Fiscal and Public Debt Sustainability in Egypt

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Social and Economic Development Group

Middle East And North Africa Region

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Summary

This paper assesses the sustainability of public debt in Egypt in light of recent fiscal trends. It discusses different estimates of the public debt in Egypt, analyzes key fiscal trends underlying recent growth in the public debt, explores whether these trends are structural or cyclical, and simulates debt-output trajectories based on alternative assumptions about key macroeconomic variables. The paper arrives at four main conclusions. First, Egypt presently has a high debt-output ratio relative to its comparators among lower middle-income countries. Second, the debt is being driven by structural factors rather than by cyclical ones. Third, the structural weaknesses of the budget are mainly related to low tax buoyancy and yields as well as to rising wage, subsidy and interest payment expenditures. Finally, simulation results show that both fiscal adjustment and economic growth would help restrain debt growth and achieve sustainability. In this respect, a desirable strategy would be one that generates growth without raising the public debt, in other words, one that relies largely on private investment to serve as the engine of growth.

ملخص

تقترب هذه الدراسة قابلية تحمل الدين العام في مصر في ضوء الاتجاهات الحديثة للعهد في المالية العامة، وهي تناقش تقييمات مختلفة للدين العام في مصر، وتحمل الاتجاهات الرئيسية في المالية العامة التي كانت سبب الزيادة الأخيرة في الدين العام، وتسجل ما إذا كانت هذه الاتجاهات هيكليّة أم ناتجة عن الدورة الاقتصادية، مع محاكاة سيناريوهات الدين العام والإنفاق استنادًا إلى عدد من الدورات الاقتصادية، فيما يتعلق بالتغييرات الاقتصادية الكلية. وتخلص هذه الدراسة إلى أربعة استنتاجات رئيسية. أولًا، نسبة الدين العام إلى الإنفاق في مصر مرتفعة حالياً قياسًا مع البلدان المماثلة من بين البلدان المتوسطة الدخل. ثانياً، الدين العام مدفع وعامل هيكلي وليس معامل الدورة الاقتصادية. ثالثاً، تفاوت الضعف الهيكلي في الميزانية ناجمة بصورة رئيسية عن انخفاض حصة الإيرادات الضريبية وانخفاض مرونة النظام الضريبي، فضلاً عن ارتفاع الأجور والإفاق على الدعومات المالية ومدفوعات أجور الفائدة. أخيراً، يتبين من نتائج عملية المحاكاة أن من شأن عمليات تكييف المالية العامة لتحقيق نمو الاقتصاد المساعدة في وقف تزايد الدين العام وتحقيق قابلية [القدرة على] تحمله. وفي هذا الصدد، تتمثل الاستراتيجية المرغوبة في استراتيجية تحقيق النمو الاقتصادي دون التسبب بزيادة الدين العام، وبعبارة أخرى الاستراتيجية التي تعتمد على حد كبير على استثمارات القطاع الخاص كمحرك دائم للنمو الاقتصادي.

Résumé

Le présent document évalue la viabilité de la dette publique en Egypte à la lumière de l’évolution budgétaire récente. Il discute les différentes estimations de la dette publique en Egypte, analyse les tendances budgétaires clés sous-tendant la croissance récente de la dette publique, étudie la question de savoir si ces tendances sont structurelles ou cycliques, et simule des trajectoires dette-révenu basées sur des hypothèses alternatives de variables macro-économiques clés. Le document tire quatre conclusions principales. Premièrement, l’Egypte offre un ratio dette-révenu élevé par rapport à ses comparateurs entre pays à revenu intermédiaire, tranche inférieure. Deuxièmement, la dette est motivée par des facteurs structurels plutôt que par des facteurs cycliques. Troisièmement, les faiblesses structurelles du budget sont essentiellement liées à la fermeté et aux rendements fiscaux faibles ainsi qu’à l’augmentation de la masse salariale, des subventions et des dépenses de paiement des intérêts. Enfin, les résultats de la simulation indiquent que l’ajustement budgétaire et la croissance économique aideraient à contenir la croissance de la dette et à réaliser la viabilité. A cet égard, une stratégie souhaitable consisterait à générer la croissance sans augmenter la dette publique, en d’autre termes, une stratégie qui se fonde dans une large mesure sur l’investissement privé pour servir de moteur à la croissance.
I. Introduction

Public debt in Egypt stood at 126 percent of GDP at the end of fiscal year 2003, of which an amount equal to 90 percent of GDP was owed to domestic and 36 percent to foreign sources. When compared with other countries, this ratio of debt is high. Many countries have experienced serious macroeconomic crises involving high inflation, growth collapses and debt defaults at such high ratios of debt. However, high debt ratios do not necessarily lead to macroeconomic crises. Much depends on the term structure of the debt and interest rates, on whether government policy is seen by market participants to be consistent with falling debt ratios in the longer run, and whether there is a high or low rollover risk.

The main purpose of this paper is to understand how the public debt in Egypt has risen to its current level and to consider whether present trends in key fiscal variables are likely to be sustainable. A natural point of departure is to discuss the definition of public debt in Egypt and to understand its main components. This is attempted in Section II of this paper.

Debts are linked to deficits in that rising public debt is essentially a consequence of persistent fiscal deficits. To gain a good understanding of the main drivers of public debt, section III examines trends in fiscal performance. It provides a discussion of trends in public revenues and expenditures, alternative definitions of the fiscal deficit, and the main sources of deficit financing. With the help of a measure of potential output, Section IV attempts to distinguish between structural and cyclical factors behind the trends in Egypt’s fiscal deficit.

The concept of sustainability has proven to be rather elastic in public discourse and often means different things to different people. Accordingly, it is important to define carefully what we mean by sustainability with regard to fiscal trends. A popular notion of sustainability is that of consistency with other pre-selected macro-targets. In this paper, we use the debt-output ratio as the criterion by which to judge sustainability. Section V outlines the procedure used to calculate future debt output ratios from current fiscal trends and discusses alternative scenarios with respect to key macroeconomic variables. The final section offers concluding remarks.

II. Defining the Public Debt

To define public debt accurately requires understanding the full range of liabilities that accrue ultimately to all components of the public sector. The public sector consists of the central government, local governments, state-owned enterprises and authorities and the central bank. Liabilities should normally include all explicit debts and implicit guarantees of

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1 About 55 percent of debt defaults that have occurred in the last thirty years were in countries with debt stocks below 60 percent of GDP (in the year prior to the default) and about 35 percent of default cases featured debt-output ratios of less than 40 percent (IMF, World Economic Outlook, 2003, p 54). It should be noted, however, that the definition of public debt varies across countries and the data as reported by official sources are sometimes difficult to compare.
the public sector. In practice, however, it is hard to assess the “current debt equivalent value” of implicit or contingent guarantees and attention is typically focused on explicit debts only.²

According to the Monthly Statistical Bulletin of the Central Bank of Egypt (CBE), public debt can be attributed to the government sector (central and local administrative units and service authorities), as well as economic authorities and the National Investment Bank (NIB). The latter is a state-owned entity that borrows largely from social insurance funds (and smaller amounts directly from private lenders) and lends to the government and to economic authorities (as well as very small amounts to the private sector). Table 1 provides a breakdown of the public debt as reported by the CBE.

Three observations can be made with respect to the estimates of public debt in Table 1. First, debt owed to the social insurance funds (SIFs) is not netted out. If we were to consider all transactions with the SIFs to be internal to the public sector, these liabilities would not appear as a debt of the public sector and the total debt would be lower.³ Second, the monetary debt of the CBE is not included in the calculations. This could be important if direct credit from the CBE were a substantial source of deficit financing for the government and/or if the CBE, which is also a public sector entity itself, had a sizable negative net worth. Third, external debt rescheduled in 1991 under a Paris Club agreement is not netted out. According to the agreement, eligible external debt repayments were rescheduled but still had to be deposited domestically in an account at the CBE according to the original schedule. The repayments are made in local currency to the CBE account and are credited at the rescheduled dates in foreign currency to the relevant external creditors. The deposits are kept in a “blocked account” which means that they cannot be used for any other purpose without the agreement of the external creditors. This account is believed to currently hold LE 80 billion or $13 billion.⁴ For the purposes of this paper, this category is not netted out of the public debt because the debt has not yet been paid although the resources to pay apparently exist with the CBE. This caveat should be kept in mind in the assessment that follows.

² This should not lead to complacency, however. Contingent liabilities arising from the financial system and pension arrangements can be substantial and can have significant implications for fiscal adjustment. For example, banking crises that occurred a few years ago in emerging market economies have been estimated to have cost about 20 percent of GDP on average (IMF, World Economic Outlook, Box 3.2).
³ There are two SIFs, namely, the SIF for Government Employees and the SIF for Public and Private Business Sector Employees. The main reason not to net out the debt owed to the SIFs by Egyptian state authorities is because, legally, these funds are considered private entities. However, some aspects of their operations suggest close links to the public sector. First, they are obliged to transfer their surplus to the NIB. Second, cost of living increments under the pension schemes are a liability of the government rather than of the SIFs. Third, it is inconceivable that the government would not ultimately stand behind pension obligations at least for government employees; in this sense, the liabilities of the SIF may be thought of as at least contingent liabilities of the central government.
⁴ While the amount of the rescheduled debt is reported, the current value of the “blocked account” is not separately and explicitly reported in the Monthly Statistical Bulletin of the CBE.
Table 1. Egypt’s Public Debt

<table>
<thead>
<tr>
<th></th>
<th>FY00</th>
<th>FY01</th>
<th>FY02</th>
<th>FY03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>164.4</td>
<td>194.8</td>
<td>221.2</td>
<td>252.2</td>
</tr>
<tr>
<td>Economic Authorities</td>
<td>37.5</td>
<td>41.7</td>
<td>41.1</td>
<td>39.2</td>
</tr>
<tr>
<td>NIB</td>
<td>43.6</td>
<td>54.3</td>
<td>67.4</td>
<td>79.2</td>
</tr>
<tr>
<td>Domestic Debt (LE bn)</td>
<td>245.5</td>
<td>290.8</td>
<td>329.8</td>
<td>370.6</td>
</tr>
<tr>
<td>External Debt (US $ bn)*</td>
<td>27.3</td>
<td>26.1</td>
<td>28.1</td>
<td>28.5</td>
</tr>
<tr>
<td>Rescheduled Bilateral Debt**</td>
<td>16.3</td>
<td>14.8</td>
<td>15.3</td>
<td>15.8</td>
</tr>
<tr>
<td>Exchange rate</td>
<td>3.5</td>
<td>3.9</td>
<td>4.5</td>
<td>5.3</td>
</tr>
<tr>
<td>External Debt (LE bn)</td>
<td>95.6</td>
<td>101.8</td>
<td>126.5</td>
<td>151.1</td>
</tr>
<tr>
<td><strong>Total Public Debt (LE bn)</strong></td>
<td>341.1</td>
<td>392.6</td>
<td>456.3</td>
<td>521.7</td>
</tr>
<tr>
<td>Ratios to GDP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic Debt/GDP</td>
<td>72.2%</td>
<td>81.1%</td>
<td>87.1%</td>
<td>89.3%</td>
</tr>
<tr>
<td>External Debt/GDP</td>
<td>28.1%</td>
<td>28.4%</td>
<td>33.4%</td>
<td>36.4%</td>
</tr>
<tr>
<td>Total Public Debt/GDP</td>
<td>100.3%</td>
<td>109.4%</td>
<td>120.5%</td>
<td>125.7%</td>
</tr>
<tr>
<td>Annual Rates of increase</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume of domestic debt</td>
<td>18.5%</td>
<td>13.4%</td>
<td>12.4%</td>
<td></td>
</tr>
<tr>
<td>Volume of external debt</td>
<td>6.5%</td>
<td>24.2%</td>
<td>19.5%</td>
<td></td>
</tr>
<tr>
<td>Volume of total public debt</td>
<td>15.1%</td>
<td>16.2%</td>
<td>14.3%</td>
<td></td>
</tr>
<tr>
<td>Ratio of domestic debt/GDP</td>
<td>12.3%</td>
<td>7.5%</td>
<td>2.5%</td>
<td></td>
</tr>
<tr>
<td>Ratio of external debt/GDP</td>
<td>1.0%</td>
<td>17.7%</td>
<td>8.9%</td>
<td></td>
</tr>
<tr>
<td>Ratio of total debt/GDP</td>
<td>9.1%</td>
<td>10.1%</td>
<td>4.3%</td>
<td></td>
</tr>
</tbody>
</table>

Memo:
GDP at market prices (LE bn)
340.1 358.7 378.5 415.0

* Excluding non guaranteed private sector debt; **Refers to external debt rescheduled per agreement with Paris Club creditors in 1991.

Regarding trends, it is clear from Table 1 that the volume of public debt (as well as its domestic and external components) has been rising faster than GDP in recent years; accordingly, the debt-output ratio has been rising. It would also appear that the main contribution to the rise in public debt is coming from the government sector. The government sector’s debt rose by over 82 billion LE between FY00 and FY03 while debt assigned to the NIB has also jumped by about 36 billion LE over this period. However, the debt of the economic authorities increased only modestly by about 1.62 billion LE.

Examining Egypt’s public debt trends in a longer time perspective reveals additional information. Figure 1 shows how the total debt relative to GDP has evolved since FY94. Total debt has been rising more or less steadily since FY96 while GDP growth has been on a downward trend. This suggests that the systematic rise in the debt-output ratio has persisted over at least eight years.
Figure 2 shows how the components of domestic debt have evolved since FY91. Four observations can be made from the data in Figures 1 and 2. First, the nominal volume of domestic debt has risen persistently. Second, domestic debt has been increasing faster than GDP for most of the period since FY95. Third, the rate of increase of the domestic debt-output ratio has declined since FY01 while that of external debt has picked up. Finally, it is clear that the government sector remains the most important source of debt increase whether examined in the short term or long term.

**Figure 1. Growth Rates of Debt and GDP**

![Figure 1](image1.png)

**Figure 2. Evolution of Domestic Debt and Components**

![Figure 2](image2.png)

To make it easier to compare Egypt with countries that net out borrowing from social insurance funds, we offer an alternative calculation of Egypt’s public debt in Table 2. We adjust for the transactions with the SIFs by subtracting the resources provided by the SIFs to the NIB from the total domestic debt. Note that while this adjustment reduces the volume of
the public debt and its ratio to GDP, the trends are still the same as with the official measure, namely, the stock and the ratio to GDP have been rising in recent years.

### Table 2. Total Public Debt Net of SIF Claims

<table>
<thead>
<tr>
<th></th>
<th>FY00</th>
<th>FY01</th>
<th>FY02</th>
<th>FY03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic debt</td>
<td>245.5</td>
<td>290.8</td>
<td>329.8</td>
<td>370.6</td>
</tr>
<tr>
<td>of which SIF claims</td>
<td>119.8</td>
<td>136.3</td>
<td>154.7</td>
<td>174.8</td>
</tr>
<tr>
<td>Domestic debt net of SIFs</td>
<td>125.7</td>
<td>154.5</td>
<td>175.1</td>
<td>195.8</td>
</tr>
<tr>
<td>Total Public Debt</td>
<td>341.1</td>
<td>392.6</td>
<td>456.3</td>
<td>521.7</td>
</tr>
<tr>
<td>Total Public Debt net of SIF claims</td>
<td>221.3</td>
<td>256.3</td>
<td>301.6</td>
<td>346.9</td>
</tr>
<tr>
<td>Total Public Debt net of SIF claims/GDP</td>
<td>65.1%</td>
<td>71.4%</td>
<td>79.7%</td>
<td>83.6%</td>
</tr>
</tbody>
</table>


An initial sense of whether debt trends in Egypt are sustainable can be obtained from comparing the debt-output ratio in Egypt to those in selected countries, some of whom have recently experienced macroeconomic instability and debt crises (see Table 3). It is clear from the comparison that Egypt’s debt-output ratio in 2000, whether including or excluding SIF claims, was higher than the average for all lower middle income countries as well as higher than the ratios observed in such crisis-affected countries as Argentina, Brazil, and Turkey.

### Table 3. Comparative Public Debt-Output Ratios (2000)

<table>
<thead>
<tr>
<th></th>
<th>Egypt</th>
<th>Middle income country average</th>
<th>Lower middle income average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public debt/GDP</td>
<td>100</td>
<td>55</td>
<td>57</td>
</tr>
<tr>
<td>Public debt net of SIF claims/GDP</td>
<td>65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selected comparators</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>63</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: World Bank

Determining the specific level at which the debt-output ratio crosses the line into unsustainability is essentially arbitrary, albeit informed by experience. The EU uses a 60 percent level as its preferred benchmark in accession negotiations. It is generally argued that developing countries should respect an even lower ceiling since they are more likely to encounter funding crises (due to their susceptibility to large external shocks and generally volatile GDP growth paths, for example) and are less likely to be able to cope with such crises (due to their small revenue bases or inability to control capital outflows, for example). This is one reason why poor countries with the same debt-output ratios as rich ones often have much lower credit ratings. Thus, while reiterating the caveats that the definition of debt
varies across different reporting sources and debt crises have historically been associated with a range of debt-output ratios, Table 3 suggests that it would be prudent to be concerned about current trends in Egypt.

III. Fiscal Trends Underlying Debt Developments of the 1990s

Large and persistently growing budget deficits are the main drivers of unsustainable debt positions. The mechanism is well understood. Fiscal deficits create the need for debt financing. Over time, as the public debt burden grows, a rising interest payment component puts additional pressure on the fiscal accounts, creating the potential of deficit - debt spiral with adverse implications for stability and growth. All other things being equal, if the interest rate on the public debt is higher than the real growth rate of the economy, a downward spiral is bound to develop. This is not an unknown set of issues in Egypt, which in the late 1980s dealt with budget deficit ratios that were in the double digits. However, the sustainability of the fiscal accounts has not been a policy issue in Egypt during the 1990s and it may be a surprise to some analysts that it has once again become of interest. This section reviews the fiscal operations of the government during the 1990s and early 2000s in order to understand the initial conditions of the budgetary accounts, and to set the stage for a more forward looking analysis of sustainability.

In 1991/92, in the context of a stabilization program, the Government initiated a remarkable fiscal adjustment that reduced the fiscal deficit from 15 percent of GDP in FY91 to 0.9 percent of GDP in FY97. Subsequently, however, the fiscal position weakened. Pressure on the fiscal accounts began in 1998/99 as expenditures increased significantly for the first time in the 1990s. Most of the increase was due to investment expenditures that rose sharply by 3% of GDP in 1998/99. Most probably, capital expenditures had increased earlier but were not reported, as suggested by the payment of investment expenditures arrears that began to appear below the line among the financing items of the budgetary accounts in 1998/99.

Revenues declined by about 1 percent of GDP during these two years, following the trend since 1991/92. Another source of concern for the authorities was the recording in 1998/99 and 1999/2000 of significant errors and omissions among the financing items of the State budget, suggesting, together with the payment of investment arrears, that the underlying deficit was larger than officially recorded. Similarly, the rise in domestic debt was faster

5 A detailed discussion of the Egyptian stabilization experience during the 1990s is provided in Subramanian (1997) and Panizza (2001).
than what was implied by the domestic financing recorded in the State budget, suggesting that the underlying deficit was significantly larger.

These concerns were important factors behind the adoption of improved budgetary reporting through new accounts that clarify and consolidate the financial operations of different institutions of the public sector. The new accounts (published from 1998/99) distinguish between the budgetary sector, the National Investment Bank (NIB) and General Authority for the Supply of Commodities (GASC), and the social insurance funds (SIFs). The budgetary sector, the narrowest definition of the public sector, includes the central government, local government, and public service authorities. The NIB, wholly owned by the Government, finances government investment projects as well as those of public authorities, but has provided small amounts of credit to private enterprises in the past. On the liability side, the NIB funds itself by borrowing from the SIFs, and by issuing savings certificates to the general public. Financially, the most important operations of the SIFs are to provide pensions to eligible retirees from both the public and private sectors. The SIFs are funded by contributions from participating employees and their employers and the general government, the latter to cover cost of living increases in pensions that is the responsibility of government. The GASC is responsible for providing subsidized commodities to the Egyptian public. The GASC is partially self funded through the sale of the commodities but receives as well transfers from the budget sector to fund the price subsidy.

The consolidation of the general government with the other institutions adds significant expenditures undertaken by GASC, NIB and the SIFs, as well as their revenues and, more importantly, sheds light on financial inter-relationships among public institutions as well as on how public expenditures are financed. The new accounts indicated that the deficit in 1998/99 was higher than measured by the old accounts. The new accounts also show that the deficit of the budget sector in 1998/99 was 3 percent of GDP and that consolidating GASC and NIB increases the deficit to 4.6 percent of GDP. This increase mainly reflects larger interest payments and the net-lending of the NIB. Finally, consolidating the SIFs brings the deficit sharply down to 0.1% of GDP, in particular as a result of significant interest savings, since a large proportion of government and NIB debt is to the SIFs. The consolidation of the SIFs also reduces the deficit by adding more to non-tax revenues (the contributions of all employees and employers other than the central government and economic authorities) than to current non-interest expenditures (pension payments).
The SIFs are defined-benefit schemes that are fully funded through reserves and contributions. In practice, however, the pension funds can be treated as pay-as-you-go schemes as a result of their financial relationships with the budgetary sector. In this regard, the SIFs have been investing their reserves almost exclusively in Government or NIB liabilities. From the data available, the interest liabilities of the NIB with the SIFs seemingly are been paid by rolling over the interest into NIBs debt with the SIFs. Similarly, the Government’s direct pension obligations (i.e., to pay for increases in pensions above their base value) have reportedly been fully paid in cash to the SIFs, since SIF revenues from other sources were large enough to meet all pension payments. Hence, in the future when the SIFs need funds to meet their defined obligations to pensioners, the government will have to meet these needs either from its own revenues or from borrowing. Egypt: Definitions of the Fiscal Deficit.

Table 4. Consolidated Fiscal Results

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Revenue</strong></td>
<td>30.4%</td>
<td>28.8%</td>
<td>27.9%</td>
<td>27.4%</td>
<td>28.4%</td>
</tr>
<tr>
<td><strong>Tax Revenue</strong></td>
<td>15.4%</td>
<td>14.7%</td>
<td>14.2%</td>
<td>13.6%</td>
<td>14.1%</td>
</tr>
<tr>
<td><strong>Non-Tax Revenue</strong></td>
<td>13.7%</td>
<td>13.3%</td>
<td>12.8%</td>
<td>12.5%</td>
<td>13.2%</td>
</tr>
<tr>
<td><strong>Capital Revenue</strong></td>
<td>0.7%</td>
<td>0.3%</td>
<td>0.5%</td>
<td>0.3%</td>
<td>0.3%</td>
</tr>
<tr>
<td><strong>Grants</strong></td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.4%</td>
<td>1.0%</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>Total Expenditure</strong></td>
<td>30.5%</td>
<td>30.1%</td>
<td>30.1%</td>
<td>30.1%</td>
<td>29.9%</td>
</tr>
<tr>
<td><strong>Current Expenditure</strong></td>
<td>22.3%</td>
<td>22.5%</td>
<td>24.9%</td>
<td>24.0%</td>
<td>25.7%</td>
</tr>
<tr>
<td><strong>Wages &amp; Salaries</strong></td>
<td>6.5%</td>
<td>6.6%</td>
<td>7.0%</td>
<td>7.5%</td>
<td>7.9%</td>
</tr>
<tr>
<td><strong>Interest Payments</strong></td>
<td>4.8%</td>
<td>4.8%</td>
<td>5.2%</td>
<td>5.4%</td>
<td>6.3%</td>
</tr>
<tr>
<td><strong>Domestic</strong></td>
<td>4.0%</td>
<td>4.3%</td>
<td>4.7%</td>
<td>4.7%</td>
<td>5.5%</td>
</tr>
<tr>
<td><strong>Foreign</strong></td>
<td>0.8%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.6%</td>
<td>0.8%</td>
</tr>
<tr>
<td><strong>Other Current</strong></td>
<td>10.9%</td>
<td>11.1%</td>
<td>12.6%</td>
<td>11.2%</td>
<td>11.6%</td>
</tr>
<tr>
<td><strong>Capital Exp. &amp; Net Lending</strong></td>
<td>8.2%</td>
<td>7.6%</td>
<td>5.3%</td>
<td>5.9%</td>
<td>6.2%</td>
</tr>
<tr>
<td><strong>Overall Balance</strong></td>
<td>-0.1%</td>
<td>-1.2%</td>
<td>-2.2%</td>
<td>-2.5%</td>
<td>-3.4%</td>
</tr>
<tr>
<td><strong>Repayment of Arrears</strong></td>
<td>-0.4%</td>
<td>-1.2%</td>
<td>-1.3%</td>
<td>-1.5%</td>
<td>-0.7%</td>
</tr>
<tr>
<td><strong>Errors &amp; Omissions</strong></td>
<td>0.2%</td>
<td>-0.9%</td>
<td>-0.9%</td>
<td>-0.8%</td>
<td>-0.6%</td>
</tr>
<tr>
<td><strong>Financing Requirements</strong></td>
<td>-0.3%</td>
<td>-3.4%</td>
<td>-4.4%</td>
<td>-4.9%</td>
<td>-4.8%</td>
</tr>
</tbody>
</table>

Note: Includes the budgetary sector, NIB, GASC and the SIFs.
Source: CBE
Figure 6. Financing of the Consolidated Deficit

The fiscal deficit has continued to widen in recent years under all three definitions of the public sector. The deficit, according to the consolidated accounts including the budgetary sector, NIB, GASC and the SIFs, increased from 0.1% to 2.5% of GDP between 1998/99 to 2001/02, and preliminary results suggest that it widened again to 3.4% of GDP in 2002/03. As in the 1990s, further declines in revenues are the main reason for the deteriorating accounts. Tax revenues declined from 15.4% to 13.6% of GDP between 1998/99 and 2001/02, mainly the result of the lack of buoyancy in trade and domestic sales taxes. Non-tax revenue also continued their decade-long decline from 13.7% to 12.5% of GDP. Expenditures remained approximately constant over the period 1998/99 to 2001/02. Within this total however, current expenditures increased from 22.3% to 24% of GDP, mainly a result of rising domestic interest obligations and increases in the wage bill. Compensating this increase was a decline in capital expenditures and net lending from 8.2% to 5.9% of GDP. In 2002/03, the preliminary results show different trends, with revenues recovering somewhat, perhaps as a result of the successive devaluation of the Egyptian Pound, and expenditures increasing rather sharply, mainly as a result of further increases in the wage bill and interest payments.

The overall balance is not the complete measure of the budget’s financing needs. Financing requirements are larger than the overall balance for two reasons. One factor is the continuing repayment of investment arrears. As noted above, not all investment spending was paid for when committed during the 1990s, and the authorities are progressively repaying these arrears. Another reason is that in spite of improvements in the budgetary reporting framework, the authorities continue to report an “adjustment to cash and errors” line in the financing of the budget that corrects for the inconsistency between financing flows

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6 The magnitude of these arrears has not been reported by the authorities.
and debt accumulation. The nature of this residual adjustment line, whether it reflects omitted expenditures or changes in debt valuation for example, has not been clarified. If these two factors are taken into account, the overall financing requirements during 2001/02 and 2002/03 are approximately 5% of GDP, almost twice the reported deficit. The authorities have met these needs mainly by increasing their net debt with the domestic banking system (Figure 6). Indeed, during the last three years 2000/01 and 2002/03, the authorities have raised between 5% and 6.5% of GDP from domestic banks by drawing down deposits and increasing gross debt. Other sources of domestic finance have fluctuated in importance but have not been a significant source of funding for the government.

IV. Structural and Cyclical Factors in Egypt’s Growing Fiscal Deficit

Given the decline in growth recently, a proportion of the rise in the fiscal deficit could be attributed to cyclical factors. If such is the case, part of the increase in the deficit would be temporary and of less concern from a sustainability point of view as it would be reflecting automatic stabilizers (such as income tax revenues) that are self correcting once growth returns to its long-run path. Given the analysis above, however, more than just cyclical factors are likely to be at work in Egypt. The low buoyancy of revenues over a long period of time that includes an episode of rapid growth suggests that structural factors are also at work. In other words, it is not clear to what extent changes in the fiscal position are a result of changes in the level of aggregate demand, or the result of exogenous factors, including policy changes. This section attempts to separate the structural from the cyclical elements in Egypt’s fiscal trajectory.

Measuring cyclical fluctuations requires comparing actual economic activity with an estimate of potential economic activity. In this paper, we derive potential output growth from a time series of past output data. This method provides a serviceable estimate from data that are usually quite easily available; it is therefore used widely in the literature and by international organizations such as the OECD and the IMF.\(^7\)

Specifically, potential GDP growth for Egypt is estimated using a Hodrick-Prescott (HP) filter of real GDP level data for the period 1960-2003.\(^8\) Figure 7 shows the time path of potential and actual output growth for Egypt over 1960-2003 using the HP smoothing procedure. Three aspects are notable. First, potential output growth is close to 4 percent currently. Second, there appears to have been a steady decline in the potential output growth rate since the late 1970s. Third, actual growth has been below potential in recent years (2001-2003) but not by much.\(^9\)

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\(^7\) More sophisticated methods of estimating potential output rely on production function analysis but these tend to be very data intensive, requiring time series of labor and capital stocks for example. For a recent production function analysis of growth and productivity in Egypt see Kheir-El-Din and Moursi (2002).

\(^8\) See for example De Masi (1997) and Annex 1.

\(^9\) The fact that the potential growth rate is close to 4 percent should give cause for concern since most analysts feel that the Egyptian economy should grow at a minimum of 6 percent to absorb new entrants to the labor force. At its present trend growth rate, Egypt is likely to experience rising open and disguised unemployment. It should also be kept in mind that the potential growth rate, as measured above, reflects the constraints posed by existing macroeconomic and structural policies. A higher growth rate can likely be achieved by reforming such policies.
Even if the economy is not in deep recession, it is worthwhile to distinguish between cyclical factors that have only a transitory impact on budget outcomes, and changes in the underlying economic structure and policy that have more permanent effects. The economic profession has developed several quantitative techniques over time to help make this distinction and measure the underlying (net of cyclical factors) fiscal stance. Most of these techniques require estimating structural elasticities of revenues and expenditures with respect to economic activity. But since time series of budgetary data that are both comparable and reliable are very short in Egypt, econometric estimates of the elasticities will be of questionable accuracy. To get around this data limitation, this paper has adopted a methodology developed by the IMF that requires significantly less data.\(^{10}\)

Calculations using the IMF methodology suggest that most of the deterioration in the budget balance of the budget sector in the late 1990s and early 2000s is not due to cyclical factors. Figure 8 shows that the cyclically neutral deficit has only increased from 2.6% of GDP in 1998/99 to an estimated 3.2% of GDP in 2002/03. On the other hand, the budget deficit has increased from 3% of GDP to 6.4% of GDP during this same time period,\(^{11}\) while the structural deficit has grown from 3% of GDP to 5.8% of GDP. The largest increases in the structural budget deficit took place in 1999/2000 and 2000/01, when the level of economic activity was still strong but the budget deficit was growing. The figure suggests that the largest increase took place in 1998/99, but that may be just a result of the revisions in the fiscal data; indeed, as discussed above, the deficit in 1997/98 was likely larger. In 2001/02, however, the fiscal deficit increased but the structural deficit declined, suggesting that most of the increase in the deficit was due to cyclical reasons. Finally, in 2002/03 the structural deficit is estimated to have increased again, although the deterioration in the actual budget balance was larger as a result of the decline in economic activity. The estimates of the structural and cyclically neutral budget balances in the early 1990s suggest once again that the magnitude of the fiscal effort undertaken by the authorities was very strong, with the


\(^{11}\) The budget balance and cyclically neutral balance are not the same in the base year because potential and actual output, while close, are not equal.
actual budget balance significantly below the cyclically neutral balance. As noted above, the inconsistencies in the fiscal data, however, make the quantitative estimates of this effort suspect.

The analysis above also suggests that fiscal policy has been pro-cyclical in Egypt during the 1990s and 2000s. Figure 9 shows the fiscal impulse and the cyclical behavior of actual output around its potential. Through most of the period under analysis, the stance of fiscal policy imparted a positive impulse to aggregate demand in the years where actual output was larger than potential, and a negative impulse when output was below its potential. An exception to this pro-cyclical behavior is 2003, when the fiscal impulse is slightly positive and GDP was below its potential. In the early 1990s, the government’s pro-cyclical fiscal policy reflects the urgent need to reduce the deficit to levels that could be financed without recourse to inflation and excessive borrowing. The pro-cyclical fiscal policy during the late 1990s and early 2000s is less easy to understand and may have contributed to the difficulties in managing the exchange rate.
Among others, the most important defect of the methodology used above to estimate the structural fiscal balance is likely to be the assumption of unitary elasticities for revenues and expenditures. From the data, it is evident that the elasticity of tax revenue with respect of output is not equal to one in Egypt; indeed it is not in most countries. This elasticity depends on the sectoral composition of the tax base (with some sectors growing at a different rate as GDP) as well as on the rate of inflation as a result of administrative lags and progressivity, among other factors. Non-tax revenues will also likely not have a unit elasticity, in particular in Egypt, where such revenues depend heavily on the oil output and prices and the profitability of the Suez canal authority. Similar considerations also apply to the unitary elasticity assumption on the expenditure side. Whether relaxing the assumption would increase or decrease the estimate of the structural budgetary balance is not clear, however, since other methodologies based on empirical estimates of elasticities (such as that applied by the OECD) classify changes in capital expenditures, interest payments and non-tax revenues as structural rather than cyclical. And as discussed above, these variables have contributed significantly to the budget deficit in Egypt. These difficulties in predicting these revenues and expenditures, and more generally estimating the relationship between key revenue and expenditure items and economic activity, will also complicate the sustainability analysis that requires a forward looking understanding of the budgetary accounts.

V. Sustainability Implications of Fiscal Trends

We follow a simple procedure to examine sustainability. We first calibrate our simulation model using the FY2003 fiscal accounts. Then we make certain assumptions about the behavior of key macroeconomic variables over the simulation period of 2004-2018. This allows us to calculate the financing requirement associated with the assumptions in our scenario. Third, we calculate the change in the stock of debt implied by the financing requirement by assuming that all financing is done via borrowing and also by assuming a certain rate of increase of external debt and foreign interest rates. By varying our assumptions about the values to be taken by certain key variables we generate alternative scenarios. We compare across scenarios by charting the time-path of the implied debt output ratio of each scenario and checking to see how soon this ratio approaches a given level (assumed to be 90 percent in our simulations). The definition of public debt that is used in the simulations does not include borrowings from the SIF and balances with commercial banks are netted out as well (see Table 2).

It should also be noted that the simulation exercises reported here are based on an accounting framework and not on a behavioral model. All changes are exogenously introduced and then worked through the web of accounting relationships that determine the fiscal balance sheet.

12 This assumption is more analytically sound when estimating the fiscal impulse. What the assumption implies is that the impact of automatic stabilizers that originate from elasticities not equal to one is included in the measure of the fiscal impulse. Given that the fiscal impulse measures the magnitude of the change in the budgetary stance, this seems appropriate.

13 Other standard criticisms of the methodology seem less important in Egypt. For example, the methodology does not take into account the impact of inflation on the fiscal accounts but this may not be major issue in Egypt where recorded inflation has been quite low during the late 1990s.
Key Assumptions

**Growth Rates.** Thanks to an ambitious program of stabilization and structural reform begun in 1991, Egypt had an average growth rate of 4.6 percent during 1991/92-1998/99. Since then, the trend has been less favorable and growth rates have been hovering around 3 percent during the last three years, or a meager 1% in per capita terms. In part, this slowdown may have been brought about by a series of external shocks such as the East Asian crisis (July 1997), the terrorist attack on tourists in Luxor (November 1997), the 1998 dip in oil prices, global turmoil due to the September 11 events, and the war on Iraq in 2003. It may also be partly due to the deterioration in the domestic policy mix (noted in Section C) and a slowdown in the pace of reforms aimed at stimulating private investment through improvements in the business climate. In the base case scenario for our simulations (Scenario A), we assume that the rate of real economic growth will be 3.4 percent per annum over the next fifteen years. In an alternative scenario (Scenario B), we examine the effect of slower growth averaging 2.4 percent over the simulation period.

**Inflation rates.** In the last decade, inflation performance appears to have been remarkably good, whether measured by the consumer price index (CPI), or the wholesale price index (WPI). After a slight increase in 1991/92, both inflation rate indices declined over the 1990s from 19.7 and 16.2 percent in 1990/91 to 2.4 and 2.0 percent in 2000/01, respectively. However, at the end of FY the trend has been broken. The CPI inflation rate has risen modestly to 4 percent while the WPI rate has jumped to more than 18 percent. The difference between the two indicators of inflation underscores the potential for misleading results if only the CPI is used as an index of inflation in Egypt. Furthermore, for most macroeconomic analysis involving growth trends, it is necessary to use a broader measure of price changes than that reflected in the CPI and the WPI. This is usually provided by the GDP deflator. For our base case scenario we assume that the GDP deflator will fall in FY04 to 4 percent from its estimated 6.1 percent for FY03, then will grow at an annual rate of 3.0 percent from 2005 onwards.
**Domestic interest rates**: Interest rates were liberalized in the early 1990s with the result that Treasury bill rates rose to almost 20 percent. Since then, the decline in the inflation rate led to a gradual decline in the Treasury bill rate until it reached around 7 percent in FY02. More recently, however, there has been upward pressure on borrowing rates, brought about most likely in part by rising fiscal deficits and in part by pressures arising from a depreciating exchange rate. This has taken T-bill rates to around 10 percent in nominal terms. In the base case scenario we assume that similar pressures will persist over the simulation period and the Treasury bill rate at which government debt is acquired will remain at 10 percent in nominal terms. Given that rising public debt can put pressure on interest rates, we also examine the outcome of an alternative scenario (Scenario C) featuring a 1 percent increase in nominal interest rates.

**Foreign debt and interest rates.** The proportion of external debt in Egypt’s total public debt has varied from year to year. During FY2000 and FY2001, the nominal dollar value of the external debt was decreased from around US $29 billion to US $26.5 billion. Since then the external debt has climbed back to around $29 billion in nominal dollar terms and has risen even more sharply in local currency terms due to the depreciation of the pound. Of the total external debt, only a very small amount (only US $542 million in FY02) is classified as private non-guaranteed and a modestly larger amount (US $2.1 billion) is classified as short term. The bulk of the outstanding debt (about $20 billion) is of medium to long term tenor and is owed primarily to bilateral, official sources. A smaller, but still significant amount of just under $5 billion, is owed to multilateral agencies and the remaining is in the form of supplier’s credits. Thus the composition of Egypt’s foreign debt by maturity and source suggests that this is unlikely to be a source of significant pressure, except in the event of runaway depreciation. Much of the debt has been provided at grant or otherwise concessional terms and the implied interest rate on debt service during FY03 was only 2.0 percent. The low foreign interest rate may also be due to the fact that global economic activity has been slow during the past two years; interest rates could rise as global economic business conditions improve and demand for funds picks up. For the base case scenario we have assumed that the external debt will rise by $0.5 billion per year and the average dollar-denominated interest rate will stay at 2 percent per annum.

**Exchange rates.** Foreign exchange reform measures were among the most important elements of the 1991 structural adjustment program (ERSAP). In October 1991, the nominal exchange rate was devalued by 23 percent to LE 3.3 to the dollar. It was maintained at this level for almost ten years in an attempt to keep inflation at bay. This policy, though helpful in containing inflation, also involved a real appreciation of close to 40 percent over the period 1991/92- 1999/2000.
Egypt’s competitiveness weakened, pressures on the exchange market increased and a parallel market was reactivated. Despite several devaluations, pressures continued and the GOE finally decided in late January 2003 to float the pound. However, the management of the float has not been entirely smooth and conflicting signals about the nature of the float have been perceived by the market at various times. The gap between the parallel and the official exchange rates is still wide. *For the base case, we have adopted a conservative view of future exchange rate movements and have assumed that the exchange rate will remain stable at a value of 6.4 pounds to the dollar. However, since exchange rate pressures are an important current policy concern, we have examined the effects of an alternative scenario (Scenario D) also in which the exchange rate is assumed to depreciate by 5% per annum over the simulation period.*

**Global conditions.** Global conditions are also likely to affect Egypt’s growth and debt. For the purposes of this paper, we note the following key aspects of the data presented in Table 6 representing the latest forecast of the World Bank group. First, it is forecast that diversified economies in MENA, such as Egypt, are likely to grow at 3.1 percent in 2003 and at 4.2 percent in 2004. The average is close to our baseline assumption of 3.4 percent growth for Egypt. Second, it is forecast that world inflation rates will be fairly low and stable. Accordingly, we don’t experiment with a scenario featuring a world inflation shock. Third, the LIBOR is expected to rise by almost 1.5 points between 2003 and 2004 while the EURIBOR is expected to stay constant. This suggests that, looking ahead, Egypt may face the prospect of an increase in debt service payments arising from the component of its external debt that is contracted in floating dollar-based rates.

**Table 5. Global Forecasts**

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Income Measures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>GDP Growth (percent per annum)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>World</td>
<td>1.9</td>
<td>2.3</td>
<td>3.2</td>
</tr>
<tr>
<td>High-income</td>
<td>1.6</td>
<td>1.9</td>
<td>2.9</td>
</tr>
<tr>
<td>Developing Countries</td>
<td>3.3</td>
<td>4.0</td>
<td>4.7</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil exporters</td>
<td>3.2</td>
<td>4.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Diversified economies</td>
<td>2.8</td>
<td>3.1</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Price Measures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Inflation (consumer prices; percent change)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G-7</td>
<td>1.0</td>
<td>1.4</td>
<td>1.3</td>
</tr>
<tr>
<td>US</td>
<td>1.6</td>
<td>2.5</td>
<td>2.3</td>
</tr>
<tr>
<td><em>Commodity prices (nominal $; percent change)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commodity prices, excluding oil</td>
<td>5.1</td>
<td>8.2</td>
<td>2.3</td>
</tr>
<tr>
<td>Oil prices</td>
<td>2.4</td>
<td>4.3</td>
<td>-19.2</td>
</tr>
<tr>
<td>Manufactures export unit value</td>
<td>-0.1</td>
<td>5.6</td>
<td>-0.1</td>
</tr>
<tr>
<td><strong>Interest rates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIBOR (6 months, $, percent)</td>
<td>1.8</td>
<td>1.7</td>
<td>3.2</td>
</tr>
<tr>
<td>EURIBOR (6 months, Euro, percent)</td>
<td>3.4</td>
<td>2.4</td>
<td>2.3</td>
</tr>
</tbody>
</table>

*Source: Global Economic Prospects, 2004; World Bank*
**Fiscal Policy Assumptions.** A discussion of fiscal policy trends has already been provided in Section B. In the base case scenario, we assume that fiscal variables will grow at one of three rates: the average growth rate of the previous three years (e.g. applies to case of wage bill and defense expenditures; at the nominal GDP growth rate (e.g. applies to case of subsidies and transfers); or at a rate that keeps the item at a constant share to GDP at the average share of the previous three years (applies to most individual revenue items). We also report the results of three scenarios featuring changes in fiscal policy: Scenario E in which tax revenues rise faster on the assumption that the elasticity of indirect taxes to GDP will be increased by 0.05 on account of improvements in tax administration; Scenario F in which the growth of current public expenditures is assumed to slow down because the public sector wage bill is assumed to grow at 7.5% rather than 10% as in the base case; and Scenario G in which the growth of subsidies is assumed to be 3% rather than 6.5% as in the base case.

**Simulation results**

We report below on seven scenarios. In addition to the base case scenario, three scenarios (B,C and D) explore downside options (fall in growth rate, rise in interest rate, and continued depreciation) and three (E, F and G) explore upside options (improvement in tax administration, restraint in public sector wage increases and reduction in the growth of subsidies).

**Base Case results**

Figure 15 shows the time path of the net debt-output ratio that is associated with the base case scenario. It can be seen that the debt-output ratio remains stable at 89-90% until 2011 and then begins to rise steadily to about 129% by 2018. This suggests that, under the...
assumptions of the base case scenario, Egypt has about seven years or so to bring its fiscal house in order. After that, macro-management gets much tougher as debt service payments begin to rise at a much faster pace. Note also that the total debt is driven by increases in domestic debt since external debt is assumed to grow by a fixed amount which leads to a falling external debt-output ratio.

We can also examine the time path of the budget deficit and primary balances associated with the base case scenario. It can be seen that the budget deficit continues to increase in size (relative to GDP) while the primary surplus decreases until 2012 when it turns into a deficit. In other words, within seven to eight years, Egypt will be paying its debt service entirely with borrowed money. The time frame for fiscal adjustment that is suggested by the time path of primary balances is consistent with that shown by the time path of the debt-output ratio.

Other Simulation Results

A summary assessment such as the above provides a useful benchmark, but is obviously dependent on a single set of assumptions. The analysis can be made more useful by examining alternative assumptions, both on the downside and the upside. Table 6 below shows the main differences between the outcomes of the base case scenario and the six other scenarios for which we have run simulations. To facilitate comparison, we have indicated the year by which a debt-output ratio would exceed 90% under each scenario. We have also provided the level of the debt output ratio that would be achieved in 2018, the final year of the simulation period and the primary balances that would result in the years 2010 and 2018.

The results are consistent with expectations. Scenario B shows that if the growth rate of the economy were slower than in the base case, the target debt output ratio would be reached immediately in FY2004 and the primary balance would turn negative by 2010. If the cost of servicing the debt were higher, as in Scenarios C and D, a similar result would ensue. Similarly, upside options featuring improvements in revenues or reductions in expenditures, lower the borrowing requirement and delay the onset of an upward spiraling debt-output path. In particular, action with respect to the public sector wage bill has a significant impact in restraining the pace of deterioration of the debt-output ratio and the primary balance, perhaps because wages and salaries account for just over a fifth of total expenditures (and almost a third of current expenditures). Overall, the results show that significant risks are posed by fairly modest changes in assumptions regarding growth, interest rates and depreciation but that, in an equivalent fashion, significant improvements are possible with fairly modest changes in fiscal policy.

16 This result is similar to that found by Izquierdo and Panizza (2003) in this volume. Using a probabilistic approach to sustainability they find that, with their specific assumptions about revenues and non-interest expenditures, it takes on average 7 years for the economy to reach a pre-specified debt threshold that necessitates fiscal adjustment.

17 However, it should be noted that our accounting framework approach does not include a link between exchange rate changes and trade tax revenues. Thus, the higher depreciation scenario does not show an impact on the primary balance. Nor have we built in a link between depreciation and nominal domestic interest rates. If depreciation involves a simultaneous increase in domestic interest rates, its total impact on the public sector borrowing requirement and the net debt-output would be greater.
Table 6. Summary Results of Alternative Scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Year at which debt-to-GDP ratio&gt;90%</th>
<th>Debt/GDP ratio: 2017/18</th>
<th>Primary Balance/GDP 2010</th>
<th>2018</th>
<th>Overall Balance/GDP 2010</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Base Case</td>
<td>2010/11</td>
<td>129%</td>
<td>1.0%</td>
<td>-3.9%</td>
<td>-6.5%</td>
<td>-14.8%</td>
</tr>
<tr>
<td>B. 1% point decline in real growth rate</td>
<td>2003/04</td>
<td>166%</td>
<td>0.0%</td>
<td>-6.5%</td>
<td>-8.2%</td>
<td>-19.9%</td>
</tr>
<tr>
<td>C. 1% point increase in nominal interest rate (FY06 onward)</td>
<td>2007/08</td>
<td>139%</td>
<td>1.0%</td>
<td>-3.9%</td>
<td>-7.4%</td>
<td>-16.5%</td>
</tr>
<tr>
<td>D. 5% annual depreciation in nominal exchange rate</td>
<td>2004/05</td>
<td>160%</td>
<td>1.0%</td>
<td>-3.9%</td>
<td>-5.9%</td>
<td>-12.9%</td>
</tr>
<tr>
<td>E. +0.05 change in indirect tax elasticity</td>
<td>2014/15</td>
<td>106%</td>
<td>3.0%</td>
<td>-1.8%</td>
<td>-4.2%</td>
<td>-11.7%</td>
</tr>
<tr>
<td>F. 2.5% point decline in growth rate of wage bill (FY05 onward)</td>
<td>2016/17</td>
<td>95%</td>
<td>2.2%</td>
<td>-0.5%</td>
<td>-4.4%</td>
<td>-8.4%</td>
</tr>
<tr>
<td>G. 3.5% point decline in growth rate of subsidies</td>
<td>2012/13</td>
<td>115%</td>
<td>1.8%</td>
<td>-2.1%</td>
<td>-5.5%</td>
<td>-12.5%</td>
</tr>
</tbody>
</table>

The above results can also be looked at in other ways. For example, if we look at the trajectory of the net public debt-output ratio under the three negative shock scenarios (see Figure 16), it appears that the declining growth rate and depreciating exchange rate scenarios eventually lead to a more difficult debt management situation than the scenario comprising an increase in the nominal interest rate. Or, to put this another way, from a debt management point of view, a one percentage point increase in the nominal interest rate is preferable to a one percentage point decrease in the growth rate of the economy or to an annual 5% depreciation of the currency.

![Figure 16: Net Public Debt-Output Paths Under Different Negative Shock Scenarios](image.png)

Finally, the results permit an initial comparison of alternative fiscal adjustment instruments. In the simulations, we have modeled these as positive shocks arising from a decrease in the growth rate of subsidies and wages or from an improvement in tax administration. Comparing across these three instruments it is clear (see Figure 17) that the stipulated decrease in the wage bill is more effective in reducing the debt-output ration than the stipulated subsidy cut or the improvement in tax administration. Or, to put this result
another way, greater improvements in tax collections and/or a larger subsidy cut would be needed to match the debt-reducing effect of the stipulated wage bill cut.

Figure 17: Net Public Debt-Output Paths Under Different Positive Shock Scenarios

Baseline Ind.tax wage cut subsidy cut

VI. Conclusions

The analysis performed in this paper supports four main points. First, Egypt has a high debt-output ratio relative to what is considered desirable for macroeconomic stability. Second, the debt is being pushed up by structural rather than cyclical factors relating to fiscal deficits. Third, a number of structural weaknesses affect the revenue and expenditure performance of the economy. Fourth, simulation results suggest that fiscal adjustment within a reasonable range can improve the debt trajectory. These points are discussed below.

The debt-output ratio is comparatively high

It is clear from the data presented in this report that Egypt’s debt-output ratio is high relative to the 60% level that is commonly thought to be a desirable ceiling for good macro management and above which the probability of experiencing a debt crisis is more than fifty-fifty. Egypt’s debt ratio is also high compared to the levels that have prevailed in several countries prior to their falling into difficult macro and debt crises (e.g., Argentina, Brazil, Turkey). This suggests that Egyptian policy makers should be concerned about the overall debt situation and take measures to rein in the debt. An orderly process of debt reduction should be possible since most of the debt is held by the domestic banking system over which government has substantial control.\footnote{Approximately 90 percent of government securities are held by the domestic banking system.}

Deficits and debt are being pushed up more by structural than by cyclical factors

Fiscal deficits and the resulting debt ratio have been rising at a rapid clip in the last few years. These years have also been characterized by low growth. It is possible that these trends are transient in that they may be related to a down-phase of the economic cycle and will be automatically corrected (or restrained) as the economy picks up. However, we have shown that the trend rate of growth in Egypt is around 4 percent and recent growth has not been very far from this trend rate. The methodology we use in this paper suggests that the
bulk of the fiscal deterioration since 1998/99 has been due to structural reasons. Whereas the cyclically-adjusted (or neutral) fiscal deficit would have fluctuated between 2.8 percent and 3.2 percent of GDP during FY99-FY03, the actual fiscal deficit has fluctuated between 2.8 percent and 6.5 percent. This suggests that policy makers should not expect to “grow” out of the debt problem over the next upswing of the business cycle – specific actions to reduce the structural fiscal deficit will be needed.

**Multiple sources of structural stress in fiscal accounts**

There are several sources of structural weakness in the fiscal accounts. In particular, the experience since FY99 suggests the importance of a declining revenue ratio, a declining capital expenditure ratio, and a rising current expenditure ratio dominated by wages and interest payments. The first source of stress can be seen quite easily in the fact that the ratio of total revenues to GDP declined from 30.4% in FY99 to 27.4% in FY2002 (before rising to 28.4% in FY03). Most of the deterioration appears to have come from the tax side, reflecting the inability of the tax system to raise income and sales tax collections fast enough to compensate for declining trade taxes. The second source of stress is evident in the fact that the ratio of capital expenditures to GDP declined from 8.2% in FY99 to 5.9% in FY02 (before rising a bit in FY03). This large drop may constrain economic growth rates in the future if it reflects a cut in the sorts of infrastructure outlays that are complementary to private investment or long run human capital improvements. The third source of stress arises from current expenditure trends, especially those relating to wages and salaries (which have risen from 6.5% to 7.9% of GDP) and interest payments (which have risen from 4.8% to 6.3% of GDP). Action in all three areas is likely to be needed to help reverse the present trajectory of deficits and growth.

**Simulation results show importance of improving fiscal policy and enhancing growth**

Our simulation results show that restraining the rate of increase of selected current expenditure items (such as wages and subsidies) has a significant impact on the rate of growth of the public debt. They also show that improving the performance of the tax system can help noticeably in restraining debt growth. Finally, they show that sustained higher growth is important to escaping a possible debt trap. This suggests that policies that promote growth without raising the public debt would be desirable. This could be achieved by restructuring expenditures to raise public investment while implementing an offsetting reduction in current spending and so keeping the public debt ratio from rising. However, more powerful sources of growth are likely to come from outside the fiscal domain. In the Egyptian context, the most promising sources of growth are to be found in private sector development, financial sector restructuring, and greater integration with world markets. Institutional and policy reforms in these areas are best placed to provide a fillip to the growth rate while minimizing any impact on the public debt ratio. Also, to the extent that public infrastructure investments will be required to complement such reforms and facilitate a private sector investment supply response, the option of allowing and attracting greater private sector participation in public investment projects should be seriously considered.
References


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Annex 1. The Hodrick-Prescott Filter

The Hodrick-Prescott (HP) filter is a popular tool for detrending macroeconomic time series, especially output series. It is much used in the business cycle literature. In essence, it is a smoothing method that fits a trend through the actual observations by minimizing a weighted average of (a) the square of the difference between output and trend output, and (b) the square of the change in trend output. Specifically, in the following equation, $Y_t^*$ or trend output, is estimated to minimize:

$$
\sum_{t=1}^{T} \left( \ln Y_t - \ln Y_t^* \right)^2 + \lambda \sum_{t=2}^{T-1} \left( \ln Y_{t+1}^* - \ln Y_t^* \right) - \left( \ln Y_t^* - \ln Y_{t-1}^* \right)^2
$$

The HP filter, hence, is a weighted average of a standard trend and a moving average component. The first term in this equation is typically referred to as the business cycle component in that it represents the deviation of actual output from potential output at any given time. The second term may be thought of as a measure of the acceleration in the trend relative to the business cycle component. The parameter $\lambda$ determines how closely the trend line follows actual output and is often referred to as a penalty on variation to the extent that it constrains the second difference of the data series. The larger the value of $\lambda$, the smoother is the series and the less the noise in it. Typically, HP filtered data series exhibit less fluctuation than first-differenced series since the filter reduces the impact of high frequency movements (second element in equation above). For annual data, it is conventional to choose a value of $\lambda=100$ although this practice has recently been challenged (see Ravn and Uhlig, 2002) and lower values have been proposed. For the purposes of this paper, we have used the conventional value.

Annex 2. Calculating Structural Fiscal Balances

The methodology consists of the following steps:

- **Choosing a base year.** The first step is to identify a year during which potential and actual economic activity are judged to have been equal. The best years is perhaps 1998/1999, the most recent period in which actual and potential output are quite close. The 1998/99 fiscal year is also convenient because it is the first year for which there are revised and consistent data based on the new consolidated reporting system. In this regard, in order to analyze better the behavior of the fiscal accounts throughout the 1990s, the paper uses the accounts of the budget sector rather than the consolidated accounts since the former are the closest to the published fiscal data for the earlier 1990s. Notwithstanding this choice, the two accounting systems are different and comparisons between the two periods may be misleading. With regard to the latter period, using the accounts of the budget sector rather than the consolidated ones do not change the qualitative conclusions.

- **Estimating a cyclically neutral budget balance.** According to this methodology, nominal tax revenues are considered cyclically neutral if they increase proportionally
with nominal output, while expenditures are cyclically neutral if they increase proportionally with potential output valued at current prices. On this basis, the actual budget balance \((B)\) as a share of GDP \((Y)\) can be decomposed into the cyclically neutral budget and the fiscal stance \((FS)\):

\[
B/Y = (t* Y – g* P)/Y – FS/Y = t* - g*(P/Y) – FS/Y
\]

where \(t*\) is the revenue to GDP ratio in the base year, \(g*\) is the base year expenditure to GDP ratio and \(P\) is potential output in current prices. The fiscal stance measures the impact of exogenous factors on the budget balance, including the impact of tax and expenditure elasticities different from unity. It also measures how the stance of fiscal policy has changed relative to the base period when the budget outcome by definition is cyclically neutral.

- **Estimating the fiscal impulse.** The fiscal impulse is estimated by taking first differences of the fiscal stance. The fiscal impulse as a share of GDP hence measures how the stance of fiscal policy has changed from one year to the next.

- **Estimating the structural balance.** The structural balance measures the fiscal balance that would have prevailed had the economy been operating at potential output. The share of the structural balance in GDP would be obtained by subtracting the fiscal stance measure as a share of GDP from the base year balance as a share of base year GDP (which by definition is structural in nature). In other words, the structural fiscal balance is obtained by adding the successive fiscal impulses to the base year balance. In equation form:

\[
SB(t)/Y(t) = B*/Y* - FS(t)/Y(t)
\]

where \(SB(t)\) is the structural balance in year \(t\), \(Y(t)\) is nominal GDP in year \(t\), \(B*\) is the budget balance in the base year, \(Y\) is nominal GDP in the base year, and \(FS(t)\) is the fiscal stance in year \(t\). Hence, if fiscal policy has been expansionary since the base period, \(FS\) would be positive and decrease the base year balance.
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