FISCAL AND PUBLIC DEBT SUSTAINABILITY IN EGYPT

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Abstract

This paper assesses the sustainability of public debt in Egypt in light of fiscal trends in recent years. It analyzes the key fiscal variables underlying recent growth in public debt, explores whether this debt is structural or cyclical, and simulates the debt-output trajectory based on different assumptions in key macroeconomic variables. The paper draws four main conclusions. First, Egypt presently has a high debt-output ratio compared with a sample of lower-middle income countries. Second, the debt is being driven by structural rather than cyclical factors. Third, the structural weaknesses of the budget are mainly related to low tax buoyancy and yields as well as to rising wage and subsidy expenditures. Finally, simulation results suggest that fiscal adjustment is needed to restrain debt growth and to achieve greater sustainability.

ملخص

تهدف هذه الورقة إلى تقييم مدى استدامة الدين العام في مصر في ضوء التطورات المالية في السنوات الأخيرة. وفي هذا الإطار، تقوم الورقة بتحليل المتغيرات المالية الرئيسية المسئولة عن تزايد الدين العام، وتحديد ما إذا كان هذا الدين ناتج عن عوامل هيكلية أو دورية، ثم إجراء محاكـــاة لمســـار الدين–الناتج (debt-output trajectory)، وذلك استنادا إلى افتراضات مختلفة في المتغيرات الاقتصادية الكلية الرئيسية. وتخلص الورقة إلى أربع نتائج رئيسية، وهي: أولا، ارتفاع معدل الدين للناتج في مصر مقارنة بعينة من الدول ذات الدخل المتوسط المنخفض. ثانيا، رجوع هذا الدين أساسا إلى اعتبارات هيكلية وليست دورية. ثالثا، ارتباط أوجه الضعف الهيكلية في الميزانية بانخفاض الإيرادات الضريبية وزيادة الإنفاق على الأجور والدعم. وأخيرا، تشير نتائج المحاكاة إلى أهمية إجراء تعديل مالي للحد من زيادة الدين وتعزيز القدرة على الاستدامة المالية.

I. INTRODUCTION

At the end of fiscal year 2003, official public debt figures in Egypt were reported as 126 percent of GDP, 90 percent of which was owed to domestic sources and approximately 36 percent to foreign sources. When compared with other countries, this ratio of debt is high. Countries with comparable debt ratios have experienced macroeconomic problems involving inflation and declining growth.[1] However, high debt ratios do not necessarily lead to macroeconomic problems. Much depends on the term structure of the debt and interest rates, whether market participants see government policy as consistent with falling debt ratios in the longer run, and whether there is a high or low rollover risk, depending on who holds the debt.

The main purpose of this paper is to understand how public debt in Egypt has reached its current level and to consider whether present trends in key fiscal variables are likely to be sustainable. The definition of public debt in Egypt and its main components are discussed in section II.

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. By using 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 some concluding remarks.

[1] About 55 percent of debt defaults that have occurred in the last 30 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 2003, 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.

II. Defining the Public Debt

To define public debt accurately requires understanding the full range of liabilities that ultimately accrue 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 the public sector. In practice, however, it is difficult 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 Central Bank of Egypt (CBE), public debt in Egypt can be attributed to the government sector (central and local administrative units and service authorities), as well as the 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 official 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 as internal to the public sector, these liabilities would not appear as public sector debt and thus 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.

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[2] Implicit or contingent debt should not be overlooked, 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 2003, 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 for not netting out the debt owed by Egyptian state authorities to the SIFs 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.

Table 1. Egypt's Public Debt

	FY00	FY01	FY02	FY03
Government (LE bn)	164.4	194.8	221.2	252.2
Economic Authorities (LE bn)	37.5	41.7	41.1	39.2
NIB (LE bn)	43.6	54.3	67.4	79.2
Domestic Debt (LE bn)	245.5	290.8	329.8	370.6
External Debt(US $ bn)*	27.3	26.1	28.1	28.5
Rescheduled Bilateral Debt**	16.3	14.8	15.3	15.8
Exchange Rate	3.5	3.9	4.5	5.3
External Debt (LE bn)	95.6	101.8	126.5	151.1
Total Public Debt (LE bn)	341.1	392.6	456.3	521.7
Ratios to GDP				
Domestic Debt/GDP (%)	72.2	81.1	87.1	89.3
External Debt/GDP (%)	28.1	28.4	33.4	36.4
Total Public Debt/GDP (%)	100.3	109.4	120.5	125.7
Annual Rates of Increase				
Volume of domestic debt (%)		18.5	13.4	12.4
Volume of external debt (%)		6.5	24.2	19.5
Volume of total public debt (%)		15.1	16.2	14.3
Ratio of domestic debt/GDP (%)		12.3	7.5	2.5
Ratio of external debt/GDP (%)		1.0	17.7	8.9
Ratio of total debt/GDP (%)		9.1	10.1	4.3
Memo:				
GDP at market prices (LE bn)	340.1	358.7	378.5	415.0

Notes: *Including non-guaranteed private sector debt. **Refers to external debt rescheduled per an agreement with Paris Club creditors in 1991.

Source: CBE. *Monthly Statistical Bulletin*, several issues.

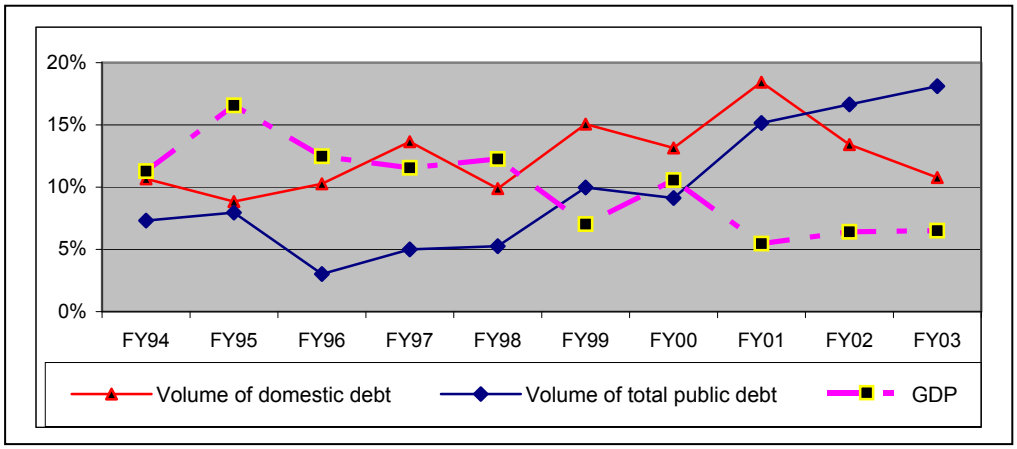
According to the agreement, eligible external debt repayments were rescheduled but still had to be deposited domestically in an account at the CBE according to the original schedule. The repayments are made in local currency to the CBE account and are credited at the rescheduled dates in foreign currency 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, even though the resources to pay apparently exist with the CBE. This caveat should be kept in mind in the assessment that follows. For the most part, the sustainability assessment is conducted in terms of trends rather than levels and therefore, this omission is not relevant.

[4] Although 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.

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 contributor to the rise in public debt is the government sector. The government sector's debt rose by over LE 82 billion between FY00 and FY03, while debt assigned to the NIB has jumped by about LE 36 billion over this period. However, the debt of the economic authorities increased only modestly by about LE 1.62 billion.

It is interesting to examine Egypt's public debt trends in a longer time perspective. Figure 1 shows how total debt relative to GDP has evolved since FY94. Total debt has been rising at a fairly steady rate since FY96, while GDP growth has been on a downward trend. This suggests that the systematic rise in the debt-output ratio has persisted for at least eight years.

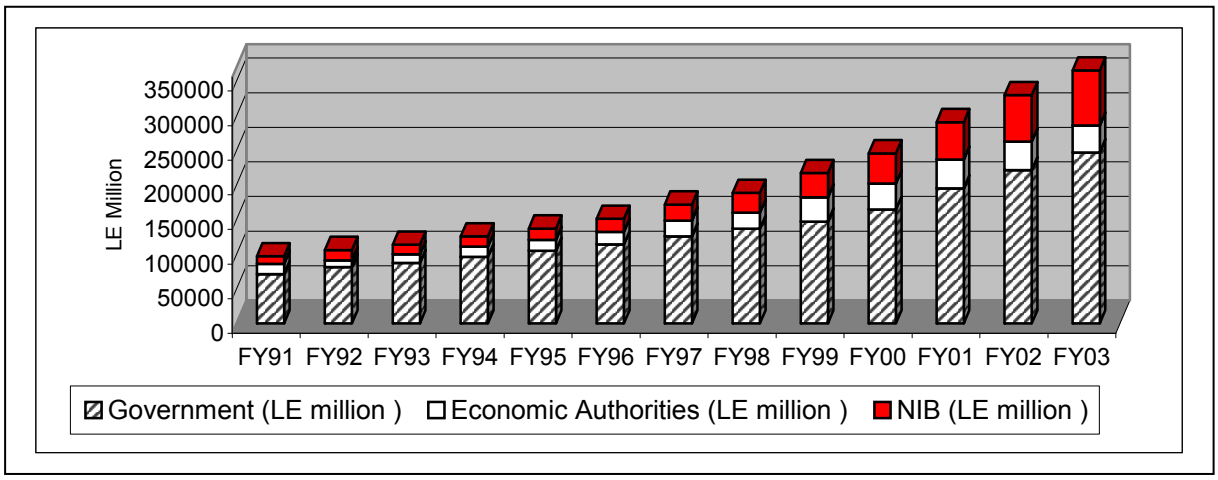
Figure 1. Growth Rates of Debt and GDP



Source: CBE. *Monthly Statistical Bulletin*, several issues.

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. However, the rate of increase of the domestic debt-output ratio has declined since FY01, while that of external debt has increased. Finally, it is clear that the government sector is the greatest source of debt whether examined in the short term or long term.

Figure 2. Evolution of Domestic Debt and Components



Source: World Bank staff calculations.

To make it easier to compare Egypt with countries that net out social insurance borrowing from consolidated public sector debt, 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 (LE m)

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

Source: CBE. *Monthly Statistical Bulletin.*

To determine whether debt trends in Egypt are sustainable, our starting point is to compare the debt-output ratio in Egypt to those in selected countries (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 comparator countries.

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

Egypt	
Public debt/GDP	100
Public debt net of SIF claims/GDP	65
Middle income country average	55
Lower-middle income average	57
Selected Comparators	
Argentina	45
Brazil	32
Philippines	63
Malaysia	43
Thailand	24
Turkey	63

Source: World Bank. 2000. *Global Development Finance*.

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 have an even lower ceiling since they are more likely to encounter funding problems (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 problems (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, the definition of debt varies across different reporting sources and debt problems 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, rather than the level of debt.

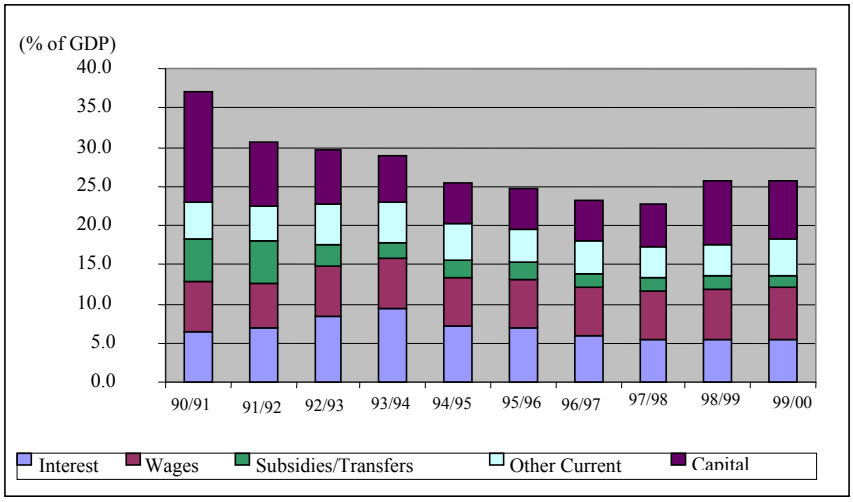
III. Fiscal Trends Underlying Debt Developments of the 1990s

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 for a deficit-debt spiral with adverse implications for stability and growth. 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 will 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 fiscal accounts has not been a policy issue in Egypt during the 1990s and it may come as a surprise to some analysts that it has once again become an issue of concern. 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, thus setting 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. In 1998/99, pressure on the fiscal accounts began as expenditures increased significantly for the first time in the 1990s. Most of the increase was due to a sharp rise in investment of 3 percent of GDP in 1998/99. It is likely that capital expenditures actually 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.

Figure 3. State Budget Expenditures



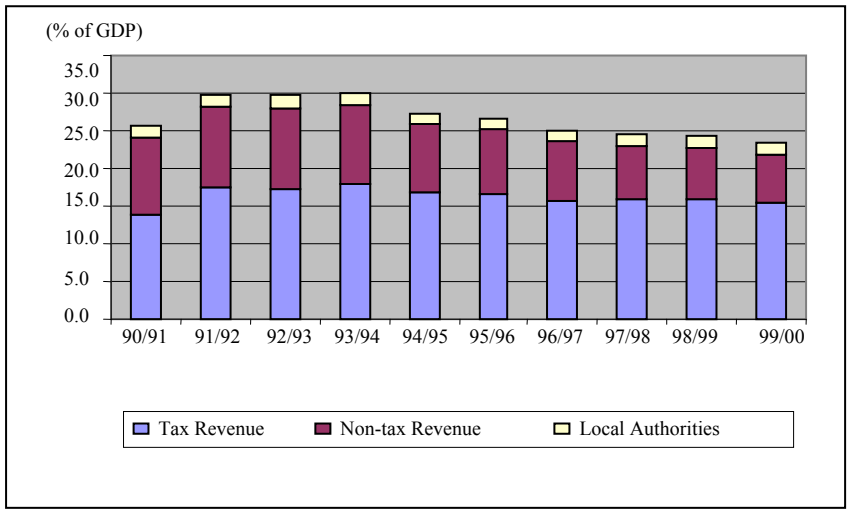
Source: CBE.

Revenues declined by about 1 percent of GDP during these two years, following the trend since 1991/92. Finally, another source of concern for the authorities was the significant errors and omissions among the financing items of the state budget in 1998/99 and 1999/2000, 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 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 contributes to cover cost of living increases in pensions. 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 also receives transfers from the budget sector to fund the price subsidy.

Figure 4. Egypt State Budget Revenues



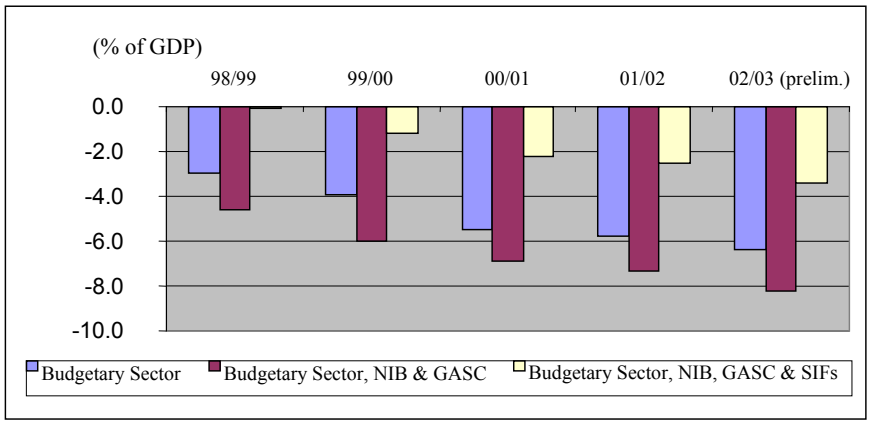
Source: CBE.

The consolidation of the general government with the other institutions significantly adds to the expenditures (and revenues) undertaken by GASC, NIB and the SIFs, but perhaps most importantly it sheds light on financial inter-relationships among public institutions and how public expenditures are financed. The new accounts indicated that the deficit in 1998/99, now consistent with the annual increases in the debt stock, was higher than that measured by the old accounts. The new accounts also show that the deficit of the budgetary sector in 1998/99 was 3 percent of GDP and that consolidating GASC and NIB increases the deficit to 4.6 percent of GDP. The increase mainly reflects larger interest payments and the net-lending of the NIB. Finally, consolidating the SIFs brings the deficit down sharply to 0.1 percent of GDP, primarily the result of significant interest savings, since a large proportion of government and NIB debt is owed to the SIFs. The consolidation of the SIFs also reduces the deficit by adding more to non-tax revenues[5] than to current non-interest expenditures (pension payments).

The SIFs are defined as benefit schemes fully funded by contributions and reserves. In practice, however, the pension funds can be treated as pay-as-you-go schemes due to 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, it seems that the NIB's interest liabilities with the SIFs are paid by rolling over the interest into its 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 not 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 the interest income and/or the principal to meet their defined obligations to pensioners, the government will have to meet these needs either from its own revenues or from borrowing.

[5] These are the SIF contributions of all employees and employers other than those by the central government and economic authorities.

Figure 5. Egypt: Definitions of the Fiscal Deficit



Source: Ministry of Finance.

The fiscal deficit has continued to increase in recent years under all three definitions of the public sector. According to the consolidated accounts including the budgetary sector, NIB, GASC and the SIFs as seen in Table 4, the deficit increased from 0.1 percent to 2.5 percent of GDP between 1998/99 to 2001/02, and preliminary results suggest that it widened again to 3.4 percent 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 percent to 13.6 percent of GDP between 1998/99 and 2001/02, mainly due to the lack of buoyancy in trade and domestic sales taxes. Non-tax revenue also continued its decade-long decline from 13.7 percent to 12.5 percent of GDP. Total expenditures remained relatively constant over the period 1998/99 to 2001/02. However, current expenditures increased from 22.3 percent to 24 percent of GDP, mainly the 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 percent to 5.9 percent of GDP. The preliminary results show different trends, indicating that revenues recovered somewhat, perhaps as a result of the successive devaluation of the Egyptian pound, and expenditures increased rather sharply, mainly due to further increases in the wage bill and interest payments.

Table 4. Consolidated Fiscal Results* (% of GDP)

	1998/99	1999/00	2000/01	2001/02	2002/03**
Total Revenue	30.4	28.8	27.9	27.4	28.4
Tax Revenue	15.4	14.7	14.2	13.6	14.1
Non-Tax Revenue	13.7	13.3	12.8	12.5	13.2
Capital Revenue	0.7	0.3	0.5	0.3	0.3
Grants	0.5	0.5	0.4	1.0	0.9
Total Expenditure	30.5	30.1	30.1	29.9	31.9
Current Expenditure	22.3	22.5	24.9	24.0	25.7
Wages & Salaries	6.5	6.6	7.0	7.5	7.9
Interest Payments	4.8	4.8	5.2	5.4	6.3
Domestic	4.0	4.3	4.7	4.7	5.5
Foreign	0.8	0.5	0.5	0.6	0.8
Other Current	10.9	11.1	12.6	11.2	11.6
Capital Exp. & Net Lending	8.2	7.6	5.3	5.9	6.2
Overall Balance	-0.1	-1.2	-2.2	-2.5	-3.4
Repayment of Arrears	-0.4	-1.2	-1.3	-1.5	-0.7
Errors & Omissions	0.2	-0.9	-0.9	-0.8	-0.6
Financing Requirements	-0.3	-3.4	-4.4	-4.9	-4.8

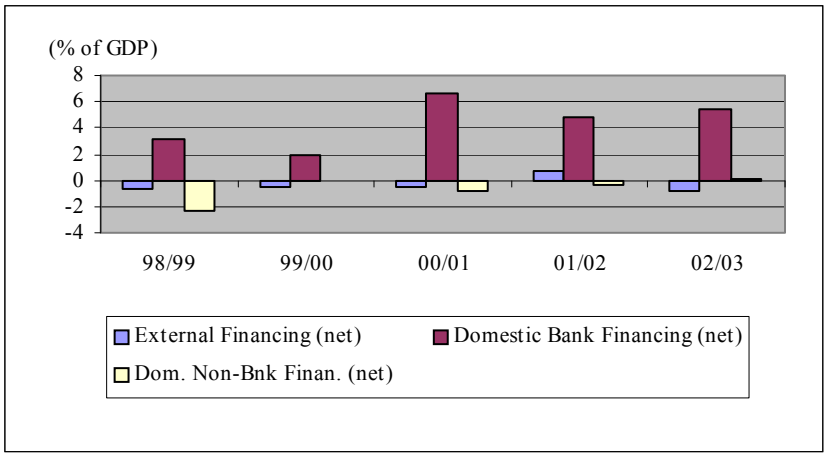
Note: *Includes the budgetary sector, NIB, GASC and the SIFs. ** Preliminary results.
Source: CBE.

The budget's 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 it was committed during the 1990s, and the authorities are progressively repaying these arrears.[6] Another reason is that in spite of the new improved budgetary reporting framework, the authorities continue to report an "adjustment to cash and errors" line in the financing of the budget, which corrects for the inconsistency between financing flows 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 percent of GDP, almost twice the reported deficit. The authorities have met these needs mainly by increasing their net debt with the domestic banking system (see Figure 6). Indeed, during the last three years 2000/01 and 2002/03, the authorities have raised between 5 percent and 6.5 percent of GDP from domestic banks by drawing down deposits and increasing gross debt. Other

[6] The amount of these arrears has not been reported by the authorities.

sources of domestic finance have fluctuated in importance but have not been a significant source of funding for the government.

Figure 6. Financing of the Consolidated Deficit



Source: CBE.

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

Given the recent decline in growth, a proportion of the increase in the fiscal deficit could be attributed to cyclical factors. If cyclical factors are the cause, then part of the increase in the deficit would be temporary and of less concern from a sustainability standpoint, since the debt 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 in the previous section, however, factors other than cyclical are likely to be at work in Egypt. The low buoyancy of revenues over a long period of time with 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 the 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, which 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 Organization for Economic Cooperation and Development (OECD) and the International Monetary Fund (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] The HP filter is a smoothing approach 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^* or trend output, is estimated to minimize:

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

Hence, the HP filter is a weighted average of a standard trend and a moving average component, with the parameter λ determining how closely the trend line follows actual output. The lower the value of λ, the closer the trend line will replicate output and incorporate the volatility in output into the estimate of potential output. For the purposes of this paper, $\lambda = 100$, which is the conventional value for yearly data.

Figure 7 shows the time path of potential and actual output growth for Egypt over the period 1960-2003 using the HP smoothing procedure. Three observations can be made. First, current potential output growth is close to 4 percent. 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), though not by much.[9]

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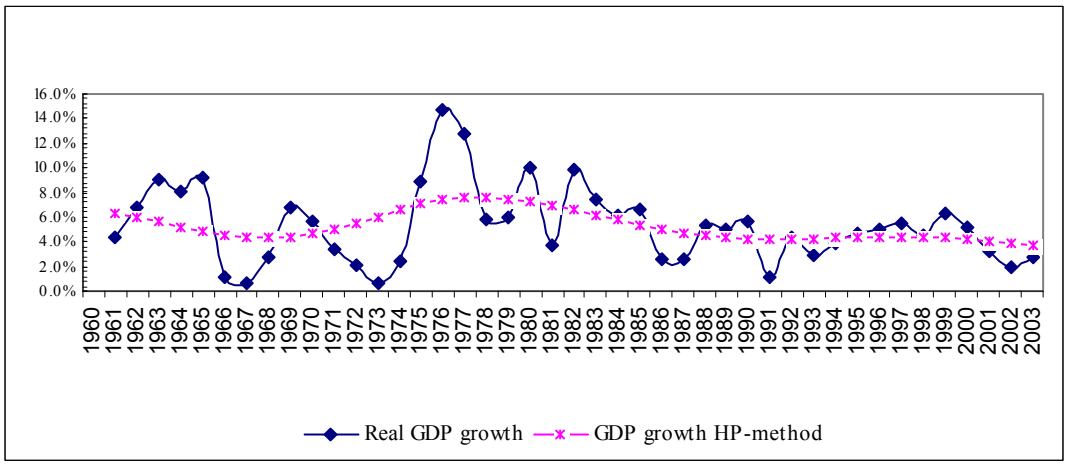
[7] More sophisticated methods of estimating potential output rely on a production function analysis, but these tend to be very data intensive, requiring time series of labor and capital stocks, for example. For a recent production function analysis of growth and productivity in Egypt see Kheir-El-Din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

[8] See, for example, De Masi (1997).

[9] However, the fact that the potential growth rate is close to 4 percent should be a 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 mentioned 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.

Figure 7. Actual vs. Potential GDP Growth



Source: World Bank staff calculations.

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. Several quantitative techniques have been developed over time to help make this distinction and to 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. Since time series of budgetary data that are both comparable and reliable are very short in Egypt, the accuracy of econometric estimates of the elasticities is questionable. To overcome this data limitation, this paper has adopted a methodology developed by the IMF that requires significantly less data.[10]

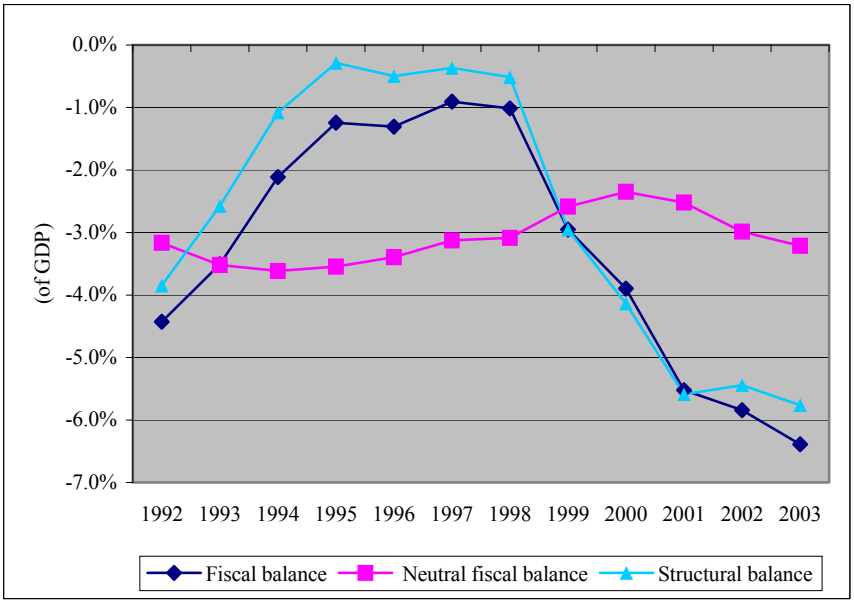
According to the IMF methodology, the calculations suggest that most of the deterioration in the budget balance of the budgetary sector in the late 1990s and early 2000s was not due to cyclical factors. Figure 8 shows that the cyclically neutral deficit has only increased from 2.6 percent of GDP in 1998/99 to an estimated 3.2 percent of GDP in 2002/03. On the other hand, the budget deficit has increased from 3 percent of GDP to 6.4 percent of GDP during this same time period,[11] while the structural deficit has grown from 3 percent of GDP to 5.8 percent of GDP. The largest increases in the structural budget deficit took place in 1999/2000 and 2000/01, when

[10] See Heller, Haas and Mansur (1986). The analytical basis of the methodology is presented in Chand (1992).

[11] The budget balance and cyclically neutral balance are not the same in the base year because potential and actual outputs, while close, are not equal.

the level of economic activity was still strong but the budget deficit was growing. Figure 8 suggests that the largest increase took place in 1998/99, but that may be 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.

Figure 8. Structural Budget Balance



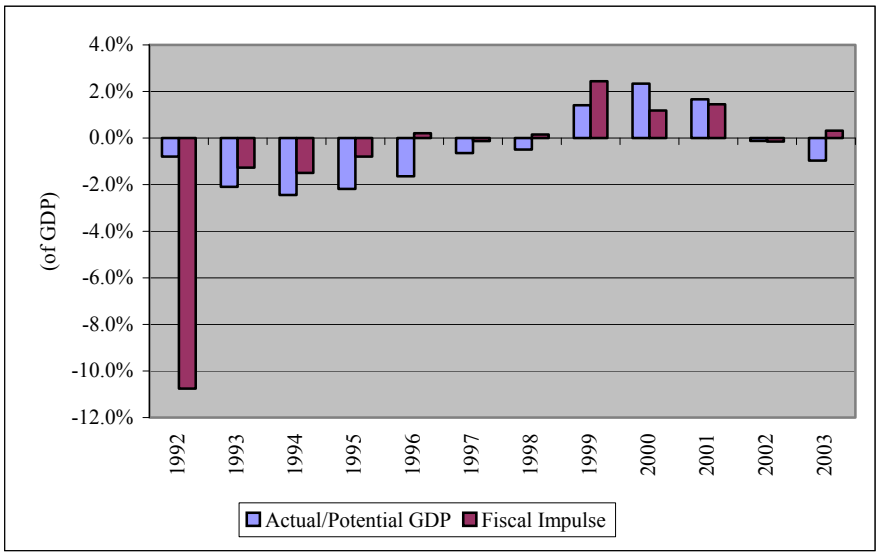
Source: World Bank staff calculations.

Estimates of the structural and cyclically neutral budget balances in the early 1990s suggest once again that the fiscal effort undertaken by the authorities was significant, with the actual budget balance at a level considerably below that of 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. Throughout most of the period under analysis, the fiscal policy stance had a positive impulse on 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 reflected the urgent need to reduce the deficit to levels that could be financed without resorting 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.

Figure 9. Pro-Cyclical Fiscal Policy



Source: World Bank staff calculations.

The most significant flaw of the methodology used above to estimate the structural fiscal balance is the assumption of unitary elasticities for revenues and expenditures.[12] From the data, it is evident that the elasticity of tax revenue with respect to 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 than 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, particularly in Egypt, where such revenues depend heavily on the

[12] This assumption is more analytically sound when estimating the fiscal impulse. It implies 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. 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 a major issue in Egypt where recorded inflation has been quite low during the late 1990s.

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 revenues and expenditures, and more generally in estimating the relationship between key revenue and expenditure items and economic activity, will also complicate the sustainability analysis, which requires a forward-looking understanding of the budgetary accounts.

V. Sustainability Implications of Fiscal Trends

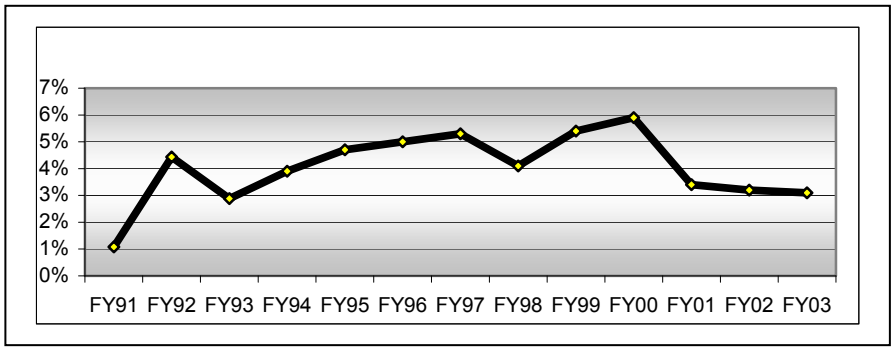
We follow a simple procedure to examine sustainability. We first calibrate our simulation model using the FY2003 fiscal accounts. Then we make certain assumptions about the behavior of key macroeconomic variables over the simulation period of 2004-2018. This allows us to calculate the financing requirement 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 assuming a certain rate of increase of external debt and foreign interest rates. By varying our assumptions about the values of certain key variables, we generate alternative scenarios. We compare scenarios by charting the time path of the implied debt-output ratio of each scenario and checking to see how quickly this ratio approaches a given level (assumed to be 90 percent in our simulations). The definition of public debt 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.

Key Assumptions

Growth rates. Thanks to an ambitious program of stabilization and structural reform that began in 1991, Egypt had an average growth rate of 4.6 percent during 1991/92-1998/99. Subsequently, the trend has been less favorable and growth rates have been hovering around 3 percent during the last three years, a meager 1 percent in per capita terms. In part, this slowdown may have been brought on by a series of external shocks such as the East Asian crisis (July 1997), the tourist attack in Luxor (November 1997), the 1998 dip in oil prices, global turmoil due to the events of September 11, 2001, and the war in Iraq in 2003. It may also be partly due to the deterioration in the domestic policy mix (noted in Section IV) and a slowdown in the pace of reforms that aim to stimulate private investment through improvements in the business climate.

Figure 10. Real GDP Growth Rate



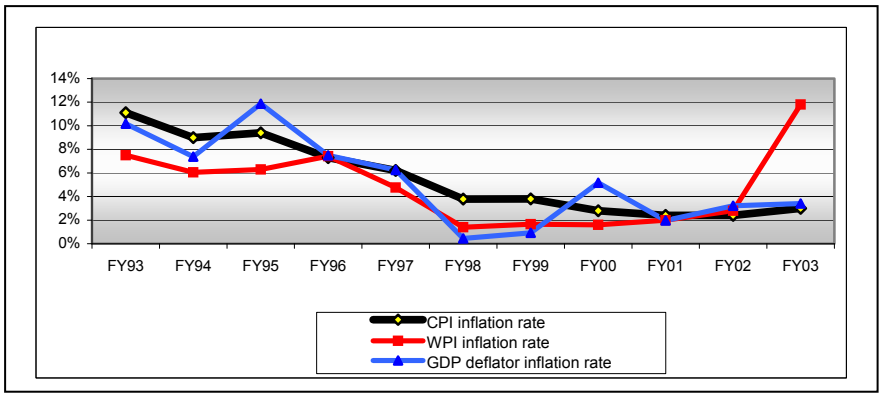
Source: World Bank staff calculations.

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 15 years. In an alternative scenario (Scenario B), we examine the effect of slower growth averaging 2.4 percent over the simulation period. See Table 6 for a summary of all scenarios.

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 FY02 the trend was broken. The CPI inflation rate has risen modestly to 4 percent, while the WPI rate has jumped to more than 12 percent. This disparity underscores the potential for misleading results if only the CPI is used as an index of inflation in Egypt. Furthermore, for most

macroeconomic analyses 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.

Figure 11. Inflation Rates

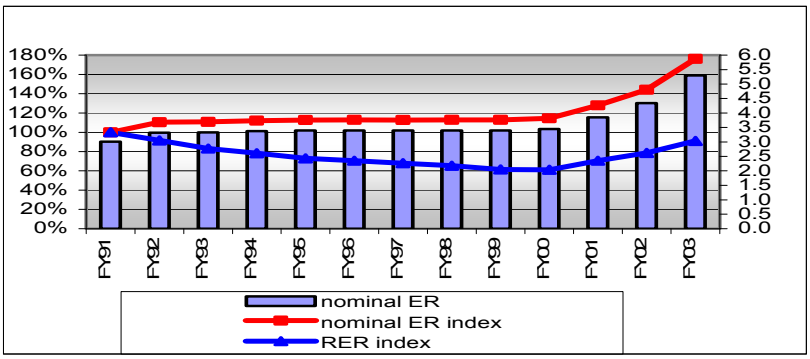


Source: World Bank staff calculations.

For our base case scenario we assume that the GDP deflator will fall from its estimated 6.1 percent for FY03 to 4 percent for FY04, and will grow at an annual rate of 3 percent from 2005 onwards.

Domestic interest rates. Interest rates were liberalized in the early 1990s resulting in treasury bill rates of almost 20 percent. Since then, the decline in the inflation rate led to a gradual decrease in the T- bill rate until it reached around 7 percent in FY02. More recently, however, there has been upward pressure on borrowing rates, brought on most likely by rising fiscal deficits and in part by pressures arising from a depreciating exchange rate. This has caused T-bill rates to rise to around 10 percent in nominal terms.

Figure 12. Treasury Bill Rates



Source: World Bank staff calculations.

In the base case scenario we assume that similar pressures will persist over the simulation period and that the T- 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.

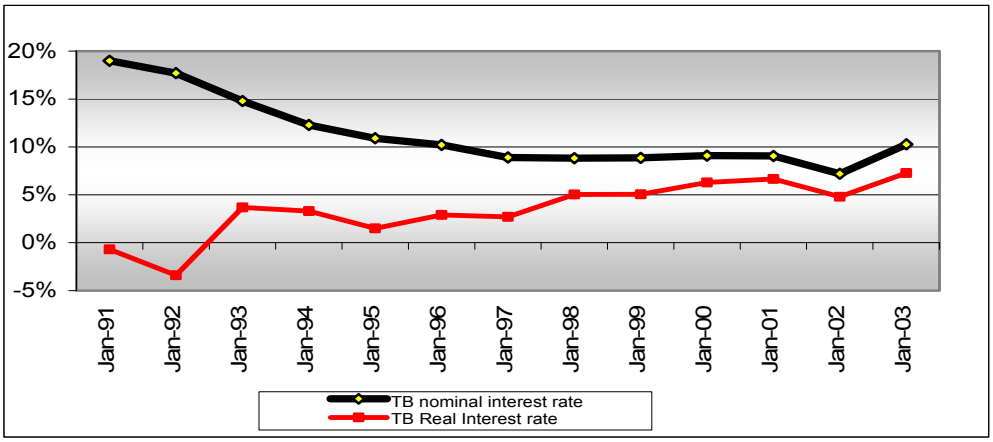
Foreign debt and interest rates. The proportion of external debt in Egypt's total public debt has varied from year to year. During FY2000 and FY2001, the nominal dollar value of the external debt decreased from around $29 billion to $26.5 billion. Since then, external debt has increased to around $29 billion in nominal dollar terms and has risen even more sharply in local currency terms due to the depreciation of the pound. Of total external debt, only a very small amount ($542 million in FY02) is classified as private non-guaranteed debt and a modestly larger amount ($2.1 billion) is classified as short-term debt. The bulk of the outstanding amount (about $20 billion) is medium- to long-term debt and is owed primarily to bilateral official sources. A smaller, but still significant amount (just under $5 billion) is owed to multilateral agencies and the remaining is in the form of supplier's credits. The composition of Egypt's foreign debt by maturity and source suggests that it 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 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 increases.

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 remain at 2 percent per annum.

Exchange rates. Foreign exchange reform measures were among the most important elements of the 1991 economic reform and 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 in check. This policy, though helpful in containing inflation, also led to a real appreciation of nearly 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 in late January 2003 the government decided to float the pound. However, the management of the float has not been entirely smooth and the market has perceived conflicting signals about the nature of the float. The gap between the parallel and the official exchange rate is still wide.

Figure 13. Exchange Rate Trends



Source: World Bank staff calculations.

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 policy concern, we have examined the effects of an alternative scenario (Scenario D) in which the exchange rate is assumed to depreciate by 5 percent per annum over the simulation period.

Global conditions. Global conditions are also likely to affect Egypt's growth and debt. The latest forecast of the World Bank Group is presented in Table 5. 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. World inflation rates are forecasted as fairly low and stable. Accordingly, we did not include a scenario figuring a world inflation shock. Regarding interest rates, 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 Egypt may face an increase in debt service payments due to the component of its external debt that is contracted in floating dollar-based rates.

Table 5. Global Forecasts

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

Source: World Bank (2004).

Fiscal policy assumptions. Fiscal policy trends have already been discussed in Section II. *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 the case of wage bill and defense expenditures); at the nominal GDP growth rate (e.g., applies to the case of subsidies and transfers);*[13] *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 percent rather than 10 percent as in the base case; and

[13] Subsidies are assumed to grow by 6.5 percent throughout the simulation period, except for 2003/04 for which their growth rate is set at 15 percent. This is to take into consideration the recent government announcement to increase the subsidy bill for seven basic food items by about LE 1.6 billion in order to mitigate the price increases arising from the depreciation of the Egyptian pound.

Scenario G, in which the growth of subsidies is assumed to be 3 percent rather than 6.5 percent as in the base case.[14]

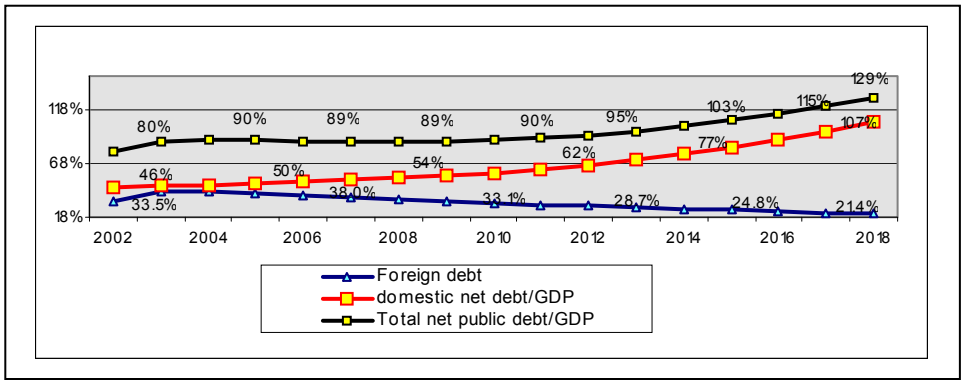
Simulation Results

We report below on seven scenarios. In addition to the base case scenario (A), 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 14 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 percent until 2011 and then begins to rise steadily to about 129 percent by 2018*. This suggests that, under the assumptions of the base case scenario, Egypt has about seven years or so to get its fiscal situation in order.[15] After that, macro-management gets much tougher as debt service payments begin to rise at a much faster pace. Also, note that 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.

Figure 14. Net Public Debt-Output Path under the Base Case



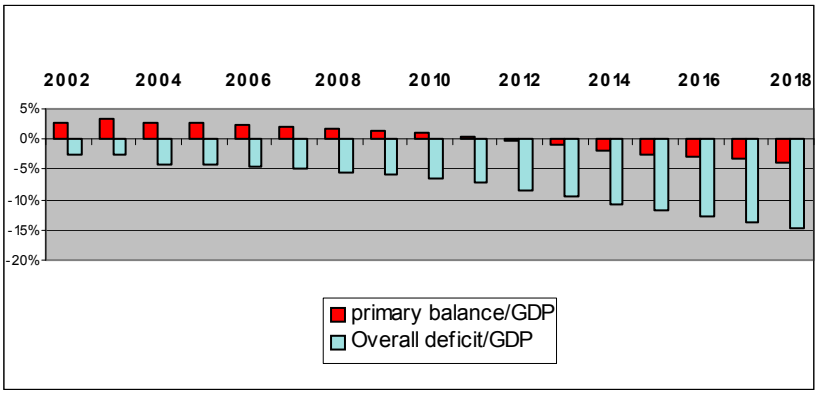
Source: World Bank staff calculations.

[14] The simulation applies to the total subsidies bill and does not assume any particular design. In principle, the reduction in total subsidies could be achieved by reducing subsidies for the non-poor and maintaining them for the poor.

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

We can also examine the time path of the budget deficit and primary balances associated with the base case scenario. Figure 15 shows 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.

Figure 15. Budget Balances under the Base Case



Source: World Bank staff calculations.

Other Simulation Results

The summary assessment 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 illustrates the main differences between the outcomes of the base case scenario and the six other scenarios. To facilitate comparison, for each scenario we have indicated the year by which the debt-output ratio would exceed 90 percent. 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 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 occur.[16] 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, a decrease in the public sector wage bill significantly restrains the deterioration of the debt-output ratio and the primary balance, perhaps because wages and salaries account for just over one-fifth of total expenditures (and almost one-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. However, similarly, significant improvements are possible with fairly modest changes in fiscal policy.

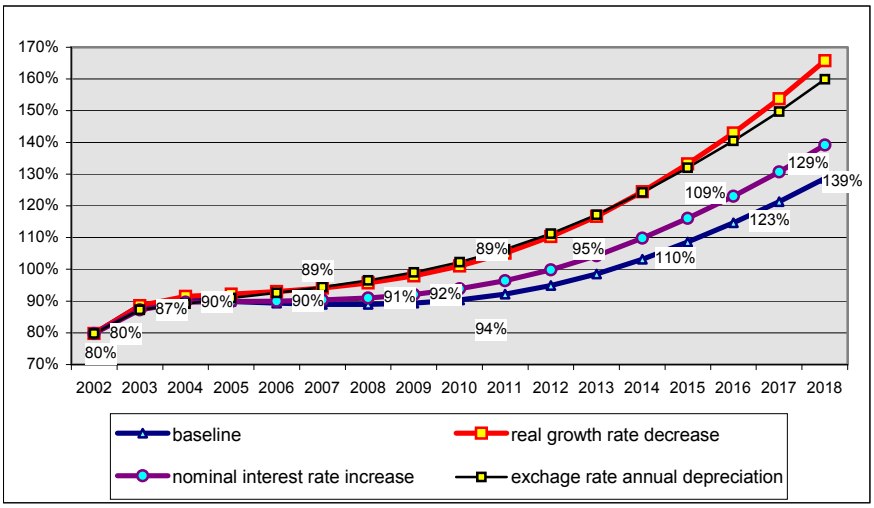
Table 6. Summary Results of Alternative Scenarios

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

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 in the scenario comprising an increase in the nominal interest rate. In other words, from a debt management standpoint, a 1 percent increase in the nominal interest rate is preferable to a 1 percent decrease in the growth rate of the economy or to an annual 5 percent depreciation of the currency.

[16] 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 included 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.

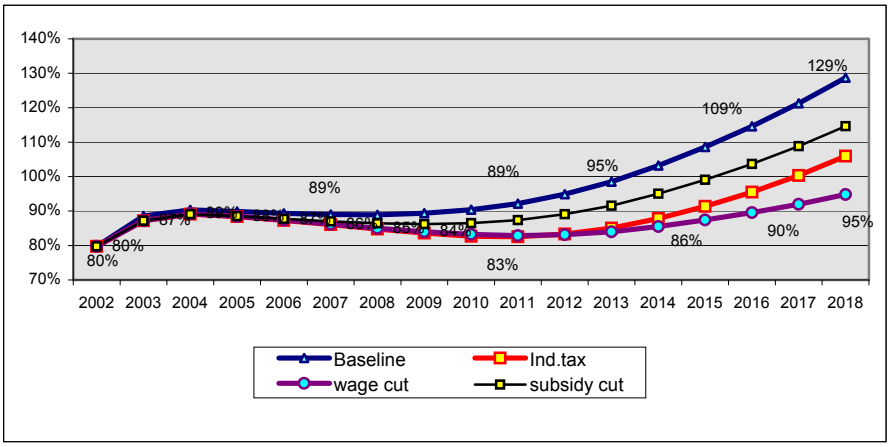
Figure 16. Net Public Debt-Output Paths under Negative Shock Scenarios



Source: World Bank staff calculations.

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 these three instruments (see Figure 17), it is clear that the stipulated decrease in the wage bill is more effective in reducing the debt-output ratio than the stipulated subsidy cut or the improvement in tax administration. 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 Positive Shock Scenarios



Source: World Bank staff calculations.

VI. CONCLUSION

The analysis performed in this paper supports four main points. First, Egypt has a relatively high debt-output ratio. Second, 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 percent level considered desirable for good macro management. This suggests that Egyptian policy makers should be concerned about the overall debt situation and take measures to control it. An orderly process of debt reduction should be possible since most of the debt is held by the domestic banking system,[17] over which the government has some control.

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

Fiscal deficits and the resulting debt ratio have been rising rapidly in the last few years, while growth has been low. 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 level. The methodology used in this paper suggests that the bulk of the fiscal deterioration since 1998/99 has been due to structural factors. A cyclically-adjusted (or neutral) fiscal deficit would have fluctuated between 2.8 percent and 3.2 percent of GDP during FY99-FY03. However, the actual fiscal deficit has fluctuated between 2.8 percent and 6.5 percent. This suggests that policy makers should not expect to "outgrow" the debt problem during the next upswing of the business cycle. Specific actions are needed to reduce the structural fiscal deficit.

[17] Approximately 90 percent of government securities are held by the domestic banking system.

Multiple sources of structural weaknesses in fiscal accounts

There are several sources of structural weaknesses in the fiscal accounts. In particular, the trend since FY99 suggests that such weaknesses include 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 difficulty is the fact that the ratio of total revenues to GDP declined from 30.4 percent in FY99 to 27.4 percent in FY2002 (before rising to 28.4 percent 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 problem is the decline in the ratio of capital expenditures to GDP from 8.2 percent in FY99 to 5.9 percent 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 obstacle is current expenditure trends, especially those relating to wages and salaries (which have risen from 6.5 percent to 7.9 percent of GDP) and interest payments (which have risen from 4.8 percent to 6.3 percent of GDP). Action in all three areas will likely be needed to help reverse the present trajectory of deficits and debt growth.

Simulation results reveal the importance of improving fiscal policy

Our simulation results show that restraining select 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 noticeably help restrain debt growth. Finally, they show that sustained higher growth is important to avoid a possible debt trap. Therefore, a fiscal policy stance that supports growth while minimizing the impact on the debt ratio might be preferable to other combinations. For example, fiscal expenditures could be restructured to emphasize public investments with a high potential impact on growth, while simultaneously reducing current expenditures on wages and selected subsidies.

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