Trends in inclusive growth in Egypt 1991-2011

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Abstract: In 1991 Egypt adopted a bold economic reform and stabilization program to address a problematic social and economic situation which manifested itself in rising structural unemployment, mounting external debt, double digit inflation and increasingly negative fiscal and external deficits. Stabilization and liberalization have been achieved and macroeconomic indicators have improved in the nineties. However, a number of negative aspects have persisted namely, social injustice, slow growth of GDP, escalating unemployment and rising poverty. The growth which took place in the first decade of the twenty first century lacked equity. This growth could be described as non-inclusive. It is believed that these negative factors were the main economic causes of the 2011 revolution known as the Arab Spring. The relevant indicators of inclusive growth are productive employment, economic infrastructure, poverty, equity, human ability and social protection. The paper attempts to assess trends in inclusive growth by constructing a country level composite index. The index is constructed to take into consideration the above mentioned relevant growth determinants. The composite index is constructed on a weighted average score of 0–10, based on country performance on each of the previously mentioned components. Each of which is, in turn, a weighted average of its subcomponents. The index is computed using Egyptian data between 1991 and 2011 relying on the World Development Indicators database. The main aim of this paper is to help Egypt decision makers to assess its progress in achieving inclusive growth. The composite index is further used to suggest policies to support Egypt's inclusive growth objectives. We further attempt to compare the country's performance to that of several Asian countries. The preliminary results show that Egypt progressed reasonably on most dimension of inclusive growth over the years. It performed satisfactorily on most of the indicators economic growth, generating productive employment, poverty and inequality, on improving access to education and health, and on access to water and sanitation. The performance was more oscillating in fields as access to economic infrastructure and social protection where it varied between the years from unsatisfactory to a superior progress.

Keywords: Inclusive growth; Composite Index; Egypt.

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1. Introduction

In 1991 Egypt adopted a bold economic reform and stabilization program to address a problematic social and economic situation which manifested itself in rising structural unemployment, mounting external debt, double digit inflation and increasingly negative fiscal and external deficits. The program has been successfully implemented. It restored both internal and external balances. Macroeconomic indicators, in general, have largely improved. A number of important issues need to be addressed in order to achieve sustainable development namely, government bureaucracy, slow-moving GDP growth, escalating unemployment and rising poverty. Egypt still needs to launch a reform program that generates equitable and self reliant society, accomplishes structural adjustment and institutional reform, support inclusive growth and allows its people to attain living standards adequate with the country's potential.

It is worth noting that development economists' distinguished development from growth. The former emphasizes the structural changes in the economy in addition to improvements in the GDP level and its growth. However, per capita GDP level was taken as the major, sometimes, the only measure for development. The unsatisfactory experiences forced the need for additional indicators. Hence, growth with equity was emphasized by economists like Anand and Sen (2000), Atkinson (1983), Sen (1997, 2000, 2006) and others. In an attempt to supplement the GDP indicator, the human development index was suggested as a better measure. At the present time, the need for making use of all available capabilities that could participate to economic development, inclusive growth was suggested. So far, there is no agreed and common definition of inclusive growth or inclusive development, the term is understood to refer to "growth coupled with equal opportunities," and consisting of economic, social, and institutional dimensions. It focuses on creating opportunities and making these accessible to all, not just for the poor. Ianchovichina and Gable (2012) identify inclusive growth as a growth that provides rapid and sustained poverty reduction to allow people to contribute to and benefit from economic growth. Other studies such as Ali (2007), Ali and Son (2007), and Fernando (2008) point that the inter-related economic, institutional (or political), and social dimensions of inclusive growth mutually reinforce each other to achieve inclusive growth.

The ongoing political and social developments in Egypt have contributed to put inclusive growth on top of the policy and research agendas. The 2010 Data reveal that total labor force had experienced an unprecedented expansion to reach about 27.1 million workers. Egypt has so far failed to create the number of jobs needed to absorb this rapid expansion of the work force, leading to high level of unemployment. The burden of the latter problem is, to a great extent, born by the youth.

This paper attempts to calculate a composite inclusive growth index at the country level using two different approaches. The first, following McKinley (2010), using the similar and suitable indicators on several dimensions (i) growth, productive employment, and economic infrastructure; (ii) income poverty and equity, including gender equity; (iii) human capabilities;

and (iv) social protection. The index is constructed on the bases of weights and scores of these indicators. And Egypt's performance in inclusive growth is compared to Bangladesh, Cambodia, India, Indonesia, the Philippines, and Uzbekistan. However, McKinley's indicator does not best reflect the Egyptian case. Therefore, the principal component analysis is applied in order to extract components that will lead to the development of a composite index. The factors included in this second approach are a revised version of the framework proposed by Asian Development Bank (ADB) (2012). Henceforth, the progress of the country in achieving inclusive growth is assessed. The results in this paper may serve as a starting point for policy makers to diagnose how to maximize government support to achieve the country's inclusive growth objectives.

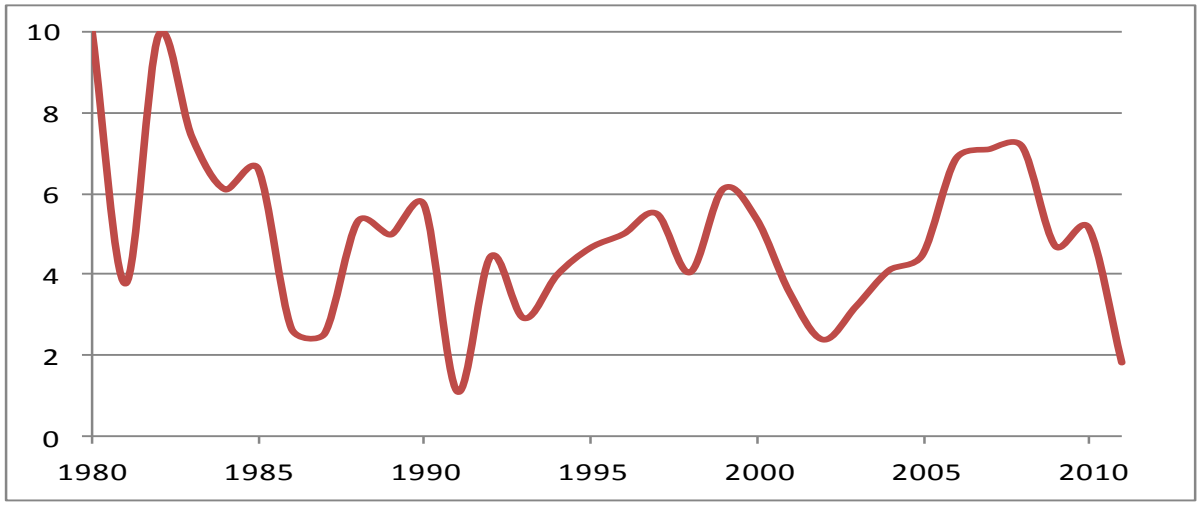
The remainder of this paper contains five sections. A macroeconomic overview of Egypt is depicted in the next section. Section 3 presents key economic and social indicators, such as education, health and poverty as criteria of inclusive growth. Section 4 focuses on the calculation of the indicators and the country comparison. Policies, recommendation and conclusions are covered in Section 5.

2. Macroeconomic Performance

2.1 GDP growth

To evaluate the Egyptian economic record, one should look at economic outcomes. Egypt's GDP growth rate showed very wide fluctuations during the period 1980-2011 ranging from low 1.08% in 1991 to the highest of 10.01% in 1980. The high rate of growth was due to several factors, namely, confidence in the future after the Infitah policy, the peace process which followed the 1973 war, the rise in the saving/income ratio and the additional resources which accrued to the Egyptian economy. The additional resources of foreign exchange, known as the big four, were: tourism, the reopening of the Suez Canal, remittances of Egyptians working abroad and oil revenue. GDP growth rate showed a variation of about 4.3% during the last three decades, where it reached its bottom of 1.08% in 1991. This was due to the distorted economic policy, which resulted in a high budget deficit and a very wide balance of payments gap. At that time, the country's international reserves were barely equivalent to one month imports. The external debt exceeded 100% of GDP. This was not a sustainable situation. With the first gulf war in 1990, Egypt received a large amount of aid, which enabled her to reach an agreement with the International Monetary Fund (IMF). The economic reform and structural adjustment program (ERSAP) of may 1991 required demand management, before resuming growth. Consequently, GDP growth rate was reduced to less than 2%. This was the bottom of growth during the period. Since then the growth rate started rising, reaching a maximum of 7.16% in 2008. Due to the transition period after the 25th of January 2011 revolution, the rate of growth declined to 1.8% in 2011, which is lower than the rate of population growth. This is also expected for 2012, which means that the standard of living per capita has declined.

Figure 1: GDP growth (annual %)



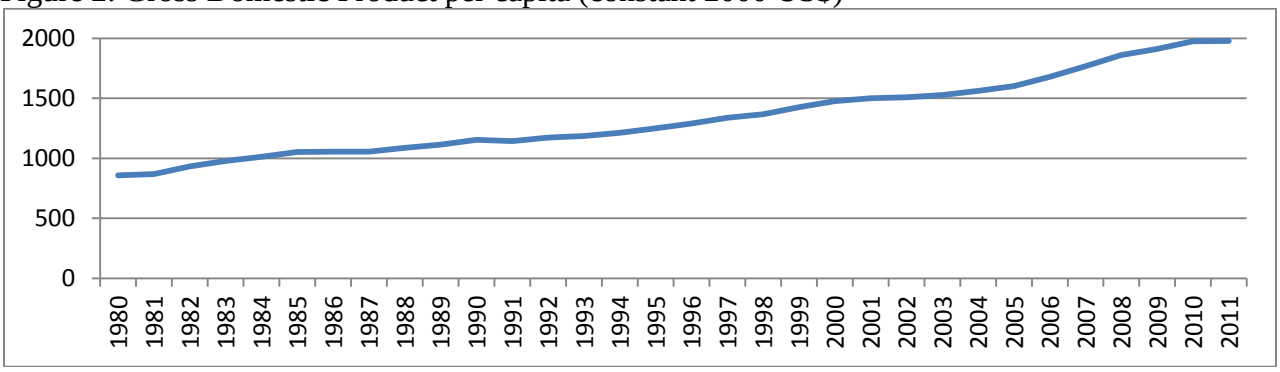
Data source: WDI (2012).

Egyptian GDP vulnerability could be shown by the cycles it suffered during this quarter of a century. It declined from a high of 9.9% in 1982 to a low of 2.5% in 1987. This was mainly due to the sharp decline in oil revenues and the sad event of police riots in February 1986. The economy recovered from that shock, and GDP growth rose to 5.7% in 1990. This was followed by a sharp decline to 1.08% due to the contractionary economic policies required by the 1991 reforms. Growth rate was resumed again to reach an average of 4.66% during 1992-2000, which is close to the long term growth rate of the Egyptian Economy estimated to range between 4.5% and 5% per year. A third wave of decline in GDP growth rate started in 2001 till 2004. It was followed by a rise in the growth rate till 2008, to start a fourth declining trend. Similar fluctuation in GDP growth rate per capita could be observed. This reveals that the economy did not reach the stage of self sustainable growth. It should be noted that enhancing the growth of income per person is fundamental in advancing inclusive growth, as this is the basis for creating and expanding economic opportunities.

The economy, during that period, suffered many shocks which were caused by two main groups of factors, internal and external. Domestic economic policy is characterized by a) very slow reactions to face problems, b) insufficient measures, and c) lack of equity. Budget deficit meant that the economy was living at a standard of living exceeding its capabilities. This in turn resulted in a very high level of domestic debt and its service ratio. The external factors which severely affected the economy are mainly the severe oscillations in tourism, the sharp rise in food prices and the deterioration of Egypt's terms of trade. Although Egypt experienced a respectable rate of GDP growth during 2006-2008, it was not inclusive. It lacked equity of opportunity and job creation. The rise in the rate of poverty, unemployment and lack of equal opportunities and social justice were the main reasons for the eruption of the revolution described as the Arab spring. Per capita GDP in constant 2000US$ was about US$856 in 1980 it reached US$1173 and US$1475 in 1990 and 2000, respectively. Due to the very low growth rate

it is estimated now to have slightly increased to US$1976, which is very low compared to the standards of neighboring countries. It also lagged behind Malaysia which had lower per capita income compared to Egypt in 1981. This suggests that Egypt's future development policies should be equitable, sustainable and inclusive.

Figure 2: Gross Domestic Product per capita (constant 2000 US$)



Data source: WDI (2012).

2.2 GDP structure

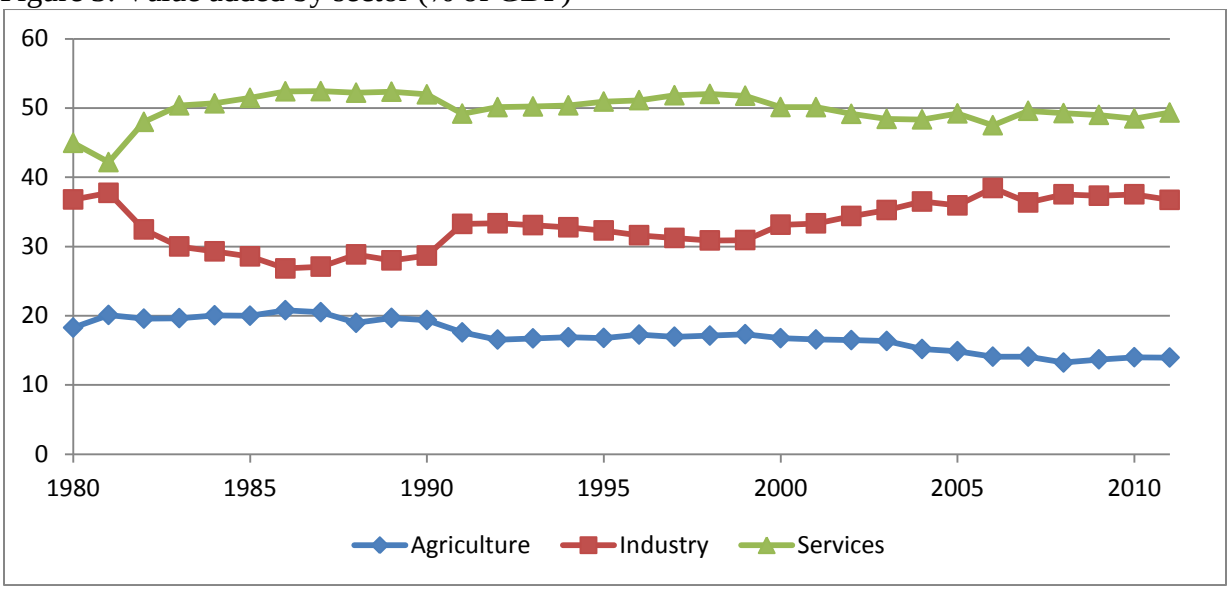
Till the 1950's Egypt was an agricultural country with more than 50% of its population living on agriculture, with a share of approximately 30% of GDP. The share of agriculture in Egypt's GDP persistently declined to reach 18.3% in 1980. Since 2005 till now it is estimated to be around 14%. The average share of agriculture in Egypt's value added was 19.7% during 1980-1990 and 17% 1990-2000 to decline to 14.8% during 2001-2011. The share of industry rose to 36.8% in 1980. It fluctuated around that level during the past 30 years to be 36.7% of GDP in 2011. The share of services is approximately 50% of GDP. One of the main activities of the services sectors is tourism. Its share in GDP has been rising since 1980. Although its share is relatively small, about 8% of GDP it creates, both directly and indirectly, huge number of jobs. Its main disadvantage is vulnerability and shocks which characterize tourism. The negative aspect could be easily witnessed in 1997-98 with the Luxor attack on tourists and during the last two years due to the political instability and lack of security (see Figure 3). These trends in GDP growth show that the Egyptian economy did not experience a substantial change in neither the sectoral structure of GDP nor its long term rate of growth.

2.3 Inflation

During 1980-1983, inflation rate measured by the consumer price index (CPI) averaged 16% per annum. This was due to the warming up generally associated with the high GDP growth rates. Inflation rate rose during the second half of the 80's due to the rise in budget deficit as a percentage of GDP. It reached a peak of 23.9% in 1986. This rate sharply declined after the implementation of 1991 ERSAP (see Figure 4). It reached its lowest level of 2.3% in 2001. Due to the devaluation of the Egyptian pound in 2003, the inflation rate rose to 11.3% in 2004. After

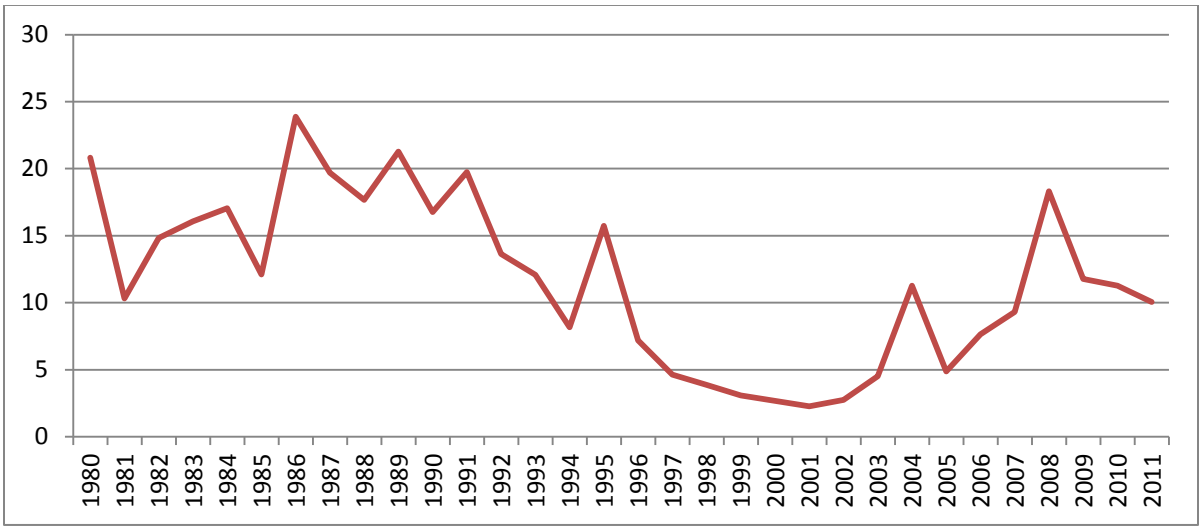
a short period of decline, inflation rate sharply increased to 18.3% in 2008, where the economy suffered from stagflation. In 2011 the CPI was approximately 10%. It is believed that inflation in Egypt is caused mainly by budget deficit, currency depreciation, high levels of consumption and the slow growth of the productive sectors. Reducing the rate of inflation to reasonable levels requires effective solutions for these problems.

Figure 3: Value added by sector (% of GDP)



Data source: WDI (2012).

Figure 4: Inflation, consumer prices (annual %)



Data source: WDI (2012).

2.4 Public finance

During the nineteen eighties, budget deficit soared to reach 17% of GDP. After the 1991 ERSAP, the deficit was reduced to reach around 3% of GDP in the late nineteen nineties. The problem recurred during the first decade of the third millennium. The main reason for this problem stems from the continuous rise in public expenditures as a share of GDP, while that of revenues remained almost constant. Since the 2011 revolution, expenditures were increasing, while revenues were declining. The result was wider budget deficit of more than 11% of GDP in FY 2011/2012.

Public expenditures could be divided to almost equal quarters. These are wages and salaries, debt service, subsidies and the rest. There is an urgent need for controlling and restructuring public expenditures. This could be done along the following lines:

1. Reducing the numbers of government employees to be suitable for the size of the Egyptian economy. That is transforming the government from big and inefficient to small efficient size.
2. Enforcing a minimum and maximum income levels with a view of reducing the cost of the public sector wage bill.
3. Restructuring domestic debt aiming at reducing its volume and the cost of its servicing.
4. Reduce subsidies especially on energy.

On the other hand, government revenues should grow faster than expenditures in order to substantially reduce the budget deficit. This could be achieved through the following measures:

a. Introduce a more progressive tax system to reach 35% on the highest income tranche instead of 25% at present.
b. Reform the tax system to include taxes on property instead of only relying on income. Property tax on wealth as well as on real estate could collect huge revenues.
c. Settle disputes regarding arrears taxes which could collect high proceeds.
d. Find other sources of revenues, such as higher charges on services introduced to high income groups.
e. Extend the application of “cost recovery” of government investments projects which upgrade services or property.

3. Further inclusive growth criteria and indicators

The data in the previous and this section are mainly from international statistical agencies that compile comparable data based on official statistics produced by the national statistical agencies. In some cases, the data are directly drawn from national statistical sources. There are multiple levels and dimensions of inclusiveness that may be taken into consideration in addition to economic growth. In this section employment is considered since it has proven to be one of the

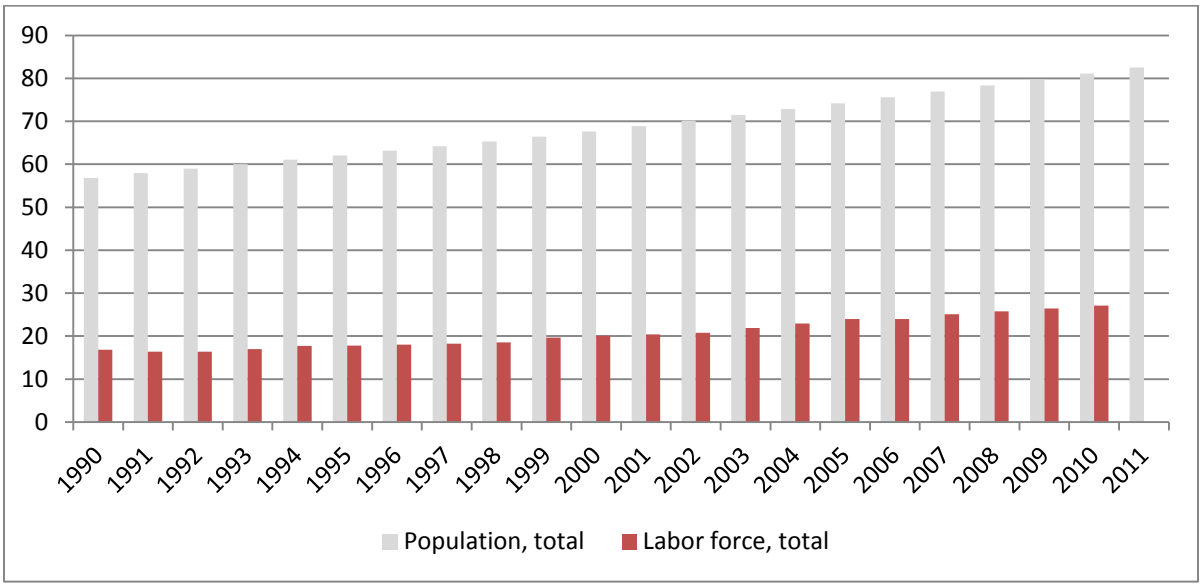
important dimensions of inclusive growth. We also look at income and human poverty since human capabilities are a measure of human development.

3.1 Population, labor and human capital development

It is probable, that the only continuously rising indicator in Egypt is its population. It increased from approximately 45mn in 1980 to 56.8mn in 1990 and 67.6mn in 2000. It was estimated to be 82.5mn in 2011. The declare policy of the country encourages population control which led to a decline in population growth from 2.33% in 1980 to 1.67% in 1994. This trend was reversed thereafter where the population growth rate rose to 1.88% in 2003 reaching another peak and experiencing slight decreases becoming 1.75 in 2010. Nearly 40% of the population lives in urban areas, with much of the population living in crowded districts. In some areas of Cairo and Alexandria, the number of persons per square kilometer exceeds 100 000. There are approximately 16 million people who live in Egypt's 1105 slum areas which represent approximately 30% of residential areas.

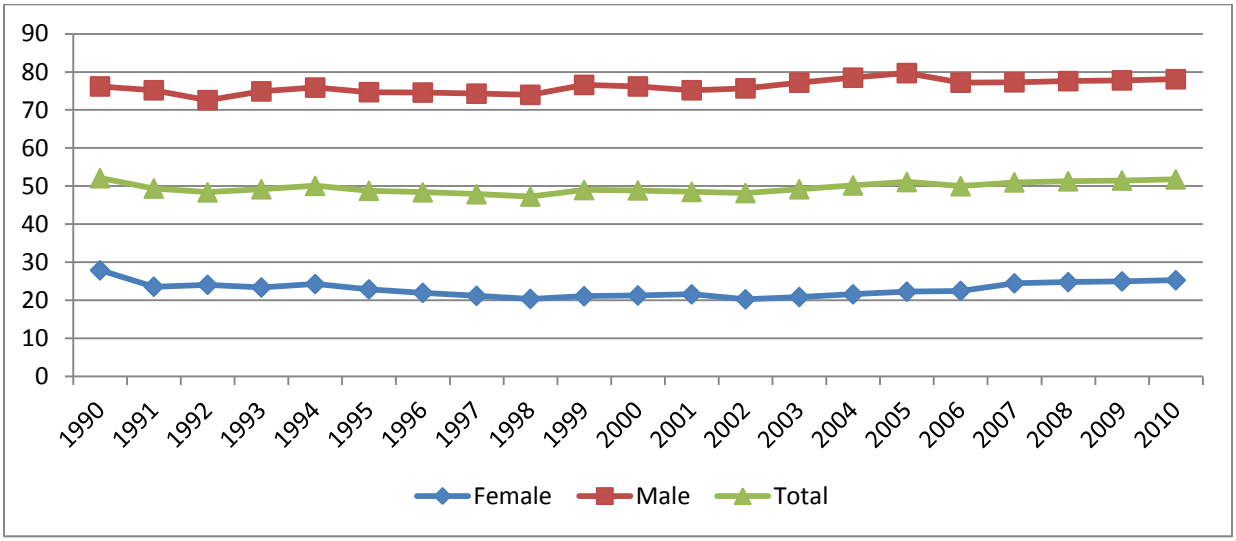
Labor participation rate, measured as a percentage of total population aged 15 years or more, declined from 50% in 1990 to 45.5% in 2002. It started rising since 2006 to reach 48.8% in 2010. This means that the Egyptian population is relatively young, which requires large investments in infrastructure both physical and human. Labor force is estimated to be around 30% of total population (see Figure 5). Meaning that one person is sustaining, on average, 3 persons. Total labor force was estimated to be 27.1mn in 2010. Labor force distribution by gender shows that male participation is much higher than female's. The average ratio during 1990 to 2010 were 80 percent and 20 percent for male and female, respectively (see Figure 6).

Figure 5: Population and labor force (in millions)



Data source: WDI (2012).

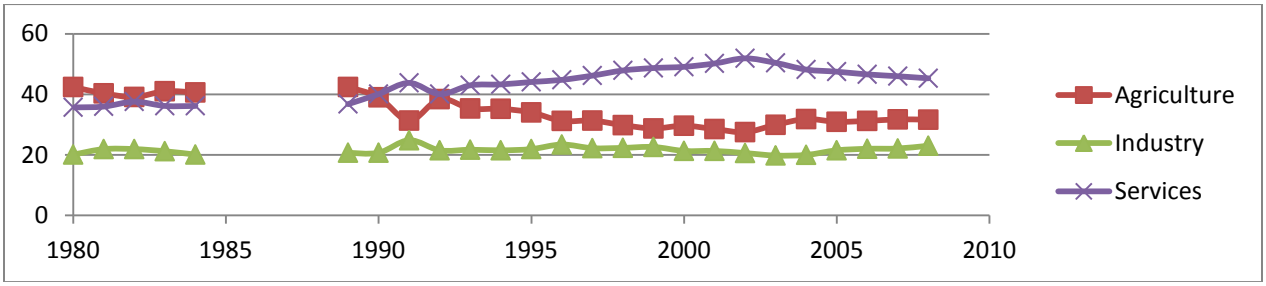
Figure 6: Labor force participation rate by gender (% of population ages 15-64)



Data source: WDI (2012).

The distribution of employment by sector is dominated by services. The share of agriculture sharply declined between 1988 and 1998 (see Figure 7) it stabilized at approximately 30% and 4.8% of total employment and labor force, respectively. The share of industry during 1980-2008 was to a large extent stable. It slightly decreased during the 1980's. This trend was reversed in the 1990's. Currently it is estimated at 23% with an average of 21.8% during 1990-2008 and a standard deviation of 1.18%. The services sector absorbs around 50% of the employed labor force. Low GDP growth rate and rising number of workers in services reveals that there is a high rate of disguised unemployment especially in government. The number of employees in this sector is estimated to be 6.5mn. It is believed that it is large and inefficient. It is a main reason for bureaucracy. Employment is an aspect of inclusiveness that has generally been neglected, several countries of the Arab world suffered from, what might be called, jobless growth which may be considered as one of the factors that may have led to the revolution.

Figure 7: Employment by sector (% of total employment)

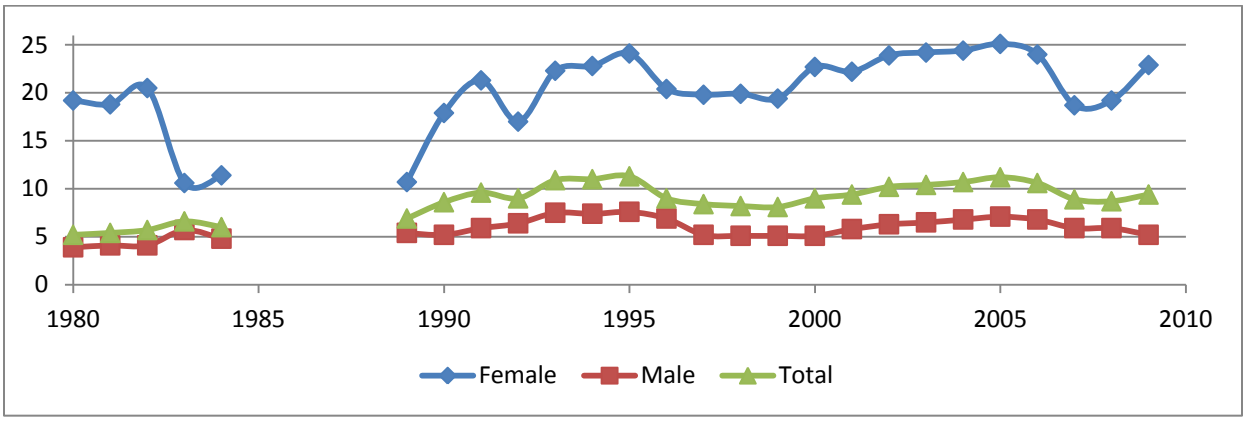


Data source: WDI (2012).

Unemployment was low during the eighties. It was on average around 6% of the labor force. This was due to the commitment of the government to employ all university graduates. It should be noted that this commitment has ended in the nineteen eighties. The low level of

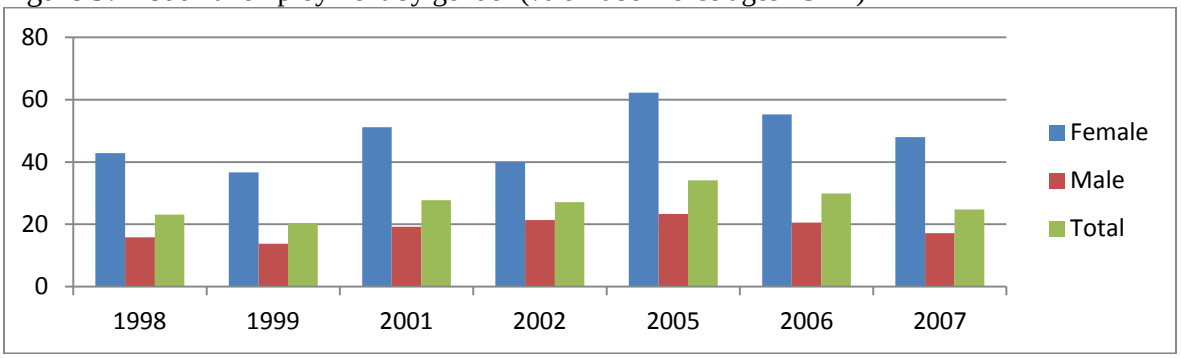
unemployment might be an indicator of a rising level of disguised unemployment which is believed to be very high especially in government departments and the public sector. Since then, the rate of unemployment started to rise fluctuating between 9% and 11.5% during 1990-2010. This is mainly explained by the rise in population growth, low GDP growth and the distorted pattern of growth which does not generate enough job opportunities. In other words it is the result of labor supply pressure driven by Egypt's demographics and the transformation from public sector to market oriented based on private sector economy. With the mismatch between education and labor market demand unemployment among university graduates sharply increased. Female unemployment, as percent of labor force, is estimated to be three times that of males. Female unemployment was about 22.9% while that among males was 5.2% in 2011. It is observed that women tend to be unemployed for longer durations than men (see Figure 8). Youth unemployment as percentage of labor force ages 15-24, greatly fluctuated during 1998-2007 (see Figure 9). After it declined to about 20% in 1999 it sharply rose to around 28% in 2001. It reached a peak of 34.1% in 2005. This percentage was still high at 25% in 2007 regardless of the relatively high GDP growth rate of more than 7%. This shows that the growth was more capital rather than labor intensive. Egypt, in general, also suffers from under employment which contributes to the weakness of the labor market performance. This is partly due to the mismatch between labor supply and demand.

Figure 8: Unemployment as a percentage of labor force by gender



Data source: WDI (2012).

Figure 9: Youth unemployment by gender (% of labor force ages 15-24)



Data source: WDI (2012).

3.2 Poverty and equity

Poverty measures are needed not only to track poor and extreme poor but also the near poor. The former group forms a substantial part of the population that is vulnerable. To insure that inclusiveness is looked upon in a broad sense and to assess the conditions of the vulnerable non-poor not only the Gini coefficient is used as a measure of vertical inequality but also the income share of the poorest 60% of the population. Furthermore, expenditure gap between rural and urban areas is measured to track horizontal inequality. Table 1 depicts some of those indicators across time. It could be seen from the table that in spite of the big decrease in poverty between 1991 and 1996 it was coupled with a slight increase in income share of the poorest 60% and around 2% improvement in income distribution. The story was reversed between 2008 and 2010, it marked a 3% increase in poverty with a 1.5% increase in the income share of the poorest 60%. However, between 1996 and 2000 there was a decrease in poverty followed by a falling income share of the poorest 60%.

Table 1: Poverty and inequality indicators

Year	**1991**	**1996**	**2000**	**2005**	**2008**	**2010**
Poverty headcount ratio at $2 a day (PPP) (% of population)	27.64	26.31	19.37	18.46	21.6	25.2
GINI index	32	30.13	32.76	32.14	30.07	30.18
Poverty headcount ratio at national poverty line (% of population)	24.18	19.4	16.7	19.6	22	25.2
Poverty headcount ratio at rural poverty line (% of rural population)	n.a.	n.a.	22.1	26.8	30	
Poverty headcount ratio at urban poverty line (% of urban population)	n.a.	n.a.	9.3	10.1	10.6	
Income share poorest 60%	37.47	38.92	37.25	37.65	37.8	39.4
Expenditure gap between rural and urban (per capita in EGP)	611.84	755.09	1296.1	1371.15	1897.1	1959.4

Data Sources: the WDI (2012), CAPMAS (2013) and some were generously provided by professor Heba EL-Laithy based on her calculations from HIECS data in various years.

3.3 Economic and Social Infrastructure

Additional essential elements of the inclusiveness of growth are the access of the population to both social and economic infrastructure. The latter is measured by electricity, and information and communication technology. Social infrastructure is indicated by education, health, access to water, and sanitation. The main aspects of infrastructure that will be dealt with here are education, health, communication, electricity, and water and sanitation infrastructure.

3.3.1 Health and Education

Health and education dimensions can be interpreted in various ways. They are often regarded as human development outcomes, but they can also be seen as human capabilities that can generate additional income, that is, accelerate the pace of growth. Within the analytical framework of inclusive growth, health and education can also be utilized as a barometer of the degree of

equality of opportunity that a country's population enjoys. This implies that all members of a society should be provided with the means to form basic human capabilities that are an essential foundation for social inclusion. For health outcomes, the under-5 mortality rate is one of the most reliable and extensively documented indicators. As a complementary health indicator, malnutrition prevalence measured in terms of weight to age for the under-5 children is also used; it may serve as a general barometer of health conditions in a society. Both indicators should provide a broad sense of Egypt's success in achieving health inclusiveness. For education outcomes, an indicator of school enrollment is applied. The primary school enrollment ratio is supplemented with the secondary school enrollment ratio.

Health and nutrition

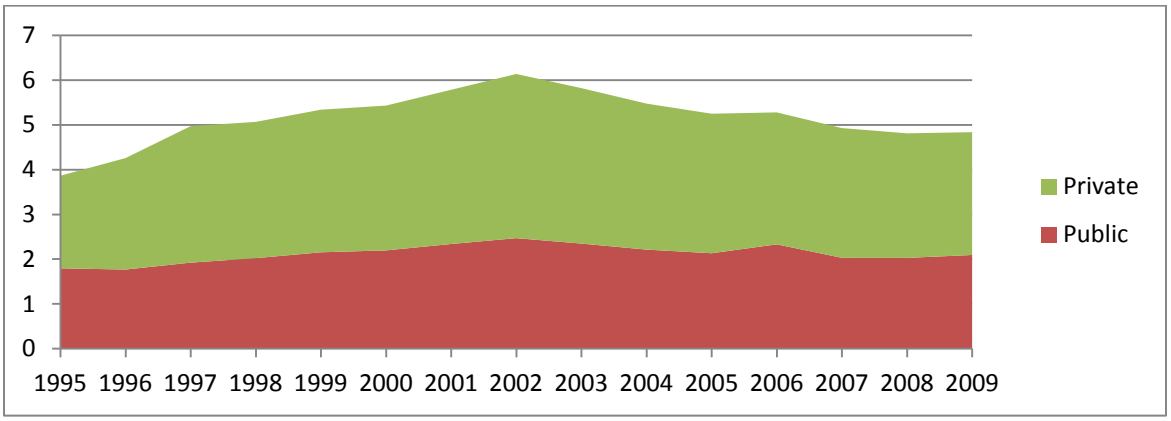
Egypt has recorded major achievements in improving the health status of its population as reflected in the noticeable reductions in child and maternal mortality rates. However, it faces a dual disease burden, as many other developing countries, in the form of communicable and non-communicable diseases. Nevertheless, Egypt is a low health care spender compared to countries of similar levels of economic development. Under the Constitution, the Ministry of Health and Population is responsible for the health of all Egyptian citizens, although not explicitly stated health services are to be freely provided. This left public health expenditure in Egypt low compared to other countries in the Region. Moreover, health expenditure has slowly increased from 3.9% to 6.1% of GDP between 1995 and 2002 which dropped again to around 4.7% in 2010. Approximately 60% of health expenditure is paid out-of-pocket at the point of service in public and private health facilities.

Health insurance, which has existed since 1964, covers about half of the population, particularly civil servants, government retirees, students and preschool children. Those covered with health insurance can choose to go either to private or public hospitals for services. During the 1980s the focus was on expanding and upgrading the country's infrastructure. A new population policy constrained runaway population growth and emphasized basic health care for women and children. In early 1996, the Ministry of Health and Population reevaluated the health sector, a step that made clear the need for comprehensive health reform. Which led to a health sector reform program, initiated in 1997 and due to continue through 2018, reflecting five guiding principles, namely, universality, quality, equity, efficiency and sustainability (WHO, 2010)?

In one of his seminal work Sen (1998) points that quality of life depends on various physical and social conditions, such as the epidemiological environment in which a person lives. The availability of health care and the nature of medical insurance are among the important influences on life and death, in addition to other social services including basic education. The statistics on mortality draw the attention to all these policy issues. Mortality information can throw light also on the nature of social inequalities, including gender bias. Therefore, under 5 mortality rate is depicted in Figure 11. It shows a persistent downward trend over the last three

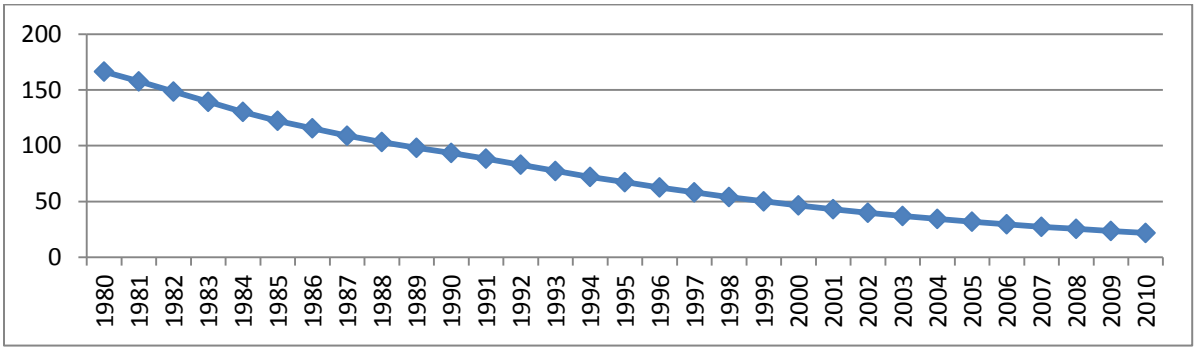
decades dropping from 166.4 per 1000 to 21.8 per 1000. Moreover, malnutrition prevalence measured as weight for age for the children under 5 is also used (see Figure 12).

Figure 10: Health expenditure (% of GDP)



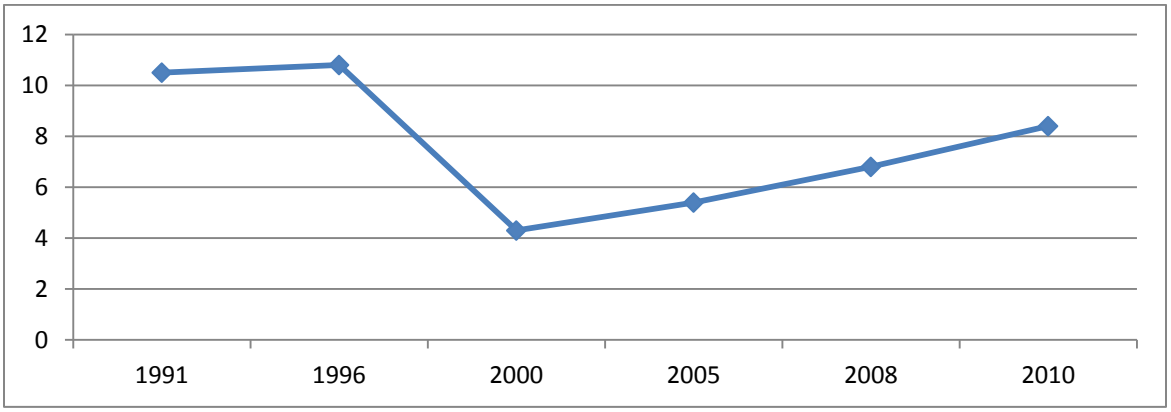
Data source: WDI (2012).

Figure 11: Mortality rate, under-5 (per 1,000)



Data source: WDI (2012).

Figure 12: Malnutrition prevalence, weight for age (% of children under 5)

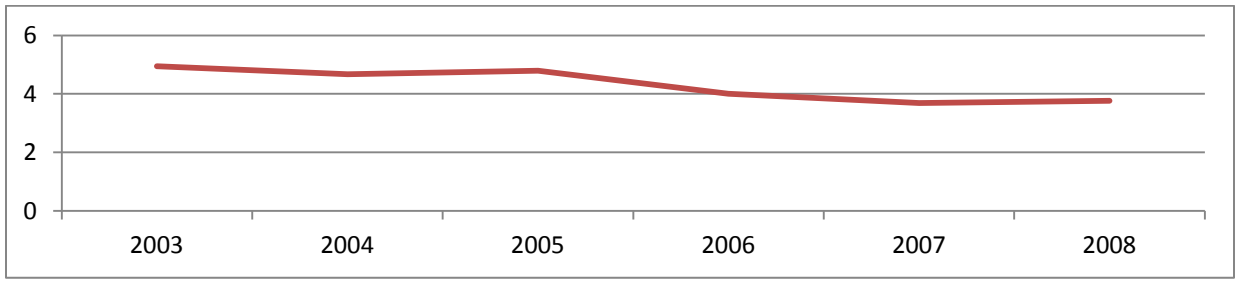


Data source: WDI (2012).

Education

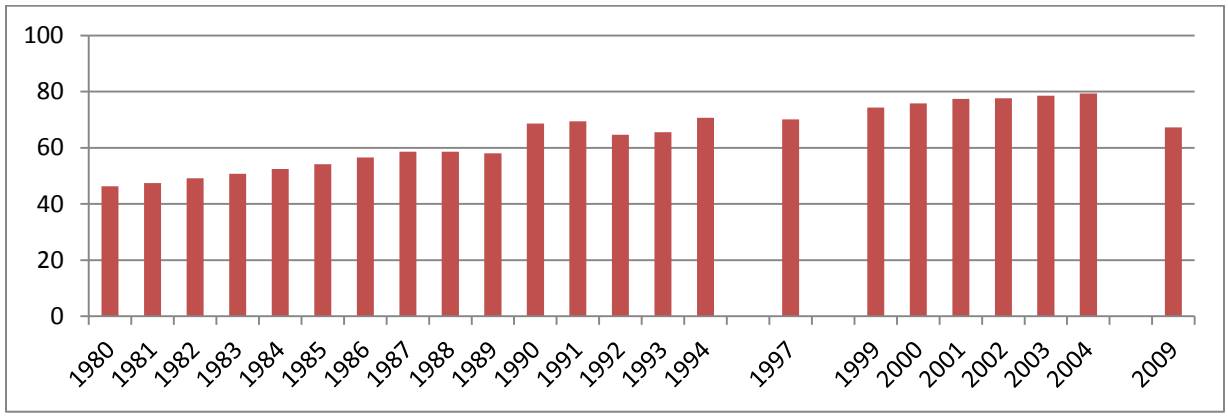
The percentage of public spending on education was around 4 to 5 percent of GDP during 2003-2008, with an average of 4.3%. The quality of education is believed to be very low (see Figure 13). This share is still lower than the average of 5% and 4.6% of GDP spent on education by the MENA countries and the Arab world, respectively. As depicted in Figure 14, secondary school enrollment increased from 46% in 1980 to a peak of 79% in 2004 which then dropped to 67% in 2009. Combing low spending on education with rising enrollments, put severe pressures on the education system, undoubtedly leading to a lowering of the quality of education. Furthermore, early emphasis on university education and neglected basic education, leave nearly half of the adult population illiterate. In 2006, the population suffered from around 33.6% rate of illiteracy which is quite high. Those indicators point to the need of serious reforms to address its main problems overcrowded public schools and universities, poor technical training, backward curricula, unqualified school teachers and low expenditure on research and development.

Figure 13: Total public spending on education (% of GDP)



Data source: WDI (2012).

Figure 14: Secondary School enrollment (% gross)



Data source: WDI (2012).

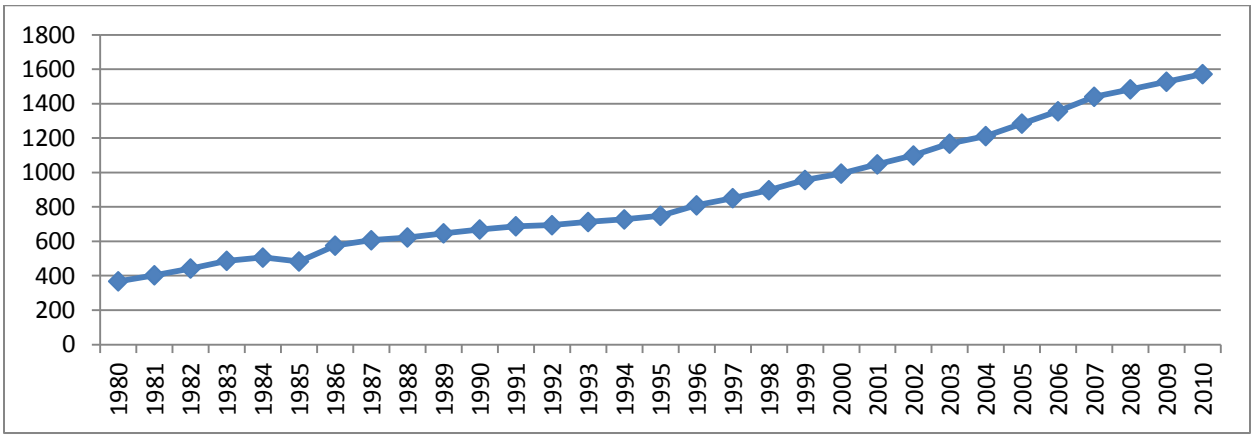
Egypt has invested heavily in infrastructure and human capital. As shown in figures 11 and 12, indicators of mortality rates under age 5, malnutrition prevalence and school enrollment all significantly improved over the past two to three decades. However, an observation can be made.

The investment in human and physical capital was not of the magnitude and quality neither to achieve the desired economic growth nor to improve poverty and inequality measures.

3.3.2 Electricity

One of the measures that detect the access to economic infrastructure in a country is the proportion of the population with access to electricity. Even though this indicator is preferred in the overall composite index of inclusive growth due to the lack of data a proxy will be used. The best available proxy in our case is a variable such as the average electric power consumption per capita. Figure 15 depicts the per capita consumption of electricity since 1980. As clearly seen there is an uninterrupted upward trend in the per capita kilowatt/ hour consumption.

Figure 15: Electric power consumption (kWh per capita)



Data source: WDI (2012).

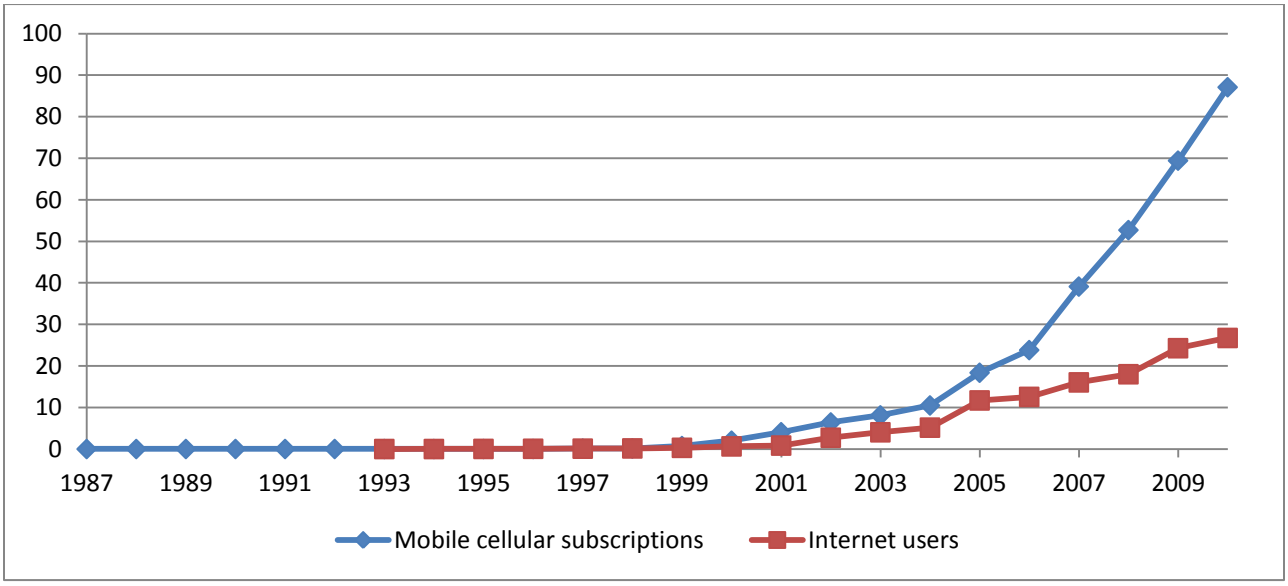
3.3.3 Communication infrastructure

As mentioned earlier, starting in 1991, the Egyptian government instituted its ERSAP with the aim of transforming Egypt into a prosperous emerging market. Within this context, a Ministry of Communications and Information Technology, MCIT, was established in 1999 with the intention of developing and implementing a complete strategy for Egypt's ICT sector. Moreover, a regulator for the telecommunication sector was created in 1998, and transformed to National Telecommunication Regulatory Authority (NTRA) in 2003. NTRA is established to administer the telecommunication sector, ensure its transparency, liberalize the market, guarantee fair competition, introduce universal service and protect consumers' rights (Badawy, 2007). One of its core missions is to encourage national and international investments within free competition rules. Telecommunications liberalization began the process of implementing a national goal in line with Egypt's general strategy to liberalize the economy. In 2002, it voluntarily acceded to the Basic Telecommunications Agreement, BTA, thus committing itself to dismantling any

governmental monopoly for the provision of telecommunication services. This has lead to the increase of mobile cellular subscription from around 6.4% of what in 2002 to about 87% in 2010.

In 2002, Egypt launched the Information Society Initiative (ISI) e-access program which was a successful 'home-grown' free-Internet model. In 2004 an Egyptian Broadband Initiative was launched as part of ISI. This new broadband model was structured, at first, to attract small businesses, but the demand then spread to individuals, to residential users (Kamel, 2006). As depicted in Figure 19, the program leads to the increase in internet users from 2.7% to 27% in the years of 2002 and 2010, respectively. Widespread and affordable broadband access is fundamental in realizing the potential and development of an Information Society. A nationwide secure broadband infrastructure is essential for the development and delivery of services and applications that complement and contribute to the advance of various sectors such as education and learning, medical and healthcare, government and public services, industry development, and trade. The true witness of the role of internet technology in the Egyptian society is the 2011 Revolution and how it aided in mobilization that was needed for reform.

Figure 16: Mobile and internet users (per 100 people)



Data source: WDI (2012).

3.3.4. Water and sanitation

As previously mentioned, human capabilities are considered as an important dimension of inclusive growth. Such a focus leads to consideration of the population's access to public goods and services. The best dimensions include access to health and education services, and to other vital infrastructure such as safe water and adequate sanitation. Indicators on access to safe water and adequate sanitation should be reported as a complement to the health and education

indicators mentioned above. Figure 17 depicts the proportion of population with access to improved water source and sanitation facility.

3.4 Gender Equity

Achieving greater gender equity is an important aspect of fostering greater inclusiveness of growth, including enhancing human capabilities. Niimi (2009) clarifies the relationship between gender equality and inclusive growth. In addressing gender equity, the same broad development-oriented definition of inclusive growth is applied that was already used for other dimensions. Thus, the intention is not to focus just on poor women or on relative human poverty between men and women. Indicators that can be used to evaluate progress of a broader grouping of women are preferred. Attention is focused on three dimensions education, health, and employment.

Figure 17: Proportion of population with access to improved water source and sanitation facility

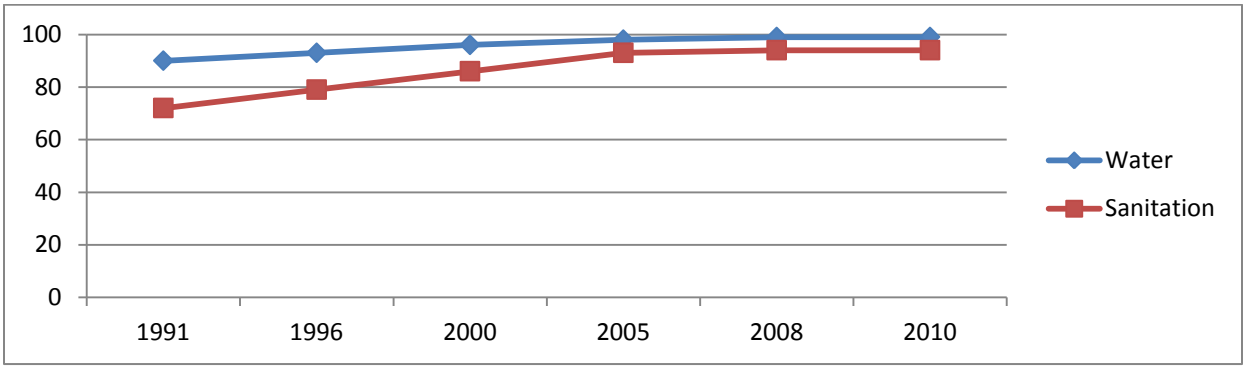
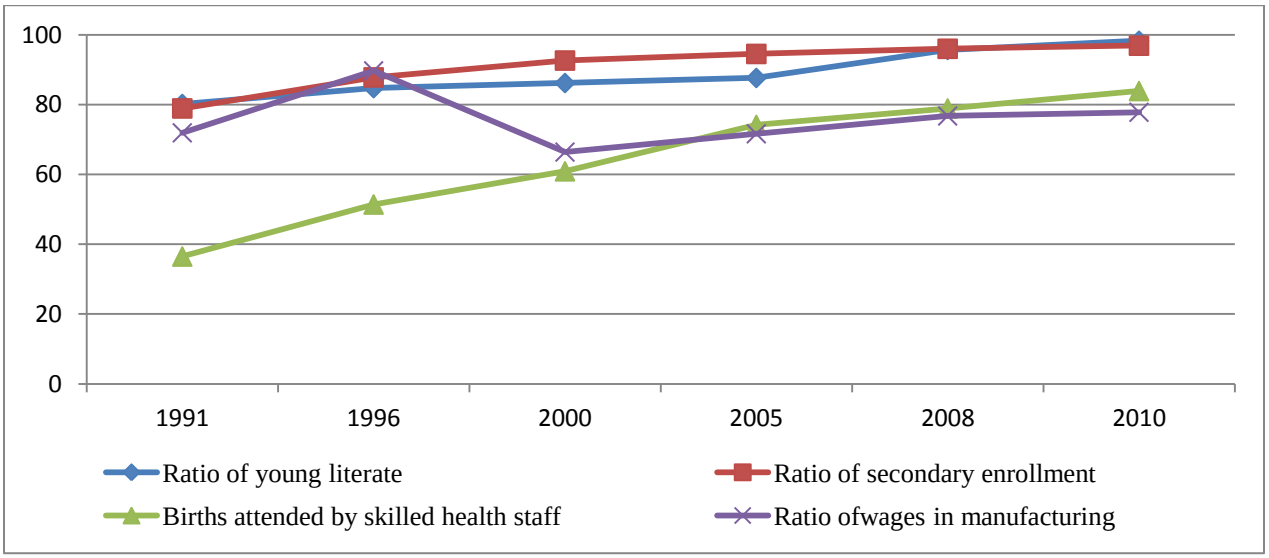


Figure 18: Gender equity measures*

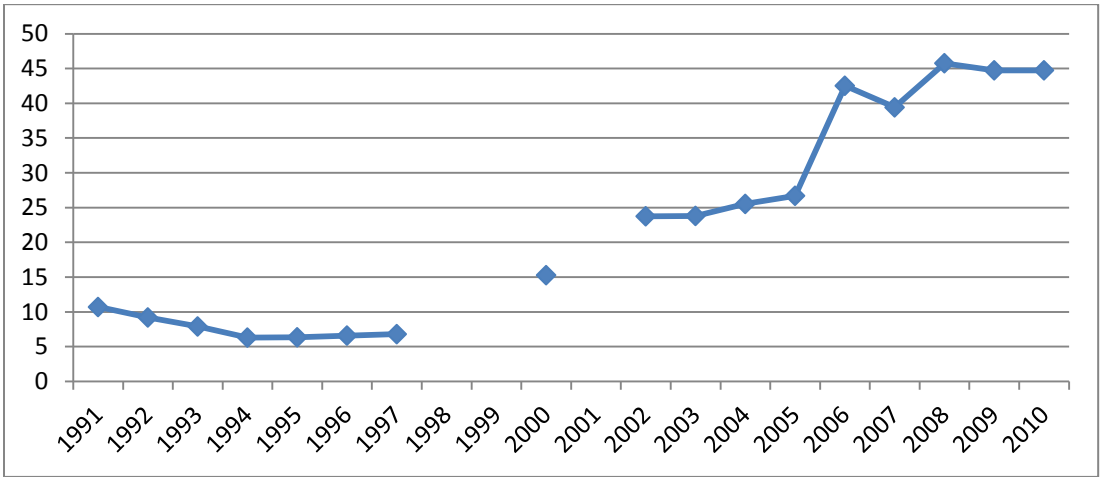


* All ratios are female to male.

3.5 Social Protection

The ability to provide a menu of indicators that can register general progress on the growth of productive employment, the generation of income, and the formation of essential human capabilities offers a credible means to monitoring progress on inclusive growth. However, social protection could be seen as an additional dimension. Since the need to eradicate extreme poverty necessitates an emphasis on some basic forms of social protection, or social safety nets. One of the best measures of social protection is the composite index developed by Baulch et al. (2008). It is based on four different aspects social protection: (i) total expenditures on all social protection programs as a ratio to GDP, (ii) number of beneficiaries of social protection programs as a ratio to the reference populations for key target groups, (iii) number of social protection beneficiaries who are poor as a ratio to the total poor population, and (iv) average social protection expenditure for each poor person as a ratio to the poverty line. However, due to the lack of available data a simple measure of percentage of expenses on subsidies and other transfers is applied to take the social protection dimension in the overall index of inclusive growth.

Figure 19: Subsidies and other transfers (% of expense)



Data source: WDI (2012).

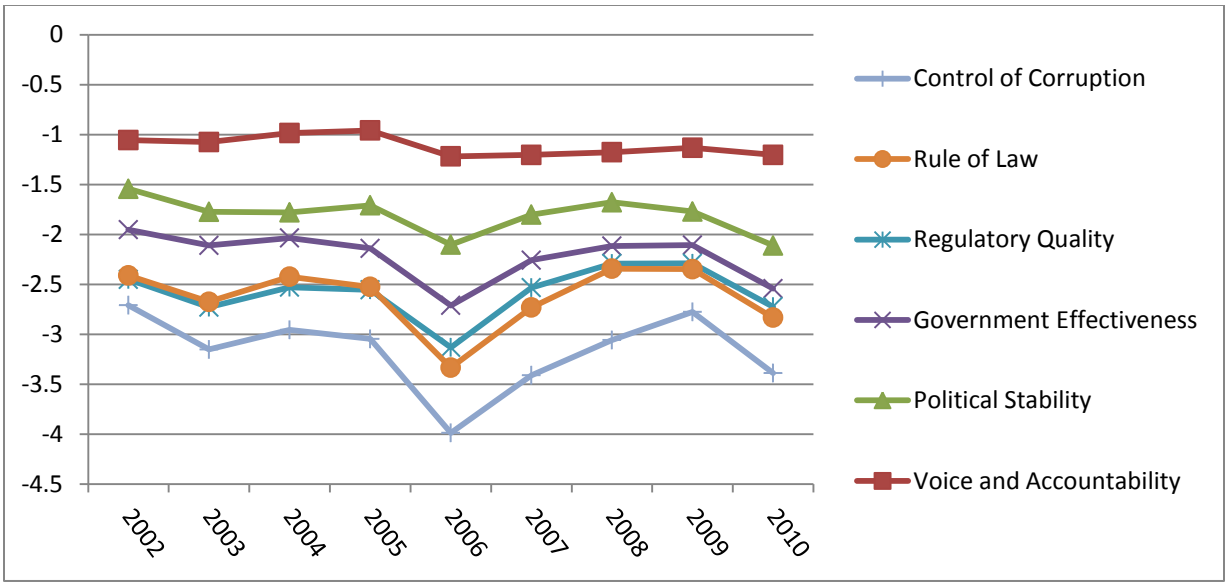
3.6 Institutions

Institutions play a major role in development. Egypt has almost all the institutions known in the developed world. They are, however, not performing their effective role. They could be described as empty shells. Institutions quality may be measured using the Kaufmann et al. (2010) governance indicators depicted in Figure 20. Since Governance consists of the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the

institutions that govern economic and social interactions among them. The Egyptian governance indicators consist of six broad dimensions measure between 2002 and 2010. It may be used to evaluate broad trends over time.

The six dimensions are first voice and accountability that captures perceptions of the extent to which Egyptians are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. The second is political stability and absence of violence measuring perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. An additional dimension is the government effectiveness summarizing the awareness of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. The fourth is regulatory quality portraying sensitivity to the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. The fifth indicator of governance is the rule of law that describes observations of the degree to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Last but not least, the control of corruption depicting perceptions of the level to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

Figure 20: Governance indicators



Data source: WGI (2012).

Governance indicators are constructed in units of a standard normal distribution, with mean zero and a standard deviation of one. A higher value corresponds to better governance. By looking at

Figure 20, it can be seen that, on average, all the governance indicators have negative values, which suggests that governance on the Egyptian level is suffering from deficiencies in controlling corruption, applying rule of law with poor regulation quality. Furthermore, the country has an ineffective government with neither political stability nor accountability. This trend was persistent during the past decade which may have lead to the 2011 revolution. In spite of the importance of governance in this context, relating inclusive growth to governance dimensions is a particularly difficult exercise (McKinley, 2010).

4. Indicators and country comparisons

It should be noted that the analysis is limited by data constraints as there are gaps due to lack of data on all the indicators. So far no consensus is reached on the correct approach to measure inclusive growth due to the complexity and multidimensional nature involved. Therefore, this section draws on three different approaches used in this area namely, McKinley (2010), simple correlation matrix and principal component analysis.

4.1 Mckinley's inclusive growth index

In order to insure that the obtained results are comparable to the ones calculated by McKinley (2010) the overall composite index calculated in this paper for Egypt make use of the same weighting scheme. Explicitly, weights of 25%, 15% and 10% is accorded to indicators of economic performance, employment and access to economic infrastructure, respectively. The remaining 50% is distributed as to assign 25%, 15% and 10% to income poverty and general equity, to the human capabilities indicators and to the social protection index, respectively. The details of the indicators that could measure the degree of success of the country in attaining greater inclusiveness of growth and their weights are offered in the following table.

The calculated composite index of inclusive growth is based not only on the weighting scheme but also on a scoring methodology that implicitly involves value judgments. The scores, of 1 to 10, are distributed according to the country performance on each of its 25 sub-indicator. Then the scores are averaged to the 10 different components, which are subsequently summed into a weighted average to form an overall composite index of inclusive growth. In general, a score of 1 to 3 will be regarded as unsatisfactory progress on inclusive growth, a score of 4 to 7 as satisfactory progress, and a score of 8 to 10 as superior progress. Table 3 portrays the scores of the various indicators of inclusive growth together with the overall index. Since 1991 to 2010 Egypt experiences a satisfactory progress. The performance was flat across all dimensions and years with the exception of the access to economic infrastructure and social protection. They both experienced superior progress between 1996 and 2008. However, the superior progress of the social protection program observed during this decade received a sever shock between 2008 and 2010. This may be due to the world economic crises and food crises that were followed with high food price rise where the governments did not manage to sustain the same levels of inclusiveness during that period.

Table 2: Determinants of Inclusive Growth

	Indicator	Variables	Weight
1	Economic growth	(a) Real rate of GDP growth rate per capita. (b) Share of industry, services, and agriculture in total value added.	.25
2	Productive employment	(a) Share of those employed in industry. (b) Share of self-employed in total employment.	.15
3	Access to economic infrastructure	(a) Proportion of the population with access to electricity. (b) Number of mobile phone subscribers per 100 people.	.10
4	Poverty measures	(a) The proportion of the population living below nationally determined poverty lines. (b) The proportion of the population living below the $2.50 per day per person, international poverty line in 2005 prices	.10
5	Inequality measures	Vertical: (a) The Gini coefficient. (b) The income share of the poorest 60% of the population. Horizontal: (a) The income or expenditure gap between rural and urban areas.	.10
6	Gender inequality	(a) The ratio of literate females to literate males among those aged 15–24 years. (b) The ratio of girls to boys in secondary education. (c) The percentage of births attended by skilled health personnel. (d) The ratio of female to male wages in manufacturing.	.05
7	Health and nutrition	(a) under-5 mortality rate (b) percentage of those under age 5 years who are underweight	.05
8	Education	(a) net primary enrollment ratio (b) net secondary enrollment ratio	.05
9	Access to water and sanitation	(a) proportion of the population with access to improved water source (b) proportion of the population with access to sanitation facility	.05
10	Social protection index	(a) Subsidies and other transfers (% of expense)	.10

4.2 Cross country comparison

Examining Table 4, it could be seen that Egypt's overall inclusive growth index was 5.47, i.e., it lies in the satisfactory category. Its performance is close to that of India (5.7). Egypt outperformed other Asian countries with the exception of Uzbekistan that had better performance (6.8). This may sound unexpected to anyone who is aware of the Egyptian experience. Further, exploring the partial indicators between counties, Egypt showed a satisfactory progress on all 10 indicators. Bangladesh and Indonesia had an unsatisfactory progress in the access to water and sanitation. Cambodia experienced apparent poor progress in the fields of health and nutrition, education and social protection, although it had the best performance in economic growth index (8). Insufficient progress in poverty was witnessed in Indonesia and the Philippines. The latter country also experienced disappointing progress in social protection.

Table 3: Inclusive Growth Index for Egypt 1991-2010

	Indicator	1991/96	1996/2000	2000/2005	2005/2008	2008/2010
1	Economic growth	5.5	5.5	5.5	5.75	5.25
2	Productive employment	6.5	4.5	6	5.5	5.5
3	Access to economic infrastructure	7	8.5	8.5	8	7
4	Poverty measures	6.5	6	5.5	4.5	5
5	Inequality measures	5.33	4.33	5.67	5.33	5.33
6	Gender inequality	6.5	5.25	6	6	6
7	health and nutrition	6	6.5	5.5	5.5	5
8	Education	6	6	6	5.5	5
9	Access to water and sanitation	6	6	6	6	6
10	Social protection index	3	10	8	8	5
Overall index		**5.76**	**6.12**	**6.21**	**6**	**5.47**

Source: Authors' calculation
Note: In general, a score of 1–3 is regarded as unsatisfactory progress, a score of 4–7 as satisfactory progress, and a score of 8–10 as superior progress.

Table 4: Inclusive Growth Index

Country	Bangladesh	Cambodia	Egypt	India	Indonesia	Philippines	Uzbekistan
Economic growth	6	8	5.25	8	4	3	7
Productive employment	4	4	5.5	4	4	3	6
Access to economic infrastructure	6	4	7	6	5	7	6
Poverty measures	6	6	5	5	2	2	6
Inequality measures	6	4	5.33	4	6	2	8
Gender inequality	5	6	6	4	6	6	8
health and nutrition	5	3	5	3	6	6	7
Education	3	4	5	5	5	6	7
Access to water and sanitation	2	4	6	4	3	8	5
Social protection index	5	2	5	8	5	2	8
Overall Index	5.15	5.05	5.47	5.70	4.40	3.80	6.80

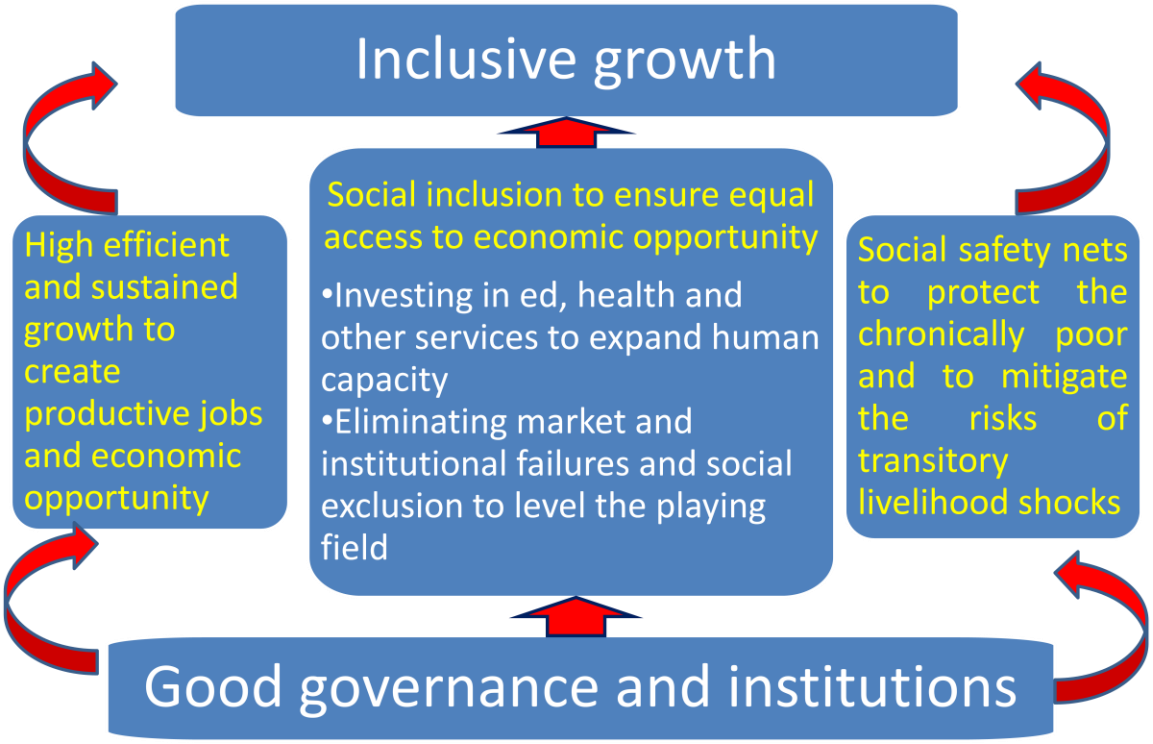
Note: In general, a score of 1–3 is regarded as unsatisfactory progress, a score of 4–7 as satisfactory progress, and a score of 8–10 as superior progress.

4.3 Egypt's specific indicator

Testing for robustness and sensitivity analysis of the indicators presented in section 4.1 is implemented. The results showed that the indicator is robust to the exclusion of some sub-indicators. However, the results are sensitive to the choice of weights. For example, giving a

higher weight to economic growth and lower weight to social protection the rank of Cambodia will be reversed with respect to Bangladesh. Therefore, in this section, we attempt to construct a more country specific indicator employing principal component analysis to determinants of inclusive growth based on the ADB (2012) framework presented in Figure 21. It shows that inclusive growth determinants are not just poverty and inequality but it is also heavily driven by three main pillars. The first draws on sustained growth and expansion of economic opportunities through productive job creation. The second pillar is based on social inclusion that insures equal access to economic opportunities. This is put into action through investing in education, health and other services that help in the expansion of human capacity. Moreover, it is further realized trough policies that promote the elimination of market and institutional failures and social exclusion. Third pillar hinges on social safety measures to protect the chronic poor. This framework leads to the expansion of the list of indicators provided in Table 2 to a more exhaustive list, as illustrated in Table A1. Thirty three quantitative indicators are deployed to measure inclusive growth. Policies for inclusive growth are supported by good governance and institutions.

Figure 21: Framework of inclusive growth indicators



Source: ADB (2012)

In order to assess the interrelationship between the proposed indicators simple correlation coefficients are calculated using Egyptian data (see Table A2). Correlations between the indicators are analyzed to find out which combination of policy pillars and good governance indicators are associated with poverty and inequality outcomes and might therefore have

statistically significant impact on the results. Generally, at least one of the indicators in each pillar and sub-pillar is found to be significantly associated with the outcome indicators. These results can serve as a useful guide for policy interventions to determine, at an initial stage, which policies are associated with the outcomes and thus likely to have significant impact. It was not possible to conduct appropriate regression analyses due to the lack of data.

These indicators are combined using the principal component analysis (PCA). The first stage in such analysis is to form an initial decision about the number of factors underlying a set of measured variables. Then, the principal components are extracted for the factors that have eigen values greater than one. The second stage has two main goals; one is to rotate factors to make them more interpretable. The other is to take a final decision about the number of underlying factors. After these two stages, the Bregar et al. (2008) methodology is adopted to compile an index for each dimension. It is based on using the weighted mean of the retained PCs as follows:

$$I_p = \frac{\sum_{i=1}^{m} F_{pi} * \lambda_i}{\sum_{i=1}^{m} \lambda_i}$$

where, I_p represents various inclusive growth indicators, which are calculated as a weighted average of m values of PCs for unit p, F_{pi} stands for the value of the i^{th} PC for unit p. And λ_i corresponds to the eigen value of the i^{th} PC. Then PCA is reapplied to combine all pillars in one composite index.

The first round of PCA leads to the combination of the 33 quantitative indicators into 11 principal components. The second round resulted in 3 components that were consequently combined into one indicator. This procedure allows the calculation of an inclusive growth index for each year where data are available. This differs from the McKinley method that allows the calculation of inclusive growth indicator as a comparison between two years. The results of PCA index are depicted in Table 5. It could be seen that inclusiveness was at its peak in 1991 (1.729). The bottom was -1.13 for the year 2000. Afterward, it slightly improved till 2008 then it declined to -0.21 in 2010.

Table 5: Inclusive Growth Index based on PCA

Year	**1991**	**1996**	**2000**	**2005**	**2008**	**2010**
Total Index	1.729	0.429	-1.13	-0.699	-0.118	-0.21

Source: Authors' calculation.

6. Conclusion

Egypt has diversified natural, human, financial and cultural resources. The process of development during 1980-2011 was erratic. The rate of GDP growth rose to a high of 10% in 1980 and a low of 1.1% in 1991. The economy's potential rate of growth could reach 10% for at least two decades. This requires among other things: the implementation of the right policies,

reduction of the budget deficit to acceptable limits, raising the savings ratio to 30% of GDP, hard efficient work, proper incentives and efficient leadership. Efforts to achieve inclusive growth and inclusive development should involve a combination of mutually reinforcing measures including: promoting efficient and sustainable economic growth; ensuring a level political playing field; strengthening capacities and providing for social safety nets.

When measuring inclusive growth, there is often a natural tendency to include a broad and diverse set of indicators. In this paper, we attempt to construct a composite index in order to facilitate international comparisons. This goes in line with the work of McKinley (2010). The results show that Egypt's overall index of inclusive growth was satisfactory at about 5.5 during 2008-2011. This performance is almost similar to that of India. It was better than the Philippines, Indonesia and Cambodia. However, Uzbekistan had a better performance. This methodology does not necessarily suit the Egyptian case. For that reason, a list of potential quantitative indicators is constructed, in conformity with ADB (2012), to best capture income, non-income outcomes and inequality in access to opportunities. Those indicators were combined into only one through principal component analysis. Comparative analyses of indicators across time show that Egypt performance with respect to inclusive growth has worsened over time.

The findings of the correlation analyses correspond to those of existing literature. It emphasizes that institutions have direct effects on poverty and inequality outcomes. Good governance and institutions are found to be directly correlated with income and non-income indicators. Many bivariate correlations between indicators of policy pillars and poverty and inequality indicators are statistically significant and often large in magnitude. Furthermore, the direct (positive) correlation of government effectiveness with some non-income outcomes is observed. Hence, policies that support good effective governance are important for inclusive growth.

Long term strategy for development to 2020 should be more inclusive. It should focus on creating and expanding economic opportunities and improving its accessibility. Promoting greater access to opportunities would require expanding human capacities, especially for the disadvantaged sectors of society, through the provision of social services such as education, health, and social protection. Government support for inclusive growth should be through investments in infrastructure that connect the poor to the markets and increase their access to basic productive assets such as education, water and sanitation, and credit. Special attention should be given to gender equality and the empowerment of women which are fundamental elements in achieving inclusive growth.

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Appendix

Table A1: Inclusive Growth Indicators

No.	Indicators
Economic Growth and Employment	
1	GDP per capita (constant 2000 US$)
2	Agriculture, Value Added
3	Industry, VA
4	Services, VA
5	Employment to population ratio, ages 15-24, total (%)
6	Self-employed, total (% of total employed)
Infrastructure Endowment	
7	Electric power consumption (kWh per capita)
8	Roads, paved (% of total roads)
9	Mobile cellular subscriptions
Poverty and inequality	
10	Poverty headcount ratio at national poverty line (% of population)
11	Poverty headcount ratio at $2 a day (PPP) (% of population)
12	GINI index
13	Income share poorest 60%
14	Expenditure gap between rural and urban (per capita in EGP)
15	Mortality rate, under-5 (per 1,000)
16	Malnutrition prevalence, weight for age (% of children under 5)
Access and inputs to Education and Health	
17	Pupil-teacher ratio, primary
18	Immunization, DPT (% of children ages 12-23 months)
19	Physicians (per 1,000 people)
20	Public spending on education, total minus salaries (% of government expenditure)
21	Health expenditure, public (% of government expenditure)
Access to Basic infrastructure Utilities and Services	
22	Improved water source (% of population with access)
23	Improved sanitation facilities (% of population with access)
Gender Equality and Opportunity	
24	Ratio of young literate
25	Ratio of young literate females to males (% ages 15-24)
26	Ratio of female to male primary enrollment (%)
27	Births attended by skilled health staff (% of total)
28	Ratio of female to male wages in manufacturing (%)
29	Gender parity in employment
Social Safety Nets	
30	Total expenditure on social insurance (as % of GDP)
31	Beneficiaries of social insurance in thousand
32	Health expenditure, public (% of total health expenditure as a % of GDP)
33	Subsidies and other transfers (% of expense)

Source: adapted from ADB (2012)

Table A2: Egypt's Correlation matrix of inclusive growth indicators

	Poverty at national poverty line	Poverty at $2 a day	Income share poorest 60%	Rural/ Urban Exp gap	Mortality rate, under-5	Mal-nutrition prevalence
GDP per capita	0.28	-0.32	0.39	0.99	-0.95	-0.42
Agriculture, VA	-0.32	0.32	-0.24	-0.94	0.90	0.39
Industry, VA	0.49	-0.25	0.18	0.90	-0.80	-0.35
Services, VA	-0.71	0.05	-0.03	-0.58	0.40	0.18
Employment to population ratio	-0.41	-0.37	0.24	0.39	-0.44	-0.47
Self-employed, total	0.39	-0.19	-0.53	0.31	-0.08	-0.37
Electric power consumption	0.29	-0.37	0.34	0.98	-0.95	-0.44
Roads, paved	0.21	-0.27	0.46	0.95	-0.94	-0.33
Mobile cellular subscriptions	0.62	0.05	0.58	0.87	-0.75	-0.07
GINI index	-0.47	-0.51	-0.78	-0.37	0.33	-0.51
Pupil-teacher ratio, primary	0.59	0.03	0.51	0.79	-0.74	-0.01
Immunization, DPT	-0.40	-0.75	0.15	0.77	-0.91	-0.74
Nurses and	0.82	0.94	0.57	1.00	-0.93	0.85
Physicians	-0.08	-0.47	0.41	0.88	-0.97	-0.48
Public spending on education, total	-0.81	-0.94	-0.55	-0.99	0.93	-0.84
Health expenditure, public (% of government expenditure)	-0.67	-0.92	-0.49	0.30	-0.41	-0.95
Improved water source	-0.02	-0.60	0.21	0.95	-1.00	-0.64
Improved sanitation facilities	-0.01	-0.62	0.20	0.93	-0.99	-0.64
Ratio of young literate	0.35	-0.16	0.51	0.96	-0.90	-0.27
Ratio of young literate females to males (% ages 15-24)	0.35	-0.16	0.51	0.96	-0.90	-0.27
Ratio of female to male primary enrollment (%)	0.11	-0.63	-0.15	0.87	-0.80	-0.75
Births attended by skilled health staff (% of total)	0.10	-0.49	0.34	0.96	-0.99	-0.53
Ratio of female to male wages in manufacturing (%)	0.08	0.56	0.99	-0.53	0.22	0.72
Gender parity in employment	0.79	0.63	0.47	-0.16	0.44	0.55
Total expenditure on social insurance (as % of GDP)	_	_	_	_	_	_
Beneficiaries of social insurance in thousand	_	_	_	_	_	_
Health expenditure, public (% of total health expenditure)	0.54	0.50	0.58	0.44	-0.33	0.42
Subsidies and other transfers (% of expense)	0.46	-0.20	0.28	0.95	-0.84	-0.32
Control of Corruption	-0.48	0.36	0.27	-0.92	0.94	0.53
Government Effectiveness	-0.67	0.23	-0.01	-0.85	0.96	0.28
Voice and Accountability	-0.84	-0.11	-0.24	-0.97	0.94	0.08

Source: Authors' calculation.

Note: _ not enough data to calculate correlation