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Economic Growth in Egypt:

Constraints and Determinants

by

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**Middle East and North Africa
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Economic Growth in Egypt: Constraints and Determinants¹

Anton Dobronogov and Farrukh Iqbal

ABSTRACT

Egypt accelerated its ongoing transition from a public sector dominated economy to a private sector led and market oriented economy after the collapse of oil prices in the mid-1980s. Some aspects of the economy, such as trade policy, have been substantially transformed since then whereas other aspects, such as public control of the financial sector, have experienced less change in substance. We examine some determinants of growth in Egypt since the mid-1980s using insights from both standard econometric techniques and a diagnostic approach proposed by Hausmann, Rodrik and Velasco (2004). We find that trends in government consumption, credit to the private sector and the average growth rate of OECD countries have been significant determinants of growth in Egypt in the past. We also present evidence that suggests that inefficiency of financial intermediation is a significant current constraint on growth.

ملخص

سارعت مصر في تحويل إقتصادها الذي كان قائما على القطاع العام الى مسار يقوده القطاع الخاص بعد انهيار اسعار النفط في منتصف الثمانينات. منذ ذلك الوقت تغيرت بعض جوانب الإقتصاد، كالسياسة التجارية، بشكل ملحوظ، في حين لم تشهد جوانب أخرى، كالتحكم العام بالقطاع المالي، أي تعديلات اساسية. لقد بحثنا بعض عوامل النمو في مصر منذ منتصف الثمانينات معتمدين على أساليب الإقتصاد الإحصائي والمنهاج التشخيصي الذي اقترحه هاوسمان، ورودريك، وفيلاسكو (2004). وقد وجدنا بأن الإتجاهات في المشتريات الحكومية، والإئتمان للقطاع الخاص، ومعدل نسبة النمو لدول OECD كانت عوامل هامة في نمو مصر في السابق. كذلك، فإننا نقدم أدلة تشير على أن النقص في كفاءة الوساطة المالية يمثل أحد أهم العوائق الحالية للتنمية.

RESUME

L'Egypte a accéléré sa transition en cours d'une économie dominée par le secteur public en faveur d'une économie induite par le secteur privé et orientée aux forces du marché à la suite de la chute des prix pétroliers au milieu des années 80. Certains aspects de l'économie, tels que la politique commerciale, ont été substantiellement transformés depuis tandis que d'autres, tels que le contrôle public du secteur financier, ont eu moins de succès en substance. Nous examinons quelques uns des déterminants de la croissance en Egypte depuis le milieu des années 80 en nous basant à la fois sur les connaissances tirées des techniques économétriques standard et d'une approche diagnostique proposée par Hausmann, Rodrik et Velasco (2004). Nous constatons que les tendances dans la consommation publique, le crédit au secteur privé et le taux de croissance moyen des pays de l'OCDE ont été d'importants déterminants de la croissance en Egypte par le passé. Nous présentons également des témoignages qui sous-tendent que l'inefficacité de l'intermédiation financière constitue actuellement un obstacle majeur à la croissance.

¹ We are grateful to Barry Eichengreen, Ricardo Hausmann, Dani Rodrik, Roberto Zaghera, and an anonymous peer-reviewer for useful comments on the earlier draft of this paper. The standard disclaimer applies.

1. INTRODUCTION

After the collapse of oil prices in the mid-1980s, Egypt became more vigorously engaged in a process of structural reform whose aim was to increase the role of the private sector, the market and international trade in the economy. Since then, Egypt's growth performance has varied from a declining phase in the latter half of the 1980s, to acceleration through much of the 1990s, followed by another declining phase during 1999-2003. This paper attempts to understand the determinants of this growth performance through a combination of graphical, econometric and diagnostic techniques.

We begin, in Part 2, with a simple graphical depiction of growth trends in Egypt relative to the OECD. This reveals clear co-movement of the two growth trends since the mid-1980s, suggesting the progressive deepening of Egypt's integration into the global economy (albeit from low levels). We also examine trends in other variables, such as the share of domestic credit going to the private sector and the growth of the labor force. Once again, suggestive links are found between trends in these variables and growth trends. We examine these links more rigorously in Part 3 of the paper through a time series econometric regression. This confirms the significance, on a *ceteris paribus* basis, of some of the graphical correlations noted earlier. In Part 4, we proceed to examine other possibilities through a diagnostic technique recently proposed by Hausmann, Rodrik and Velasco (2004). In particular, we consider whether growth in Egypt is likely to have been constrained by low social returns to investment, insufficient private appropriation of investment returns, or a relatively high (shadow) price of financing. We find that the last noted is most likely to have been an important constraint on growth, especially since 1999. In particular, we find that recent growth in Egypt has been constrained by inefficiency of financial intermediation rather than lack of financial resources. We examine some of the evidence for this view in Part 5 and offer some concluding remarks in Part 6.

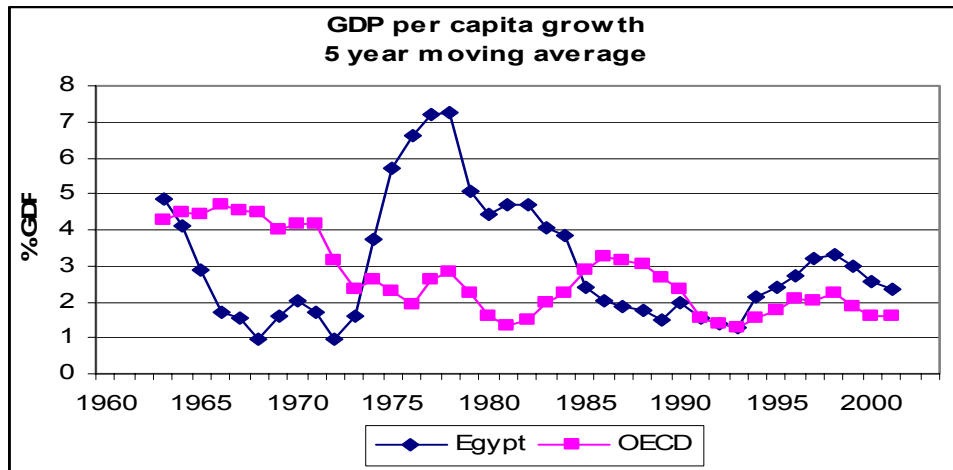
2. GROWTH PERFORMANCE IN 1961-2003: PHASES AND TRENDS

A major criterion of a developing country's growth performance suggested in the economic literature² is whether or not the country's economic growth rate exceeds that of the world's most developed economies. If the answer to this question is positive, a developing economy is gradually reducing the income differentials with industrialized countries, a phenomenon known as "convergence"; otherwise, the income differentials are rising and the economy is falling further behind the leaders. Figure 1 provides a snapshot of Egypt's relative performance between 1961 and 2003 through five-year moving averages of GDP per capita growth rates for Egypt and high-income OECD countries.

Using the convergence criterion, we can distinguish five distinct phases of Egypt's economic development over the last four decades. We briefly discuss all five phases below while emphasizing that our main interest is in developments since the mid-1980s.

² For example, see Barro (1999) and Solow (2000).

Figure 1: Economic Growth in Egypt and OECD, 1961-2003



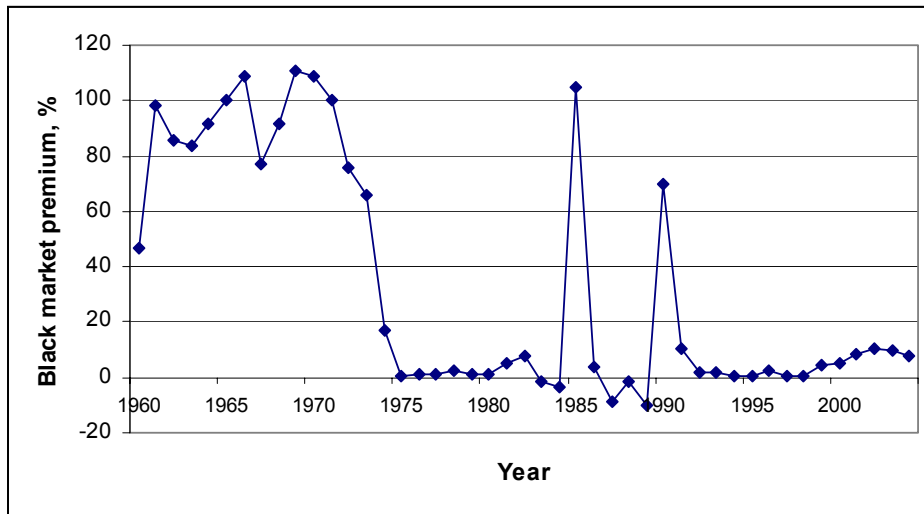
Source: World Development Indicators and authors' calculations

Phase 1: 1961 – 1973. Low growth and divergence from OECD. During this period, the state dominated the economy, the share of the private sector in GDP was low, and the government pursued import substitution policies. Over this phase, Egypt invested heavily in public infrastructure and social services (such as health and education) but could not sustain high economic growth. Business efficiency and labor productivity stagnated, as the country's development plans aimed at physical output targets, and its industrial exports were oriented mostly towards communist countries with low quality requirements (Weiss and Wurzel, 1998).

Phase 2: 1974 – 1985. High growth and convergence with OECD. Two factors played a prominent role in Egypt's growth performance over this period. First, the government launched the Open Door Policy (Infitah), which allowed a greater role for the private sector and partial liberalization of the trade sector and of the exchange rate regime. Second, national income was boosted by a dramatic increase in windfall revenues from the Suez Canal and from petroleum exports. According to Handoussa (2002), their joint value-added share increased from 3.7% to 12.5%, and their share in government revenues grew from 5% to close to 35% between 1975 and 1985. In addition, there was a rapid growth in tourism revenues and workers' remittances from abroad. However, while contributing to rapid growth of GDP, large windfall revenues caused some deterioration of fiscal institutions (the government's current expenditures dominated by the wage bill, subsidies, and interest payments, rose even faster than its revenues), Dutch disease effect, and increase in inflation to about 15% (Handoussa, 2002).

Phase 3: 1986 – 1991. Low growth and divergence from OECD. The collapse in windfall revenues following the 1985-86 oil price crash revealed the unsustainability of prevailing fiscal policy as fiscal deficits averaged about 15% of GDP throughout this phase. The deficits were automatically accommodated through expansionary monetary policy, which resulted in inflation rates above 20%. Stagnation of exports and large current account deficits (up to 8% of GDP in 1989) endangered Egypt's ability to serve its external debt (Subramanian, 1997). Confidence in the economy ebbed, and government's attempts to maintain a fixed exchange rate resulted in two peaks in the black market premium, when it exceeded 70% (Figure 2).

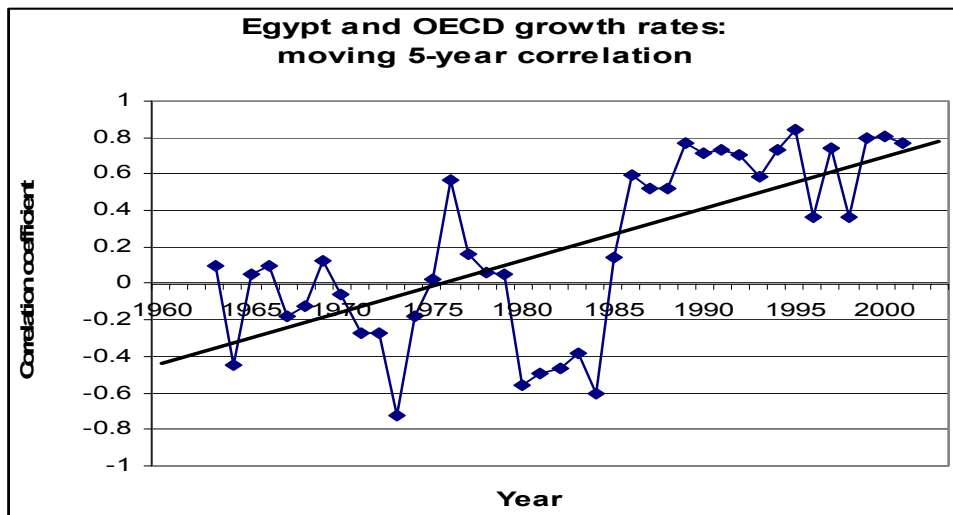
Figure 2: Black Market Premium In Egypt



Source: World Currency Yearbooks and Economist Intelligence Unit

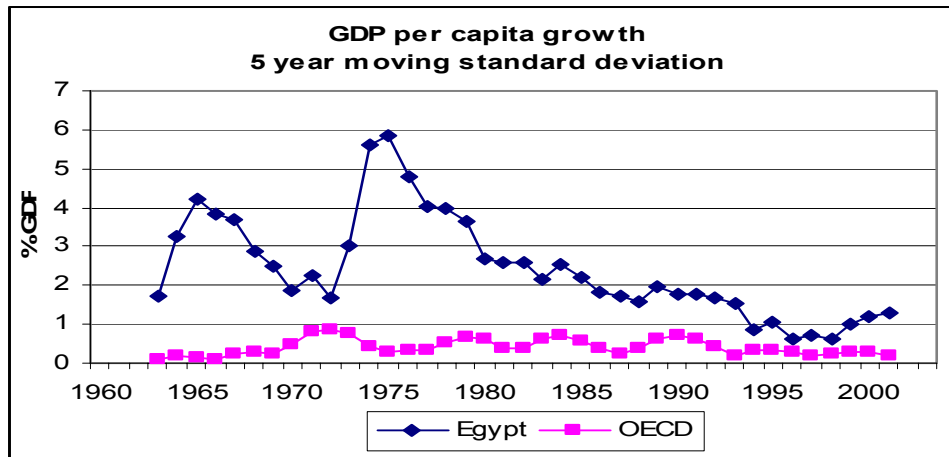
From this stage on, we observe three consistent trends: (a) a strong correlation between growth rates in Egypt and OECD (Figure 3); (b) a downward trend in the growth differential (Figure 1); and (c) a reduction in overall growth volatility in Egypt bringing it closer to volatility levels observed in the OECD (Figure 4).

Figure 3: Correlation between GDP growth rates of OECD and Egypt



Source: World Development Indicators and authors' calculations

Figure 4: Growth volatility in Egypt and OECD



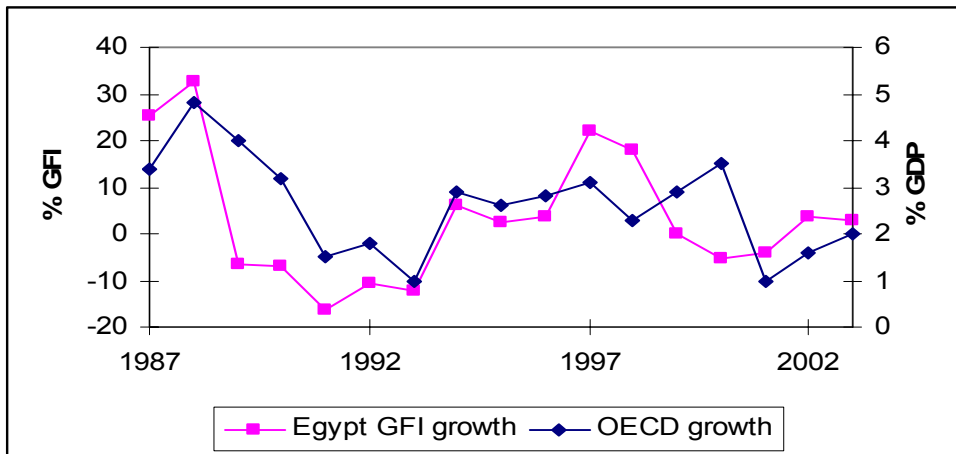
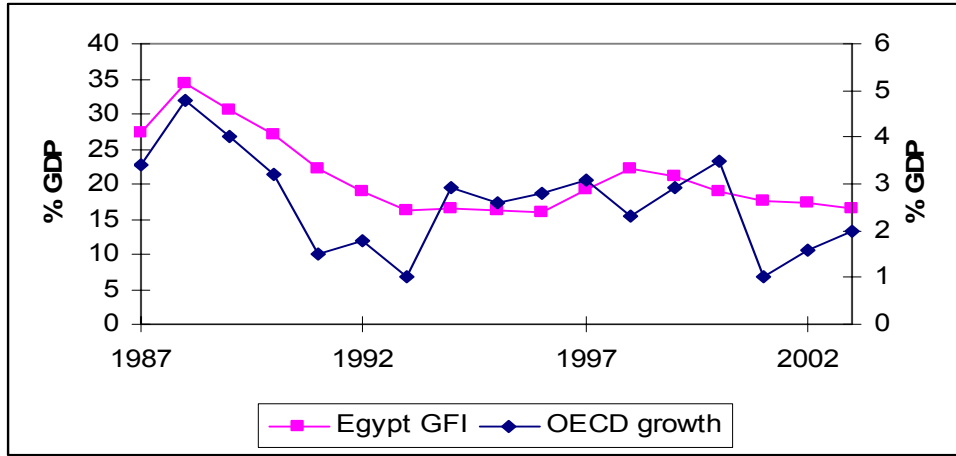
Source: World Development Indicators and the authors' calculations

These trends are not surprising. Since the mid-1980s, Egypt has accelerated the policy of opening of the economy. Effective protection due to implicit energy subsidies was greatly reduced by the fall of oil prices in the second half of the 1980s and the subsequent reduction of budget deficits in Egypt. In the 1990s the economy moved further towards greater openness through reduction in tariff rates. Thus, Egypt has been increasingly integrating with the global economy and its economy has increasingly moved in tandem with the OECD. Growth volatility has likely decreased because, as discussed by Balassa (1985), more open economies are both more prone to external shocks and much better equipped to cope with them.

On the other hand, demand shocks caused by variations in the economic growth of the industrialized world have a major impact on Egypt's investment rate. We observe a strong dependency between these two indicators over the last 15 years (Figure 5). The simple correlation between GDP growth rates of Egypt and high-income OECD countries for the period 1988-2003 was 0.70). For the same time period, the correlation between OECD GDP growth and Egypt's gross domestic fixed investment (GDFI) growth was 0.53, and the correlation between OECD GDP growth and Egypt's GDFI to GDP ratio was 0.69.

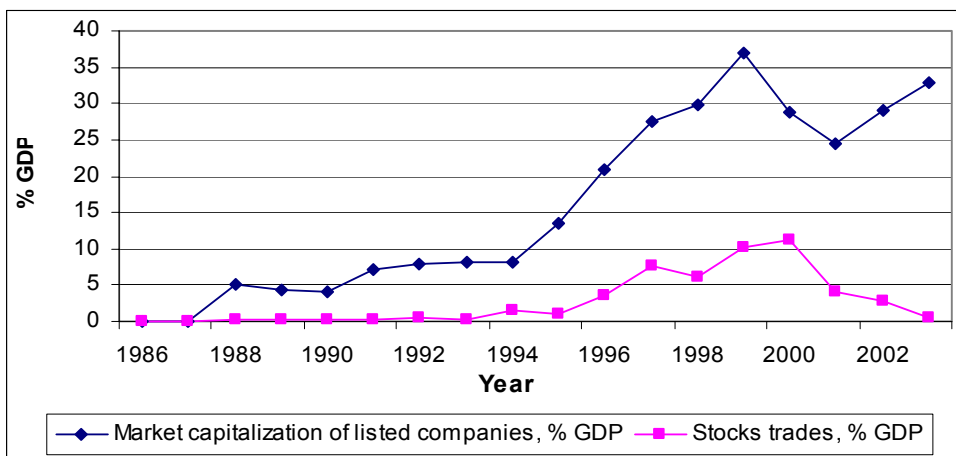
Phase 4: 1992 – 1998. High growth and convergence with OECD. In 1992 Egypt launched a successful stabilization effort. The fiscal deficit fell from 15% to 1.3% of GDP over the next four years and inflation returned to single-digit values. Devaluation of the pound resulted in a major improvement in the current account position (from a deficit of about 5% of GDP to a surplus of about 1%) and rapid accumulation of foreign exchange reserves (Subramanian, 1997). The government also launched a major privatization effort, which resulted in about one third of all state-owned enterprise assets being privatized between 1991 and 1998 (Khattab, 1999). Macroeconomic stabilization and privatization programs were complemented by the establishment of a free foreign exchange market for current account transactions and by the easing of capital account restrictions. These measures virtually eliminated real exchange rate misalignment and the black market premium, contributing to the growth acceleration experienced in this period (Domac and Shabsigh, 1999). The stock market, of minor importance hitherto, began to grow rapidly (Figure 6). Trade liberalization was continued, and according to World Bank data, the unweighted average tariff rate was reduced from 27.8 in 1991 to 20.5 in 1998.

Figure 5: (a, b). Egypt's GDFI and OECD GDP Growth



Source: World Development Indicators and authors' calculations

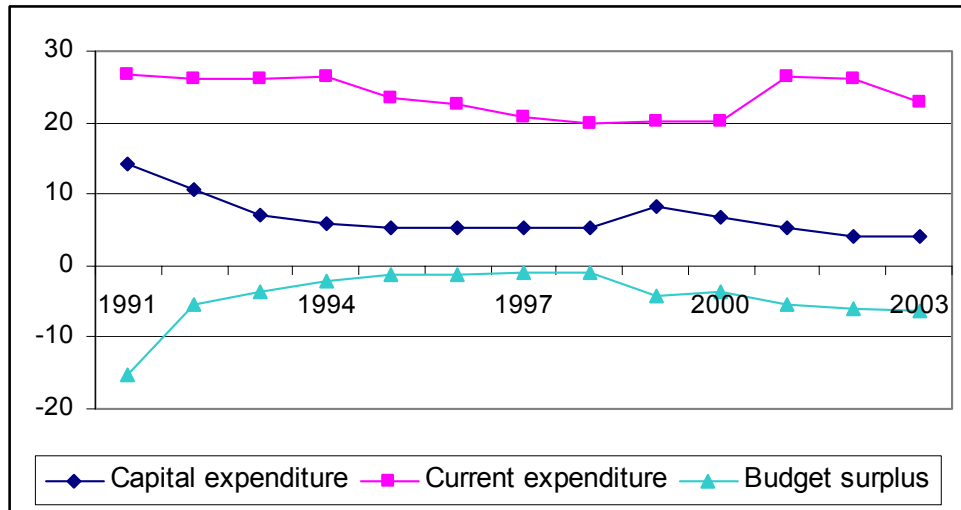
Figure 6: Major Stock Market Indicators In Egypt



Source: World Development Indicators

The quality of fiscal adjustment achieved over this period was mixed. The reduction of budget deficits in the first half of 1990s was achieved largely through a fall in public investment, particularly in the central government's capital expenditure (Figure 7).

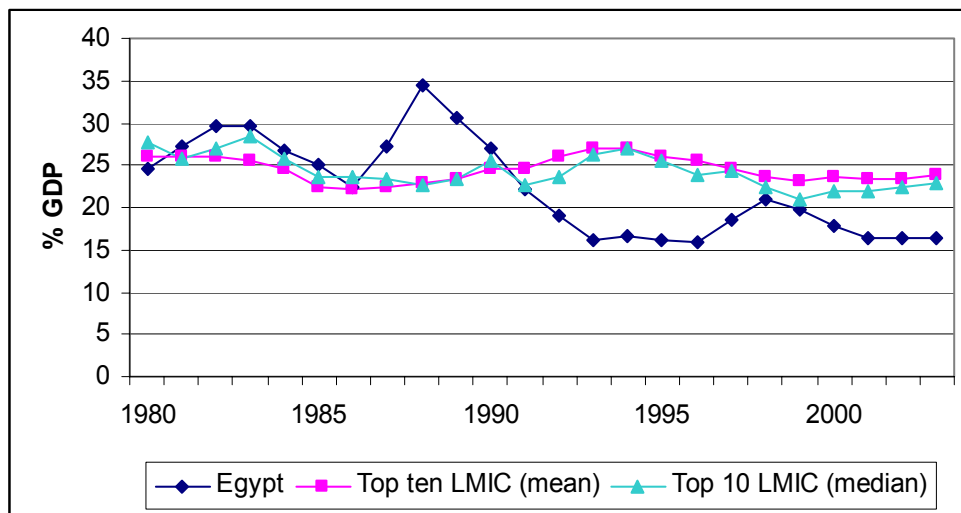
Figure 7: Current Expenditure, Capital Expenditure, and Budget Surplus in Egypt, 1991-2003



Source: World Development Indicators

While some reduction in public investment was justifiable, it is likely that capital spending, especially on infrastructure, was decreased by too much. Periods of downward changes in this variable coincide in time with falls in the private investment rate, and gross fixed domestic investment in Egypt is currently well below that in the ten fastest growing lower-middle income countries (Figure 8).

Figure 8: Gross Fixed Domestic Investment In Egypt and the Best Performing Lower-Middle Income Countries

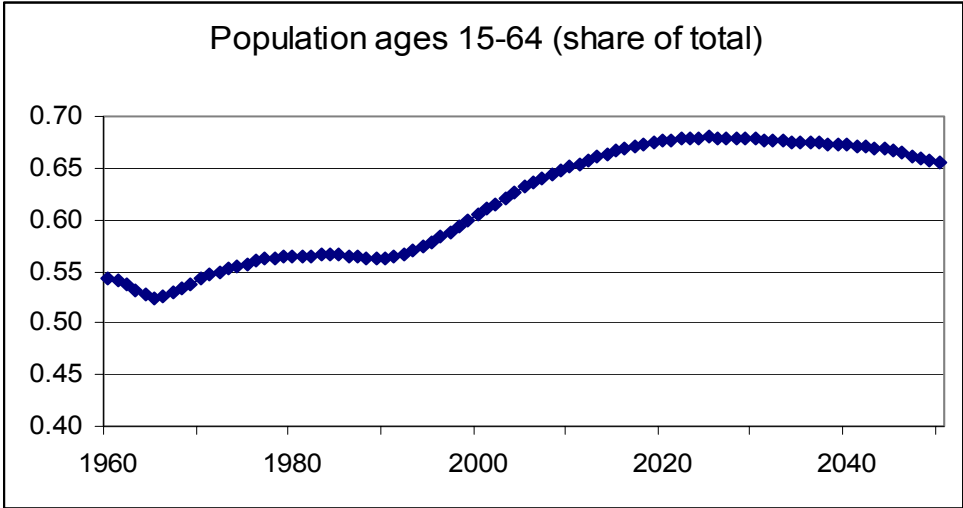


Source: World Development Indicators

This suggests that certain types of public investment in Egypt may crowd in rather than crowd out private investment. On the other hand, current expenditures, while somewhat reduced, remained excessive. The system of consumer and producer subsidies was modified in small ways but not sufficiently to reduce their overall burden on the budget by much. Public employment, and the corresponding public wage bill, continued to rise.

Demographic developments also affected growth during this period. As Figure 9 shows, the share of the working-age population in Egypt began to rise sharply after 1990 (a process that is likely to continue until about 2020). This “demographic transition”³ has implications for economic growth, as an increase in the share of the working age population (if is not offset by increase in the unemployment rate or fall in the labor force participation rate) makes GDP per capita grow faster than output per worker, and may also positively affect savings and investment, both in physical and human capital. It is also likely to be accompanied by a fall in the number of dependents per worker thus increasing the savings rate of the average households. Further, a fall in the youth dependency ratio permits an increase in per capita investment in human capital, contributing to future economic growth. However, these positive effects are not automatic. For example, if additional savings are for some reasons not transformed into productive investment and the extra labor force is absorbed through inefficient public employment, the same demographic trends may impose a fiscal burden on the economy, thus becoming a curse rather than a blessing.

Figure 9: Working Age Population As Share of Total Population in Egypt, 1960-2040

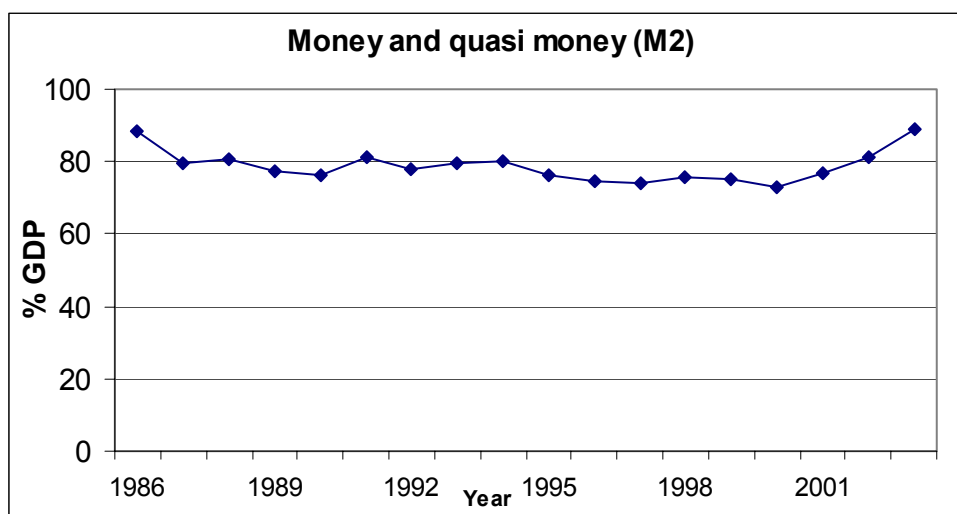


Source: World Development Indicators and World Bank projections

³ According to Bloom et al. (1999), demographic transition is “a change from a situation of high fertility and high mortality to one of low fertility and low mortality”, which causes substantial shifts in the age distribution of the population. Initial mortality decline is usually concentrated among infants and young children, and, as a rule, precedes the decline in fertility. This creates a “bulge” in the population pyramid, the leading edge of which is created by the decline in child mortality, while the trailing edge - by the decline in fertility. At early stages of demographic transition the bulge is concentrated among young people, later among working age people, and eventually among the elderly.

Phase 5: 1999 – 2003. Lower growth and slowdown in convergence. This phase was initiated by several shocks including the Luxor terrorist attack in 1997, the global financial crisis of 1997-99, and a domestic financial scandal in 1998-99. All of these events had severe repercussions for Egypt and sent the economy into a decelerating growth phase. The financial scandal, in particular, had a chilling effect on the growth of credit to the private sector.⁴ Negative shocks continued for the next few years, as witness the September 11 attack (2001) and the subsequent invasion of Iraq (2003). The Egyptian government reacted to the initial shocks by expansionary fiscal policies (clearing of arrears as a stimulus to the private sector, as well as an increase in public investment in “mega” projects), which resulted in a worsening fiscal stance. Budget deficits increased from 0.9% of GDP in 1997 to average 3.9% in 1999-2000, and further to average 6.1% in 2002-2003. Later in the phase, monetary policy was eased, with M2 increasing from 73.1% of GDP in 2000 to 88.7% in 2003 (Figure 10).

Figure 10: Money Supply in Egypt

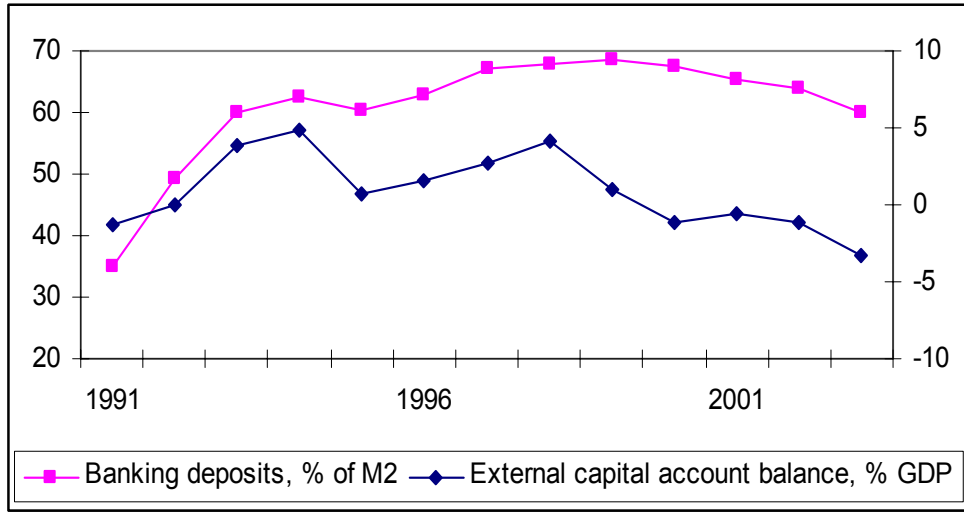


Source: World Development Indicators

The increase in the money supply, however, was partially absorbed through increased government borrowing, partially through excess liquidity in the banking system (though share of banking deposits in M2 has declined), and partially through deterioration of the capital account (Figure 11). The growth rate of domestic credit to the private sector fell from 1999 to 2002 as a share of M2 (Figure 12), in tandem with a declining rate of private investment. Confidence in the banking system was so undermined by the financial scandal that the increase in money supply during 2001-03 did not help to increase investment.

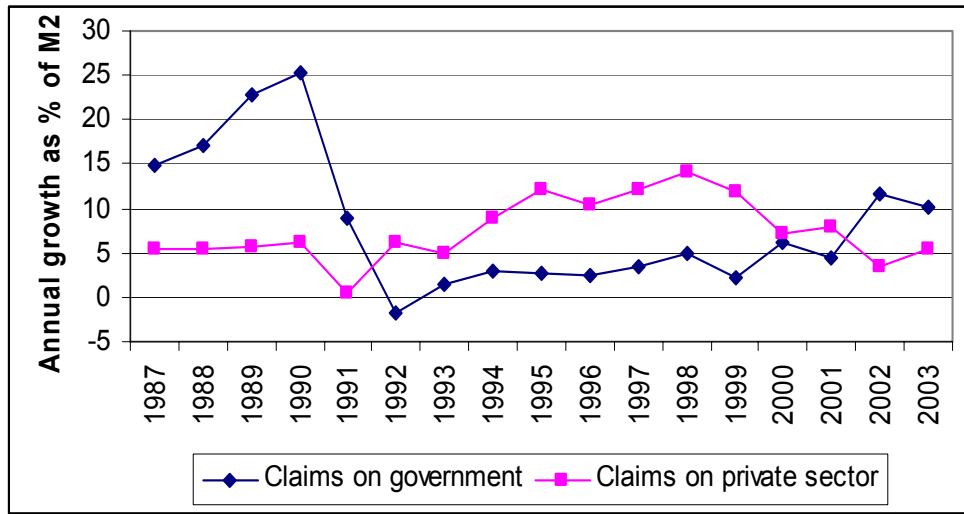
⁴ Essentially, a number of defaults took place which led to investigations which revealed unsound banking practices. Some bankers and borrowers fled the country under threat of imprisonment. Others were arrested and received long terms in prison. The scandal was also known as the “loan deputies” scandal because of the involvement of some parliamentarians in the bad loans.

Figure 11: Banking Deposits and External Capital Account Balance in Egypt



Source : World Development Indicators

Figure 12: Growth of Domestic Credit in Egypt



Source: World Development Indicators

In 2001, the stock market collapsed (see Figure 6), with the value of trades falling sharply to 3% of GDP on average in 2001-2003, down from 10% in 1998-2000. The government also tightened exchange rate controls, which resulted in the reappearance of the black market premium (see Figure 2). Egypt's economic growth slowed down, though the growth rate remained above that of OECD throughout the phase.

3. EMPIRICS OF GROWTH PERFORMANCE IN 1986-2003

In this section, we attempt an econometric assessment of Egypt's GDP per capita growth performance during 1986-2003. The discussion in the previous section suggests that the following variables could be included in the specification of our model as independent determinants. The correlations of the growth rates of these variables with Egypt's GDP per capita growth are shown in parentheses:

- OECD GDP (0.36);
- Government consumption (share in GDP; -0.40);
- Credit to the private sector (share in M2, 0.62);
- Credit to the government (share in M2, -0.08); and
- Share of working-age population in the total population (0.37).

This set of variables accounts for a large portion of potential growth determinants identified from both economic theory and our discussion in the previous section. The share of working-age population accounts for changes in the labor force. Credit extended to the private sector and to the government proxies investment financing. External shocks are represented by changes in the OECD GDP. Changes in the quality of important economic policies and institutions are captured by changes in government consumption.

There are some other variables which may have affected growth in Egypt over the period we are studying, but for which we do not have comprehensive or any data. These include, for example, the share of the labor force with secondary education, indicators of the government's regulatory quality, or efficiency gains resulting from gradual trade liberalization. To account, at least partially, for possible effects of these factors, we add a time trend to some of our specifications. Since there is a strong upward trend in the share of the working age population, for the purposes of sensitivity analysis we include time trend variable in the model specifications with and without this variable.

In principle, it could be argued that two of our dependent variables are endogenous. The first is private sector credit growth. If it is growth that leads to an increase in investment opportunities and thus to a rising demand for credit from the private sector, then the latter would be a dependent variable and not an independent one, in other words, the causality would be reversed. The second is government consumption: if the government pursues a counter-cyclical fiscal policy, it may increase its consumption in response to lower growth and decrease it in response to higher growth. In such a case, government consumption would be a dependent variable rather than an independent one. While possible in principle, these arguments are not plausible under the specific circumstances of Egypt over the period for which we conduct our econometric analysis.

The argument regarding the endogeneity of private sector credit growth does not hold because over the period of analysis there was an upward trend in the GDP per capita growth rate, an upward trend in the growth rate of private credit, but a downward trend in the investment

rate⁵. Under these circumstances, the assumption that acceleration of private sector credit growth was driven by higher demand for investment does not appear plausible.

The argument regarding the endogeneity of government consumption does not hold because there is no evidence to suggest that the authorities follow systematic annual fiscal rules linked to contemporaneous growth trends. Indeed, the budget process in Egypt is known to be relatively inflexible and does not include a systematic mid-year review procedure. Furthermore, what adjustment ever takes place is in the domain of public investment much more than in public consumption. Finally, even if public consumption is systematically adjusted to growth trends⁶, as long as the adjustment lag exceeds one year there is no endogeneity in our regressions.

In terms of estimation technique, we use logs-in-logs, first differences⁷ regressions – that is, we analyze relations between growth rates of Egypt's GDP per capita and the independent variables listed above. Since we only have annual data, we have only 18 observations. This is a major limitation which could affect the reliability of the statistical significance of our results. To check for this, we perform some robustness tests. The Jarque-Bera test fails to reject at any reasonable confidence level normality of the distribution of residuals in any of the reported regression specifications. Similarly, the Phillips-Perron test rejected the unit root hypothesis for all variables at least at the 10% confidence level. To account for possible heteroscedasticity, we used regressions with White heteroskedasticity-consistent standard errors and covariance. Autocorrelation cannot be rejected by Durban-Watson for this number of independent variables and observations, so we do sensitivity analysis of our results using AR(1) model⁸. The regressions results are presented in the Table 1.

⁵ In section 5 of this paper we further elaborate on why dynamics of credit to private sector in Egypt was mostly determined by the supply side factors.

⁶ Something very few governments of developing countries are able to accomplish.

⁷ Logs-in-logs level regressions produce point estimates generally consistent with those produced by the regressions in the first differences. However, Phillips-Perron test failed to reject unit roots in most of regression variables, so it is likely that these regressions are spurious. Therefore, we prefer to present the results of the regressions in first differences.

⁸ This being said, while analyzing the results we still need to keep in mind that the t-statistics from our regressions could be biased upward.

Table 1: Results of the Econometric Analysis

Specification	1	2	3	4	5	6
	Growth rate					
OECD GDP, %	0.556** (2.39)	0.480* (2.17)	0.566** (2.59)	0.563*** (3.40)	0.500** (2.60)	0.558*** (3.48)
Government consumption, % GDP	-0.161*** (-3.14)	-0.145** (-2.95)	-0.163*** (-3.41)	-0.157*** (-4.08)	-0.202*** (-4.67)	-0.167*** (-5.00)
Credit to private sector, % M2	0.145* (2.13)	0.141* (2.07)	0.147** (2.29)	0.137** (2.63)	0.154** (2.91)	0.151*** (3.47)
Credit to the government, % M2	-0.008 (-0.15)	0.029 (0.74)	-0.000 (-0.47)	-0.000 (-0.07)	-0.039 (-1.40)	-0.017 (-0.76)
Population 15-64, % total	0.381 (0.22)	2.090*** (3.43)	-	0.735 (0.54)	0.202*** (4.66)	-
T	0.001 (1.03)	-	0.002 *** (3.73)	0.001 (1.04)	-	0.001*** (6.00)
C	-0.028** (-2.83)	-0.021** (-2.73)	-0.029*** (-3.28)	-0.025*** (-4.28)	-0.830*** (-4.68)	-0.026*** (-5.28)
AR(1)	-	-	-	-0.497** (-2.97)	-0.519** (-2.68)	-0.472** (-3.09)
R-squared	0.80	0.79	0.80	0.90	0.84	0.90
Adjusted R-squared	0.70	0.70	0.72	0.83	0.76	0.84

Note. *** - significant at 1% level

** - significant at 5% level

* - significant at 10% level

The results presented in the Table 1 could be summarized as follows:

- The coefficient on the OECD GDP growth rate is positive, large and significant at least at 10% level in all specifications; its value is similar in all specifications;
- The coefficient on the government consumption growth rate is negative, large and significant at 5% level in all specifications, and significant at 1% level in all but one specifications; its value is similar in all specifications;
- The coefficient on the growth rate of the working age population share is positive, large and significant at 1% level in the specifications where time trend is not included, but insignificant if the time trend is included;
- The coefficients on the growth rate of the credit extended to the private sector is large, positive, and significant at least at 10% level in all specifications; its value is similar in all specifications;
- The coefficient on the growth of credit to the government is of varying size and insignificant in all specifications.
- The coefficient on the time trend is positive and significant at 1% level in the specifications where the share of the working age population is not included, but insignificant in the specifications where that variable is included.

In short, we can be reasonably confident that Egypt’s economic growth rate over 1986-2003 is significantly affected by the growth rates of government consumption (negatively), OECD GDP (positively), and credit extended to the private sector (positively); and it is not unlikely that economic growth has also been affected by the growth rate of the share of the working age population (positively).

The results of our econometric exercise are consistent with some important findings of the literature on cross-country growth analysis. It is well known that short- and medium-term growth performance of the economy could be affected by an external shock (Easterly, Kremer, Pritchett, and Summers, 1993). Dependency of Egypt’s growth rate on that of the OECD follows the general trend for developing countries (Easterly, 2001). The empirical growth literature finds a positive effect of private domestic credit on growth (e.g., Levine, Loayza, and Beck, 2000) by shifting outward financial constraints of the private firms and reducing the shadow price of finance. Finally, Barro (1999) among others finds that that growth is inversely related to government consumption.

4. WHAT CONSTRAINS GROWTH IN EGYPT? A DIAGNOSTIC APPROACH

We proceed now to an examination of the key constraints to growth in Egypt from the diagnostic perspective proposed by Hausmann, Rodrik, and Velasco (2004). The point of departure for the inquiry is a simple model which decomposes growth in the following way:

$$\underbrace{g}_{\text{growth}} = \sigma \left\{ \underbrace{\left(\underbrace{(1 - \tau)}_{\text{appropriability}} \times \underbrace{\rho}_{\text{social return}} \right)}_{\text{private return to accumulation}} - \underbrace{r}_{\text{cost of financing accumulation}} \right\}$$

According to this formula, one source of low growth could be low private returns to domestic investment. Private returns, in turn could be low for two groups of reasons.

- Firstly, the rate of return to capital might be low, which could be due to (i) large externalities, spillovers, coordination failures; (ii) low productivity, too little technology adoption or “self-discovery”, weak public incentives; or (iii) poor geography, inadequate infrastructure, high transport, telecommunications or shipping costs.
- Secondly, private returns could be reduced by low appropriability, which could be due to (i) high tax rates, (ii) inefficient tax structure, or (iii) high expected expropriation risk (insecure property rights, corruption, and macroeconomic instability).

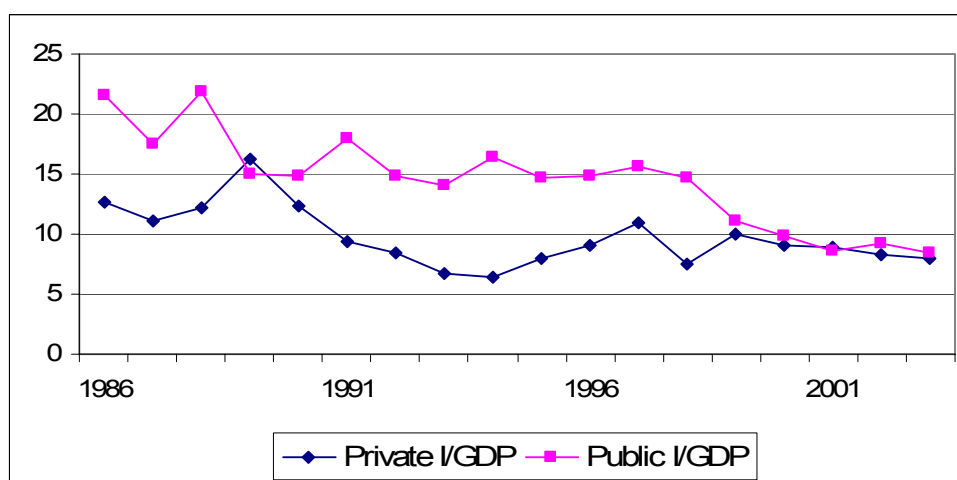
Growth could be also low because, for any private return on investment, accumulation is kept down by a high shadow price of finance, that is, by a high effective rate of interest relevant for investment decisions in the economy. The shadow price of finance could be high because of (i) low domestic savings, (ii) poor financial intermediation, or (iii) insufficient access to the international finance.

Based on the above considerations, Hausmann, Rodrik and Velasco (2004) have developed a decision tree which helps to identify the constraints that bind on growth in a certain country at a certain time. A binding constraint is defined as a distortion which has the largest direct adverse effects on the economic growth; removal of this distortion should produce the largest economic gains compared to other policies. Two qualifications made by the authors need to be mentioned here. Firstly, identification of the binding constraint is meant to help the government in prioritization of the reforms rather than to deny existence of other distortions in the economy. Secondly, the binding constraint does not necessarily coincide with what is perceived as the biggest distortion in the economy by economic agents; rather, it is the magnitude of the distortion's direct impact on growth that is decisive. The evidence used to identify the binding constraint could be either direct (relaxation or tightening of the binding constraint should cause sizeable movements in the growth rate; if the constraint does not move substantially, the growth rate should not either, and the relevant shadow price should be high) or indirect (high prevalence of activities designed to get around the constraint; excluding other possibilities).

Following the decision-tree approach, we first determine which of the three “general” constraints (low rate of return, low appropriability, or high shadow price of finance), is likely to bind on growth in Egypt. After that, we proceed to identification of the specific constraint. While we refer to developments during 1986-2003 at various points in the analysis that follows, our main interest is in identifying the most important factors that have constrained growth in recent years, specifically during 1999-2003 when the economy entered a phase of decelerating growth after a prior period of acceleration.

We start from the analysis of rates of return to investment. As discussed above, after Egypt implemented a structural adjustment program in early 1990s, its economic growth accelerated. Private investment in physical capital picked up at around the same time (in 1993) and rose steadily until 1997 at which point the upward trend was broken. During the whole period, however, the private investment rate has never recovered to its 1990 level (Figure 13).

Figure 13: Investment Rates in Egypt



Source: Government of Egypt

What is more revealing, however, is the trend in implied investment efficiency. Table 2 shows that while average GDP growth rate was 1.7 percentage points higher in 1994-99 compared to 1986-91 (on a per capita basis), private and public investment rates were 3.7 and 3.5 percentage points lower, respectively. If higher growth was achieved during the period of lower investment, this suggests that (a) rate of return to investment in physical capital increased, and (b) private investment did not respond to increase in the rate of return in an adequate manner, because something else was holding it back.

TABLE 2: GDP Growth And Investment Rates In Egypt

	1986-91	1994-99
GDP per capita growth, %	1.3	3.0
GDP growth, %	3.7	5.0
Private investment, % GDP	12.3	8.6
Public Investment, % GDP	18.1	14.6

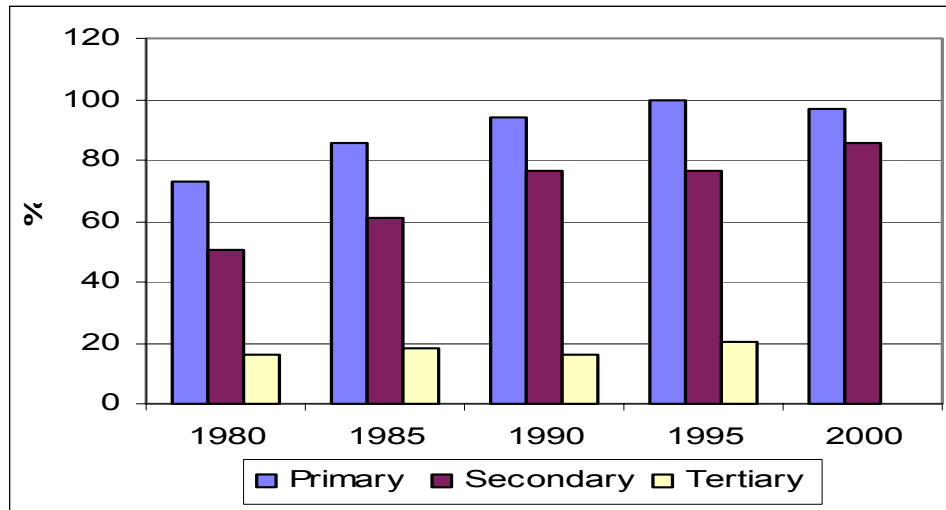
Turning now to the rates of return to human capital, we note that private returns to education in Egypt are low (Table 3) but unlikely to be a binding constraint. In principle, low private returns to education might have discouraged either investment in human capital, or investment in other factors of production, or both. But Egypt's problem does not seem to be a lack of human capital (of different skill levels). Accumulation of human capital proceeded rapidly in Egypt between 1980 and 2000 and was not discouraged by low returns, as enrollment rates have been increasing at all levels of education (Figure 14). Life expectancy has also increased during this period, from 55.5 to 68.3 years. Since human capital stock has been growing at a rather rapid pace and rising life expectancy has increased, if anything, investors' time horizon, it is not likely either that low returns to human capital indirectly constrained investment in other factors. More plausibly, Egypt has hit the area of diminishing returns to human capital, in part because accumulation of other factors, most notably physical capital, was lagging behind. Egypt does have problems related to quality of education and its relevance to the labor market needs, but finding solutions to these problems will be facilitated by the demographic trends in the country. Since Egypt is going through the stage of demographic transition at which average number of children per worker is decreasing, investment per child in education will be increased even if share of educational expenditures in GDP remains constant. This generally shifts out budget constraints of the educational system, which should help to achieve higher quality and relevance of education.

TABLE 3: Private Returns To Education In Egypt

	Year	Rate of return
Primary education	2000	5.7
Secondary education	2000	2.0
Tertiary education	2000	8.0
Years of schooling	1997	5.2

Sources: World Bank (2004), Psacharopoulos and Patrinos (2002)

FIGURE 14: Gross Enrollment Rates In Egypt



Source: World Development Indicators

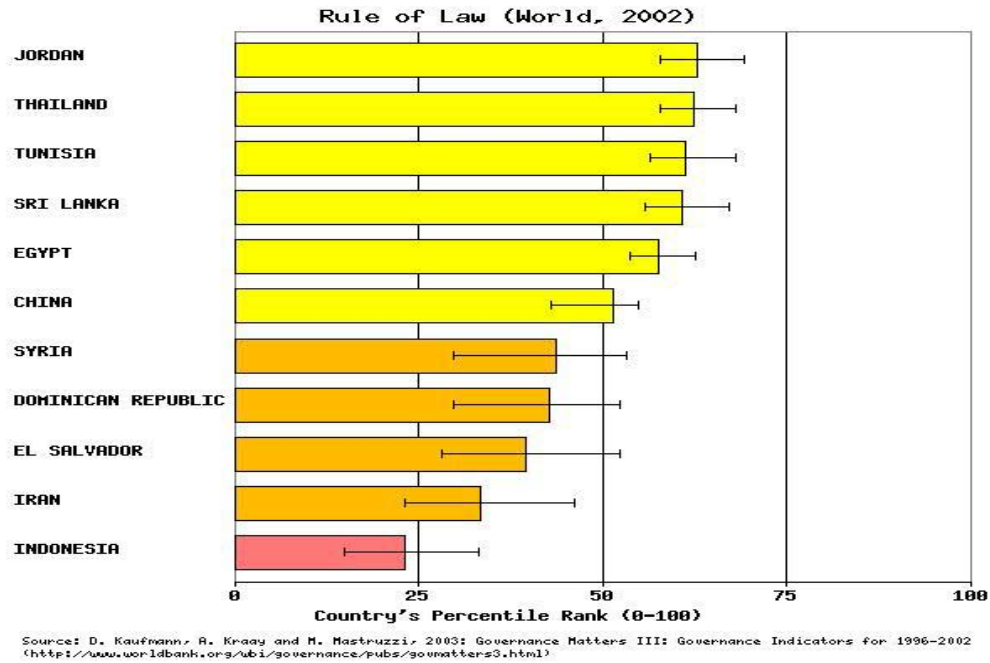
Note: data for tertiary education are not available for the year 2000

We now proceed to an analysis of the appropriability of the returns to investment. The quality of the tax system is a “usual suspect.” According to a recent investment climate survey, “high taxes” and “tax administration” are perceived as important problems from the business perspective. However, when Egypt’s tax rates are compared to those of other countries, taxation does not seem to be a promising candidate as a binding constraint. Data on the tax to GDP ratio for the top 10 LMIC (fastest growing during the 1990s) reveal an average rate of 15.8% (for the latest year during 1997-99). In Egypt it was 13.9% in 2003, down from 16.5% in 1997. We also have data for 6 out of top 10 LMIC for 1998 on the highest marginal tax rates, corporate and individual. For the latest available year, the average corporate one is 35.8%; the average individual one is 41.2%. In Egypt they were 40% and 32% respectively in 2003.

Nor is appropriation a comparatively significant problem in Egypt from considerations related to the rule of law. Figure 15 compares the level of an index measuring rule of law in Egypt to that in the fastest growing LMICs, and shows that Egypt is actually close to the leaders of that group.

The risk of expropriation through macroeconomic instability is certainly present in Egypt. Public debt is between 67 and 98 percent of GDP according to different definitions, and budget deficits increased during the recent growth slowdown. Egypt certainly needs to improve its fiscal stance, inter alia by replacing large universal subsidies by targeted safety nets arrangements. However, the risk of expropriation through macroeconomic instability was greatly reduced in the first half of the 1990s, but this did not help to increase private investment rates, which makes it unlikely that this risk represents a binding constraint to growth in Egypt.

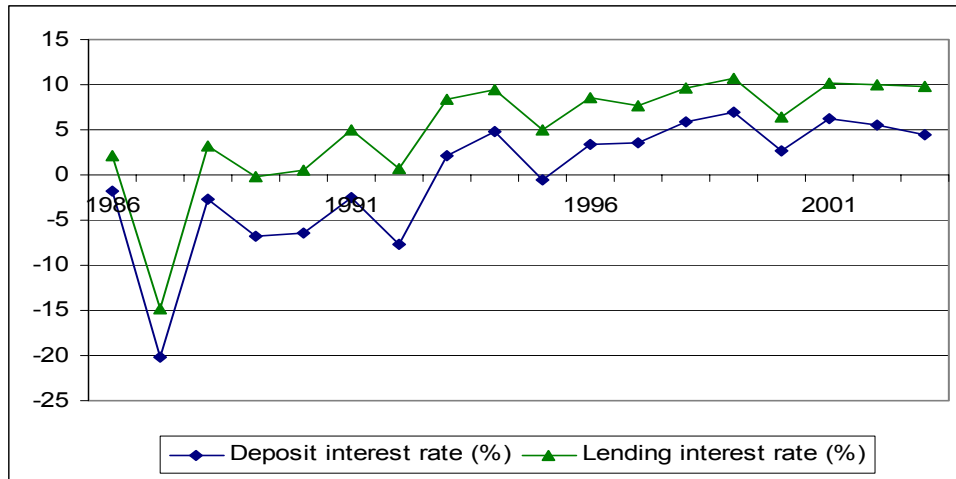
FIGURE 15: Rule Of Law In Egypt And 10 Lower-Middle Income Countries with the highest average growth rate in 1990s



This leaves us with the possibility that the binding growth constraint in Egypt is related to the shadow price of finance, and the evidence supports this hypothesis best among the alternatives. There is a high correlation between GDP per capita growth rate and the rate of growth of domestic credit extended to the private sector (0.67 for 1994-2003). When macroeconomic stabilization efforts cut down the growth of credit extended to the government (15-25% in 1987-1990, below 5% in 1992-99), leaving more resources for the private sector, there was a clear upward trend in the growth rate of the credit to the private sector (from 5.0 to 14.1 during 1993-98). When growth of credit extended to the private sector tightened after 1998 (see Figure 12), the economy stalled as well. During the latter period, slower growth of credit to the private sector was followed by collapse of the stock markets, which amplified the problems. Hence, there is evidence that growth responds to relaxation or tightening of the financial constraint.

Comparison of trends in private investment rate and real lending interest rate suggest that the latter was among the factors holding back the former. While private investment rates grew during the mid-1990s in response to an increase in the rate of return and to rapid growth of credit to the private sector, they never reached the 1990 level. This could have been due in part to the contemporaneous upward trend in the real lending interest rate, which increased from about 0.6% in 1992 to about 10.8% in 1999, and remained in the neighborhood of 10% for most of the time through 2003 (Figure 16).

FIGURE 16: Real Deposit And Lending Interest Rates In Egypt

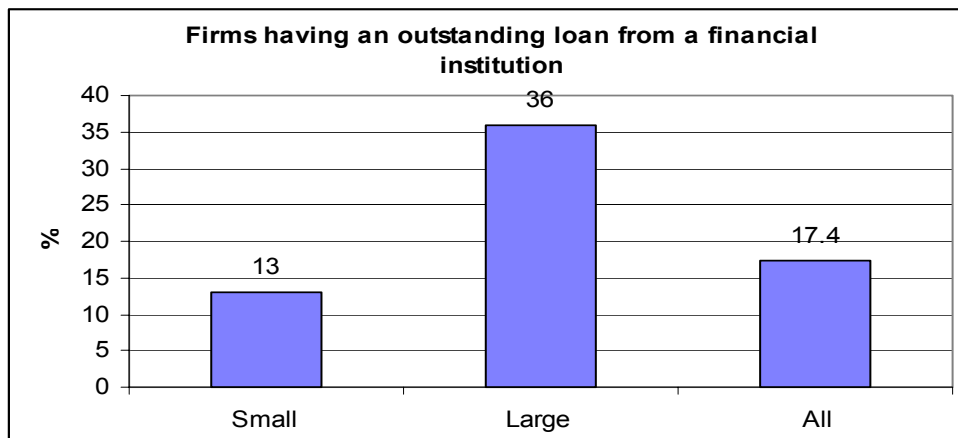


Source: World Development Indicators

More important than the real lending rate may have been access to finance. Egypt has a public sector dominated banking system (government ownership share in the sector was 65% in 2004) in which access to finance is not just a matter of ability to pay the interest rate but also of connections and relationships with key banking sector and finance ministry officials. The shadow price of finance for an entrepreneur with no political connections may well be infinite.

How serious is the access problem? According to the 2004 Investment Climate Survey World Bank, only 17.4% of private firms in Egypt have an outstanding loan from a financial institution. The problem is especially severe for small firms (Figure 17), only 13 % of whom borrow from banks. At the same time, 97% of the working capital of the firms which do not have an outstanding loan (82.6% of all firms) is financed through own funds. Such a high degree of internalization of finance provides indirect evidence in favor of the hypothesis that inefficiency of financial intermediation binds on growth in Egypt. Unfortunately, we do not have comparative evidence from other countries on access to finance in order to make a more definitive judgment.

FIGURE 17: Access To Finance In Egypt



Source: Egypt Investment Climate Survey 2004

It does not appear that low rates of borrowing from banks are due to a generalized aversion to debt finance. The share of debt in the working capital of the firms which do have an outstanding loan is quite high⁹ – 46%. Furthermore, for firms which do not have an outstanding loan, this share is equal to zero. This suggests that those firms which do not have a loan now have not borrowed for a long time. In other words, there is a certain permanence to their status as non-borrowers, a situation that suggests that their status is perhaps more a function of their links to banking officials than of general economic circumstances. Finally, about 40 percent of firms which do not have an outstanding loan claim that they have applied for a loan in the past two years but have been rejected (World Bank, 2005). This suggests that for a large number of entrepreneurs in Egypt shadow price of external finance could be infinite¹⁰.

However, it does not appear likely that the high shadow price of finance is due to lack of financial resources, either because of low domestic savings or insufficient access to international finance. Between 1991 and 2003, Egypt has experienced current account surpluses (driven to large extent by private and official transfers, as balance of goods and services remained consistently negative) in 8 years out of 13. The household savings rate is likely to be growing between 1995 and 2020, as demographic transition is increasing the share of population in the primary savings age. Egypt has comfortable access to lending from the international development institutions and was able to sell its first sovereign international bond in June 2001, raising US\$1.5 billion, three times the original target.¹¹

It is more likely that it is the inefficiency of financial intermediation – that is, insufficient ability of the financial system to allocate savings and other financial resources to the entrepreneurs who are most able to undertake productive investment – is a constraint on economic growth in Egypt. Indeed, one of the functions of the financial system in the economy is to facilitate investment (and consumption) smoothing. If, instead of doing so, the financial system reacts to growth slowdown (not even a recession) by accumulating excess liquidity in the banking sector as has happened in Egypt since 1999 this suggests that the financial system is not working efficiently. And even more so if the growth slowdown was to a large extent caused by the developments in financial system described above. The following section explores in greater detail causes of this problem and its consequences for the economy.

5. INEFFICIENCY OF FINANCIAL INTERMEDIATION: CAUSES, NATURE, AND IMPLICATIONS FOR THE ECONOMY

As already noted, the banking system in Egypt is dominated by large publicly owned banks run by officials appointed by the government. Cross-country studies find a negative relationship between the degree of government ownership of banks on one hand and level of development of the financial system (including both banks and non-banking financial institutions), economic growth, and in particular growth of productivity on the other (La Porta, Lopez-de-Silanes, and Shleifer, 2000, Barth, Caprio and Levine, 2000). Government control of finance, through its

⁹ And so is the share of debt in their new investment, 35.2% for large firms and 22.5% for small firms (Figure 2).

¹⁰ In addition, as the non-performing loans in the portfolios of public banks accumulate, the government is likely to recapitalize these banks using its budget resources, which would push up the shadow price of overall investment effort in the economy.

¹¹ The first tranche, a US\$500m, five-year 7.625% coupon Eurobond, was fully subscribed, and the second US\$1bn, ten-year, 8.75% coupon tranche was oversubscribed six-fold.

banks or by other means, may distort resource allocation through its politicization, softening budget constraints, and reducing economic efficiency (Kornai 1979, Shleifer and Vishny 1994), thus pushing up the shadow price of finance relevant to the investment decisions in the economy.

In Egypt, these distortions show up in the portfolios of the government-owned banks, which are dominated by the government securities with short maturity. About four fifths of Egypt's domestic debt, which stood at about 60 percent of GDP in 2003¹², is instrumented through T-bills with 3-12 month maturity; and some three quarters of domestic debt is held by government-owned banks. High share of short-term government securities in portfolios of the government-owned banks implies that in order to mitigate fiscal risks, the government may at any moment ask the banks to roll-over the debt. In other words, actual maturity of the domestic debt is probably well above its nominal maturity; there is great uncertainty about what it actually is; and this uncertainty increases during the low phases of the business cycle when the risk of forced roll-over increases.

Furthermore, guaranteed income from the large-scale government borrowing substantially reduces the banks' incentives to develop capacity and assessment techniques to serve private investors, especially small and medium ones. Lack of such incentives and insufficient competition in the banking system lowers access to finance and at the same time causes inefficiency in credit allocation, resulting in high prevalence of non-performing loans (NPL). Naturally, this prevalence tends to increase during the low phases of the business cycle: according to different estimates, from 16% to 30% of all loans were non-performing in Egypt in early 2004¹³. Hence intermediation margins tend to increase during the low phases of business cycle, causing excessive liquidity in the banking system and strong pro-cyclicality in private credit dynamics.

Inefficiency of financial intermediation in Egypt reduces the effectiveness of monetary policy in mitigating adverse shocks. A textbook way to mitigate negative economic shocks is to loosen monetary policy by increasing money supply and decreasing interest rates so as to reduce the costs of investment financing. Monetary policy effectiveness, however, is conditioned by the efficiency of financial intermediation. If domestic finance is strongly pro-cyclical (in particular, if domestic credit issued to private sector tends to fall substantially during the low phases of the business cycle for the reasons unrelated to monetary policy), increasing the money supply is more likely to result in excess liquidity of the banking system than in higher investment.

Underdevelopment of the credit registry and vaguely defined property rights (notably for land) further reduce access to finance. Collateral-based lending is dominant in Egypt (92% of loan transactions required collateral), but because of legal deficiencies collateral is an uncertain guarantee. Furthermore, costs to create collateral in Egypt (expressed as percentage of income per capita) are 3 times as high as MENA average and 10 times as high as OECD average (World Bank, 2004).

These features of the supply of bank finance help to explain why growth in Egypt accelerated in the first half of 1990s, but slowed down in the end of the decade. Macroeconomic stabilization cut off expansion of banking credit to the government, the pace of which was obviously unsustainable. This suddenly left the banking system with extra resources to lend to the private sector. Private credit went up and so did the economic growth rate, but because of

¹² See Alba, Al-Shawarby, and Iqbal (2004)

¹³ According to Economic Trends Report, September 2004, put out by the US Embassy in Cairo.

insufficient assessment capacity of the banking system and politicization of the credit allocation process, the quality of lending stayed poor. When hit by the financial scandal of 1998-99, the system became even more dysfunctional. The harsh reaction of the government increased the risk-aversion of the banks, a tendency reinforced by rising levels of non-performing loans, scarcity of collateral and external shocks. After the CBE eased monetary policy, banking deposits started to grow as a percentage of GDP (though falling as a percentage of M2), but so did the lending-deposit interest spread (from 360 basis points in 1998 to 530 in 2003). Increased financial intermediation margin slowed down lending to the private sector. Furthermore, during the growth slowdown, the government carried out expansionary fiscal policies which led to higher budget deficits and higher borrowing by the public sector. This increased the probability of “forced” roll-over of government securities, hence further reducing the banks’ willingness to lend. A combination of these factors resulted in excess liquidity of the banking system instead of higher private investment. It is in this sense that the financial system posed a constraint to economic growth after 1999.

The efficiency of financial intermediation is further hindered by underdevelopment of capital markets. In Egypt, capital markets were rudimentary until the early 1990s, experienced a period of rapid development between 1995 and 2000, but stagnated in 2001-2003, with turnover collapsing to 3% of GDP on average down from 10% in 1998-2000. Capital markets and the banking system are complementary components of the financial sector. Banks are inherently more prudent and hence more risk-averse compared to the capital markets; capital markets are more risk-prone, but also more efficient in reducing information asymmetries (e.g. through monitoring of corporate governance) and rewarding innovation (Levine, 2004). On the other hand, establishing a sound capital markets around a malfunctioning banking system is often impossible.

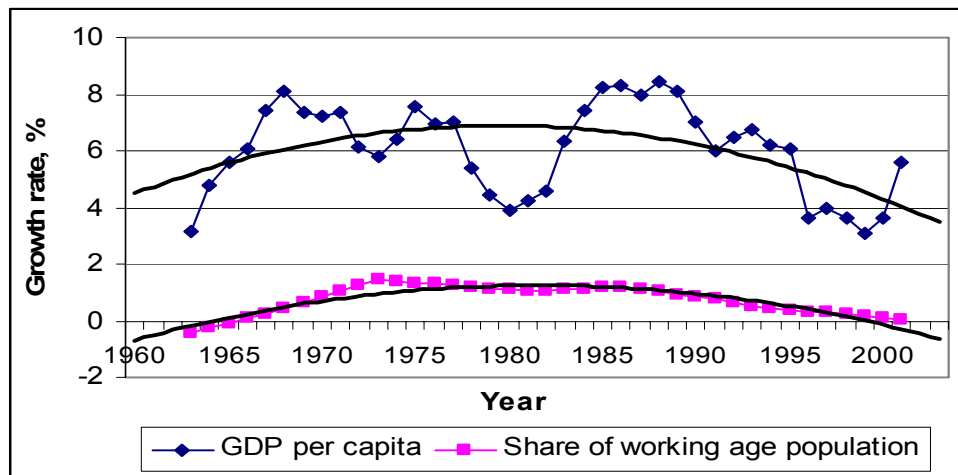
Financial distortions described in this section may have long-term consequences for the economy. Strong pro-cyclicality of finance increases the risk of prolonged growth collapse. The failure of the financial system to facilitate investment smoothing adversely affects not only levels, but also the structure of investment, and amplifies economic volatility. Aghion et al. (2005) developed and tested a simple endogenous growth model in which firms engage in two types of investment: a short-term investment activity and a long-term productivity-enhancing one. Because it takes longer time to complete, long-term investment has a relatively less pro-cyclical return but also a higher probability to be hit by a liquidity shock. Under complete financial markets, only the opportunity-cost effect is present: long-term investment is countercyclical, thus mitigating volatility. But when firms face tight borrowing constraints, the liquidity effect dominates: long-term investment turns pro-cyclical, thus amplifying volatility. In another paper, Aghion, Bacchetta, and Banerjee (2004) showed that temporary shocks have larger and more persistent effects in the economies at an intermediate level of financial development – which is the case in Egypt - than either in very developed or very underdeveloped economies.

The importance of financial intermediation in Egypt is amplified by demographic dynamics that create multiple equilibria (“high growth” and “low growth”) situations. As noted above, Egypt is going through the stage of demographic transition with increasing share of the working age which may result in increases in both labor force and private savings rate. Bloom et al. argue that “demographic change accounts for as much as a third to a half of the mystery surrounding the sustained high rates of income growth that came to be known as the East Asian “miracle””.

To illustrate this finding, Figure 18 shows five-year moving averages of the growth of GDP per capita and share of the working age population in Korea, and quadratic polynomial trends in these variables.

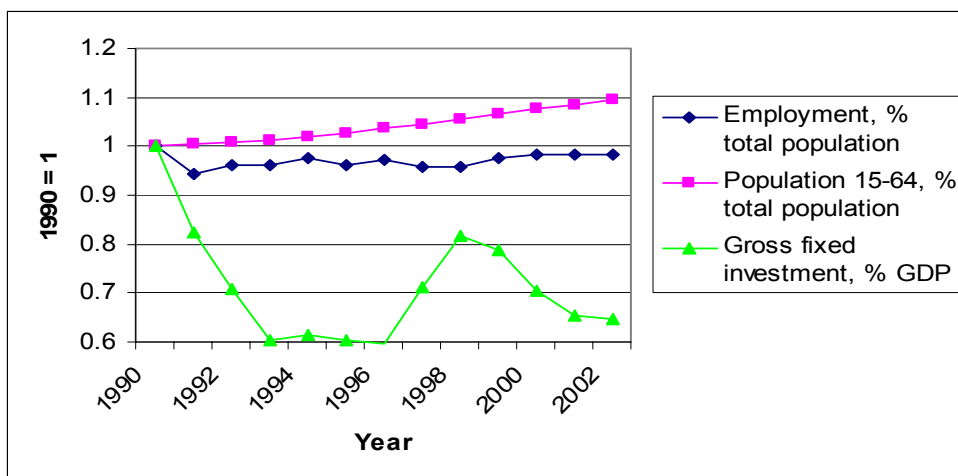
However, while demographic transition can act as a catalyst and an accelerator mechanism for economic growth, a large portion of “demographic dividend” could be lost if necessary economic and financial institutions are not in place. Inefficient financial intermediation may prevent transformation of higher savings into higher investment. And if investment rates are low, larger number of working age individuals may not result in proportionally higher employment, which seems to be the case at least with formal wage employment in Egypt, as shown in the Figure 19.

FIGURE 18: Growth of GDP Per Capita and Share of the Working Age Population in Korea 1960-2003 (5-year moving averages)



Source: World Development Indicators, World Bank

FIGURE 19: Formal Employment, Working Age Population and Investment in Egypt, 1990-2003



Source: World Bank Databases

Development of the financial sector is of great importance for maximizing the demographic dividend to growth. While noticing that during the East Asian economic miracle there seemed to be a “natural drive to save”, Leipziger and Thomas (1993) report that the governments also actively helped to transform the informal savings in the formal savings by fostering savings institutions¹⁴.

6. CONCLUDING REMARKS

In this paper we have analyzed key determinants of economic growth in Egypt by combining the growth diagnostics framework with econometric time series analysis and relating the findings to the literature on the theory and empirics of economic growth. We argue that trends in government consumption, private sector credit, and OECD GDP have been among major growth determinants in Egypt since 1986; and that inefficiency of financial intermediation is currently an important constraint on growth.

Looking ahead, we speculate that improvements in the quality of financial intermediation may bring a substantial growth dividend to Egypt in the long-run as well. Egypt is currently going through the stage of demographic transition in which the share of workers and savers in population is rapidly increasing. Demographic shifts of this scale usually happen only once in a country’s history and some successful developing economies have managed to extract substantial long-term development benefits from them. At the same time, however, Egypt is at an intermediate level of financial development, the stage at which financial distortions may cause the largest adverse impact on the levels and the structure of investment.

This may prevent Egypt from reaping some of the potential demographic growth dividend, which is maximized if these extra savings are efficiently transformed into productive investment through efficient financial intermediation. For example, wage employment is currently about 50% of labor force in Egypt, and labor force outside wage employment will be, *ceteris paribus*, growing in the course of demographic transition. This means that if financial resources are allocated appropriately, high labor costs are not bound to drive down returns to investment in Egypt. If Egypt manages to increase wage employment in the private sector (*inter alia*, at low end of wage distribution), this may help the economy to maintain its competitiveness with countries like China and India. Otherwise, one can expect lower employment and/or fiscal pressure due to attempts to artificially absorb increase in labor force by the public sector. In other words, demographic transition creates a situation of multiple equilibria in the economy, and whether the economy will converge to the “high growth” or to the “low growth” equilibrium (to which the economy is more likely to switch during the low phases of the business cycle) may depend to large extent on the quality of financial intermediation.

Finally, we should note that efficiency of financial intermediation and the adequacy of private returns to investment affect each other and are complementary. If private returns to investment are low, this will reduce incentives for providing high-quality financial intermediation. If the quality of financial intermediation is low, this will drive down returns. For

¹⁴ Leipziger and Thomas note, however, that encouraging savings in East Asia has not been a problem in part because rates of return on invested capital were high, which suggests that higher efficiency of financial intermediation should be complemented by other improvements in the investment climate aimed at increase in the actual returns received by investors.

example, if an entrepreneur with a new and ex-post successful investment idea has higher chances to get a loan to finance its implementation, and if his investment is imitated later by a large number of other entrepreneurs, this will surely promote “self-discovery” in the economy, thus increasing the aggregate rate of return to investment.

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