenous variables but uncorrelated with the error term (Pattillo et al., 2004). This study uses secondary data collected exclusively from the World Bank. The data is expressed on an annual basis.

A. Model Specification

Our model specification follows traditional neoclassical growth theory by including variables accounting for investment, human capital, population growth, and initial GDP levels, which are considered key determinants of long-run economic growth, as established by Solow (1956) and Mankiw, Romer, and Weil (1992). Gross primary school enrollment serves as a proxy for human capital accumulation, investment is measured by gross investment as a percentage of GDP, and population growth is included directly as a core variable.

This growth model is augmented with external debt variables: external debt stock to GDP and its squared term to examine the potential non-linear relationship, and external debt service to GDP. The squared external debt stock term is included to test for a debt-Laffer curve relationship, based on Krugman's (1988) theory. This theory posits that as a country's nominal debt (debt stock) increases, the debt obligations are expected to be fully repaid initially. However, beyond a certain point, further increases in the nominal debt reduce expected repayments and distort government and private investment decisions, as debt obligations begin to act like a high marginal tax rate on investment. Including the squared term allows the model to test for this non-linear relationship and identify any potential threshold level of external debt stock. While the external debt stock is mainly related to expectations and how these expectations affect investment decisions, the inclusion of the external debt service to GDP variable captures the effect of the actual debt service burden. This helps account for the impact that actual external debt repayments have on the economy and whether these repayments impose a strain on economic growth.

Our set of control variables has been chosen to contribute to a meaningful analysis by accounting for globalization factors. Specifically, these variables include trade openness, terms of trade growth, and net development assistance. They are especially relevant when studying the external debt-growth relationship because globalization has increased access to foreign capital and simultaneously increased the vulnerability of local economies to external shocks. Globalization affects the external debt-growth nexus on two fronts. First, it impacts the availability of capital for developing economies as financing depends on the willingness of other international actors to provide it, given the prevailing global conditions. Second, it affects debtor countries' capacity to service their external debt: for instance, favorable terms of trade enhance export revenues and improve debt repayment capacity. Including these variables ensures that our analysis captures the opportunities and vulnerabilities associated with global economic integration (Elkhalfi

et al., 2024). This specification also addresses the concerns of Eaton (1990), a skeptic of the debt overhang theory, who argued that the debt-growth relationship should be analyzed in the context of external shocks.

The ARDL Error specification of the estimated non-linear regression model is presented in Equation (1). Following this, Table 1 provides a summary of the variables used in the model, including their data sources and brief descriptions.

$$\begin{aligned} \Delta \log(RGDP_t) = & \alpha + \beta_1 \Delta \log(RGDP_{t-1}) + \beta_2 \log(SERV GDP_t) + \\ & \beta_3 \log(SERV GDP_{t-1}) + \beta_4 \log(SERV GDP_{t-2}) + \beta_5 \log(OPENGDP_t) + \\ & \beta_6 \log(OPENGDP_{t-1}) + \beta_7 \log(OPENGDP_{t-2}) + \beta_8 \log(INV_t) + \beta_9 \log(POPGR_t) + \\ & \beta_{10} \log(STCKGDP_t) + \beta_{11} \log(STCKGD^2_t) + \beta_{12} \log(STCKGD^2_{t-1}) + \beta_{13} \log(GPRIM_t) + \\ & \beta_{14} \log(ODAGNI_t) + \beta_{15} \log(ODAGNI_{t-1}) + \beta_{16} \log(ODAGNI_{t-2}) + \\ & \beta_{17} \log(TOTINDX_t) + \beta_{18} \log(TOTINDX_{t-1}) + \varepsilon_t \end{aligned}$$

(Equation 1)

where:

α = Constant term

β_i = Coefficients

t = Time index

ε_t = Error term

Table 1: Description of Variables and Data Sources

Variable	Description	Source
Real GDP per capita growth (D_log_RGDP)	Log-difference of real GDP per capita.	World Bank
Investment (log_INV)	Refers to spending on the economy's fixed assets and net changes in inventories, as a percentage of GDP.	World Bank
Population growth	The annual population growth rate based	World Bank

(log_POPGR)	on the de facto population definition, which includes all residents regardless of legal status or citizenship.	
Trade openness (log_OPENGDP)	The sum of exports and imports of goods and services measured as a share of GDP.	World Bank
Schooling (primary) (log_GPRIM)	The total number of students enrolled in primary school, regardless of age, compared to the population of the age group typically corresponding to primary education.	World Bank
Terms of trade growth (log_TOTINDX)	Calculated as the percentage ratio of the export unit value indexes to the import unit value indexes.	World Bank
Net official development assistance (log_ODAGNI)	Includes loans with concessional terms (minus principal repayments) and grants as a percentage of GNI.	World Bank
Total external debt stock to GDP and its squared term (log_STCKGDP/log_STCK-GDP_sq)	Refers to the total external debt stock owed to foreign lenders (log form). It includes public debt, publicly guaranteed debt, private nonguaranteed debt, IMF loans, short-term debt, and overdue interest on long-term loans.	World Bank
Total external debt service to GDP (SERVGDP)	Refers to the sum of principal repayments and interest actually paid on long-term debt and interest paid on short-term debt to the IMF.	World Bank

B. Data Estimation Technique

Macroeconomic variables typically exhibit geometric growth over time, meaning they increase at a constant percentage rate, compounding on values of previous years. To make it easier to analyze and spot relationships, the natural logarithms of all variables were taken. This helps turn the curved growth into linear growth, making trends easier to study. It also allows us to interpret the results as elasticities. The lag structure of the model was selected using the Bayesian Information Criterion (BIC) for lag selection.

Before running the ARDL regression, it is essential to ensure that the variables meet the stationarity requirements. ARDL models can handle variables that are stationary at levels, $I(0)$, or stationary after first differencing, $I(1)$. However, the model is invalid if any variable is integrated of order two, $I(2)$. The Augmented Dicky-Fuller unit root test (ADF) was conducted to check the stationarity status of the variables. Since the dependent variable in this study, real GDP per capita growth, is first differenced, it is stationary by nature. All other variables are non-stationary in levels and stationary after the first difference, which satisfies the necessary ARDL conditions. The stationarity status of all variables is summarized in Table A1 in the Appendix.

IV. Results and Discussion

Prior to the analysis, a Bounds test for cointegration was conducted, with all variables specified in levels to ensure the test's validity and avoid spurious results. The outcome of the test indicated that the null hypothesis of no level relationship could not be rejected, providing no evidence of a long-run equilibrium relationship among the variables. Consequently, this study employs the standard ARDL model, rather than the ARDL error correction specification, to examine the relationship between external debt and economic growth in the short run. As presented in Equation (1), the dependent variable is the log first-difference of real GDP per capita, while the independent variables are included in log levels. By keeping the independent variables in levels, this specification enables the analysis to capture whether these variables exert persistent effects on growth, even without a confirmed long-run relationship. The specification, with GDP growth as the dependent variable and the independent variables in levels, follows common empirical practice in studies of external debt and growth (Clements et al., 2003; Pattillo et al., 2004; Sen et al., 2007; Megersa, 2015; Turan and Yanikkaya, 2020; Zaghoudi, 2019). Table 2 presents the results of this regression.

Table 2: ARDL Results

Variable	Coeff.	Std. Err.	t	P> t	95% Conf. Interval
D_log_RGDP L1.	-.2812989	.1265726	-2.22	0.037**	-.5437944, .0188033
log_SERVGDP --. L1. L2.	-.0167903 -.0223465 -.0199498	.0124057 .0111646 .0107358	-1.35 -2.00 -1.86	0.190 0.058* 0.077*	-.0425182, .0089376 -.0455005, .0008075 -.0422146, .002315
log_OPENGDP --. L1. L2.	.0297887 -.0146461 -.02961	.0149437 .019634 .0149407	1.99 -0.75 -1.98	0.059* 0.464 0.060*	-.0012026, .06078 -.0553644, .0260722 -.0605951, .001375
log_INV	.1126746	.020089	5.61	0.000***	.0710125, .1543367
log_POPGR	-.0557928	.0200084	-2.79	0.011**	-.0972876, -.014298
log_STCKGDP	.2111128	.0428484	4.93	0.000***	.1222507, .2999748
log_STCKGDP_sq --. L1.	-.035573 .008911	.0063124 .0026291	-5.64 3.39	0.000*** 0.003***	-.0486641, -.022482 .0034586, .0143635
log_GPRIM	.0882874	.0537379	1.64	0.115	-.0231582, .199733
log_ODAGNI --. L1. L2.	.0021915 .0050378 .0056791	.0025202 .0020946 .0019511	0.87 2.41 2.91	0.394 0.025** 0.008***	-.0030351, .0074181 .000694, .0093817 .0016327, .0097255
log_TOTINDX --. L1.	.0111409 .0785812	.0296297 .0268852	0.38 2.92	0.711 0.008***	-.0503074, .0725891 .0228247, .1343376
_cons	-1.359673	.3539487	-3.84	0.001***	-2.093718, -.6256286

Note: Significance levels are indicated by stars: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Coefficients without stars are not statistically significant at the 10% level. --. denotes the current period, L1. indicates a variable lagged by one period, and L2. indicates a variable lagged by two periods.

The standard ARDL model results show that lagged GDP per capita growth has a negative and statistically significant effect on current growth, indicating that growth tends to slow down

when it is preceded by high growth. This finding is supported by Kheir-El-Din and Moursi (2006), who suggest that Egypt's growth is not sustained due to a strong reliance on input-driven growth rather than productivity improvements, making it highly sensitive to investment cycles, credit conditions, political and macroeconomic instability, and external shocks.

The coefficients of the external debt service to GDP variable show that external debt service payments have no contemporaneous effect on growth. However, the coefficients have a negative and significant effect on growth at 10% significance levels in the first and second lag, confirming the debt overhang and crowding-out hypotheses. External debt servicing has a debilitating impact on growth as it diverts scarce foreign exchange resources away from productive investment. Additionally, high external debt service burdens depreciate the local currency, which leads to capital flight and reduced domestic savings and investment (Yusuf & Mohd, 2021). Empirical evidence from a study conducted by Elhendawy (2022) reveals that there is a negative, statistically significant relationship between the value of the Egyptian pound and external debt service.

The results also provide evidence of a debt-Laffer curve relationship between external debt stock and economic growth, consistent with the theoretical frameworks of Sachs (1986) and Krugman (1988). The linear external debt stock variable has a positive contemporaneous effect on growth, suggesting that moderate levels of external debt may stimulate economic performance. However, the negative and significant coefficient of the squared external debt stock variable indicates the existence of a threshold beyond which additional borrowing becomes

harmful. In the short run, this turning point is estimated at approximately 19.4% of GDP, beyond which further increases in external debt are associated with declining economic growth.*

At the second lag, the squared debt term shows a weak but statistically significant positive effect, implying that while the negative impact of high debt may lessen over time, it does not entirely disappear.

The investment coefficient has a significant positive effect on growth, as expected. Gross primary school enrollment has a weakly significant positive effect on growth. In contrast, population growth has a significant negative effect on growth. This is consistent with El-Saharty et al. (2022), who argue that higher fertility rates are accompanied by an increase in the dependency ratio, thereby reducing national savings and growth in Egypt.

Among the variables capturing globalization effects, trade openness has a weakly significant positive impact on growth in the short run, though this effect turns negative at the second lag. The initial positive impact may reflect benefits such as access to advanced technologies, input markets, and foreign demand for domestically produced goods. However, the negative coefficient on the two-year lag of trade openness suggests that greater openness may increase vulnerability to global economic shocks over time. This vulnerability is further intensified in the presence of a high external debt burden, which must be serviced in foreign currency regardless of adverse global conditions. Barrot et al.'s (2018) findings align with this interpretation. Their study examines how trade openness affects external vulnerability in developing economies. They find that while open economies initially experience stronger growth from positive global shocks, these benefits are transitory. Over time, the effects become negative.

* The debt threshold was calculated using the formula $D^* = -\beta_{10}/2\beta_{11}$, where β_{10} and β_{11} are the coefficients of external debt stock and its squared term, respectively. Based on the regression results, $D^* = -0.2111 / (2 \times -0.03557) \approx 2.966$ and exponentiating this value yields $e^{2.966} \approx 19.4\%$ of GDP.

Similarly, the terms of trade index is another indicator of external conditions and shows a positive and significant effect on growth, as favorable trade terms typically support economic growth (Barro & Sala-i-Martin, 2004). This suggests that favorable terms of trade could function as a mitigating channel through which the adverse effects of external debt on growth are eased, by strengthening export revenues and reducing the external financing burden (Elkhalfi et al., 2024).

Finally, net official development assistance to GNI exhibits a positive and statistically significant effect on growth at both the first and second lags, consistent with a priori expectation that foreign aid can support economic growth (Megersa, 2015).

The significant coefficients associated with the globalization control variables offer crucial insights into why no long-run relationship between external debt and economic growth was detected, contrasting with earlier studies on Egypt. Our findings suggest that the impact of external debt on growth is mediated or amplified through globalization-related factors, which previous analyses largely neglected. Given Egypt's structural reliance on external rent income, such as revenues from the Suez Canal, remittances, and foreign aid, and its consequent vulnerability to external shocks (Schlumberger, 2007), it is essential to account for these factors when assessing the external debt-growth nexus. This heavy dependence on volatile external income streams disrupts the stability of the debt-growth relationship over time, thereby preventing the formation of a robust long-run equilibrium relationship. Moreover, the absence of a long-run equilibrium relationship between external debt and economic growth in Egypt is likely due to the repeated structural breaks outlined in the stylized facts section, which disrupted macroeconomic stability. These include the 1980s debt crisis, the 1991 ERSAP and debt relief, the 2003 exchange rate floatation, the 2011 Arab Spring, the 2016 IMF-backed reform program, and the

2020 COVID-19 shock. Each structural break marked a shift in economic conditions, disrupting the stability required for a long-run relationship to form, while short-run dynamics remained identifiable within these periods.

V. Diagnostic Tests

Various diagnostic and robustness tests were conducted to confirm that the errors are well-behaved and that the econometric estimates are reliable and stable. The results of the diagnostic tests and their conclusions are summarized in Table 3. Additionally, the parameter stability tests using the Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) methods were performed to test for structural changes and the stability of the variance, respectively. The results of the CUSUM and CUSUMSQ tests indicate that the model is structurally stable over the sample period, since both test statistics remain within the 5% significance bounds (see Figures A1 & A2 in the Appendix). The CUSUM test suggests that the model's parameters have remained stable, with no evidence of gradual shifts in the estimated coefficients. Meanwhile, the CUSUMSQ test shows no signs of sudden or large changes in the variance of the model's residuals.

Table 3: Summary of Diagnostic and Robustness Tests

Test	Null Hypothesis	p-val.	Conclusion
Breusch-Pagan / Cook-Weisberg	Constant variance (no heteroskedasticity)	0.3964	Fail to reject H_0 : No heteroskedasticity
Breusch-Godfrey LM (lag = 1)	No serial correlation	0.5882	Fail to reject H_0 : No autocorrelation
Cameron & Trivedi's IM-Test	Errors are normally distributed & homoskedastic	0.4164	Fail to reject H_0 : Errors are well-behaved
- Heteroskedasticity Component	No heteroskedasticity	0.4265	Fail to reject H_0 : No heteroskedasticity

- Skewness Component	No skewness	0.3562	Fail to reject H ₀ : No skewness
- Kurtosis Component	No excess kurtosis	0.8261	Fail to reject H ₀ : No excess kurtosis

VI. Conclusion

This study revisited the relationship between external debt and economic growth in Egypt. Using an ARDL model over the period from 1983 to 2023, the results reveal a non-linear relationship between external debt and growth, supporting the existence of a debt Laffer curve-type relationship. In particular, external debt promotes economic growth up to a threshold of approximately 19.4% of GDP, beyond which its effects become detrimental. These findings add to the existing literature by providing empirical evidence from a developing country, like Egypt, which is heavily reliant on external borrowing for financing its economic activities.

However, this study has some limitations. It focuses solely on the aggregate level of external debt, without disaggregating it by type, maturity, or sectoral allocation. Additionally, by addressing the gap in the literature through controlling for external shocks, this study leaves out factors that may influence the external debt-growth relationship, such as governance quality, corruption, and political stability. Future research could extend this analysis by examining the sectoral allocation of external borrowing or by incorporating measures of governance quality and political stability to better understand the channels through which external debt affects growth.

The following policy recommendations emerge from the findings: First, Egypt should maintain its external debt below the threshold of 19.4% of GDP, as exceeding this threshold has been found to have negative effects on growth in the short run. This can be achieved through legal

borrowing limits, comprehensive debt sustainability frameworks, and regular risk assessments aligned with IMF guidelines. Second, external debt should be directed towards productive investments in infrastructure, education, health, and innovation, ensuring that borrowed funds yield long-term economic returns. Third, Egypt must shift toward export-driven sources of foreign currency rather than depending on volatile, rent-based revenues, especially given that most of its external debt is denominated in foreign currency. A steady inflow of foreign exchange enables the country to reduce its external debt stock, alleviates pressure on the exchange rate, and provides a buffer against external shocks, which are amplified by Egypt's current dependence on economic rents (IMF, 2024). Lower external debt levels also contribute to improved investor confidence, thereby supporting economic growth and mitigating the adverse effects of debt through the debt overhang channel. Moreover, enhanced foreign currency availability reduces the need for frequent debt rollovers, thereby lowering exposure to rollover risk. Finally, proactive management of debt servicing risks is essential to avoid crowding-out effects. This can be achieved by diversifying the debt portfolio, extending maturities, and increasing foreign reserves to reduce vulnerability to currency shocks.

References

- Abbas, S. G. (2024). External debt and economic growth: A study from the perspective of developing and emerging economies. *Asian Journal of Economics and Empirical Research*, 11(2), 83–91.
- Abdel Aziz, A. M. A. (2020). The relationship between public debt with regard to economic growth and inflation in Egypt. *Journal of the Center of Saleh Kamel Islamic Economics at Al-Azhar University*. https://skjaz.journals.ekb.eg/article/355669_7ca1af6bd1c6d2a2fa9b19aacb206b96.pdf
- Abell, J. D. (1990). Twin deficits during the 1980s: An empirical investigation. *Journal of Macroeconomics*, 12(1), 81–96.
- Abuzaid, L. E. M. (2011). External debt, economic growth and investment in Egypt, Morocco and Tunisia (Doctoral dissertation, University of Gloucestershire).
- Alshaib, B. M., AboElsoud, M. E., & Ali, A. A. (2023). Fiscal sustainability and its implications for economic growth in Egypt: An empirical analysis. *SAGE Open*, 13(4), 1–19. <https://doi.org/10.1177/21582440231215983>
- Alshammary, M. D., Karim, Z. A., Khalid, N., & Ahmad, R. (2020). Debt-growth nexus in the MENA region: Evidence from a panel threshold analysis. *Economies*, 8(4), 102. <https://doi.org/10.3390/economies8040102>
- Al-Shawarby, S., Alba, P., & Iqbal, F. (2004). Fiscal and public debt sustainability in Egypt (Working Paper No. MNA 38). World Bank Group. <http://documents.worldbank.org/curated/en/587421468770130638/Fiscal-and-public-debt-sustainability-in-Egypt>
- Arab Republic of Egypt. (2024). IMF Country Report, 2024(274), 1. <https://doi.org/10.5089/9798400288869.002>

- Arjun, N., & Mishra, B. R. (2024). External debt and economic growth: Does the role of governance matter in emerging countries? *SAGE Open*, 14(2).
<https://doi.org/10.1177/21582440241243254>
- Arora, M. V. B. (1993). *Sovereign Debt: A Survey of Some Theoretical and Policy Issues*.
- Arrow, K. J. (1963). Uncertainty and the welfare economics of medical care. *The American Economic Review*, 53(5), 941–973.
- Barro, R. J., & Sala-i-Martin, X. (2004). *Economic growth* (2nd ed.). MIT Press.
- Barrot, L., Calderón, C., & Servén, L. (2018). Openness, specialization, and the external vulnerability of developing countries. *Journal of Development Economics*, 134, 310–328. <https://doi.org/10.1016/j.jdeveco.2018.05.015>
- Borensztein, E. (1990). Debt overhang, credit rationing and investment. *Journal of Development Economics*, 32(2), 315–335.
- Central Bank of Egypt. (2015). Annual report 2014/2015. <https://cbe.org.eg/en/EconomicResearch/Publications/AnnualReportDL/Annual%20Report2014-2015.pdf>
- Central Bank of Egypt. (2020). Domestic debt of both government and economic authorities. <https://www.cbe.org.eg/en/economic-research/time-series/downloadlist?category=F016705643D24C51959577587914DA5C>
- Central Bank of Egypt. (2025). Monthly statistical bulletin. <https://www.cbe.org.eg>
- Clements, B., Bhattacharya, R., & Nguyen, T. Q. (2003). External debt, public investment, and growth in low-income countries (IMF Working Paper No. 03/249). International Monetary Fund.
- Cole, H. L., & Kehoe, T. (2000). Self-fulfilling debt crises. *The Review of Economic Studies*, 67(1), 91–116. <https://doi.org/10.1111/1467-937x.00123>

- Conesa, J. C., & Kehoe, T. (2023). Preemptive austerity with rollover risk (NBER Working Paper No. 31828). National Bureau of Economic Research.
<https://doi.org/10.3386/w31828>
- Dawood, M., Feng, Z. R., Ilyas, M., & Abbas, G. (2024). External debt, transmission channels, and economic growth: Evidence of debt overhang and crowding-out effect. *SAGE Open*, 14(3). <https://doi.org/10.1177/21582440241263626>
- Domar, E. D. (1944). The “burden of the debt” and the national income. *American Economic Review*, 34(4), 798–827. <https://www.jstor.org/stable/1807397>
- D’Andrea, S. (2024). Does debt boost or limit economic growth? Evidence from a meta-analysis. *Journal of Economic Studies*. <https://doi.org/10.1108/jes-06-2024-0378>
- Eaton, J. (1990). Debt relief and the international enforcement of loan contracts. *Journal of Economic Perspectives*, 4(1), 43–56.
- Economic Research Forum. (2019). What are the drivers of Egypt's government debt? (Working Paper No. 1376). <https://erf.org.eg/publications/what-are-the-drivers-of-egypts-government-debt>
- Elhendawy, E. O. (2022). Does external debt service devalue local currency in the long run? Empirical evidence from Egypt. *International Journal of Economics and Finance*, 14(2), 51. <https://doi.org/10.5539/ijef.v14n2p51>
- El Husseiny, M., et al. (2024). External debt and economic growth in MENA countries: Does governance matter? *Egyptian Review of Development and Planning*, 32(2).
- Elkhalfi, O., Chaabita, R., Benboubker, M., Ghoujdam, M., Zahraoui, K., Alaoui, H. E., Laalam, S., Belhaj, I., & Hammouch, H. (2024). The impact of external debt on economic growth: The case of emerging countries. *Research in Globalization*, 9, 100248. <https://doi.org/10.1016/j.resglo.2024.100248>

- El-Saharty, S., Nassar, H., Hamza, M. M., & Zhang, Y. (2022). Economic impact of population growth in Egypt: Policy brief. World Bank. <https://hdl.handle.net/10986/39451>
- Exchange rates historical data. (2025). Central Bank of Egypt. Retrieved May 2, 2025, from <https://www.cbe.org.eg/en/economic-research/statistics/exchange-rates/historical-data>
- Hassanein, K. B. E. A. (2023). The relation between the external debt and the economic growth: Case study of Egypt. *Journal of Commerce and Finance*, 3, 319–320. https://journals.ekb.eg/article_319865
- Heimberger, P. (2023). Do higher public debt levels reduce economic growth? *Journal of Economic Surveys*, 37(4), 1061–1089.
- Holmström, B. (1979). Moral hazard and observability. *The Bell Journal of Economics*, 10(1), 74–91.
- International Monetary Fund. (2016). Arab Republic of Egypt: Request for extended arrangement under the Extended Fund Facility (IMF Country Report No. 16/337). <https://www.imf.org/en/Publications/CR/Issues/2016/12/16/Arab-Republic-of-Egypt-Request-for-Extended-Arrangement-Under-the-Extended-Fund-Facility-44434>
- International Monetary Fund. (2020). Fiscal monitor: Policies for the recovery. <https://www.imf.org/en/Publications/FM/Issues/2020/10/27/Fiscal-Monitor-October-2020-Policies-for-the-Recovery-49642>
- International Monetary Fund. (2025). IMF completes fourth review of Egypt’s EFF and concludes 2025 Article IV consultation [Press release]. <https://www.imf.org/en/News/Articles/2025/03/11/pr-2558-egypt-imf-completes-4th-rev-eff-arrangement-under-rsf-concl-2025-art-iv-consult>

- Ismael, N. B., Mahmud, S. H. O., & Khorsheed, H. S. (2024). External debt and economic growth: Empirical evidence from developing countries. *International Journal of Engineering Business and Management*, 8(3), 1–9. https://doi.org/10.22161/ije_bm.8.3.1
- Iyoha, M. A. (1999). External debt and economic growth in Sub-Saharan African countries: An econometric study (AERC Research Paper No. 90). African Economic Research Consortium.
- Kearney, C., & Monadjemi, M. (1990). Fiscal policy and current account performance: International evidence on the twin deficits hypothesis. *Journal of Macroeconomics*, 12(2), 197–219.
- Keynes, J. M. (1936). *The general theory of employment, interest, and money*. Macmillan.
- Kheir-El-Din, H., & Moursi, T. A. (2006). Sources of economic growth and technical progress in Egypt: An aggregate perspective. In *Contributions to economic analysis* (Vol. 278, pp. 197–236). Emerald Group. [https://doi.org/10.1016/S0573-8555\(06\)78007-5](https://doi.org/10.1016/S0573-8555(06)78007-5)
- Kikuchi, T., & Tobe, S. (2022). Does external debt contribute to economic growth? arXiv. <https://arxiv.org/abs/2109.10517>
- Korinek, A. (2011). Foreign currency debt, risk premia and macroeconomic volatility. *European Economic Review*, 55(3), 371–385.
- Krugman, P. (1988). Financing vs. forgiving a debt overhang. *Journal of Development Economics*.
- Krugman, P. (1988). Market-based debt-reduction schemes (NBER Working Paper No. 2587). National Bureau of Economic Research. <https://doi.org/10.3386/w2587>

- Manasseh, C. O., Abada, F. C., Okiche, E. L., Okanya, O., Nwakoby, I. C., Offu, P., Ogbuagu, A. R., et al. (2022). External debt and economic growth in Sub-Saharan Africa: Does governance matter? PLOS ONE, 17(3), e0264082.
<https://doi.org/10.1371/journal.pone.0264082>
- Mankiw, N. G., Romer, D., & Weil, D. N. (1992). A contribution to the empirics of economic growth. Quarterly Journal of Economics, 107(2), 407–437.
- Megersa, K. A. (2015). The Laffer curve and the debt-growth link in low-income Sub-Saharan African economies. Journal of Economic Studies, 42(5), 878–892.
<https://doi.org/10.1108/JES-06-2014-0095>
- Moussa, N. (2022). The impact of external debt on economic growth: The case of Egypt. Journal of Politics and Economics, 4, 458–461. https://jocu.journals.ekb.eg/article_212813
- Nelson, R. M. (2010). Greece’s debt crisis: Overview, policy responses, and implications (CRS Report No. R41167). Congressional Research Service.
<https://sgp.fas.org/crs/row/R41167.pdf>
- Nor-Eddine, O., & Driss, C. (2019). External public debt and economic growth in Morocco: Assessment and impacts. International Journal of Economic Sciences, 8(2).
<https://doi.org/10.20472/es.2019.8.2.006>
- Pattillo, C., Poirson, H., & Ricci, L. A. (2002). External debt and growth (IMF Working Paper No. 02/69). International Monetary Fund. <https://www.imf.org/external/pubs/ft/wp/2002/wp0269.pdf>
- Pattillo, C., Poirson, H., & Ricci, L. A. (2004). What are the channels through which external debt affects growth? (IMF Working Paper No. 04/15). International Monetary Fund.

- Pauly, M. V. (1968). The economics of moral hazard: Comment. *The American Economic Review*, 58(3), 531–537.
- Ramzan, M., & Ahmad, E. (2014). External debt-growth nexus: Role of macroeconomic policies. *Economic Modelling*, 38, 204–210.
<https://doi.org/10.1016/j.econmod.2013.12.014>
- Reinhart, C. M., & Rogoff, K. S. (2010). Growth in a time of debt. *American Economic Review*, 100(2), 573–578. <https://doi.org/10.1257/aer.100.2.573>
- Sachs, J. (1986). The debt overhang problem of developing countries. Paper presented at the Conference in Memory of Carlos Diaz-Alejandro, Helsinki.
- Safwat, A., Salah, A., & Sherif, M. E. (2021). The impact of total external debt on the economic growth of Egypt (1980–2018). *Open Journal of Social Sciences*, 9(10), 130–151. <https://doi.org/10.4236/jss.2021.910010>
- Schlumberger, O. (Ed.). (2007). *Debating Arab authoritarianism: Dynamics and durability in nondemocratic regimes*. Stanford University Press.
- Sen, S., Kasibhatla, K. M., & Stewart, D. B. (2007). Debt overhang and economic growth: The Asian and the Latin American experiences. *Economic Systems*, 31(1), 3–11.
<https://doi.org/10.1016/j.ecosys.2006.12.002>
- Senadza, B., Fiagbe, A. K., & Quartey, P. (2018). The effect of external debt on economic growth in Sub-Saharan Africa. *International Journal of Business and Economic Sciences Applied Research*, 11(1), 7. <https://doi.org/10.25103/ijbesar.111.07>
- Serin, Ş. C., & Demir, M. (2023). Does public debt and investments create crowding-out effect in Turkey? Evidence from ARDL approach. *Sosyoekonomi*, 31(55), 151–172.
<https://doi.org/10.17233/sosyoekonomi.2023.01.08>

- Shah, M. H., & Pervin, S. (2012). External public debt and economic growth: Empirical evidence from Bangladesh, 1974 to 2010. *Academic Research International*, 3(2), 508–520. <https://ssrn.com/abstract=2180323>
- Sharaf, M. F. (2021). The asymmetric and threshold impact of external debt on economic growth: New evidence from Egypt. *Journal of Business and Socio-Economic Development*, 2(1), 1–18. <https://doi.org/10.1108/jbsed-06-2021-0084>
- Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 70(1), 65–94. <https://doi.org/10.2307/1884513>
- State Information Service. (2024, March 6). Egypt, IMF sign agreement to extend present loan deal to \$8 billion. <https://www.sis.gov.eg/Story/191929/Egypt%2C-IMF-sign-agreement-to-extend-present-loan-deal-to-%248-billion?lang=en-us>
- Turan, T., & Yanikkaya, H. (2020). External debt, growth and investment for developing countries: Some evidence for the debt overhang hypothesis. *Portuguese Economic Journal*, 20(3), 319–341. <https://doi.org/10.1007/s10258-020-00183-3>
- United Nations Economic and Social Commission for Western Asia. (2022). Debt management in Egypt and financing the Sustainable Development Goals. <https://publications.unescwa.org/projects/fsde/sdgs/pdf/chapters/Chapter-8.pdf>
- World Bank. (2023). International debt statistics: Egypt – Arab Republic. <https://datatopics.worldbank.org/debt/ids/country/egy>
- World Bank. (2025). World Development Indicators. Retrieved from <https://data-bank.worldbank.org/source/world-development-indicators>
- Yasar, N. (2021). The causal relationship between external debt and economic growth: Evidence from Commonwealth Independent States. *External Trade Review*, 56(4), 415–429. <https://doi.org/10.1177/00157325211018329>

- Yassein, A., & Elakkad, R. M. (2023). External debt and economic growth in Egypt: Does governance matter? *Journal of Business Management and Economics*, 11(12), 1–11.
<https://doi.org/10.52845/JBME/2023/11-12-1>
- Yimer, A., Geda, A., & Save the Children International. (2024). A two-edged sword: The impact of public debt on economic growth – The case of Ethiopia. *Journal of Applied Economics*. <https://doi.org/10.1080/15140326.2024.2398908>
- Yusuf, A., & Mohd, S. (2021). The impact of government debt on economic growth in Nigeria. *Cogent Economics & Finance*, 9(1), 1–19.
<https://doi.org/10.1080/23322039.2021.1946249>
- Zaghdoudi, T. (2019). Threshold effect in the relationship between external debt and economic growth: A dynamic panel threshold specification. *Journal of Quantitative Economics*, 18(2), 447–456. <https://doi.org/10.1007/s40953-019-00182-y>
- Zaki, C., & The Economic Research Forum. (2023). Breaking the vicious circle of debt in Egypt (ERF Policy Brief No. 124). https://erf.org.eg/app/uploads/2023/11/1699962651_285_675535_pb124.pdf

Appendix

Table A1: Augmented Dickey-Fuller Unit Root Test Results

Variable	P- val. (Levels)	P- val. (1st Diff)	Stationarity
log_RGDP	0.7091	0.0003	I(1)
log_SERVGDP	0.5665	0.0000	I(1)
log_OPENGDP	0.1340	0.0000	I(1)
log_INV	0.7129	0.0000	I(1)
log_POPGR	0.8804	0.0187	I(1)
log_STCKGDP	0.6923	0.0005	I(1)
log_STCKGDP_sq	0.6953	0.0001	I(1)
log_GPRIM	0.0673	0.0000	I(1)
log_ODAGNI	0.0533	0.0000	I(1)
log_TOTINDX	0.6863	0.0102	I(1)

Figure A1 & A2: Parameter Stability Tests (CUSUM & CUSUM squared)

