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ARAB REPUBLIC OF EGYPT

SELECTED ISSUES

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February 10, 2025

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CONTENTS

A FRAMEWORK FOR CLIMATE CHANGE MITIGATION[1]

A. Background

1. **Energy and climate policies are deeply interlinked, shaping the future energy landscape through mitigation measures.** Global efforts to combat climate change have introduced pricing tools like carbon taxes and fossil fuel subsidy reforms, as well as quantity-based policies such as emissions trading schemes.

2. **Egypt's relatively low emissions mask its significant role in regional climate mitigation efforts.** While accounting for only 0.73 percent of global greenhouse gas (GHG) emissions in 2022,[2] Egypt's emissions have more than doubled since 1990, making it the fourth-largest emitter in the Middle East and Central Asia due to its large population. Energy sector has been the dominant source of emissions, contributing 70 percent of total GHG emissions over the past three decades. Despite notable solar and wind potential, Egypt's energy mix is heavily reliant on natural gas (58 percent) and oil (34 percent), with renewables playing a minor role. Natural gas, a critical export revenue source, also exposes the country to transition risks as global mitigation efforts advance. Addressing energy's disproportionate role in emissions will require significant structural reforms in the energy sector to meet climate goals.

3. **Egypt holds significant opportunities to decarbonize its energy sector and expand renewable energy integration.** The World Bank CCDR (2022) presents recent assessments that place Egypt above the regional average in sustainable energy policies, scoring 79 compared to the MENA average of 66. The country has focused on expanding natural gas usage, renewable energy (RE) generation, and energy efficiency across supply and demand. Renewable electricity accounted for around 12 percent of total power generation in 2021, with installed capacity reaching 18.9 percent, in line with Egypt's ISES 2035 targets. Leveraging its high wind and solar potential, Egypt has a strong comparative advantage in RE (World Bank CCDR, 2022).

4. **Transition risks and reliance on natural gas complicate Egypt's shift toward a greener economy, however its significant renewable energy potential makes such a shift worthwhile.** With surplus thermal capacity, Egypt must manage its renewable energy transition carefully to avoid economic disruptions, episodes of energy insecurity, stranded assets, and adverse distributional impacts. Declining global demand for fossil fuels and carbon-intensive exports, including electricity transmission, oil, and fertilizers, exposes Egypt to external mitigation policies like the EU's Carbon Border Adjustment Mechanism (CBAM). At the same time, Egypt possesses a significant potential for renewable energy, particularly solar and wind power, due to its abundant sunshine and high wind

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[2] Greenhouse Gas Emissions | Climate Change Indicators Dashboard, Country Data | Climate Change Indicators Dashboard

speeds, making it a prime location for large-scale renewable energy projects. As such, Egypt is set to benefit from ramping up investments into renewable energy.

5.   Scaling renewable energy and ensuring efficient pricing reforms are vital for Egypt's mitigation strategy. Rapid renewable energy expansion will require significant investment and strategic sequencing to integrate RE into the grid and retire high-emission power plants. Pricing fossil fuels appropriately will further support mitigation efforts. Egypt has made progress in reducing energy subsidies over the past decade, with ongoing reforms under the EFF focusing on removing fuel subsidies, however prices of fuel in Egypt are still amongst the lowest in the world.

6.   Egypt's climate agenda has progressed, but achieving mitigation goals will require robust support and investment. The NCCS 2050 and the updated 2023 NDCs outline ambitious adaptation and mitigation targets. By 2030, Egypt aims to reduce emissions relative to the business-as-usual scenario by 37 percent in electricity, 65 percent in oil and gas, and 7 percent in transport, conditional on external financing. The country has joined the global methane pledge and committed to increasing renewable energy's share to 30 percent of power generation by 2030 and around 60 percent by 2040. These large-emitting sectors account for around two-thirds of Egypt's total GHG emissions. However, achieving its National Climate Change Strategy (NCCS) and updated Nationally Determined Contributions (NDCs) targets will require scaled investments in grid stabilization and storage facilities to support RE growth (World Bank CCDR, 2022).

7.   In this Selected Issues Paper, we apply the IMF-ENV global computable general equilibrium model to assess the macroeconomic and environmental effects of climate mitigation policies in Egypt. We focus on removing fossil fuel subsidies and ramping up RE investments. We quantify their effects on the macroeconomy in terms of GDP and government budget balance effects, as well as their success in reducing emissions and changing the composition of the energy mix towards more renewables.

B.   Climate Mitigation Policy Options

Brief Overview of the Model

8.   The IMF-ENV global Computable General Equilibrium (CGE) model[3] offers quantitative insights into the medium- to long-term effects of climate mitigation policies. The IMF-ENV model is built primarily on a database of multi-regional input-output tables, combined with national accounts data, and bilateral trade flows, international trade costs, energy and GHG emissions by activity. The central input of the model is the GTAP-Power database (version 11c) with base year 2017 (Aguiar et al., 2022; Chepeliev, 2020b). The database contains country-specific input-output tables for 141 countries and 19 aggregate regions, and data for 65 commodities and 76 economic activities. For this project we use the MCD regional aggregation which has 28 regions, 21 activities and 13 commodities. The model runs until 2040.

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[3] Chateau, *et al.* (2025).

9.   The database also provides detailed information on several electricity generation technologies. To allow a detailed modeling of energy supply, the database includes eight electricity generation technologies: coal, natural gas, oil (diesel), hydro, nuclear, solar, wind and others (e.g., geothermal, biomass), as well as an electricity transmission and distribution activity. Finally, the database also includes all main greenhouse gases: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and fluorinated gases –hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF_6) (Chepeliev 2020a).

Fossil Fuel Subsidies: Background

10.   Egypt's energy prices are relatively low compared to many countries in the region, Africa, and globally, largely due to lingering subsidies. As of 2023, gasoline prices in Egypt averaged $0.35 per liter, significantly lower than the global average of approximately $1.33 per liter.[4] This is a direct result of Egypt's ongoing fossil fuel subsidization, where subsidies have historically kept energy prices artificially low. In comparison, gasoline prices in other MENA countries, such as Jordan and Morocco, are higher at $1.50 and $1.25 per liter, respectively, as these nations have largely phased out subsidies. However, oil-rich Gulf states like Saudi Arabia and Kuwait also maintain relatively low gasoline prices, at $0.62 and $0.34 per liter, respectively, supported by their abundant oil revenues.

11.   Egypt's fossil fuel subsidies represent a significant share of its GDP, despite reforms to reduce them. In fiscal year 2014/2015, fossil fuel subsidies accounted for 3.8 percent of Egypt's GDP. Following reforms starting in 2016, subsidies were significantly reduced percent to reach 0.3 percent of GDP by fiscal year 2019/2020. However, with the Covid shock, authorities suspended hikes in fossil fuel prices, and fossil fuel subsidies more than doubled to reach 0.8 percent by fiscal year 2020/2021. In the fiscal year 2023/24, Egypt's fuel subsidies increased due to rising energy costs, bringing their share of GDP back to around 4 percent (IMF staff calculations). This is higher than the global average, where explicit fossil fuel subsidies are typically less than 1 percent of GDP in many advanced economies.

Fossil Fuel Subsidies: Estimates

12.   We work with two different estimations of fossil fuel subsidies (FFS) in Egypt covering petroleum products, natural gas, and electricity. The first estimation relies on domestic fuel prices and provides the set of subsidies presented in Table 1. For petroleum products, the estimate is obtained from the authorities. Total petroleum product subsidies for the fiscal year 2022/2023 amounted to 125.7 billion EGP (or 4.1 billion USD) that gives a subsidy of 17.8 percent. For electricity subsidies, we use the average electricity price increases applied on August 2024. Finally, since there is no information on natural gas subsidies from official sources, we employ the existing GTAP values (around 5 percent), which are based on IMF's Fiscal Affairs Department's (FAD) values for 2017. Using these FFS rates yields a share of FFS to GDP of around 4 percent.

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[4] Energy prices around the world | GlobalPetrolPrices.com

Table 1. Egypt: Estimation 1 – Subsidies (Explicit) for Different Energy Sources

Year	Natural Gas	Petroleum products	Electricity		
			Industry	Commercial	Residential
2023	-5.0%	-17.8%	-77.0%	-43.3%	-34.7%

Source: Staff claculations using different sources.

Notes: Petroleum products include gasoline, diesel, liquified petroleum gas (LPG) and kerosene.

13. **The authorities' calculation of total petroleum product subsidies is considered an estimation from the consumption side.** This is because authorities consider the price of crude oil used for production based on domestic prices, not international prices. Therefore, the estimates presented in Table 1 only represent the "explicit subsidy". Meanwhile, the second set of FFS estimates follow the methodology by FAD and considers the opportunity cost of not pricing fossil fuel prices domestically in line with international prices as part of the subsidy, which represents the "implicit subsidy". FAD estimates for natural gas, petroleum products and electricity, take the supply cost (in current USD by GJ) and compare it to the retail price to obtain the *full* subsidy (explicit plus implicit).[5] The calculated subsidies are presented in Table 2. FAD also provides data on the total subsidy in billion USD and so in Table 3 we sum these values for all energy sources to obtain the

Table 2. Egypt: Estimation 2 (FAD) – Subsidies (Explicit and Implicit) for Different Energy Sources

Year	Natural Gas			Petroleum products	Electricity	
	Power	Industry	Residential		Industry	Residential
2021	-64.6%	-41.6%	-74.7%	-51.0%	-26.3%	-37.5%
2022	-69.9%	-46.1%	-76.1%	-57.8%	-45.3%	-58.3%
2023	-67.0%	-41.4%	-74.0%	-63.6%	-51.0%	-62.8%
Average	**-67.2%**	**-43.0%**	**-74.9%**	**-57.5%**	**-40.9%**	**-52.9%**

Source: Staff calculations using FAD data.

Notes: Petroleum products include gasoline, diesel, liquefied petroleum gas (LPG) and kerosene, used in by all activities and households. The overall subsidy for petroleum products is a weighted average using total consumption.

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[5] The main difference between the two estimations is calculating the subsidy rate of natural gas and petroleum products. Electricity subsidies are almost equal in magnitude across the two calculation approaches. Calculating the weighted subsidy for total electricity sector gives 50.2 percent with the first estimation method, and 48.3 percent with the second estimation method. The first estimation is akin to providing a lower bound estimation for petroleum and natural gas subsidies, while the second estimation is akin to providing an upper bound estimation for these subsidies.

share of total FFS to GDP. We calibrate directly the subsidy rates from Table 2 using the 2023 values (which are close to the 2021-2023 average).[6]

Table 3. Egypt: Estimation 2 (FAD) – Subsidies (Explicit and Implicit) (As a share of GDP)			
Year	2021	2022	2023
Total Subsidies (US billion)	20.7	39	39
GDP (US billion)	377.5	391	404
Share	5.5%	10.0%	9.6%

Source: Staff calculations using FAD data.

Scenario Analysis

**14.	We run two benchmark models based on NDC Business as Usual Scenarios (BaU) and Country Climate and Development Report's (CCDR) current policies scenario (CPS).** Under NDC BaU scenario presented in the updated 2023 NDC, GHG emissions reaches 655 mtCo2e by 2030 (double the 2015 levels) and almost 1 billion mtCo2e by 2040 in the absence of any policy changes since 2015. In addition, under the NDC BaU scenario, Egypt power production continues to be dominated by hydrocarbons (especially coal and natural gas) with a limited role for renewable energy. However, Egypt has made significant progress since 2015 by implementing several policies to curb GHG emissions (Egypt NDC Update, 2015). CCDR CPS incorporates policies implemented between 2015 and 2021 on top of the NDC BaU scenario. Current policies increase the share of renewables but remain short of country's renewable targets. Since the focus of this paper is on measuring the marginal contribution of increased ambition in mitigation policies thanks to RSF program, we report our results compared to the CCDR's current policies scenario.

**15.	Building on the CCDR CPS scenario, we assess the macroeconomic implications of a phased removal of fossil fuel subsidies and ramped up investments in renewable energy under different financing schemes.** We consider the following four scenarios in a cumulative manner:

- First, we implement a gradual phaseout of fossil fuel subsidies between 2024 and 2030. Within this scenario, there are diverse policy scenarios based on subsidy estimation and recycling methods. Key considerations include whether subsidies account for the opportunity cost of not aligning domestic prices with international levels and how recycled subsidy savings are utilized. Recycling options vary from reducing the budget deficit (partially or fully) to redistributing the savings directly to households as transfers. Each scenario offers distinct implications for fiscal outcomes, economic efficiency, and social equity, requiring careful evaluation to determine the

[6] Note that the GTAP database already had FFS included, which were also taken from FAD, but for the base year 2017 values. They are smaller for natural gas (on average 5 percent), but close to those on electricity (around 43 percent) and petroleum products (61 percent).

optimal approach. In our initial set of results, we consider the first estimation based on domestic fuel prices and with 50 percent of the subsidy recycled back to the government budget.

- Then, we supplement the fossil fuel subsidy removal with ramped up investments in renewable energy to achieve the government's revised RE target of 30 percent by 2030 and 60 percent by 2040. Meeting these goals will require average annual investments of approximately US$3.8 billion between 2025 and 2040, equivalent to an average of 0.6 percent of GDP yearly. For this policy, we examine three financing options for renewable energy investments: (i) 100 percent domestic financing, labelled as "RE target – 100DF"; (ii) 50 percent domestic and 50 percent external financing, labelled as "RE target – 50DF"; and (iii) 30 percent domestic and 70 percent external financing, labelled as "RE target – 30DF".

- As such, the four policies consisting of gradual fossil fuel subsidy removal coupled with ramped up investments under three different financing schemes provide a comprehensive framework to evaluate fiscal, economic, and emissions outcomes associated with mitigation policies.

Results

16.   The policy scenarios analyzed have sizable macroeconomic effects. On the fiscal side, phasing out the upper-bound fossil fuel subsidies (FFS) and allocating 50 percent of the savings to the government budget would result in an estimated 3.6 percent percentage point improvement in the government balance as a share of GDP (Figure 1). This assumes that the recycled funds are used effectively, either to reduce the budget deficit—thereby lowering borrowing from the private sector and creating more space for private sector investment—or to increase capital spending in a productive manner. However, the fiscal benefits would be diminished if the savings are not efficiently utilized.

17.   Phasing out fossil fuel subsidies boosts public savings, drives investment, and generates strong GDP gains. The removal of FFS leads to an increase in public savings, which drives overall investment and provides a significant boost to real GDP. As this subsidy phase-out is embedded in all subsequent scenarios, the associated gains in investment and GDP are carried forward (Figure 2 and Figure 3).

18.   Structural shifts favor manufacturing and services, while renewable energy investments support the energy sector's expansion. Following the removal of FFS, the manufacturing and services sectors grow in relative importance compared to agriculture and energy (including mining and electricity generation). The reduction in energy output is initially driven by a sharp decline in energy demand due to the elimination of subsidies. However, as investments in renewable energy accelerate, the resulting supply-side expansion in the energy sector more than offsets the demand contraction, leading to overall growth in the energy sector in later scenarios (Figure 4).

19.   Fossil fuel subsidy removal raises electricity prices initially but highlights the need for complementary renewable energy investments. In the FFS removal scenario, electricity prices increase as the policy raises post-tax prices, reducing demand for energy commodities and

electricity. However, the decline in energy demand upon removing fossil fuel subsidies alone is insufficient to achieve the renewable energy targets set by the authorities (Figure 5). With increased investments in renewable energy, electricity prices in fact decline by 2030 as energy supply exceeds energy demand, particularly when external financing is utilized. As energy demand revives, prices of electricity pick up by 2040 (Figure 6). Finally, the expanded supply of renewable energy shifts the electricity mix towards cleaner and more sustainable sources helping authorities reach their renewable targets (Figure 5).

20.   Fossil fuel subsidy removal reduces emissions, but achieving significant long-term reductions requires renewable energy investments. The phase-out of FFS decreases overall energy demand, leading to reduced emissions in both 2030 and 2040. However, in 2030, the decline in emissions is slower due to higher economic activity driven by growth. By 2040, as renewable energy investments increase and the electricity mix shifts towards cleaner sources, emissions are significantly reduced under the remaining three scenarios (Figure 7). This underscores that removing fossil fuel subsidies alone is insufficient for achieving substantial emissions reductions and must be paired with substantial investments in renewable energy.

21.   Fossil fuel subsidy removal poses political and economic challenges, but targeted revenue recycling can mitigate these impacts. Subsidy removal often leads to higher energy prices, fueling overall price levels and exacerbating political economy pressures. The burden of rising fossil fuel prices is typically borne unequally, with poorer households experiencing the largest impacts. However, these challenges can be addressed by reallocating a portion of the subsidy revenue to households. Governments could use the revenue to strengthen social protection programs or provide direct cash transfers to lower-income households, targeting specific income deciles as needed. While the IMF-ENV model does not provide detailed distributional insights, it captures the effects of fossil fuel price increases on overall consumer prices. As shown in Figure 8, under the subsidy removal scenario, the consumer price index (CPI) rises during the phaseout period (2025–2030). After subsidies are fully removed, CPI gradually declines as energy demand shrinks. However, as investments in renewable energy ramp up, this puts further downward pressures on electricity costs, contributing to lower consumer prices initially. But as energy demand and overall consumption grow with expanding economic activity, CPI rises again, reflecting the economy's broader recovery and growth trajectory.

Global Mitigation Efforts

22.   Transitional risks from global mitigation policies are expected to be low. In an additional scenario, we assume that the rest of the World (excluding Egypt and other MCD countries) increase carbon taxes to reach their NDC targets by 2030. This scenario assesses the transitional risks faced by Egypt when global mitigation policies are implemented. Nevertheless, we find that the impact for Egypt is relatively low, reducing GDP gains by 2040 by only 0.05 percentage points (from around 13.8 percent in scenario RE target – 30DF). However, the NDC targets are relatively modest at a global scale, but if more ambitious global mitigation policies are implemented, for instance to reach net zero emissions by 2050, then the transitional risks are expected to be much larger.

23.   Carbon Border Adjustment Mechanism (CBAM), as currently legislated by the European Commission, would have small GDP effects for Egypt but sizable sectoral effects. We use the IMF-ENV to model the effects of CBAM for Egypt and we find no substantial GDP effects from this policy, but there is a reduction in the production and exports of energy-intensive manufacturing of around 7 percent. As legislated, CBAM currently affects five export products: iron and steel, aluminum, cement, fertilizers, and electricity. If the EU-CBAM is expanded to more products and/or other regions that apply carbon pricing use similar mechanisms, the aggregate macroeconomic costs for Egypt will increase accordingly.

24.   Estimates from a more disaggregated analysis by IMF staff[7] show that CBAM would impose an additional USD 317 million burden[8] on Egypt's exports, the second highest among its regional peers. This is equivalent to a 10 percent tariff on Egypt's CBAM exports to the EU, compared to around 36.5 and 35 percent faced by Algerian and Tunisian exporters, respectively (Figure 9). The share of CBAM fee in output value would be relatively small with around 1.3 percent compared to around 10 percent in Algeria and Tunisia. The largest burden would fall on iron and steel products, with USD 236 million equivalent to a 25 percent tariff and 5.7 percent of output value. Iron and steel products would also face a USD 32 million CBAM burden from Scope 2 emissions[9] due to the high emission intensity of power generation in Egypt. The burden would be around USD 43 million for aluminum and USD 18 million for fertilizers, while the impact on cement would be relatively small in dollar terms. These would imply an equivalent of around an 8 percent tariff for aluminum and cement, and 2 percent for fertilizers (Figure 10) while the fee would be 3.6 percent of output value for aluminum, 0.7 percent for fertilizers and almost zero for cement.

Additional Results

25.   Key assumptions regarding revenue recycling and pricing schemes critically influence model outcomes. In Table 4, Panel A, column 2, we analyze the fiscal, GDP, and emissions impacts when fossil fuel subsidies are phased out, and the revenue is fully returned to households as transfers. The results show that this approach significantly dampens fiscal and economic gains. However, on the emissions front, given weaker economic activity, it yields slightly larger reductions in emissions. Moreover, column 3 explores the effects of adopting the second subsidy estimation scheme discussed, which aligns fossil fuel prices with international benchmarks, leading to a higher explicit subsidy calculation and thus a more substantial subsidy removal. This adjustment produces fiscal and economic effects nearly double in magnitude compared to the baseline results, along with a reduction in emissions of a much greater scale. These findings underscore the critical importance

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[7] Abdou, M., Dudu, H., Gerling, K., Kaddisi, D., 2025, Carbon Costs: Exposure of the Middle East and Central Asia to the EU's Carbon Border Adjustment Mechanism, IMF Working paper (forthcoming)

[8] Export burden captures sector's exposure to CBAM. These estimates are considered an upper bound as they do not consider any trade diversion effects.

[9] CBAM covers both scope 1 and scope 2 emissions. Scope 1 emissions are greenhouse gas (GHG) emissions that are directly emitted during to produce a commodity. Scope 2 emissions are indirect greenhouse gas (GHG) emissions that are emitted during the generation of electricity that is used to produce a commodity.

of wisely recycling subsidy revenues and implementing accurate fossil fuel pricing to maximize both economic and mitigation benefits.

<div align="center">Table 4. Egypt: Additional Results</div>

Panel A: FF Subsidy Removal				
	Year	Subsidy Estimation 1		Subsidy Estimation 2
		50% Budget Balance, 50% Household Transfers	100% Household Transfers	50% Budget Balance, 50% Household Transfers
Government Budget Balance	2040	0.0%	0.0%	0.0%
GDP changes	2030	2.1%	0.2%	1.7%
	2040	8.4%	1.7%	10.3%
Emissions	2030	-3.9%	-6.8%	-24.4%
	2040	-4.3%	-11.5%	-31.1%
Panel B: Renewable Energy Target - 30DF				
	Year	Subsidy Estimation 1		Subsidy Estimation 2
		50% Budget Balance, 50% Household Transfers	100% Household Transfers	50% Budget Balance, 50% Household Transfers
Government Budget Balance	2040	0.0%	0.0%	0.1%
GDP changes	2030	8.2%	5.5%	7.3%
	2040	12.1%	4.2%	13.8%
Emissions	2030	1.4%	-2.8%	-18.5%
	2040	-7.5%	-15.7%	-32.5%

C. Conclusion

26.   Egypt's transition to a low-carbon economy presents a significant opportunity for both mitigation and economic growth. By implementing a combination of fossil fuel subsidy removal and scaled-up investments in renewable energy, Egypt can achieve its ambitious mitigation targets while unlocking substantial economic gains. Properly pricing fossil fuels and effectively channeling the generated revenues—such as using at least 50 percent to reduce the budget deficit—can create fiscal space, enhance economic efficiency, and promote private sector investment. With these measures, Egypt stands to realize GDP gains of up to 7.3 percent by 2030 and 13.8 percent by 2040, demonstrating that climate action can drive sustainable development and long-term economic resilience.

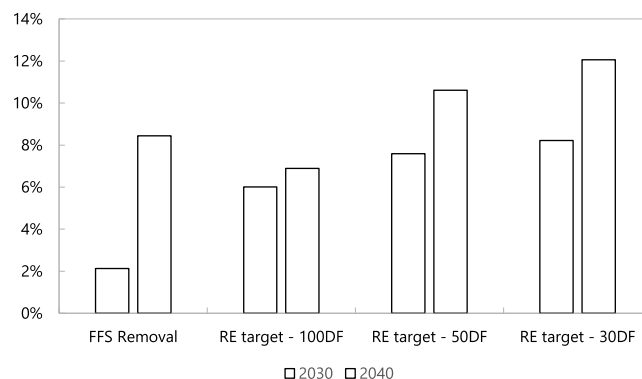## Figure 1. Egypt: Government Balance
(Percent of GDP)

FFS removal improves government balance significantly...
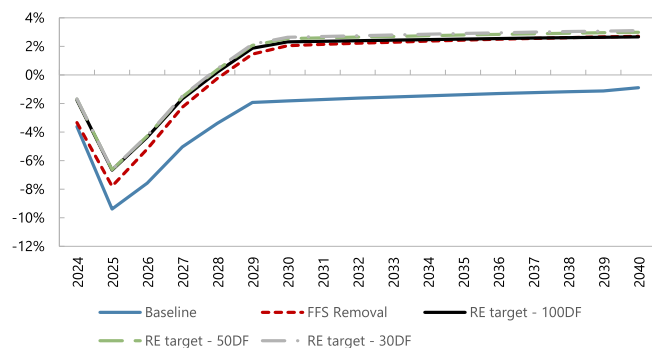
Source: IMF staff calculations using IMF-Env model.

Figure 2 Egypt: Real GDP Changes
(Percent of deviation from baseline)

... the increase in investments also improves real GDP.

Source: IMF staff calculations using IMF-Env model.

Figure 3. Egypt: Real GDP Decomposition
(Changes w.r.t baseline values in 2030 and 2040)

Investment as the key driver of growth.
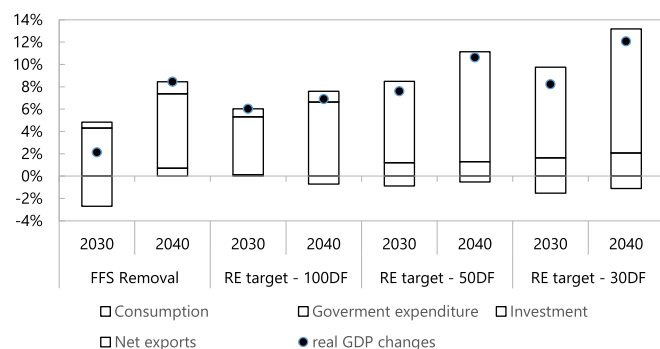
Source: IMF staff calculations using IMF-Env model.

Figure 4. Egypt: Sectoral Output
(Changes w.r.t baseline values in 2030 and 2040)

With expansions in RE, all sectors improve.

Source: IMF staff calculations using IMF-Env model.

Figure 5. Egypt: Change in Electricity Prices

FFS subsidy removal suppresses energy demand which lowers electricity prices...
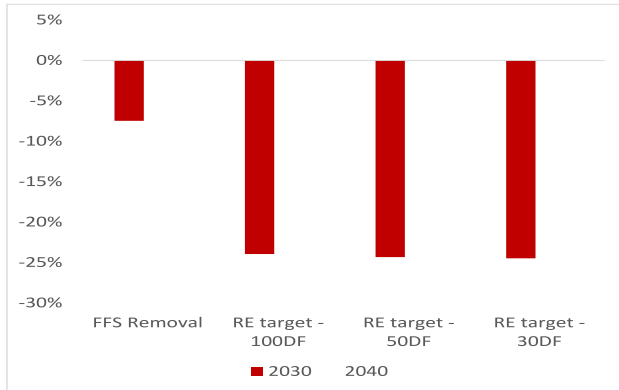
Source: IMF staff calculations using IMF-Env model.

Figure 6. Egypt: Electricity Generation Mix in 2030 and 2040 (Shares)
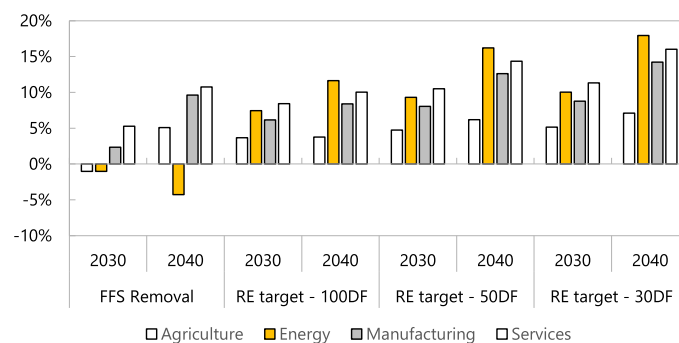
... but FFS removal needs to be complemented with RE investments to achieve required targets...
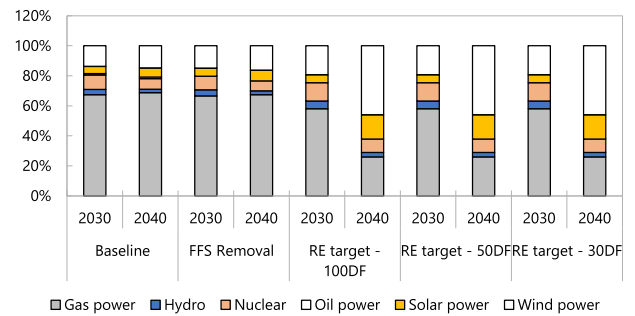
Source: IMF staff calculations using IMF-Env model.

Figure 7. Egypt: Total GHG Emissions (Change w.r.t baseline values in 2030 and 2040)

...and to achieve sizable long-term reductions in emissions....
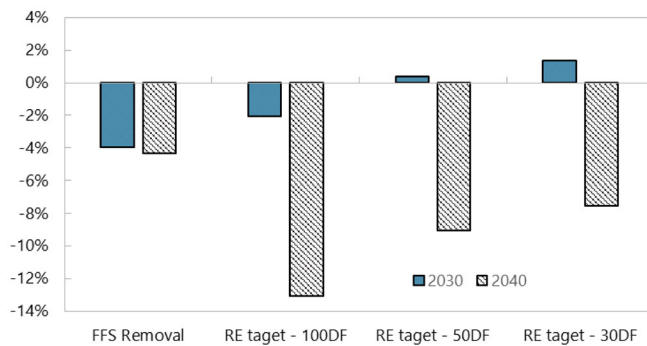
Source: IMF staff calculations using IMF-Env model.

Figure 8. Egypt: Changes in Consumer Price Index (CPI)

...and to mitigate effect of subsidy removal on consumer prices.
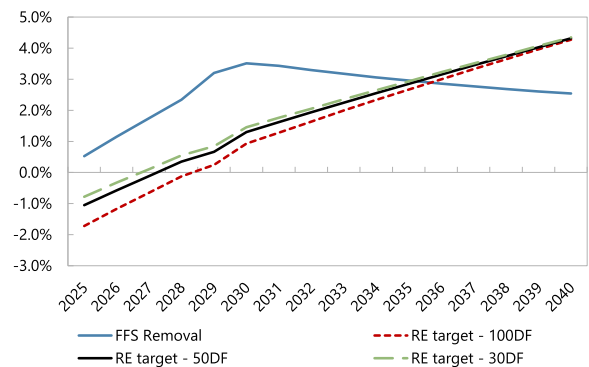
Source: IMF staff calculations using IMF-Env model.

Figure 9. Egypt: Overall Exposure to CBAM	Figure 10. Egypt: Sectoral Exposure to CBAM
Egypt has the second highest exposure to CBAM among its regional peers...	*...with iron and stell sector being most affected.*
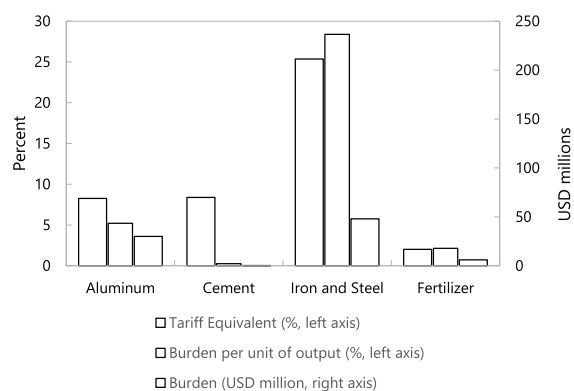
Tariff Equivalent (%, left axis)   Fee/Output (%, left axis)
Burden (USD billion, right axis)

Tariff Equivalent (%, left axis)
Burden per unit of output (%, left axis)
Burden (USD million, right axis)

Source: Abdou, M., Dudu, H., Gerling, K., Kaddisi, D., 2025, Carbon Costs: Exposure of the Middle East and Central Asia to the EU's Carbon Border Adjustment Mechanism, IMF Working paper (forthcoming).

Source: Abdou, M., Dudu, H., Gerling, K., Kaddisi, D., 2025, Carbon Costs: Exposure of the Middle East and Central Asia to the EU's Carbon Border Adjustment Mechanism, IMF Working paper (forthcoming).

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Annex I. IMF-Env Model Description

1.   IMF-ENV is a global recursive dynamic computable general equilibrium (CGE) model employed by the IMF Research Department. It features a detailed description of energy production and consumption, and links greenhouse gas (GHG) emissions to specific economic activities. This makes the model well suited to analyze the macroeconomic and sector-specific effects of a variety of energy and climate mitigation policies at the national and global level. The model allows simulating mitigation policies such as carbon pricing and fossil fuel subsidies, energy demand and supply policies and regulations, improvements in energy efficiency and new green technologies, and how these affect GHG emissions, macroeconomic variables, sectoral output, employment, investment, and trade, among others. The core components of IMF-ENV— production, demand, trade, factor markets and inter-temporal linkages—are all relatively standard recursive dynamic multi-sector multi-region CGE model features.

2.   The model is built using a neo-classical framework, which optimizes consumption and production decisions by households and firms. It follows the circular flow of the economy based on the activities of its key agents: firms, households, and markets. Firms purchase inputs (from other firms) and primary factors (from households) to produce goods and services. Households receive factor incomes and in turn demand the goods and services produced by firms. Markets determine equilibrium prices for factors, goods, and services. Finally, countries exchange goods and capital on international markets.

3.   Factors of production are almost perfectly mobile across sectors (capital excluded) but not across countries. An important feature of IMF-ENV is that capital stocks have vintages such that firms' production and behavior are different in the short and long run. This allows a more realistic adjustment of the capital stock in the short- and medium-run, as it increases the capital costs for expanding activities and reduces the productivity of capital that is tied to declining economic activities. Labor supply is determined by the working age population, labor participation and long-term unemployment rates. Labor adjusts endogenously to changes in real wages following a reduced-form wage supply curve that accounts for decisions on leisure and work (at both the intensive and extensive margin). The model also includes land and natural resources as production factors, which constrain the expansion of agricultural and mining activities.

4.   Production follows a series of nested constant-elasticity-of-substitution (CES) functions to capture the different substitution possibilities across all inputs, including energy. Household demand is non-homothetic, which emphasizes subsistence (minimum) consumption levels of essential commodities (mainly food). International trade is modeled using the so-called Armington specification where demand for goods is differentiated by region of origin. This specification uses a full set of bilateral trade flows, prices, and trade costs by commodity, which provides international linkages between regions, including supply chain features. The model is recursive dynamic: it is solved as a sequence of comparative static equilibria where the factors of production are exogenous for each time period and linked between time periods with accumulation expressions. Agents, however, are not forward looking and investment levels are driven by savings,

which in turn is a combination of household savings, the government budget balance, and the current account balance.

5. **The IMF-ENV model compares a business-as-usual (baseline) scenario without energy and climate policies with a policy counterfactual scenario that does include these policies.** The differences between both scenarios are used to simulate the impact of the policies on macroeconomic variables over several decades (e.g., GDP, sectoral production and employment, bilateral trade), energy variables (electricity generation mix, energy demand) and environmental outcomes (GHG emissions).
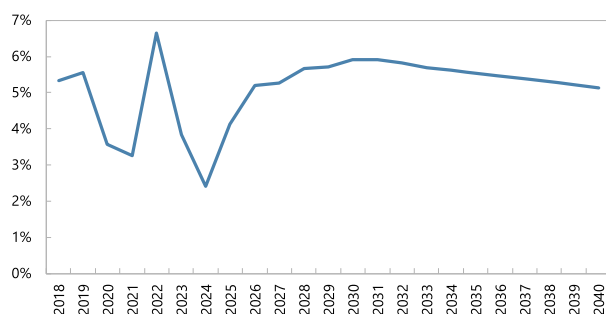
Annex II. IMF-Env Model Calibration

1.   **To project the model until the last year of the simulation (2040) we calibrate the baseline scenario using the following macroeconomic and emission projections.**

A. Projections

Macroeconomic Projections

- We use the WEO (January 2024) historical data and projections provided by the country desk (until 2029) for real GDP growth, current account balance (CAB) and government budget balance. For 2030 to 2040 we use the latest OECD's SSP2 scenario for real GDP projections, and we keep the levels of the CAB and government balance fixed to the 2029 WEO values (so the shares with respect to GDP are declining slowly).

- Changes in labor supply are projecting using the change in the working age population taken also from the OECD's SSP2 scenario.

- The GTAP database uses the SAM from 2003/2004 from the Egyptian National Accounts. To update the underlying economic structural changes in the Egyptian economy, we adjust the production shares in the baseline using the latest SAM from 2018/2019 we got from CAPMAS. This implies increases in agriculture by around 3.5 percentage points (p.p.), mining (crude oil and natural gas) increases by 2.5 p.p. and an increase in services of 1.5 p.p. These changes are compensated by decreases in the share of manufacturing of 7 p.p. and electricity generation of 0.5 p.p.

Figure 1. Egypt: Baseline Scenario: Real GDP Growth (%)	Figure 2. Baseline Scenario: Government Budget Balance as a Share of GDP
Source: Staff calculations using IMF WEO and OECD's SSP2 projections.	Source: Staff calculations using the IMF WEO (2024) projections.
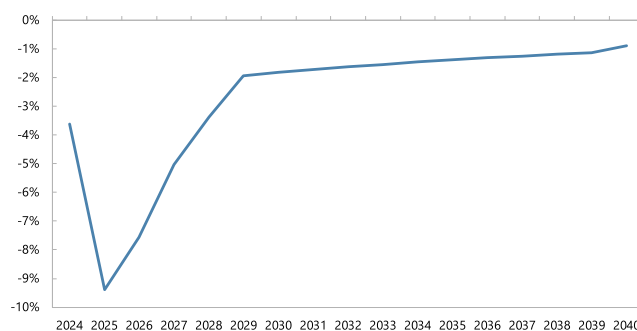
Figure 3. Egypt: Baseline Scenario: Current Account Balance as a Share of GDP
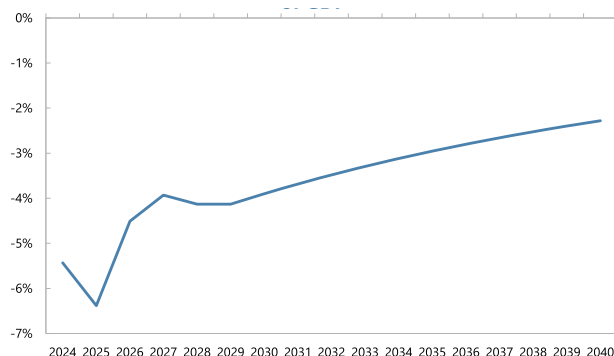
Source: Staff calculations using the IMF WEO (2024) projections.

Figure 4. Egypt: Baseline Scenario: Labor Supply Growth Rates (%)
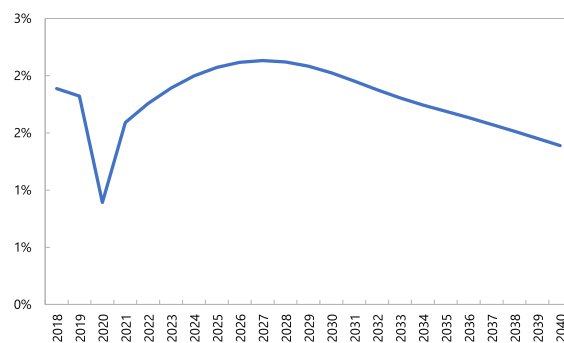
Source: Staff calculations using OECD's SSP2 projections.

Electricity Mix

- For historical data we use the original GTAP data and for 2023 we use the data provided by the authorities. From 2023 to 2040 we use the World Bank's CCDR baseline scenario (CPSa). Nuclear generation was not in the GTAP database, so we included it in 2017 with a very small value using the EUR cost structure and then we expand it in 2029 to match the CDDR baseline values.

Figure 5. Egypt: Baseline Scenario: Electricity Mix for Selected Years
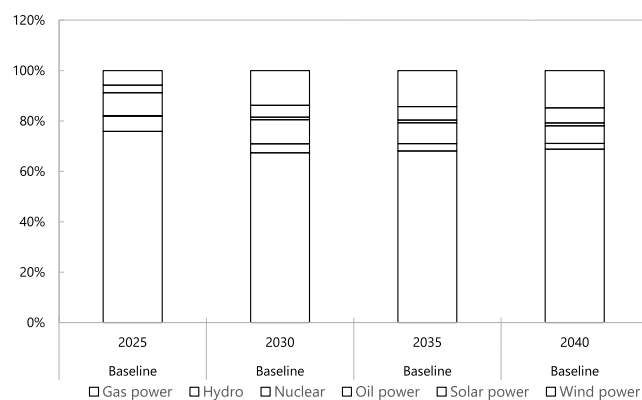
Source: Staff calculations using the GTAP power database and the World Bank's CCDR

INFLATION TARGETING AS A NOMINAL ANCHOR[1]

A. Introduction

1. Egypt is now aspiring to introduce inflation targeting (IT) as a framework for its monetary policy, particularly to address persistent inflation and macroeconomic instability. The prospect of adopting an inflation targeting framework in Egypt has been the subject of extensive scholarly analysis, focusing on the country's readiness and the necessary reforms to ensure successful implementation. For example, Al-Mashat (2008) highlights the critical prerequisites for adopting IT, including central bank independence, well-anchored inflation expectations, and robust monetary frameworks. Mohieldin and Kouchouk (2003) emphasize the importance of institutional reforms and capacity building, as Egypt's economic structure faces challenges such as external vulnerabilities, exchange rate volatility, and structural inflationary pressures. Meanwhile, Youssef (2007) evaluates Egypt's preparedness for IT by specifically focusing on fiscal discipline. These studies underscore that while IT could serve as a stabilizing monetary policy framework, Egypt must undertake significant fiscal, financial, and institutional reforms to ensure its successful adoption and sustainability.[2]

2. Given authorities' interest in transitioning to an inflation targeting regime, this Selected Issues Paper analyzes, reviews, and critically assesses the advantages of, and prerequisites for, moving toward a full-fledged IT regime in Egypt. The paper starts from three key premises that are widely accepted by experts and practitioners: (i) that high and volatile inflation damages macroeconomic stability; (ii) that establishing a credible nominal anchor is critical to containing inflation but requires that a set of key technical, fiscal, and broader institutional conditions to be met; and (iii) that inflation targeting has proven to be a highly successful institutional framework for achieving price stability in many countries. Some initial considerations: The paper does not seek to break new theoretical ground; rather, it offers a *practical approach* that focuses on the reforms that the Egyptian authorities would need to succeed in their efforts to achieve this objective.

- While each country experience is unique and cannot be automatically replicated in other countries, *there are some emerging markets whose experiences can be particularly useful for the Egyptian case* given some similarities in initial conditions. The paper will refer to some of these experiences.

- The adoption of *inflation targeting requires political will*; it cannot rely exclusively on technical considerations. This is the case for at least five reasons: (i) inflation targeting only works with a flexible exchange rate regime; (ii) it requires a large degree of central bank independence; (iii) it requires a strong financial sector to ensure credible and effective monetary policy transmission,

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[1] Prepared by Zeina Hasna (MCD) and Alex Segura-Ubiergo (MCD). The authors would like to thank Thomas Carter, Ana Corbacho, Swarnali Hannan, Gunes Kamber, Taline Koranchelian, Daniel Leigh, and Ivanna Vladkova Hollar for their helpful insights and constructive comments.

[2] See also Mashat, Clinton, Laxton, & Wang (2018), Farid (2018), Ghalwash (2010), among others.

(iv) it requires fiscal discipline (i.e. lack of "fiscal dominance"); and (v) it requires that there will be no significant recourse to monetary financing of fiscal deficits. This means that policy makers, at the highest political level, need to accept that there should be no interventions to target a specific exchange rate level, and that the central bank needs to be largely independent in its decisions (without undue political influence to pursue other objectives).

The paper is organized as follows: the first section briefly reviews the inflation targeting framework with a particular focus on required institutional arrangements and preconditions; the second and third sections discuss challenges countries have faced in the implementation of inflation-targeting, while the fourth section outlines a roadmap of reforms needed for the adoption of inflation-targeting in Egypt.

B. Institutional Arrangements and Preconditions

3.   **Inflation targeting is a modern approach to managing monetary policy.** In an inflation targeting framework, the central bank aims for a specific medium-term inflation rate, aligned with overall economic stability. The central bank then utilizes the official policy interest rate as the primary operational tool, adjusting it whenever the projected inflation rate diverges significantly from the target (Ebeke & Azangue, 2015). This is considered a more modern approach that has gained traction since the late 1990s when compared with other frameworks where monetary policy had traditionally relied on intermediate targets such as the money supply or the exchange rate.

4.   **An inflation targeting framework is based on the premise that price stability is the most important objective for monetary policy**. Empirical experience suggests that using monetary policy to pursue other short-term economic objectives, such as boosting employment or output, often conflicts with price stability. This is due to political economy considerations and time inconsistency dilemmas. In particular, central banks often encounter stronger pressure to lower interest rates to stimulate economic activity, but they are less likely to experience this pressure to raise them to reduce inflation. Inflation targeting provides an institutional framework that can help shield the central bank from these pressures, shifting the focus to inflation management and managing expectations through transparent inflation forecasts and strategic communication. Furthermore, it encourages central banks to adopt a forward-looking approach, allowing pre-emptive tightening of monetary policy before inflationary pressures escalate.

5.   **The theoretical framework for inflation targeting is straightforward, comprising three critical steps:**

- First, the central bank forecasts future inflation trends.

- Second, it compares these forecasts to the predetermined target inflation rate deemed appropriate for the economy.

- Third, the gap between the forecast and target guides necessary adjustments to monetary policy, while also taking into consideration a risk-management strategy that accounts for potential tail risks (Debelle, Masson, Savastano, & Sharma (1998) and Gopinath (2024)).

6.   At the same time, even if the theoretical framework can be easily understood. The practical conditions and requirements that must be met can be challenging. In particular,

- **The first requirement is the central bank's independence in conducting monetary policy**. While no central bank is entirely free from governmental influence, it should have the autonomy to set the tools needed to achieve the targeted inflation rate. Avoiding "fiscal dominance," where fiscal policy dictates monetary policy decisions, is essential. This requires minimal government borrowing from the central bank and robust domestic financial markets capable of absorbing public debt. Furthermore, governments should possess a broad revenue base without excessive reliance on seigniorage—the revenue generated from printing money. If fiscal dominance prevails, monetary policy effectiveness is reduced as the central bank may succumb to government demands, such as lowering interest rates to meet fiscal goals. In the case of Egypt, Youssef (2007) explains that Egypt faces a structural budget deficit that perpetuates a "snowball effect" of rising debt and growing interest payments, necessitating fiscal reforms. To address this, policymakers should focus on rationalizing public expenditures based on efficiency, gradually replacing subsidies with targeted mechanisms and social safety nets, improving public sector management, ensuring transparent use of revenues, and implementing broader structural and institutional reforms.

- **The second requirement emphasizes the central bank's commitment to focusing on achieving an inflation target**. Monetary authorities must generally refrain from targeting other variables such as wages, employment, or exchange rates. For instance, adopting a fixed exchange rate system undermines the focus on inflation targeting, as monetary policy becomes entangled in maintaining the exchange rate, particularly in contexts where capital can move freely across borders (i.e. the policy trilemma). This lack of clarity diminishes the credibility of both inflation and exchange rate targets. It is also important to avoid a situation where the inflation target is frequently adjusted (or perceived to be at risk of frequent adjustments. This is a common weakness that arises when emerging markets of developing countries adopt inflation targeting. When frequent adjustments occur, or are perceived as likely, the inflation target loses its ability to operate as a credible nominal anchor.

- **The third requirement involves technical capacity.** This can be acquired over time as no country can be expected to have perfect expertise when a new institutional framework is introduced. The central bank will need to establish clear, quantifiable inflation targets for specific future periods, prioritizing the inflation target above all other monetary policy objectives. It will also need to develop a robust methodology to forecast inflation and adopt a forward-looking approach where monetary policy is adjusted dynamically to achieve the target. For this strategy to succeed, monetary authorities need to (i) develop technical expertise to model and predict domestic inflation effectively, (ii) have a reasonable grasp of the time lag between policy changes and their impact on inflation, and (iii) assess which monetary policy tools are most

effective to achieve their objectives. In addition, a central bank conducting inflation targeting must also integrate risk management into its monetary policy strategy, rather than relying solely on central inflation forecasts. Traditional forecast-based policy rules, which adjust interest rates based on expected medium-term inflation, can lead to poor macroeconomic outcomes if uncertainties are large and asymmetric. Policymakers may assume that inflationary shocks will dissipate quickly and require minimal intervention, as seen in advanced economies in recent years. However, if upside risks are substantial, this approach can allow inflation to drift higher, thus increasing economic vulnerability. Instead, a risk-management strategy that accounts for potential tail risks can lead to more robust policy decisions. While effectively identifying, weighting, and communicating these risks presents challenges, recent discussions by Gopinath (2024), Bernanke (2024), and Schnabel (2024) emphasize the need for central banks to invest in these capabilities to enhance policy effectiveness.

7. **In addition to meeting the pre-conditions, the adoption of inflation targeting also requires the use of at least one policy instrument**. The key short-term interest rate, controlled by the central bank, typically serves as the primary instrument for monetary policy in the short to medium term. Over the long term, managing expectations becomes paramount for sustaining the target inflation rate. The principal role of monetary policy is to anchor expectations at the target rate, instilling confidence that inflation will persist at the officially announced rate over the long haul. The effectiveness of the policy transmission mechanism also depends on the central bank's strategic communication efforts and its ability to anchor expectations.

8. **Effective monetary policy under an inflation targeting regime will also require alignment between short-term and long-term interest rates.** For monetary policy interest rate actions to significantly influence output, it is imperative that changes in the policy rate—a short-term money market rate with limited relevance to most economic activity—also induce corresponding changes in the longer-term rates at which households and firms borrow and lend. This relationship underscores the need for current adjustments in the policy rate to shape expectations regarding the future trajectory of the policy rate; only then can they effectively impact macroeconomic variables. Consequently, managing expectations emerges as a critical factor in both the short term and long term. In practice, mere official announcements are insufficient; policymakers must establish credibility by consistently acting in a predictable manner, giving confidence to market participants and the general public that there is a good chance that the central bank's stated objectives for inflation will be achieved.

C. Challenges In the Implementation of Inflation Targeting Regimes in Emerging Markets

9. **Challenges persist in implementing inflation targeting regimes in emerging markets.** Ebeke and Azangue (2015) examine the conflicting objectives central banks in emerging markets (EMs) encounter under specific macroeconomic conditions when adopting inflation targeting. Ideally, IT countries should maintain relative exchange rate flexibility, as their primary aim is price stability. However, their findings suggest that the correlation between IT and exchange rate flexibility can weaken under certain conditions. This indicates that central banks may need to engage

in more active exchange rate management or adopt macroprudential measures, especially in economies with limited openness, underdeveloped financial systems, or heightened financial stability risks.

10.   For countries heavily dependent on imports, exchange rate fluctuations can have profound economic implications. In such contexts, central banks may resort to foreign exchange interventions to control inflation and achieve their inflation objectives. However, it is important to keep these interventions to a minimum. A prudent central bank may not respond immediately to exchange rate changes if inflation forecasts remain within acceptable bounds. Consequently, a delicate balance must be struck between stabilizing the exchange rate in the short term and anchoring inflation expectations through medium-term targets.

11.   The "fear of floating" phenomenon is linked to concerns that policy makers may have about possible exchange rate volatility and uncertainty about the impact that exchange rate movements can have on the economy. For example, policy makers may be concerned about the impact that exchange rate volatility may have on the business environment if economic agents (especially those operating in the tradable sector) find it difficult to make timely strategic decisions. This can have a negative impact on trade openness. Alternatively, they may also be concerned about pass-through effects from exchange rate movements to inflation, which can complicate monetary policy. Or they may fear that exchange rate volatility may produce a "loss of control", and that foreign investors may withdraw their investment holdings due to the perceived currency instability. These concerns can be mitigated by the establishment of a robust macroeconomic framework, where exchange rate flexibility is not analyzed in isolation, but it becomes part of a credible institutional arrangement that is complemented by a strong monetary policy framework, and a prudent fiscal policy (often anchored by a fiscal rule).

12.   It is also important to strike the right balance between financial stability and monetary policy credibility. In particular, using policy rates to mitigate financial crisis risks can potentially undermine the credibility and effectiveness of monetary policy. This happens by destabilizing inflation expectations, which rely heavily on transparency, predictability, and measurable success— fundamental elements of the flexible inflation targeting framework. In contrast, the pursuit of financial stability often necessitates addressing remote, frequently unobservable events that are inherently difficult to predict with precision. Such trade-offs should arise rarely, assuming that appropriate regulatory and supervisory frameworks are in place, along with a set of targeted tools for dealing with liquidity issues. Otherwise, central banks may occasionally find themselves falling short of their inflation targets, given that financial crises are inherently unpredictable. When such trade-offs do arise and potentially lead to a somewhat looser monetary policy than might be dictated by a "narrow price stability" objective, any associated risk to central bank credibility should be managed by clearly communicating the primacy of the inflation target and policymakers' intention that any deviations from target will be temporary. Indeed, incorporating a financial stability objective may complicate communication strategies, further eroding the credibility and effectiveness of monetary policy. Furthermore, monetary policy is not ideally suited for preventing financial crises; excessively raising interest rates beyond what is required for maintaining medium-term price and output stability can impose considerable societal costs, including higher unemployment and

diminished economic activity. Often, these costs outweigh the benefits of reducing crisis risks. This situation underscores the need for additional tools, such as macroprudential measures, to manage these complexities effectively (Adrian, Dell'Ariccia, Haksar, & Mancini-Griffoli, 2018).

D. Lessons from Country Experiences

13.   Several country experiences help illustrate how countries have overcome challenges to succeed in the implementation of an inflation-targeting regime. Egypt raw valuable lessons from other emerging countries as they sought to transition to IT regime. The emerging market experience in their efforts to transition toward inflation targeting underscores the importance of establishing a credible inflation anchor, strengthening institutional frameworks, and addressing structural challenges to improve monetary policy effectiveness. Each country-specific experience is different but each country example may highlight at least one practical consideration that may help Egypt develop a deeper awareness of the challenges and opportunities that may lay ahead. In particular, India's focus on clear communication and transparency helped align public expectations, while Albania demonstrated the need for robust technical capacity and forecasting models, supported by international partnerships, to navigate low inflation and external vulnerabilities. Uganda (a frontier Sub-Saharan African economy) also offers some important lessons, highlighting the importance of flexibility in policy implementation and the use of effective transmission mechanisms, such as interest rates and exchange rates, despite structural challenges like fiscal dominance and financial volatility.[3] For Egypt, these lessons emphasize the need for institutional independence, clear inflation targets, enhanced forecasting tools, and policies to mitigate inflation drivers like exchange rate pressures and fiscal imbalances. By adopting tailored strategies from these examples, Egypt can build credibility, stabilize inflation, and foster economic resilience.

14.   The experience of Brazil—a large and diversified emerging market economy that has been implementing IT and a flexible exchange rate regime for over a quarter century—also offers insights that could be relevant for Egypt. As noted by the Brazilian central bank (Banco Central do Brasil; BCB),[4] a crucial aspect of the framework has been strong commitment to the inflation target and to anchoring inflation expectations, so that households and companies use the inflation target as their reference for prospective inflation. The BCB has also emphasized the importance of high levels of monetary policy transparency and accountability through regular publications, including the quarterly Inflation Report, and a strong communication strategy. Inflation has remained inside the target tolerance interval during most calendar years since the adoption of IT in 1999, and in years in which the target was missed, the BCB Governor has, in conformity with the IT regime, written in the following year an open letter to the President of the National Monetary Council (CMN) providing (Decree 3,088 of 1999): "a detailed description of the causes for the target breach; the measures to ensure the return of inflation to the established limits; and the expected time span for the measures to take effect." An important change to the inflation-targeting regime

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[3] Appendix III provides a brief summary of each of these countries' experiences.

[4] See https://www.bcb.gov.br/en/monetarypolicy/Inflationtargeting_regulation for additional background information.

was the enactment in 2021 of the central bank independence law which introduced longer appointments (five years) and staggered terms in the appointment process for the central bank's president and board members that are decoupled from the Presidential election cycle. More recently, the decision in June 2023 by the NMC to adopt a continuous 3 percent inflation target from 2025 onwards has further reduced uncertainty and enhanced monetary policy effectiveness.

E.   Next Steps for Egypt: Practical Recommendations

15.   The path toward a full-fledged inflation targeting regime in Egypt requires comprehensive reforms along two inter-related dimensions: high-level supportive reforms and targeted operational reforms under the CBE's purview. High-level reforms address foundational preconditions for the system's success, including reducing fiscal dominance to ensure monetary policy independence and enhancing central bank institutional autonomy. Other policies such as modifying the economic growth model including improving labor market flexibility and social safety nets, while not prerequisites per se, are still key factors to build broader economic, political and social support for the transition to an IT regime. These are reforms where the CBE will need support from the broader policymaking, institutional and political economy environment. Then, there are operational reforms that the CBE can undertake on its own which are equally critical and where substantial progress has already been achieved or is being prioritized. This includes the requirement to preserve a flexible exchange rate system, and ongoing efforts to develop macroeconomic models, strengthen inflation forecasting methods, enhance liquidity management tools and the monetary policy transmission mechanism, as well as the CBE's decision to improve strategic communications. Together, these reforms will enable the CBE to strengthen price stability and implement an effective inflation-targeting framework. The following table summarizes the main areas of focus for this complementary dual-track reform process.

F.   Conclusion

16.   The Egyptian authorities' decision to move toward a full-fledged inflation-targeting regime is a positive and necessary step. Excellent progress has already been achieved in the development of macroeconomic and inflation forecasting models, which are important technical tools necessary to ensure the success of an inflation-targeting regime. In addition, CBE has expressed a commitment to improve strategic communications, which can play a decisive role to build credibility around monetary policy decisions and help anchor expectations. International experience suggests that this is a process that can take some time, but the experience of other emerging markets suggests that reforms can succeed if there is steady progress around a clearly defined implementation roadmap.

High-Level Supportive Reforms	Reforms Under CBE's Purview
Reduce Fiscal Dominance. Includes need to preserve fiscal sustainability, increase domestic revenues, improve debt management, reduce gross borrowing requirements, and contribute to a well-balanced fiscal-monetary policy mix. This is important to ensure that fiscal policy does not impose and excessive burden on monetary policy that could compromise the achievement of inflation targets, or force the central bank to offset the inflationary impact of potentially loose fiscal policies. Crucial importance of domestic revenue mobilization to ensure the budget has adequate resources to finance critical programs without recourse to excessive debt issuance.	***Consolidate Flexible Exchange Rate Regime.*** Ensure that exchange rate remains and is perceived as flexible by economic agents to help absorb shocks, protect adequate reserve levels, and ensure that monetary policy is focused on achieving the inflation target, rather than other economic objectives, including the exchange rate. Intervene in the foreign exchange market only in exceptional cases when necessary, following clear intervention rules to mitigate disorderly market conditions or excessive volatility, but without targeting a specific exchange rate level and/or compromising adequate international reserve levels. This is crucial to ensure the central bank does not generate confusion about its key objective, especially at the start of the IT regime when there is a need to build up credibility.
Increase Central Bank Independence. Consider reforms that help increase the perception of central bank independence, including insulation from electoral pressures, longer mandates for the Governor and members of the CBE board, and clearly defined rules that only allow dismissal of the CBE leadership under clearly defined conditions. While this type of reform may face some political resistance, the recent example of other emerging markets suggest that this is feasible and can have an important "credibility dividend".	***Strengthen Strategic Communications.*** Develop a communication strategy to engage with multiple stakeholders (i.e. markets, think tanks, private sector, and general citizens). Use of multiple communication instruments and forms of engagement including regular preparation and dissemination of inflation reports, collection of market intelligence, and strategic use of press conferences by the CBE Governor and members of the Board. Important also to adjust communication tools to targeted audience. Avoid narrowing the operating bands when inflation is above target as it confuses markets and suggests that central bank is not prioritizing inflation control.
Adjust Economic Growth Model. Ensure that structural reforms are oriented toward private-sector led growth to ensure the central bank does not come under undue pressure to stimulate the economy while inflationary pressures persists. Improve labor market flexibility by encouraging policies that reduce	***Inflation Forecasting Models.*** Build on excellent progress already achieved in the

High-Level Supportive Reforms	Reforms Under CBE's Purview
rigidities in the labor market, such as enhancing wage flexibility and mobility, which can help cushion the impact of economic shocks.	development of macroeconomic and inflation forecasting methods to inform monetary policy decisions and increase accuracy of inflation forecasts.[1]
Improve Social Safety Nets. Develop further the social safety net and critical public goods (i.e. health, education and basic infrastructure) to protect vulnerable groups during the transition, especially as energy subsidies are removed and inflation targets are implemented. This is important to build support for reforms and ensure that lower income segments of the population do not feel the disproportionate impact of tight macroeconomic policies, including the impact of high interest rates that may be necessary to contain inflation when the central bank is taking steps to achieve the inflation target.	**_Enhance Monetary Policy Transmission Mechanism._** Reduce distortions created by subsidized loans, enhance financial inclusion, strengthen the banking sector and limiting the reliance on public banks to implement monetary policy, adopt liquidity management tools to maintain short-term stability and manage excess liquidity or shortages in the financial system and avoid resorting to foreign exchange interventions to stabilize prices, which can distort monetary policy transmission and lead to unintended economic consequences.

[1] The Central Bank of Egypt has made notable strides in enhancing its technical capacity, particularly in the areas of monetary policy formulation and transparency. This progress includes more frequent and open discussions with IMF staff, including sharing of quantitative models and data to improve forecasting and policy analysis, and greater transparency in monetary policy communication around Monetary Policy Committee announcements. These efforts signal a commitment to strengthening the credibility and effectiveness of monetary policy, which is essential for advancing toward an IT framework.

17.   Effective communication and macroeconomic policies are essential for the success of Egypt's inflation-targeting regime. It is critical that the authorities continue to pursue and communicate effectively around other macroeconomic policies and pre-conditions that need to be met for the inflation-targeting regime to succeed. First and foremost, fiscal consolidation efforts will be required to ensure that fiscal policy does not impose a burden on monetary policy. This is key as there are no cases of successful inflation-targeting regimes that have not attempted to address "fiscal dominance" concerns. Second, an inflation-targeting regime requires a commitment to a flexible exchange rate. If markets perceive that the central bank is targeting or "protecting" a specific exchange rate level, there will be questions around whether monetary policy is de facto prioritizing price stability over other macroeconomic objectives. In this regard, the progress achieved since March 2024 needs to be preserved and consolidated. Finally, structural reforms to generate higher private-sector led growth will also be key to ensure the success of the IT regime in Egypt. Without higher and more inclusive growth over time, societal consensus around macroeconomic policies could weaken. This can create political pressure on the central bank to lower rates prematurely and may de-anchor inflation expectations. A robust way to insulate the central bank from political economy constraints is also to examine how to enhance central bank independence. But legal, administrative and operational reforms will always face "effectiveness limits" that can only be lifted if there is an overall perception by multiple stakeholders (especially market participants and citizens)

that the institutional policy-making framework is becoming more robust and predictable, and that the central bank is a key institution that is helping preserve macroeconomic stability as part of a broader policy-making system that is delivering results for all Egyptian citizens.

18.   Finally, an area where future research may be helpful is the relationship between inflation-targeting and the integrated policy framework. In addition to the efforts to pursue inflation targeting, Egypt may benefit from a deeper analysis and evaluation of how to develop a unified framework to study optimal monetary policy, macroprudential policies, foreign exchange interventions and the possible use of capital flow management measures in an interconnected global financial system.

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Appendix I. The Importance of Nominal Anchors

1. **A nominal anchor is essential for effective monetary policy frameworks.** A nominal anchor serves as a constraint on the value of a country's currency, playing a crucial role in establishing a successful monetary policy framework. Mishkin (1999) identifies two primary purposes of a nominal anchor. First, it technically ensures a uniquely determined price level, which is vital for maintaining price stability. By anchoring inflation expectations, a nominal anchor directly influences the value of the domestic currency. Second, it acts as a broader check on discretionary policy, mitigating the time-inconsistency problem articulated by Kydland & Prescott (1977), Calvo (1978), and Barro & Gordon (1983). This problem emerges when policymakers may prioritize short-term objectives, resulting in adverse long-term consequences due to the forward-looking behavior of economic agents. While expansionary monetary policies can spur short-term growth and employment, upward adjustments in wage and price expectations often diminish these benefits, ultimately leading to higher long-term inflation and associated economic costs. McCallum (1995) posits that, although the time-inconsistency issue does not compel central banks to adopt inflationary expansionary policies, acknowledging this problem can dissuade such strategies. Nevertheless, political pressures may still push central banks toward unsustainable, inflationary policies, thus perpetuating the time-inconsistency problem in a different form. Consequently, a nominal anchor remains crucial in countering these political pressures.

Appendix II. Inflation Targeting Versus Exchange Rate Targeting

1.   **Inflation targeting is often contrasted with exchange rate targeting, highlighting its advantages.** Exchange rate targeting is often criticized for the significant loss of independent monetary policy. When a country pegs its currency to another, it limits its interest rate flexibility, constraining the ability to address domestic economic challenges. Moreover, shocks in the anchor country can directly affect the pegging nation. This arrangement can also expose countries to speculative attacks, as seen during the 1992 crisis involving France and the UK. While France maintained its peg, resulting in sluggish growth and high unemployment, the UK's shift to inflation targeting yielded superior economic performance.

2.   **For emerging markets, while giving up independent monetary policy might not be a huge loss due to underdeveloped institutions, exchange-rate targeting still carries substantial risks.** It can lead to financial fragility, crises, and economic contraction, particularly if a devaluation occurs. In these markets, foreign currency-denominated debt increases vulnerability during a crisis, with devaluation worsening balance sheets for firms and banks, leading to reduced lending and economic decline. Other dangers include rising inflation after speculative attacks, excessive capital inflows leading to lending booms, and weakened policy accountability. Exchange-rate pegs can obscure the signals that typically help prevent overly expansionary monetary policies, increasing the risk of financial crises, especially in countries with opaque central bank practices.

- **Loss of Independent Monetary Policy**: Pegging to a foreign currency limits a country's control over its own monetary policy, making it difficult to respond to local economic shocks, while also exposing it to the economic conditions of the anchor country.

- **Vulnerability to Speculative Attacks**: Exchange-rate targets can invite speculative attacks, especially during economic downturns, leading to severe consequences like those seen in Europe in 1992. The UK's decision to drop the peg resulted in better growth and employment outcomes compared to France, which kept the peg.

- **Risks for Emerging Markets**: Although these countries may not benefit much from independent monetary policy, targeting exchange rates can lead to financial crises, especially if debt is largely in foreign currency. A devaluation in such scenarios worsens balance sheets and reduces lending, triggering economic decline.

- **Inflation and Financial Crises**: Depreciation after a speculative attack can spike inflation, especially in countries with a history of high inflation, further destabilizing the economy. This has been evident in past crises in Mexico and East Asia.

- **Capital Inflows and Lending Booms**: Stabilizing exchange rates might attract foreign capital, leading to risky lending practices and, in turn, financial instability, especially in countries with weak banking oversight.

- **Reduced Accountability**: Exchange-rate targeting reduces transparency and makes it harder to detect overly expansionary policies. This lack of accountability can worsen monetary policy management and increase the likelihood of financial crises.

Appendix III. Other Relevant Cases for Egypt

1. **India**

- **Inflation Targeting in India:** India adopted inflation targeting in 2014, with the RBI aiming for 4±2 percent inflation. The RBI has operational autonomy and is expected to be transparent.

- **Flexible Inflation Targeting Features:** The RBI focuses on price stability, using the CPI as its inflation anchor, with penalties for missing targets. It faces challenges in monetary policy transmission and exchange rate management.

- **Monetary Policy Transmission:** The RBI aims to improve transmission by creating interest rate benchmarks and reducing the SLR as fiscal deficits decrease.

- **Exchange Rate Flexibility:** The RBI manages exchange rates flexibly, focusing on stability rather than direct control over fluctuations.

- **Policy Communication:** The RBI communicates clearly through inflation forecasts and regular statements, with actions taken to reduce inflation.

- **Fiscal Discipline:** Reducing fiscal deficits and public debt has helped manage inflation, but further consolidation and policy reforms are needed.

Monetary Management Challenges: India faces inflation challenges, including food inflation, and the success of its policy depends on the RBI's credibility and effective committee operation.

2. **Albania**

- **Bank of Albania's Transition to Inflation Targeting:** Since 2003, the Bank of Albania (BoA) has gradually adopted inflation targeting, fully committing to it by 2015. It moved from a dual approach (monetary and macroeconomic) to a fixed 3 percent inflation target to improve policy clarity and manage low inflation.

- **Implementation and Challenges:** The transition involved technical upgrades, training, and robust forecasting, supported by the IMF and Sveriges Riksbank. BoA established a policy rate and strong legal frameworks to build trust.

- **Monetary Policy Challenges:** Issues such as imported disinflation, high non-performing loans, and financial euroization (foreign currency borrowing) complicate policy. High foreign currency exposure risks financial instability, prompting BoA to tighten lending requirements and promote de-euroization.

- **Public Debt and BoA's Role:** Although public debt has increased since 2010, BoA's objectives remain intact due to restrictions on lending to the government. However, high debt remains a vulnerability, and extreme scenarios may require BoA intervention to maintain financial stability.

3. **Uganda**

- **Uganda's Monetary Policy Evolution:** Uganda's Bank of Uganda (BOU) transitioned from strict money targeting to flexible money targeting in 2009, then to inflation targeting in 2011. This shift was prompted by the instability of money demand and the money multiplier, influenced by the growing financial sector and global integration.

- **Rationale for Inflation Targeting:** The BOU adopted IT to improve policy signaling through interest rate announcements and allow more short-term monetary policy adjustments. The shift was based on a review of developing countries' experiences, identifying essential preconditions like inflation focus, central bank independence, and the absence of fiscal dominance.

- **Focus on Four Key Aspects of Uganda's Monetary Policy Evolution:** There are four crucial areas of Uganda's monetary policy framework evolution, offering valuable lessons for other countries modernizing their frameworks.

- **Key Areas of Focus:**

  o **Improvements in the Operating Framework**: Enhancements in the structure and approach of Uganda's monetary policy operations. For example, in 2011, the BOU officially introduced the CBR as a target for the interbank rate, marking a shift toward more effective use of short-term interest rates to influence the economy and reduce volatility.

  o **Evolution of the Transmission Mechanism**: Development of effective channels for monetary policy to impact the economy. Monetary policy shocks affect both prices and output in Uganda, and there is evidence that the bank lending channel works relatively well, although the transmission is moderate compared to that in advanced economies. There is also evidence of a well-functioning interest rate channel, especially after the adoption of IT.

  o **Building Analytical Capacity**: Strengthening the capacity for data analysis and forecasting to inform better policy decisions. Producing accurate inflation forecasts is critical in Uganda's inflation targeting framework, but it's challenging due to frequent supply and demand shocks. Initially, the Bank of Uganda (BOU) used a vector autoregression (VAR) model for short-term forecasts, but it proved less effective for medium-term forecasting. The BOU has since adopted a more forward-looking core semi-structural model as part of its larger Forecasting and Policy Analysis System (FPAS).

  o **Threat of Fiscal Dominance**: Addressing concerns about the influence of government fiscal policies on central bank independence and monetary policy effectiveness. To ensure the central bank's independence, it is crucial to prevent automatic overdrafts of government accounts at the BOU. A short-term measure involves formalizing an agreement to set a predetermined floor in the Uganda Consolidated Fund. In the longer term, legal reforms are needed to reduce the limits on intra-year advances to the government and eliminate the possibility of automatic overdrafts, ensuring better fiscal discipline.

A DEBT ANCHOR FOR MEDIUM-TERM BUDGETARY FRAMEWORK[1]

This paper suggests a useful framework for setting a debt anchor for Egypt's implementation of medium-term budgetary framework. Similar to an inflation targeting regime for monetary authorities, a debt targeting regime could support the authorities' efforts to ensure fiscal sustainability and boost market confidence, while creating fiscal space for improving public health, education and social safety net. A debt anchor set at 60 percent of GDP in the medium to long term will allow for a sufficient buffer to cope with various shocks without weakening debt sustainability. To achieve this target over the medium term, the annual fiscal primary surplus would need to remain above 4 percent of GDP, with further improvements in fiscal accounting and reporting needed to eliminate the large stock-flow adjustment. The speed at which one would converge to such an anchor would need to be informed by other objectives, such as promoting growth.

A.   Introduction

1.   **The recent enactment of the Unified Public Finance Law (No.6 2022) in Egypt represents a pivotal advancement in establishing a Medium-Term Budgetary Framework (MTBF)**. Beginning from July 2025, the authorities will aim to prepare a four-year budget for the first time in its history. This will require the government to decide on its medium-term budget envelope so as to enhance public financial management and provide a clear guidance to support economic development. A prudent medium-term budget could also boost market confidence, which in turn could lower fiscal financing costs and create further fiscal space to achieve its development objectives. As Egypt navigates its fiscal landscape, understanding the drivers of debt dynamics and implementing effective fiscal policies in the medium-term are crucial for maintaining economic stability and boosting prosperity.

2.   **A proper implementation of the MTBF requires the government to determine its fiscal objectives as a foundational step**. Similar to monetary authorities, whose ultimate objective is in general to maintain price stability, the government's ultimate objective is to maintain fiscal sustainability[2], typically measured as sustainable public debt to GDP and monitored through establishing a numerical target. Many countries formally adopt a fiscal rule framework with multiple rules that encompass debt, deficit, and expenditure rules. As of 2022, approximately 86 countries worldwide had implemented a fiscal framework with an explicit cap on public debt to GDP. Likewise, Ministry of Finance in Egypt announced its annual public debt ceiling in its FY2024/25 budget with aim to reduce government debt to 80 percent of GDP by June-2027. Will this target be sufficient to serve as a medium-term debt anchor?

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[1] Prepared by Qiaoe Chen (FAD)

[2] This doesn't preclude simultaneously pursuing other objectives, such as promoting economic growth and creating jobs.

Methodology

3.   To calibrate a debt ceiling/anchor, we employ a method developed by Luc Eyraud et.al (2017). The calibration excise includes three steps: first, determining the maximum sustainable debt limits; second, estimating the effects of shocks on debt and third, calibrating the debt anchor/ceiling. This method will employ a vector auto regression (VAR) model by using quarterly data to gauge the potential impact of key macroeconomic and fiscal shocks on debt over the medium-term. When quarterly data are not available, as is the case for Egypt, a direct calibration of a joint normal distribution based on historical co-movement among variables could be an alternative option. Through generating multiple potential trajectories using forecasted variables from the model/joint distribution by adding shocks each period, one could obtain debt trajectories in a fan chart. This ceiling should be set sufficiently low to ensure that debt will remain below the maximum debt limit with high probability, measured as a percent of risk tolerance, even in the face of negative shocks[3]. Many countries adopt this debt ceiling as part of their fiscal rules. We choose this model, because it is particularly well-suited for (i) capturing the dynamic linkages between the determinants of debt as well as their underlying steady-state values, (ii) generating plausible sets of random disturbances, and (iii) producing consistent forecasts for all relevant variables in the debt accumulation equation.

4.   The maximum sustainable debt limit is dependent on a country's specific circumstances. In theory, a government cannot indefinitely increase its tax revenue to cover its spending, so the debt-to-GDP ratio will approach its maximum limit when the primary balance reached its maximum capacity as show below: where

$$d_t = \left(\frac{1+r_t}{1+g_t}\right) d_{t-1} - pb_t \qquad (1)$$

d_t represents the debt-to-GDP ratio, r_t is the interest rate on debt at time t, pb_t is the primary balance as a share of GDP at time t, and g_t is the nominal growth of GDP. In practice, however, uncertainties regarding interest rate, exchange rate movements and GDP growth make it exceedingly challenging to project the maximum sustainable debt limit over medium-and-long term. Additionally, variations in government's tax capacity and the effectiveness of public finance management institutions could also impact market perception of government repayment capacity, therefore some countries with higher institutional capacity could have larger maximum sustainable debt limits than other countries with weaker institutional capacities. For example, Reinhart, Rogoff, and Savastano (2003) introduced the concept of "debt intolerance", when they observed that public debt to GDP ratio often exceeds 100 percent in advanced economies, while in contrast, this ratio was significantly lower for emerging markets during period of default. They documented that nearly half of all defaults or debt restructurings since 1970 occurred in countries with ratios of external debt to

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[3] "How to calibrate fiscal rules: a primer" prepared by a team led by Luc Eyraud and including Anja Baum, Andrew Hodge, Mariusz Jarmuzek, Young Kim, Samba Mbaye, and Elif Ture. (2017)

GDP below 60 percent. For example, Argentina's 2001 default occurred when public debt was roughly 50 percent of GDP.[4]

5.   The maximum sustainable debt limit is found to be around 85 to 95 percent of GDP based on different studies. Cecchetti, Mohanty, and Zampolli (2011) concluded that debt becomes a drag on growth when it exceeds around 85 percent of GDP in OECD countries. F. Caselli, H. Davoodi, C.Goncalves, and others (2022) found that if a country could only sustain a primary surplus of about 0.5 percent of GDP over the long term, the corresponding sustainable level of debt would be around 95 percent of GDP based on a study of 25 emerging market economies.

B.   General Government Debt Profile and Developments[5]

In this section, we focus on the specific vulnerabilities in public debt as illustrated by the analysis of debt volatility, debt service cost and stock-flow adjustment. These vulnerabilities will have an impact on the calibration of debt ceiling.

6.   Egypt has experienced several debt crises over the past five decades. The year-on-year changes in debt-to-GDP ratio ranged from-18 percent to 41 percent from 1972 to 2023. During the past 5 decades, Egypt has also experienced one default in 1984, and subsequently received debt relief from the Paris Club in 1987 and 1991. It has received debt forgiveness from Gulf countries and debt swap treatments between 2002 and 2007[6]. Koh et.al (2020) identified three currencies crises in Egypt— occurring in 1979, 1990 and 2016—and one banking crisis in 1980, which were associated with the rise in the general government debt-to-GDP ratio. Egypt has also been supported by ten IMF programs with the most recent being the Extended Fund Facility program approved in 2022.
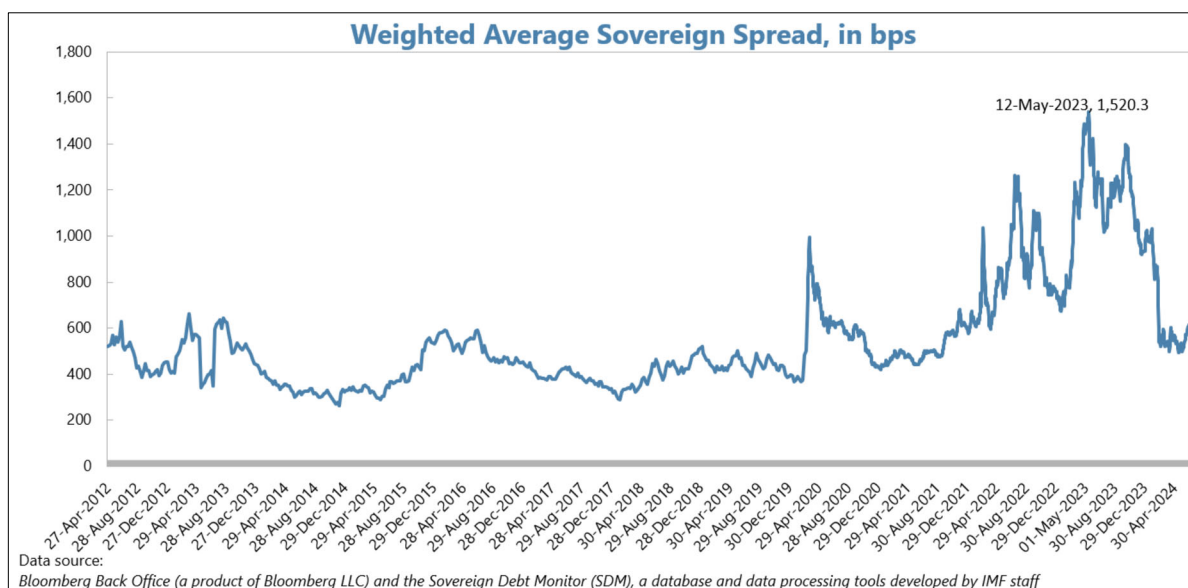

General Government Debt
(in percent of GDP)

Data source: Global debt database.

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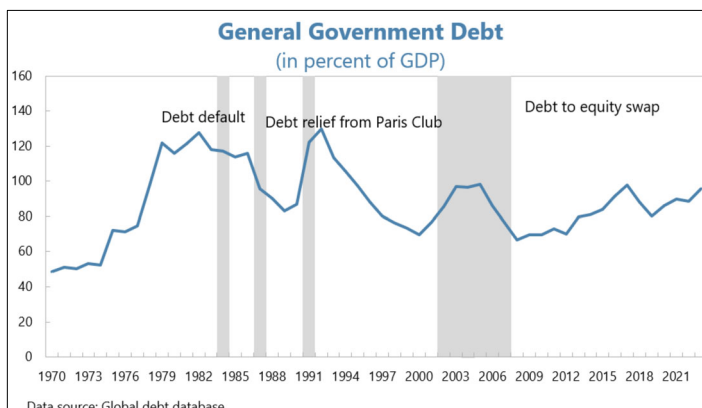
[4] Prior to its debt default episode, Argentina had been in a recession since 1998. By 2001, when it defaulted, the interest payment had doubled from 11 percent of revenue in 1998 to 20.6 percent. See Christina Daseking et. al (2004) *Lessons from the Crisis in Argentina,* for more details.

[5] Several databases are used to conduct the analysis. The global debt database contains only the total debt for general government, while the Integrated Debt Statistics of the World Bank includes external debt of the general government. For the total debt to GDP, the General Government sector consists of legal entities established by political processes that have legislative, judicial or executive authority over other institutional units within a given area, principally engaged in non-market production intended for individual and collective consumption and in the redistribution of income and wealth by transfers, which is financed mainly by compulsory payments made by units belonging to other sectors. The general government sector includes institutional units at central, state, and local level together with social security funds and non-profit institutions controlled by them. Times series are for fiscal year which begins in July and ends in June in the following calendar year.

[6] See details in Realizing the Right to Development, 2013 by the United Nations.

7.   In recent years, Egypt's sovereign debt vulnerabilities have increased. In 2023, Bloomberg ranked Egypt as the second most vulnerable country to a debt crisis, when the public debt is at 93 percent of GDP.[1] As also illustrated in the chart, the weighted average spread increased in recent years, exceeding 1500bps in May 2023, highest after Lebanon and Pakistan in the MENA region.

Data source:
Bloomberg Back Office (a product of Bloomberg LLC) and the Sovereign Debt Monitor (SDM), a database and data processing tools developed by IMF staff

8.   Significant stock-flow adjustments (SFA) have been one of the most important drivers of public debt increase in the past decade. The debt dynamic equation can be rewritten to include the residual ε_t, or stock flow adjustment factor (SFA), which captures all other adjustments that are beyond the standard debt dynamics.

$$\Delta d_t = (\frac{r_t - g_t}{1 + g_t})d_{t-1} - pb_t + \varepsilon_t \qquad (2)$$

In the 2024 Fiscal Monitor, IMF staff found that nearly 40 percent of identified SFA are related to materialization of fiscal risks and contingent liabilities, of which SOE-related loss is the largest source. For Egypt, SFA has been the main drivers for the rise of public debt since 2017. Specific factors for SFA in Egypt include payment of outstanding arrears[2], the realization of contingent liabilities from electricity sector to the national oil company EGPC and statical issues. In particular, the government fiscal outturn does not include implicit interest expense on discounted T-bills and zero-coupon T-bonds, which are included in non-deficit debt creating flows. The issuance of recapitalization bonds to compensate central bank' loss and payment to the social insurance fund in bonds are not included as government transfers, in line with the GFSM2001. The size of SFA ranged from 2 percent to 7 percent of GDP in the past.

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[1] See details tweeted by Ziad Daoud on X: "Which countries are most vulnerable to a debt crisis? We ranked 60 countries by: - Public debt - Interest costs - Yield on dollar bonds 4 Middle Eastern countries are among the most exposed: Egypt (2nd) Tunisia (4th) Bahrain (11th) Jordan (13th) With @sjinlondon, @YvonneMhango https://t.co/0w0xNKTmWw" / X

[2] S.B. Alnashar attributed to the large public debt increase for FY2001/02-FY2004/05 to payment of outstanding arrears by the Ministry of Finance. See "What are the drivers of Egypt's government debt?" Working Paper No.1376, 2019.
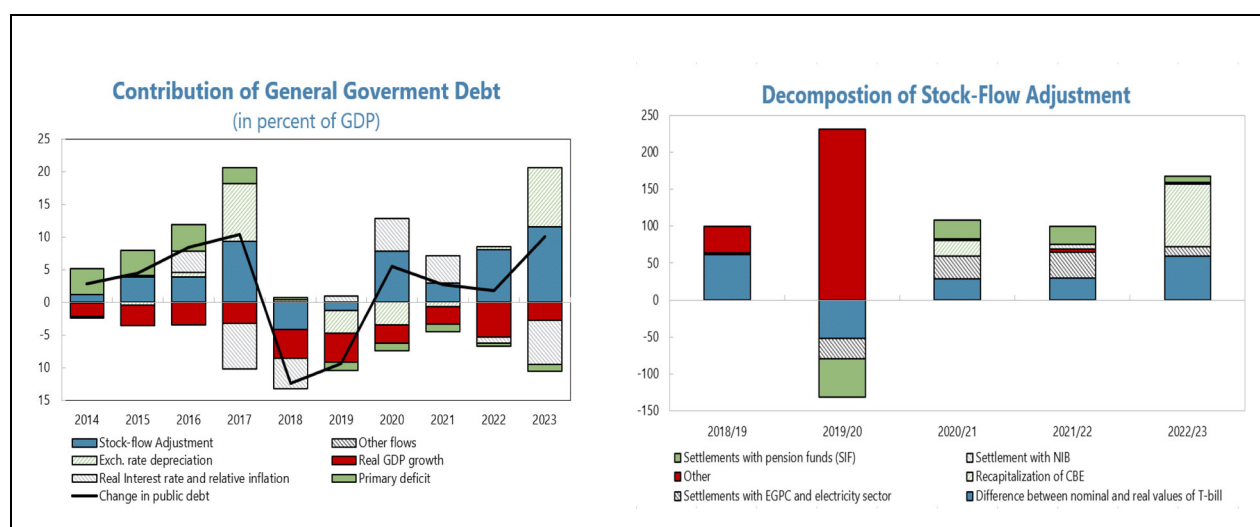
9. **Declining concessionality of external debt and increasing concentration in terms of debt maturity and debt holders pose additional challenges.** In the 1990s and early 2000s, about 22 percent of its external debt were on concessional terms, however, this share has declined to less than 10 percent in recent years. Within domestic debts, about 50 percent are concentrated in short-term T-bills and majority of which are held by local banks. Soaring debt service costs, which rose to about 80 percent of tax revenue and 74 percent of total revenue of the central government in FY23/24 not only crowed out government spending on h ealth, education and other development needs, but also pose great pressure on liquidity management.
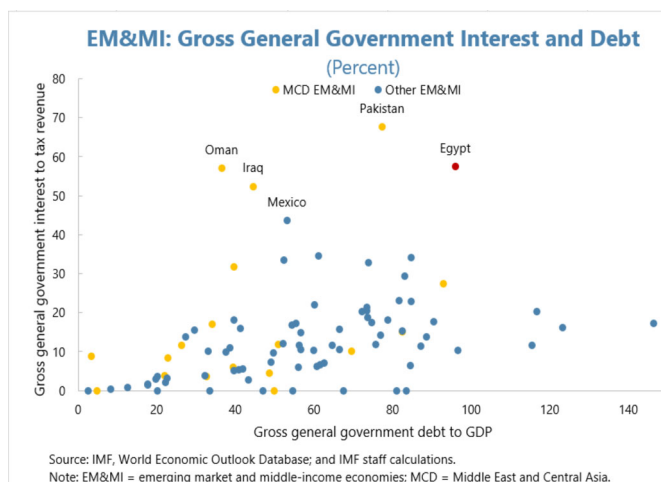

C. Calibration of Debt Anchor and Fiscal Consolidation Path for Egypt

10. **We choose a maximum sustainability debt limit for Egypt at 90-95 percent of GDP to calibrate a debt anchor.** This is informed by the analysis in the previous section—namely existing cross-country studies as well as the history of debt stress episodes in Egypt. To run the simulation based on annual data, we use general government debt, real GDP growth, nominal GDP, GDP deflator, and exchange rates from 2000 to 2023 published in the WEO database. We also use data from Ministry of Finance to calculate the effective interest rate for both domestic currency and foreign currency denominated debt. In addition, the SFA is calculated using the above-mentioned data based on the equation (2) incorporating breakdown of interest rates in both domestic currency and foreign currency.

11. **The calibration of debt anchor for Egypt also considers the possibility of materialization of SFA and risk tolerance.** As the SFA accounted for about 2–7 percent of GDP in the past, we consider two scenarios: (1) no SFA materialization with maximum sustainable debt at 90 percent of GDP; (2) 5 percent of SFA materialization with maximum sustainable debt at 95 percent of GDP. Under both scenarios, we choose the risk tolerance rate at 10 percent, which is the mean of the recommended range between 5 to 15 percent. The risk tolerance measures the level of risk a government is willing to accept regarding the probability under which the debt will breach the maximum debt limit. Higher risk tolerance will result in higher debt anchor.

12. **Results indicate that, using historical outturns and shocks as a guide, a debt anchor could be set between 42 percent to 60 percent of GDP.** The wide range of the debt anchor reflects its high sensitivity to the size of SFA. However, because the stochastic simulation estimates the distribution of macroeconomic and fiscal shocks based on historical data without considering the authorities' undergoing fiscal consolidation and commitment to reduce government debt by using divestment proceeds, the calibrated debt anchor could be higher than the current results. On balance, given the substantial government's guarantees to SOEs and many below-the-line transactions in Egypt, it is prudent to adopt a conservative approach when selecting a debt anchor. In this study, we choose the debt anchor at 60 percent of GDP for illustration purpose.

An Illustration of the Debt Anchor Under Two Scenarios
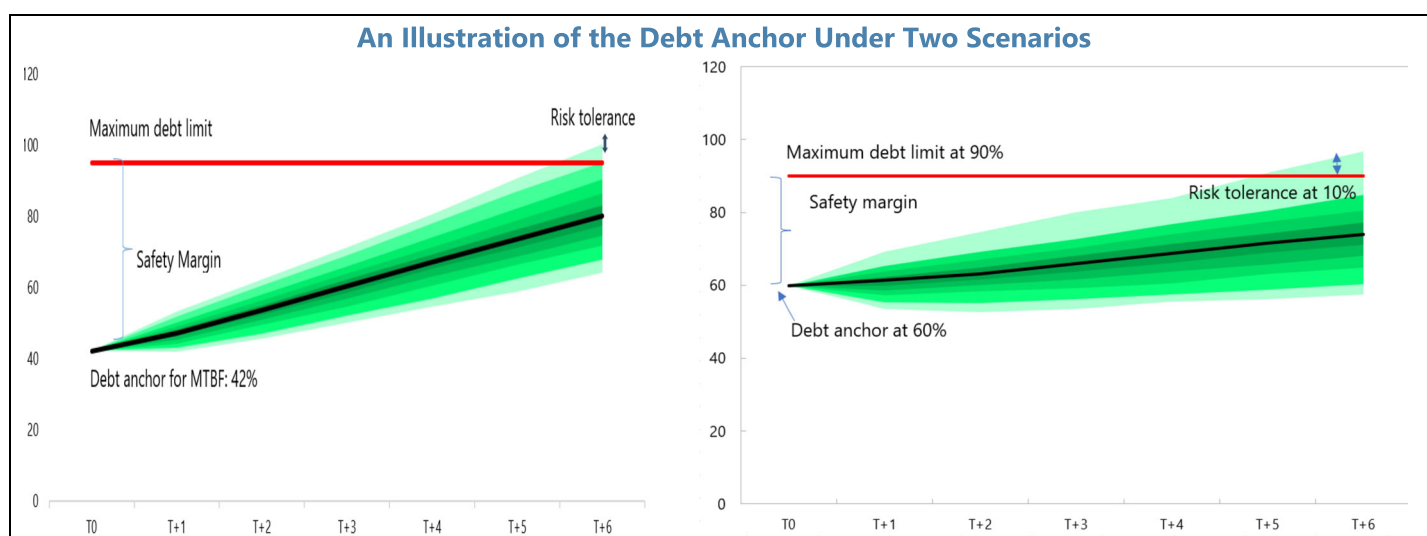
13. **Continued fiscal consolidation is required to bring public debt down to 60 percent of GDP over the medium-term**. We consider four scenarios to illustrate the primary balance and debt path: (1) a constant primary balance that could bring public debt to 60 percent in the long-run; (2) a constant primary balance to allow debt to reach 60 percent of GDP at a given date; (3) an initial three-year fiscal adjustment period, followed by a constant primary balance to reduce debt to 60 percent of GDP; and (4) building up fiscal buffers to cope with additional expenditure needs to reach SDG goals[3]. This simulation assumes nominal GDP grows at 10 percent and nominal interest rate is at 8 percent. The initial public debt was at 91 percent of GDP in FY23/24, while the initial

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[3] Unpublished work (IMF Selected Issues Paper, 20XX) estimated that Egypt could need up to 5.5 percent of GDP additional spending annually to reach SDG goals by 2030. This simulation assumes 2 percent of GDP of additional spending per year to illustrate its impact on the deficit and debt path.

primary surplus and overall deficit were 2.5 percent and 7.4 percent respectively excluding divestment proceeds. The first method as shown in orange in the chart below (convergence in the long run), shows that with primary deficit ceiling at 1.1 percent of GDP, public debt could gradually decline to 60 percent of GDP in the long run (over 50 years), but it will only decline slightly in the medium-term to 88 percent of GDP. The other three methods all indicate that public debt could decline to 60 percent of GDP in 5 years on condition that annual primary balance can stay at least at 5 percent of GDP in the medium-term, with the exception that under a 3-year transition period scenario, primary surplus will increase from 3 percent to 5 percent of GDP. It is worth to note that the SFA is assumed as zero for this exercise given that SFA is unpredictable.
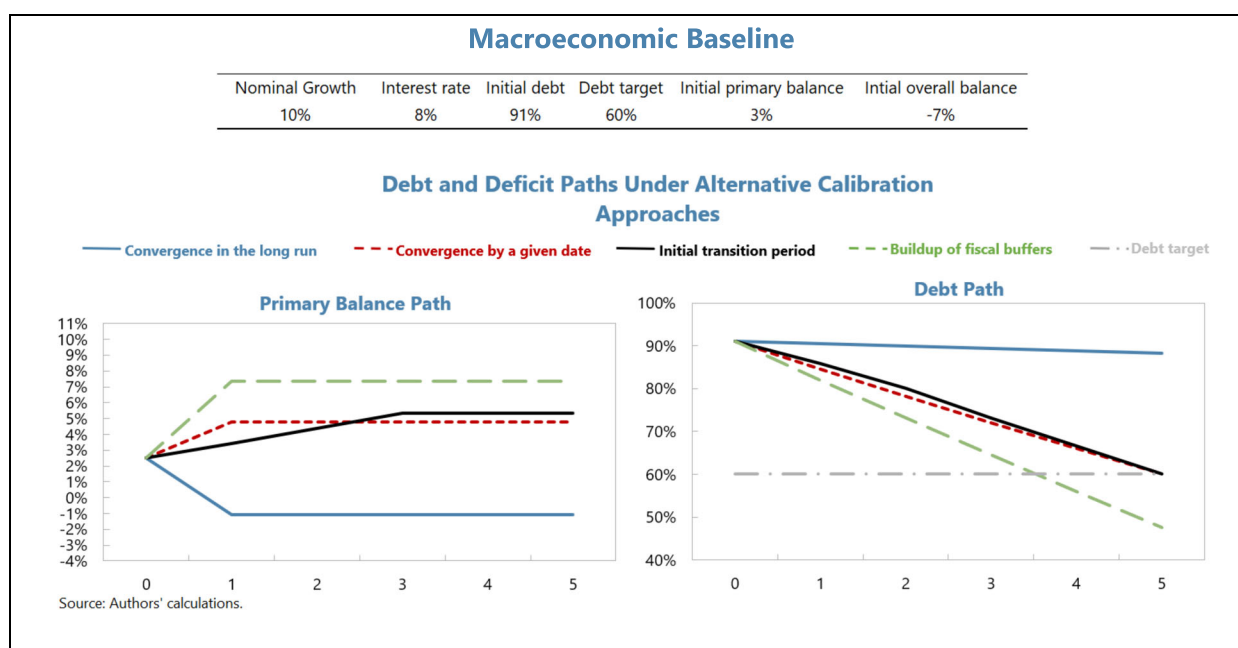
D. Preliminary Conclusion

14.   As the Ministry of Finance embarks on the adoption of medium-term budget framework for FY25/26, it is the right time to consider establishing a debt anchor to boost fiscal responsibility. A clear debt anchor will support the government to establish feasible annual budget target and communicate with all relevant parties in reaching consensus. By legalizing the debt anchor as a fiscal rule, Egypt government could also strengthen its credibility to enhance market confidence.

15.   The current debt target of 80 percent of GDP for medium-term is below the maximum sustainable ceiling but doesn't allow sufficient room for the type of shocks historically driving debt levels in Egypt. The calibration outcomes illustrates that it will be more prudent to have a lower debt anchor at least 60 percent of GDP to avoid episodes of debt stress in the future. With the large below-the-line transactions and stock-flow-adjustment elements in the past, a lower debt target could ensure that the debt trajectory will not breach the maximum sustainable debt limit at high probability.

16.   The authorities should enhance fiscal accounting/reporting to be in line with the international standards. The relatively large stock-flow adjustment in public debt developments has reflected large discrepancy between the above-the-line and below-the-line, which could be resulted from the current fiscal accounting/reporting practices. More specifically, the authorities are recommended to clarify the component of the difference between nominal value and present value of T-bills/T-bonds and ensure that implicit interest is accurately captured by the interest payment at the time of redemption of zero-coupon bond. The amount of settlement of EGPC with electricity company, and the recapitalization of Central Bank of Egypt and payment to Social Insurance Fund should also be recorded in the expenditure even when the fiscal reporting is on cash basis.

17.   A primary surplus of 5 percent of GDP would be needed to bring down public debt to 60 percent of GDP within a 5-year period. While it is challenging to remain such a high primary surplus for several years, the target is not unachievable. The tax to GDP ratio in Egypt is lower than its peers in emerging market economies and the authorities' tax expenditure study[4] points out significant potential gains about 4 percent of GDP by removing exemptions and broadening tax base. In addition, removing untargeted fuel and electricity subsidies will create fiscal space to increase spending on education, health and social safety net. Alternatively, the authorities could also consider gradually reach this debt target in longer period. For example, they could target public debt at 70 or 65 percent of GDP in the medium-term, with the required annual primary surplus at 3 or 4 percent of GDP respectively.

18.   The authorities should enhance debt management capacity. The high gross financing needs and concentration in short-term debt has poses significant risks in public debt sustainability. The authorities are recommended to improve the maturity structure of domestic debt, such as gradually increasing the issuance of longer-dated bonds and broadening the investor base.

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[4] The report is available in the Ministry of Finance' website: https://assets.mof.gov.eg/files/815597c0-07b5-11ef-9b16-dbd2831de27f.pdf.

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