

Human Capital in Egypt: The Road to Sustainable Development

Although Egypt has made significant progress towards reviving economic growth, unemployment remains persistently high and a significant increase in job opportunities is still needed to absorb the increasingly growing labor force.

Egypt's labor market is characterized by significant annual increases in the labor force, with the challenge to absorb around 700,000 new entrants to the labor market annually. Other labor-related problems include low female participation, excessive government employment, a high percentage of people in non-decent employment, low productivity and wages, and high unemployment among youth and women. In addition, there is a significant mismatch between available skills and labor market requirements. Last but not least, weak social protection programs preclude the generation of enough decent work opportunities.

This edition of the policy view point embraces the results of a collection of relevant projects that cut across various timely challenges in the labor market and shed important light for policy implications. A summary of specific research, major findings and policy implications follow.

1. EMPLOYMENT FLUCTUATIONS AND SECTORAL SHIFTS IN EGYPT: TESTING THE PUBLIC/PRIVATE SECTORAL SHIFTS HYPOTHESIS

Job creation is the most important challenge facing Egypt today. Economic performance has been uneven over the last three decades, but even in periods of high growth, the job content of growth has not been strong enough to absorb new entrants. The problem became more critical once the government began to restrict its guaranteed employment policy and to practically end it in late 1980s. Consequently, the unemployment rate was fairly low during 1980s, 5-7%. Since 1990 till 2010, Egypt's unemployment rate has remained stubbornly high, in the range of 8-11%, over economic cycles, major structural changes in the Egyptian economy and a number of external shocks.

The 1990s and early 2000s saw the acceleration in the structural adjustments. The fast growing role of the private sector and the contraction of the public sector are considered the most important characteristics of this period. This process generated notable sectoral shifts. The latest data for the Egyptian labor market estimate labor force at 27.9 millions, of which nearly 2.5 millions are unemployed, 6.6 millions are in the public sector, 18.7 millions are in the private sector, of which 12.2 million are out of establishments, including 7.5 million in the agriculture sector, and the remaining 6.5 million are in established entities. Clearly, the public and agriculture sectors remain the main sources for employment. However, the scope for employment growth is rather limited. Further, the informal sector has grown in size over time, while there is further scope to grow the private formal sector. Yet, employment growth in the latter has been rather limited despite significant economic growth rates that the Egyptian economy has achieved in the last decade. Indeed, unemployment has remained persistently high despite high growth rates while informal employment has grown in size. Failure to grow formal private employment, coupled with deliberate attempt to reduce excessive employment in the public sector, has contributed to the rise of higher unemployment and informal employment over time.

The sectoral shifts hypothesis (SSH hereafter) has been exercising a notable influence on business cycle analysis. The SSH emphasizes that intersectoral shocks, reallocation shocks affecting the composition of demand, are the driving force behind fluctuations in aggregate employment and unemployment.

The relevance of the SSH as an important source of unemployment fluctuations has generated a controversy that still persists because of the empirical difficulty in separating reallocation shocks from aggregate shocks. Sectoral employment growth rates could be poor proxies for sectoral shifts when sectors vary in terms of their cyclical response to aggregate shocks.

Empirical studies have tried purging the dispersion index of aggregate effects as an effective way to overcome the observational equivalence problem. The purging practice suggests the decomposition of the index into an idiosyncratic component and a component representing the response to aggregate shocks. This practice filters out aggregate shocks either directly from the dispersion indices or indirectly from the employment growth rates used to construct the indices.

Some empirical studies use various purged measures, and they still find that intersectoral shocks are important source of fluctuations of the unemployment rate. Some other empirical studies, using purged indexes, tend to reject the SSH. In general, empirical results would vary widely according to the choices made by the researcher concerning the filtering steps and the variables used as proxy for aggregate shocks.

More recent research extended the investigation of the sectoral shifts hypothesis to include the effects of the stage-of-business-cycle on the relationship between the unemployment rate and the chosen dispersion measure of sectoral shifts, in addition to exploring the influence of past patterns of labor reallocation on current employment. The rationale behind the stage-of-business-cycle effect is that agents would prefer to shorten unemployment spells during expansions and lengthen them during recessions if the opportunity cost of unemployment is pro-cyclical. Hence, a given amount of labor reallocation will be associated with less measured unemployment during expansion and more unemployment during recessions.

The findings support the view that sectoral shifts have been an important source of private employment fluctuations in Egypt. Over time, sectoral shift in the public sector reflects a deliberate policy to reduce the size of employment in the public sector. However, the end result on employment has varied with the business cycles.

Private sector employment growth has increased during a boom on account of higher private output growth, reflecting a deliberate strategy to align jobs with productivity. Moreover, private employment has increased with sectoral shifts in both the public and private sectors during a boom, reflecting success to absorb laid off workers in the public sector in more productive activity in the private sector. However, persistent reduction in public sector employment was not aligned with business cycles in the private sector. As a result, sectoral shift has had a negative impact on private sector employment during a downturn. While the evidence reflects a rational strategy of employment growth in the private sector, it signals the failure of employment strategy in the public sector that has not varied flexibly with cyclicity in economic conditions to mitigate the adverse effects on the economy.

As for the determinants of private sector employment growth, an increase in credit and the growth of exports are key pillars to mobilizing jobs. However, the evidence indicates the adverse effects of higher government spending on private activity. In general, higher government spending crowds out employment growth in the private sector, which is more pronounced during periods of economic boom. However, government spending carries the potential of stimulating private employment during a downturn, attesting to the need to align government spending with stabilization priorities while refraining from pro-cyclical spending. It is also noteworthy that the increase in government spending has had a negative impact on employment growth in the public sector, further signifying the need to align spending priorities with employment objectives to increase the fiscal multiplier and the return on stimulus spending by the government.

For policy implications, the evidence signifies the importance of policies that aim at availing more credit for private sector activity and promoting exports towards growing more jobs in the private sector. Also, it is noteworthy that output growth is highly concentrated in capital intensive industries. Hence, it is necessary to provide incentives to increase the job content of output growth by availing tax incentives that are tied to the employment agenda and availing affordable credit for small and medium enterprises that have the capacity to mobilize high employment. Fiscal consolidation should help these objectives by reducing evidence of crowding out, namely in the form of higher cost of borrowing and inflation, and providing higher incentives for financial institutions to avail more credit to the private sector. Continued drive to reform public institutions with an aim to reduce unproductive employment should be better managed in the context of a comprehensive economic strategy that aims at absorbing excess labor in a growing private sector and availing training to increase the adaptability of laid off public workers to employment in the private sector. Reducing unemployment and growing income in line with productivity are key pillars towards sustaining high growth and achieving social equity.

2. Skill Demand Polarization in Egypt

Despite high economic growth over the past decade, the unemployment rate in Egypt has remained persistently high reaching 9 percent in 2010. The low job content of growth, in addition to the significant mismatch between the types of skills supplied and demanded have resulted in high unemployment among graduates and the young with 84 percent of the unemployed being in the age group 15 to 30 years.

As the benefits of economic growth were not fairly distributed among all parts of the employment and wage distribution, Egypt is growing apart. The employment and wage structure has become more polarized between high skilled occupations requiring considerable education and low skilled elementary occupations. The demand for middle skilled occupations (manufacturing and routine jobs) fell relative to high (professional and managerial) and low skilled occupations (personal services). This “clustering around extremes” resulted in a rise in wage disparity, creating political tension and threatening the social fabric of the nation. The economic literature provides several competing explanations of labor market polarization: skill-biased technological change (SBTC) and the “routinization” hypothesis for instance on the demand-side, skill evolution on the supply side and wage-setting institutions such as changes in the minimum wage as an intervening factor.

To improve the matching of job seekers with job vacancies and efficiently allocate Egypt's human resources, the research aims at identifying the skills required by the labor market and the potential determinants of skill demand polarization in Egypt by tracking and explaining changes in the employment and wage structure of 9 high, middle and low skilled occupations in 18 economic activities over the period 2000-2009.

The evolution of employment and wage bill shares of high, middle and low skilled occupations in Egypt's economic activities over the past decade provides information on how the market values of different types of skills and activities have changed over time. To track changes in the employment and the wage structure of high, middle and low skilled occupations in Egypt's economic activities over the past decade, different skill level occupations and economic activities are distinguished.

Occupations are classified using the Egyptian Guide to Occupation Classification (July 2005 edition), published by the Central Agency for Public Mobilization and Statistics (CAPMAS). Egypt's occupational classification is consistent with the International Standard Classification of Occupations 1988 (ISCO-88) that was adopted by the International Labor Organization's Fourteenth International Conference of Labor Statisticians (ICLS) in 1987. The criteria used in this guide to classify occupations are "skill level" and "skill specializations" needed to carry out the tasks and duties undertaken in the job. Hence, this guide is used in the matching of job seekers with job vacancies and the development of vocational training programs. High-skilled occupations are human capital intensive jobs, while middle-skilled occupations typically consist of high school graduates, people with some college education and people with non-academic professional degrees. Based on the International Standard Industrial Classification of All Economic Activities, Rev.4 (ISIC Rev.4), 18 economic activities have been identified.

Over the period 2000-2009, both employment and wages have been shifting towards very high and very low skilled occupations, with the proportion of middle skilled occupations declining. The analysis provides evidence that polarization is unfolding among different skill level occupations and economic activities.

Considering changes in employment, the shares of high skilled occupations (legislators, senior officials and managers and professionals) and low skilled occupations (elementary occupations and plant and machine operators and assemblers) in total employment have increased by 3.5 percent and 1.6 percent respectively. However, the share of middle skilled occupations (technicians and associate professionals; clerks; service workers and shop and market sales workers; agricultural and fishery workers and craft and related trade workers) has declined by 5 percent.

A standard indicator for skill demand is the wage bill share of workers of different skill level occupations. Wage bill shares are useful summary measures as each occupation is weighed by its price (the wage). Examining changes in the real wage bill over the period 2000-2009 reveals that the shares of high and low skilled occupations in the total real wage bill have increased by 4.9 percent and 4.4 percent respectively, while the share of middle skilled occupations has declined by 9.3 percent. A decrease in the wage bill of middle skilled occupations (technicians and associate professionals; clerks; service workers and shop and market sales workers; agricultural and fishery workers and craft and related trade workers) relative to high (legislators, senior officials and managers and professionals) and low skilled

occupations (elementary occupations and plant and machine operators and assemblers), implies that the job structure in Egypt is becoming more polarized. A U-shaped pattern of changes in both the employment and real wage bill shares of high, middle and low skilled occupations provides evidence for labor market polarization in Egypt.

Breaking down the data by economic activity, the share of manufacturing activities in total employment has decreased by 6 percent, while the share of several services activities has increased. Shares in total employment have increased by 3 percent for electricity, gas, steam and air conditioning supply, by 2.7 percent for education and 2.5 percent for water supply, sewerage, waste management and remediation activities. Looking at changes in the wage bill shares of different economic activities over the period 2000-2009, the financial and insurance activities have upgraded the skills of their workforce faster than all other economic activities. The share of the financial and insurance activities in the total real wage bill has increased by 12 percent, while that of the manufacturing activity has declined by 10 percent.

The above analysis implies that deindustrialization in Egypt has occurred over the past decade, contributing at least partly to the decline in the employment and wage bill shares of the middle skilled occupations which are usually clustered in the manufacturing sector. In the absence of any other changes in the labor market, an increase in the number of high and low skilled workers relative to the middle skilled would reduce their relative wage unless demand for their skills is sufficiently large to outweigh the impact of the increase in their relative supply.

Over the past decade, the changing patterns of employment and earnings for high and low skilled employees were driven to a substantial extent by changes in employers' demand for their skill levels and occupational specialties, rather than by changes in the supply of those employees to the labor market. An increase in employment for the high skilled (legislators, senior officials and managers and professionals) and the low skilled employees (plant and machine operators and assemblers and elementary occupations) was accompanied by a rise in their wages, meaning that demand for high and low skills must have been sufficiently large to outweigh the impact of the increase in the relative supply of these skills. Rising earnings for occupations with increasing employment implies that a demand shift had occurred.

Conversely, a fall in employment for middle skilled employees (service workers and shop and market sales workers; agricultural and fishery workers; craft and related trade workers and technicians and associate professionals) was accompanied by a rise in their wages, meaning that middle skilled employees had reduced their labor supply to the market. Rising earnings for occupations with declining employment implies a supply shift. Worth noting that craft and trade related workers were the victims of deindustrialization and consequently their employment fell over the past decade.

As a result of the demand shift that has occurred over the past decade for high and low skilled occupations, *legislators, senior officials and managers* are now mostly employed in manufacturing; financial and insurance and information and communication activities. Their highest wages are earned from the financial and insurance activities (LE 1699/week). *For professionals*, the main employers are the education, manufacturing and financial and insurance activities. However, the financial and insurance activities offer professionals the best reward for their skills (LE 1126/week).

For low skilled occupations, *plant and machine operators and assemblers* are mainly employed in manufacturing; construction and transportation and storage activities, yet they can earn a higher pay by engaging in work related to financial and insurance activities (LE 994/week). Although workers in *elementary occupations* are basically employed in manufacturing; electricity, gas, steam and air conditioning supply activities and construction activities, their highest wages are earned from the financial and insurance activities (LE 1121/week), as well as, mining and quarrying activities (LE 886/week).

Due to supply shifts for middle skilled occupations over the period 2000-2009, *technicians and associate professionals* are now mainly employed in manufacturing and electricity, gas, steam and air conditioning supply activities. However, mining and quarrying activities offer them the highest wage relative to other economic activities (LE 769/week). *Service workers and shop and market sales workers* are mostly employed in accommodation and food service activities; manufacturing and wholesale and retail trade. The financial and insurance activities offer the best pay to these workers relative to other economic activities (LE 832/week); transportation and storage (LE 594/week). *Agricultural and fishery workers* are mostly engaged in accommodation and food service activities and work related to professional activities. Engaging in work related to professional activities provides them with the highest possible wage (LE 622/week). Although *craft and related trade workers* are mainly employed in manufacturing and construction activities, their best pay arises from their engagement in mining and quarrying activities (LE 1233/ week).

Skill demand polarization or “clustering around extremes” increases wage disparity, creating political tension and threatening the social fabric of the nation. Several measures of wage earnings inequality between the high, middle and low skilled occupations and among economic activities are checked such as the mean, median and the Gini coefficients.

The wage differential between high, middle and low skilled occupations could be used as a measure of the return to skill. It is worrisome to find that workers in elementary occupations with the lowest skill level (for example, domestic workers), receive the third highest real mean weekly wage (LE 365). Another concern is that the real mean wage of the low skilled occupations is 10 percent higher than that of the middle skilled occupations and only 62 percent lower than the real mean wage of the highly skilled occupations. These findings have two serious implications. First, the low skilled occupations are in high demand in Egypt. Second, the return to skill is relatively low discouraging investment in human capital.

Seven out of eighteen economic activities offer high real weekly wages relative to the mean (LE 376) and the median (LE 320), namely: financial and insurance activities (LE 957) ; mining and quarrying (LE 862); transportation and storage (LE 528); construction (LE 460); electricity, gas, steam and air conditioning supply (LE 426); professional, scientific and technical activities (LE 421) and water supply, sewerage, waste management and remediation (LE 379). Thus, the average weekly wage for all economic activities is pulled upward by the high wages offered by the relatively few activities whose employees have “high” earnings.

For high, middle and low skilled occupations, the value of the Gini coefficient in Egypt was 0.33 in 2009, indicating wage earnings inequality among different skill level occupations. Nearly 17 percent of legislators, senior officials and managers were employed in the financial and insurance activities, receiving 34 percent of the total real wage bill allocated to this

occupation's employees. Similarly, 8 percent of clerks were employed in the financial and insurance activities, receiving 22 percent of the total real wage bill allocated to this occupation. Less than 7 percent of professionals' total real wage bill was allocated to 24 percent of them who were engaged in educational activities.

For economic activities, the value of the Gini coefficient was 0.26 in 2009, implying wage disparity among workers in different activities. For example, while those employed in the financial and insurance activities represented 6 percent of total employment in 2009, their share in the total real wage bill was nearly 21 percent.

No single factor seems to be able to explain all- or even most- of the changes in the employment and wage structure. As possible explanations of polarization, most of the literature has focused on demand side factors, skill supply evolution and wage-setting institutions.

Potential demand-side explanations for job polarization point the causal arrows toward changes in employers' demands for skills. In the 1990s the idea of skill-biased technological change (SBTC) was used to understand the shift in employment towards more-educated workers. SBTC expects the spread of computer-based technology to increase the demand for high skilled relative to low skilled workers. Since capital and skills are complements, increases in the capital stock help increase the productivity of skilled workers and therefore their relative demand.

However, SBTC explanation has been challenged by the "routinization" hypothesis which argues that computers complement both high skilled analytical and low skilled interpersonal tasks, but substitute for middle skilled manual and clerical tasks. While machines cannot easily substitute for non-routine interactive tasks such as cleaning, located at the very bottom of the occupational structure, they readily take over the routine production and clerical tasks typically done in middle range jobs. Technical change is then expected to hollow out of the middle and hence to polarize the employment structure and wage structure.

An increase in the demand for more skilled workers may occur *among* and *within* economic activities. Among activities, the emergence of high-tech industries such as the computer software industry for instance may have increased the overall demand for highly trained workers. Within industries, responding to new technologies, manufacturing and service activities alike have expanded their use of computer-aided technologies in ways that require more educated workers.

Over the period 2000-2009, employment in service activities has increased dramatically relative to employment in manufacturing in Egypt. Several high-growth service activities, including financial and insurance activities; mining and quarrying; transportation and storage; construction; electricity, gas, steam and air conditioning supply; professional, scientific and technical activities and water supply, sewerage, waste management and remediation are high-paying activities, offering their employees a higher average wage than manufacturing activities. This tilt toward services and away from manufacturing has undoubtedly increased the demand for high skilled workers at the expense of middle skilled workers, contributing at least partly to polarization and increased wage differentials.

The notable retreat of the state as a leading employer with the private sector gradually assuming an increasing role in economic activity and job creation, might be expected to increase the demand for high skilled workers relative to the middle and low skilled workers. Egypt is no

exception. The traditional role of the government as employer of first choice, offering job security and good wages but not requiring qualifications sought by the private sector has retreated substantially. Many years of guaranteed public employment to secondary school and university graduates in Egypt came to an end. In consequence, the demand for high skilled workers has been increasing over the past decade.

Trade openness, measured as the sum of imports and exports as a percentage of GDP, is an important source of change in the job structure. The workers employed in the importing industries tend to be less educated, and the workers employed in the exporting industries tend to be well educated. Increased trade openness of the Egyptian economy over the past decade- with rising exports and even more rapidly rising imports- might be expected to have a beneficial impact on the demand for skilled workers and an adverse impact on the demand for unskilled workers.

FDI and trade in goods produced by unskilled labor in developing countries may need to be supported by high-skilled labor, such as managerial staff. Given the scarcity of high skilled labor in these countries, including Egypt, skill premia would react particularly sharply to trade and capital account liberalization.

Economic crisis might be expected to increase job polarization trends. Low skilled workers have less flexibility to protect themselves against shocks because they lack the ability to switch jobs and relocate in response to shifting demand conditions. As a result of an adverse economic shock, the employment and wage bill shares of low skilled workers may decline and polarization might be expected to decrease.

The 2008 global economic crisis has exacerbated the unemployment problem in Egypt through its adverse impact on growth, export earnings, government revenues and foreign capital inflows and may have contributed to job polarization.

Changes in the available supply of skills might result from changes in educational attainment or shifts in workers' willingness to participate in the labor market. Hence, a slow-down or acceleration in a country's educational expansion should affect its pattern of occupational change. Over the past decade, Egypt went a clear process of educational expansion whereby net primary and secondary enrollment ratios as a percent of primary and secondary school-age populations, reached 93.6 percent and 71.2 percent respectively. Gross tertiary enrolment ratio as percent of secondary school-age population reached 31.2 percent. Despite this educational expansion, 29 percent of Egyptian workers remain illiterates and 10 percent of them read and write only. University and post graduates represent 16 percent of total Egyptian workers.

Based on these changes in the workforce's skill composition, supply evolution of high skilled workers and young, inexperienced and less skilled workers has increased the proportion of high and low skilled workers to the middle skilled in all economic activities. Hence, job polarization in Egypt- with faster growth at the top and the bottom than the middle of the employment and wage structures- seems consistent with a supply-based explanation.

One possible explanation of job polarization stresses that in labor markets, demand and supply factors are channeled through institutional mechanisms. Changes in the minimum wage for instance, has an impact on polarization trends in the labor market. A relatively low minimum

wage- by making the creation of low-skilled jobs more profitable- does not induce firms to invest in workers' productivity nor create more medium- and high-skilled.

The minimum wage in Egypt is very low. Legally it is LE 35/month. Even after adding several bonuses and incentives, the minimum wage remains very modest standing at LE 305/month in 2008, representing 4 percent of per capita GDP only. A low minimum wage could be expected to contribute to the expansion of low skilled occupations and hence to job polarization in Egypt.

Identifying and acquiring the skills needed by the Egyptian labor market would improve the matching of job seekers with job vacancies and help in developing the education system and vocational training programs to properly allocate and employ the country's human resources.

By tracking and explaining changes in the employment and wage structure of 9 high, middle and low skill occupations in Egypt's 18 economic activities over the period 2000-2009, the research helps to identify the skills required by the labor market and the potential determinants of skill demand in Egypt. The results help inform policy makers and practitioners on how to develop the education system and the technical and vocational training programs to improve the matching between job seekers and job vacancies and reduce unemployment particularly among the youth and fresh graduates. Equally important, the results should help policy makers in designing and implementing a new wage policy for Egypt that strongly links wages to productivity and the cost of living for the benefit of the Egyptian population at large. The result will help achieve better allocation and employment of Egypt's human resources, hence improving economic efficiency and achieving more social equity.

Regression results for the wage gap indicate that a one percentage point increase in the supply of high skilled workers relative to the supply of low skilled workers reduces their relative wages and hence narrows the wage gap by 0.17 percentage points.

The coefficient of the real GDP was found to be insignificant, implying that the level of real income does not affect the wage gap significantly. One possible explanation for this finding is that the positive impact of real GDP contribution on the wages of low skilled workers in manufacturing activities and the wages of high skilled workers in mining activities even out, keeping the wage gap between high and low skilled workers nearly unchanged.

Growth of real GDP appears to widen the wage gap. A one percentage point growth in real GDP widens the wage gap by 0.2 percentage points. Growth in real GDP, mainly attributed to the contribution of financial and insurance activities, increases the demand for high skilled workers, raising their wages relative to those of low skilled workers.

The private sector mainly contributes to the value added in three economic activities (agriculture; accommodation and food services and manufacturing activities), which hire more low skilled, low productivity workers, whose wages are depressed relatively more than the wages of high skilled workers and hence widening the wage gap. Hence, the larger share of private sector activity is more compatible with larger employment of low skilled workers, relative to high skilled workers.

The results provide evidence that FDI inflows have a significant and positive impact on the wages of low skilled workers. An increase of 1 percentage point in FDI inflows helps reduce the wage gap by 0.07, implying that FDI inflows are helping increase the wages of low skilled workers, probably by enhancing their productivity. This evidence bodes well regarding the prospects of higher FDI inflows towards boosting social justice and narrowing wage disparity.

Based on the previous findings policy options are proposed as follows. Over the past decade, growth performance was disconnected from labor market performance. High unemployment and inequality proved to be major threats to macroeconomic stability. Hence, an inclusive job-rich growth strategy is needed whereby employment criteria are integrated in sectoral strategies, incentives for employment in the formal private sector are devised and the incentives structure which has led to capital intensity of investments is revised. Supporting economic activities with high job content such as manufacturing would lead to higher growth of employment.

Low productivity growth and low wages are serious impediments for employment growth. Improving productivity, the real measure of success, requires fighting illiteracy, developing the quality of education and training systems in a way that matches rewards with the costs incurred and upgrades middle skilled workers and having a national system of qualification and certification. Engaging the private sector in the development and execution of these systems is key to success.

Innovative policies that encourage progressive and gradual transition to formality are needed, possibly by facilitating access to formal finance for micro, small and medium enterprises (MSMEs), extending business development services and training and providing them with a better tax treatment.

Developing labor market institutions, for instance wage-setting mechanisms, should be coupled with policies that aim at enhancing labor productivity and aligning it with real wages, besides containing the informal activities.

Attracting foreign direct investment inflows (FDI), requires a stable and transparent business environment that addresses several labor market inefficiencies related to dealing with construction permits, enforcing contracts, paying taxes, closing a business and registering property.

3. Education, Innovation and Labor: Obstacles to Egypt's Competitiveness

In today's globalised world, a country's success is often measured by its competitiveness. Competitiveness, in turn, is closely related to the degree by which a country can simultaneously increase the real incomes of its citizens and produce internationally demanded goods and services in accordance with free and fair market conditions.

The World Economic Forum (WEF) defines competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country. Generally speaking, greater productivity levels result in higher levels of income, and higher rates of returns on investments. Because the rates of return are the fundamental determinants of the growth rates of an economy, a more competitive economy is one that is likely to grow faster over the medium to long run. As stated in The Global Competitiveness Report 2007-2008, the concept of competitiveness thus involves static and dynamic components: Although the productivity of a country clearly determines its ability to sustain a high level of income, it is also one of the central determinants of the returns on investment, which is one of the key factors that explain an economy's growth potential.

The WEF has been studying competitiveness of nations since 1979. The methodology used to assess national competitiveness evolved over time to take into account latest thinking on factors driving competitiveness and growth. Since year 2005/2006, the WEF introduced the Global Competitiveness Index (GCI), a highly comprehensive index for measuring national competitiveness that takes into account both microeconomic and macroeconomic foundations of national competitiveness. For years 2005/06 and 2006/07, the GCI was composed of nine pillars (institutions, infrastructure, macro-economy, health and primary education, higher education and training, market efficiency, technological readiness, and business sophistication and innovation). Starting from the Global Competitiveness Report of 2007/2008, some refinements were introduced to the GCI, including the number of pillars which was increased to 12. This was done by breaking down the market efficiency pillar to its three sub-components (goods, labor, and financial markets), which better demonstrates the various aspects of market efficiency and also by adding market size as one pillar as opposed to being a sub-component of the goods market pillar.

The GCI is composed of 113 variables, of which 79 come from the Executive Opinion Survey (EOS) carried out annually by the WEF. Those form part of the 12 pillars that make up the GCI. The pillars are grouped to calculate three sub-indexes.

The GCI is based on two key tenets. The first is that the determinants of competitiveness are many, complex, and open-ended. The second is that different pillars affect different countries differently. The best way for Egypt to improve its competitiveness is not the same as it is for Germany. This is because Egypt and Germany are at different stages of development: as countries move along the development path, wages tend to increase and, in order to sustain this higher income, labor productivity must improve. In the first stage of development, the economy is factor driven and countries compete based on their factor endowments, primarily unskilled labor and natural resources. Companies compete on the basis of price and sell basic products or commodities, with their low productivity reflected in low wages. At this stage of development, maintaining competitiveness hinges on the first four pillars.

As wages rise with advancing development, countries move into the efficiency-driven stage of development, when they must develop more efficient production processes and increase product quality. At this point competitiveness is increasingly driven by the pillars (5 to 10).

Finally, as countries move into the innovation-driven stage, they are able to sustain higher wages and the associated standard of living only if their businesses are able to compete with new and unique products (pillar 11 and 12).

The process of economic development evolving in stages is captured by the GCI model by attributing higher relative weights to those pillars that are relatively more important for a country given its particular stage of development (Table 1 shows the weights over the years). Countries are allocated to stages of development based on two criteria. The first criterion is the level of GDP per capita at market exchange rates. The second criterion measures the extent by which countries are factor driven. This is proxied by the share of exports of primary goods in total exports (goods and services). The assumption made by WEF is that countries that export more than 70 percent of primary products are, to a large extent, factor driven.

From year to another the number of countries covered slightly fluctuates depending on data availability, 98 new countries are added upon adequate completion of the EOS of each country. Egypt performance in the GCR has fluctuated from year to another. Egypt's rank has deteriorated over the years from 52 out of 114 countries in 2005/06 to 81 out of 134 countries in 2008/09. The exception was in year 2009/2010 when Egypt's rank improved by 11 positions. This improvement was re-adjusted in the following year 2010/2011 when Egypt returned to its earlier rank of 81. Yet, Egypt's score has almost remained stable circa 4 (the score ranges from 1 = lowest and 7= the highest).

The research investigates and quantifies the impact of labor, education and innovation on Egypt's competitiveness. The period of study is from 2005/06 to 2010/11. It is selected based on the fact that the index methodology was the same over the stated period (only minor modifications took place). The results highlight the status of Egypt's competitiveness (where would Egypt be) if some improvement took place in education, labor and innovation indicators occurred (scenario). Finally, the research explores the effects of Egypt's competitiveness, on real economic growth, and the underlying foundations of education, labor and innovation indicators.

Using panel data regression, the first stage identifies the factors that contribute to competitiveness and real GDP growth, relying primarily on the World Economic Forum Global Competitiveness data for the period from 2005/06 to 2010/11. The research compares Egypt to another 24 countries that fall in the same stage of development, as per The World Economic Forum's definition, that is factor driven economies in transition to efficiency driven. Major findings are that basic education, efficient use of talent, on the job training, and innovation are key determinants of competitiveness.

In the second stage of analysis, the research is focused on the relationship between real gross domestic product and a set of variables, including fiscal, monetary variables and the global competitiveness score. Major findings indicate there is a highly significant positive relationship between growth of GDP and both money growth and the global competitiveness score.

The third stage of the agenda focuses on the relationship between real GDP growth and key pillars that underlie the global competitiveness index: labor, innovation and education indicators. Major findings indicate that money growth, labor market efficiency and innovation impact real GDP growth positively.

The fourth stage of the analysis analyzes the relationship between real GDP and labor, education, and innovation variables in the Egyptian case, using time series analysis data for the period 1980 to 2009. Major findings indicate that public spending on education, government consumption as a proxy to government spending and patents negatively impact real GDP growth.

The results could be interpreted to attest the inefficiency and inadequacy of expenditures in these areas towards mobilizing growth. Also, youth employment affects positively real GDP growth. Hence, is the urgency to address structural inefficiencies in education and labor markets to avail more opportunities for youth employment.

Policy recommendations include the need to improve the quality and efficiency of the educational system, particularly at the primary level; to invest in training and the creation of employment, especially for youth; to facilitate patents registry and increase collaboration between the private sector businesses and universities; and to increase investments on R&D. The composite recommendations are to improve Egypt's competitiveness towards increasing growth and welfare.

In order to address this situation and to attain higher levels of competitiveness and achieve greater real GDP growth, Egypt should invest heavily in education, on the job training and innovation. Increasing the efficiency and actual expenditure on education and R&D is a priority. Addressing the chronic mismatch between the supply and demand in the labor market and employing the youth, especially those with vocational training and university graduates, is essential for greater productivity and output. Moreover, there is a need to reexamine labor market policies to allow for policies that are conducive to employment. Increasing female participation in the labor market, increasing the opportunities for qualified and talented labor and professionals to reduce the brain drain and reducing firing costs are all recommendations for a more flexible and efficient labor market.

Improving the capacity for innovation, whether by increasing the expenditure on R&D or by increasing the collaboration between industry and universities, and facilitating the patents registry and increasing the quality and quantity of scientists and engineers are all measures that will lead to greater innovation enhancement and would, in turn, lead to greater productivity and competitiveness.

At a time of change, removing the blocks that hinder the improvement of education, address labor market rigidity and mobilize innovation incentives should help achieve better quality of education, greater labor market efficiency and higher capacity for innovation towards greater competitiveness and higher growth. Indeed, if Egypt realizes a five percent improvement in its education, labor and innovation indicators, the country would surpass efficiency-driven economies, at par with innovation-driven economies and would, in turn, lead to a higher real GDP growth in the vicinity of 9.9 percent, thereby increasing the scope for greater employment and higher welfare.

4. THE ATTAINMENT OF DECENT WORK AND LABOR PRODUCTIVITY IN EGYPT'S: TEXTILE AND APPAREL INDUSTRY

In its 1998 "Declaration on Fundamental Principles and Rights at Work," the International Labor Organization (ILO) set out principles for the protection of the basic rights of workers (known as the *core labor standards*). These principles hinge on the freedom of association, the right to

collective bargaining, the elimination of forced and compulsory labor, the abolition of child labor and the elimination of discrimination in employment and wages. When subsequently highlighted in the ILO General Director's report to the International Labor Conference (1999), the principles have been translated into the decent work agenda (DWA). The agenda transcends basic rights to three additional domains, namely, decent employment and income, social security and social dialogue.

As such, DWA rests on four distinct pillars: (1) *fundamental principles and rights at work and international labor standards*: the promotion and realization of standards and rights; (2) *employment and income opportunities*: the creation of greater opportunities for men and women to secure decent employment and income; (3) *social protection/security*: the enhancement of the coverage and effectiveness of social protection for all; (4) *social dialogue and tripartism*: the strengthening of social dialogue in handling work-related issues. All four pillars, expectedly, bear positively on labor productivity, which, in turn, strengthens the prospects of achieving social and economic upgrading.

The study aims to assess the extent of DW attainment in Egypt's textile and apparel (T&A) firms and to evaluate its implications for labor productivity. The selection of T&A firms as case for study is partly driven by the engagement of many of these in global value chains (GVCs) governed by 'global buyers' either from the E.U. or the U.S. Such buyers have been known to impose stringent labor requirements on their suppliers, thus bearing directly on the latter's attainment of DW. Furthermore, T&A selection is underscored by the industry's share in the employment, output, value added and exports of Egypt's manufacturing industry. On average, over the period spanning 1995-2009, T&A has contributed more than one quarter of manufacturing employment, about one quarter of its exports, and one tenth of its output and value added, respectively.

The attainment of DW inherently includes capacity building through furthering employee skills, on-the-job technical and management-related training. Moreover, both descriptive and empirical studies have linked pillars of DW to labor productivity. Along *pillar one*, freedom of association, the right to collective bargaining, as well as the enterprise availing an internal mechanism for dispute resolution, all provide employees with viable channels for voicing work-related concerns, hence positively impacting their productivity. Similarly, the elimination of child labor (often found to crowd-out adult employment), the elimination of forced labor (perceived as a form of coercion) and non-discrimination in access to remunerative employment all yield positive effects. Moreover, the adoption of corporate codes of labor standards was often found to be associated with improvements in worker health and safety and in the provision of health insurance, benefits and legal employment entitlements such as minimum wage.

Along *pillar two*, safe and healthy working conditions permit employees to use their full capacity and potential for creativity and innovation. It also helps preempt risks of frequent stoppage and high employee turnover. Employee innovation and skill enhancement may be fostered by on-the-job training, thus serving as tool for improving future earnings. Finally, the formality of employment provides the stability which, in turn, promotes knowledge and skill accumulation. It also preempts the disruption of access to benefits, particularly pensions. Along *pillar three*, various pension schemes and health insurance coverage provide employees with security against old age hazards and build towards lower absenteeism. Along *pillar four*, dialogue enhances workers' commitment to their firm, hence facilitating the introduction of new technologies and

redesigning of the organization of the firm to the mutual benefit of both workers and entrepreneurs, hence of a positive effect not only on labor productivity, but also on total factor productivity.

The research identifies the pillars of DW which currently bear directly on enhancing labor productivity in T&A firms and those which still fall short of that target. The strategy designed to achieve such a goal is to use a sample survey of 50 T&A firms in Egypt each employing 50 or more persons, geographically located in governorates of high industry concentration in Egypt. Selection is driven by our belief that medium-to-large firms, as opposed to micro-to-small ones, are the ones more likely to seek DW attainment.

Sample firms were selected from a sample frame of 398 firms (source: CAPMAS Annual Industrial Survey 2009 and 2008/09 (for private and public sector firms, respectively)). The sample was stratified so as to reflect the geographical distribution of firms across the governorates of Egypt, as well as the public/private sector contribution to employment and value added in each governorate.

With the objective of eliciting both employers' and employees' views on the different pillars of DW, a total of 100 questionnaires are equally divided between these two groups in the sample firms. Thus, a questionnaire is addressed to the employer and an employee from each firm. Questions along each pillar are carved out from a host of macro DW indicators much discussed in the relevant literature. Questionnaire responses are descriptively analyzed, and subsequently used in an econometric estimation of the DW-relevant factors affecting labor productivity. The ultimate objective is to draw relevant policy implications for policymakers involved with labor legislation in Egypt.

Various studies have handled aspects of the above pillars of DW in the case of Egypt. However, none have attempted an assessment of the extent of DW attainment or of its relation to labor productivity. Moreover, carving out (from various macro-level DW indicators) pillar-specific questions to be addressed to both employers and employees at the firm level, the proposed study is expected to fill a gap in contemporary DW literature. It may also pave the way for developing a sector-specific decent work *pilot program* for the T&A industry in Egypt.

In terms of DW attainment, the descriptive presentation of employer and employee responses for pillar one (rights to work and labor standards) revealed there is some degree of freedom of association, slight male gender bias in pay and in access to top management positions, as well as slight bias on the basis of physical disabilities, but none on grounds of religion or political party affiliation. However, surveyed firms did not appear to be free of child or forced labor. For pillar two (employment and income opportunities and working conditions), both employers and employees showed concern over work strain and shared the opinion that wages fell short of sustaining basic worker needs and obligations. However, working conditions were generally regarded as "satisfactory." For pillar three (social protection), employer responses conveyed an evident misalignment between what was reported on the formality of employment in the surveyed firm and the pension scheme in place. But employees seemed to value the benefits granted to them in the form of transportation, daily meals and others. For pillar four (social dialogue), there was a general sentiment that a sound mechanism for dispute resolution appears to be in place and that strikes were a good venue for voicing concerns (mostly over insufficient wages and incentives).

In order of priority, the following pillars were perceived by employees as having greatest impact on their productivity: two, three, one and four. It seems plausible that working conditions and associated job hazards are an immediate concern for employees, followed by old age security (pensions) and various benefit schemes granted by their firms, with rights at work (freedom of association and others) and social dialogue following suit.

Surveyed firms have also exhibited a high awareness of the importance of both quality and labor-specific certification. Of these firms, the one that do export have acknowledged that exposure to international competition, their relationship with global buyers are stepping stones towards meeting high international labor standards. Moreover, employees perceived exports as having “severe” positive impacts on productivity due to their association with greater incentives, improvement in the work environment, provision of training and acquisition of skills.

The econometric estimation has revealed that the promotion of labor productivity relates to the freedom of association, the elimination of discrimination (whether on gender and physical disability basis), the work environment’s fulfillment of basic health and safety standards, and to strikes serving as venues for voicing worker concerns (mostly centered around wages, incentives, profit sharing, and possible early retirement). However, it cautions against the over-cushioning effect of social dialogue that may lead workers to shirk their duties and responsibilities, and also against the possible abuse of sick leaves as a form of social protection. Such effects may be pre-empted through tougher administration and supervision at the level of the firm.

From a DW perspective, it is evident that enhanced labor productivity is directly related to increased job satisfaction. Such satisfaction embraces the enjoyment of basic rights, assurance of non-discrimination (on basis of gender or otherwise), abolition of child labor, provision of work environment that meets basic health and safety standards and is physically conducive to better job performance, provision of benefits and incentives, provision of adequate pay and pension scheme, and the availability of a sound venue for voicing employee concerns-all building towards the mobilization of additional human capital in a more efficient production process.

Without committing additional financial resources, working on the above DW domains may enhance productivity and create cost advantages that bear directly on higher firm productivity. Through higher productivity, firms could afford to grow wages and employment, two key dimensions that are necessary to promote private incentives while addressing social concerns. Moreover, this may complement the efforts of Egypt’s current government to set minimum wage and address wage distribution issues. Further, it informs the ongoing debates on these issues as it sheds light on the importance of boosting productivity towards a satisfactory resolution over the minimum wage settlement, without hampering the key fundamentals of private-led growth. In conclusion, investing in conditions that boost workers’ productivity is a fundamental pillar towards growing private investment, growing jobs and raising the standard of living. Hence, higher productivity is at the core of addressing the underlying causes of deteriorating economic conditions towards achieving the goals of the January 25 revolution.

5. Wage- and Price-Inflation in Egypt: What are the common underlying macroeconomic determinants?

The research focuses on wage adjustment and its linkages with the macro economy in Egypt. The issue of wage adjustment is a critical one because wages constitute on the one hand, the main source of income for employees, and on the other hand, a major cost factor for employers. Further, wage dynamics cannot be separated from domestic price dynamics. Therefore, understanding how macro variables interact with nominal and real wages in the Egyptian economy will help in the design of both macroeconomic as well as wage-setting policies.

The process with which wages adjust may have various implications for the economy as a whole.

The research is focused on the relationship between wage adjustment and inflation. That is because inflation is one of the most important indicators of macroeconomic performance. Thus, in studying price and wage inflation and their linkages to the macro economy, the following variables are under investigation: *money supply* (to capture monetary conditions), *government expenditure* (to capture the effect of fiscal policy on the price level), and the *nominal exchange rate* (as it affects the local-currency value of imports, which then translates into the domestic price level).

The study attempts to answer two questions: (1) what determines nominal and real wage changes in Egypt in the public and private sectors? And (2) what are the macroeconomic implications of wage inflation, specifically in terms of inflation and its underlying determinants? To that end, the study is first dedicated to understanding the evolution of wages in Egypt. It examines the key factors that contribute to price inflation, and identifies how each of them affects nominal and real wage inflation. More specifically, this part explores to what extent changes in nominal and real wages rely on money growth, change in government expenditure, and exchange rate depreciation. The research analyzes the implications on the real wage level of aggregate demand to assess how the real wage level is affected by aggregate demand changes through their simultaneous effect on price- and nominal wage-inflation.

Each of the private and public sectors has its own unique characteristics, and it is expected that the wage adjustment process (and the macro implications thereof) would be different in each sector. Therefore, analysis will be conducted at the aggregate wage level, and also on the disaggregated level to examine private sector- and public sector wage dynamics.

Nominal wages in the private and public sectors in Egypt have generally been on a rising trend. The nominal wage level in the private sector was higher than that in the public sector up until 1995; both starting at LE 88 per week but after that the public sector wage took on a higher trend reaching LE 455 per week in 2009, compared to LE 297 per week in the private sector. Increases in nominal wages have been often described as “inflation allowances”. That is, nominal wage inflation generally comes after price inflation. It is also plausible to consider that nominal wage increases exert an upward pressure on prices. Thus, several crucial questions emerge: Is a wage-price spiral present in the Egyptian economy? Do changes in aggregate demand policies (fiscal, monetary, and exchange rate policies) affect nominal wages? In other words, what are the common macro drivers of price- and wage inflation? Further, do these macro determinants of wage and price inflation affect the private and public sectors in the same way? Finally, what are the implications for the real wage level in the private and public sectors?

The research traces the evolution of the private and public nominal wages against that of the consumer price index and then examines how real wages in both sectors behave. The objective is to evaluate whether price inflation is associated with nominal wage inflation, and whether it leads to the erosion of real wages in the public and private sectors. Further, the analysis considers variables that are likely to affect price and wage-inflation and their relevance to the developments of nominal and real wages in both private and public sectors.

Nominal wages in the public and private sectors have been moving in the same direction with close inflation rates, and drifted parallel to the consumer price index up until 1999. Subsequently, the nominal wage in the public sector started to move independently, out-pacing the inflation of the consumer price index. Similarly, real wages in the private and public sectors have been moving in parallel, being eroded by price inflation in most of the years up till 1999. The paths of real wages in the private and public sectors diverged after 1999, actually moving in opposite directions since 2003. Such divergence establishes the importance of analyzing each sector independently, as most fluctuations in the private or public wage series are ironed out in the “average aggregate wage” series.

The Literature on the “wage-price spiral” proves that wages are a central element of macroeconomic dynamics. The spiral may arise when firms try to increase their mark-up profits, or when workers try to increase their real wages, or when both firms and workers try to maintain the same price and wage in the face of a negative supply shock. If a wage-price spiral indeed develops, it will lead to “cost-push” inflation, and will in turn have an adverse impact on the economy’s growth rate through the effect of inflation on real money balances. Moreover, Blanchard points to the argument that an increase in aggregate demand would raise output and employment, which would induce firms to seek higher prices and workers higher wages. This again may start a wage-price spiral, and “demand-pull” inflation may set in.

The methodology is an empirical investigation of the relationship between wage- and price-inflation, while accounting for the determinants of inflation. The study investigates the long-run relationship between the variables of interest (using co-integration tests), and investigates the short-run dynamics (using Vector Auto-regression models (VECM)).

In the first step, a co-integration test evaluates the presence of a long run relationship between the Consumer Price Index (CPI) and the Nominal Wage. Subsequently, the empirical analysis turns to the impact on the nominal wage level of the various aggregate demand shocks that lead to a rise in the domestic price level. A vector-error correction model (VECM) is developed to obtain the responses of the nominal wage in the private and public sectors to shocks in: prices, money supply and the exchange rate.

Having detected cointegration among the variables of interest (namely the nominal wage in private and public sectors, domestic credit, the exchange rate of the Egyptian pound and CPI), the short run dynamics between the growth rates of these variables is investigated by examining the coefficients on the error-correction term in each equation of the VECM system.

The third step of the analysis investigates the impact of the various shocks on the nominal wage in the private and public sectors, building on the interaction between the growth rates of the

variables of interest. The dynamics of the system is examined using the Impulse Response Functions (IRF) and the Variance Decompositions that are generated from the VAR. The direction and shape of each IRF provides information about the behavior of the endogenous variables included in the VAR in response to the various shocks. The variance decomposition provides information about the main driver of the change in each variable. This helps identify the main drivers of changes in real wages and prices. On the other hand, this technique helps detect any possible effect of changes in real wages and inflation on the other variables included in the VAR.

Based on the estimated cointegrating vector, a rise in the nominal wage in both private and public sectors, as well as a depreciation of the Egyptian pound (*vis-à-vis* the US dollar), and an increase in net domestic credit are all associated with a higher level of Consumer Price Index in the long run. On the other hand, a higher real GDP level is associated with a lower Consumer Price Index, attesting to the impact of supply expansion in reducing inflationary pressures.

Major highlights of the Impulse Response Functions (IRFs) and Forecast Error Variance Decomposition (FEVD) are as follows:

- Nominal wages in the private and public sectors demonstrate some "stickiness" upon a CPI shock. This indicates that nominal wages do not adjust immediately to a domestic price level increase, which implies an erosion of the real wage in the short-run, before the nominal wage later starts to adjust to the price shock.
- The IRFs show that the nominal wages in both private and public sectors start to adjust to a price shock starting from the second forecast period. It is noteworthy however that the nominal wage in the public sector seems to make a larger adjustment, compared to that of the private sector wage.
- On the other hand, the IRFs that depict the time path of nominal wages to real GDP show that the private sector wage is more responsive, and more tightly linked to real output shocks, as compared to the public sector wage, implying more incentives to adjust wages in line with productivity in the private sector.
- The FEVD also shows that real GDP innovations are relatively important in explaining the variation in the nominal wage in the private sector.
- By contrast, the FEVD shows that the variation in the nominal wage in the public sector is not explained by real output innovations. Instead, innovations in net domestic credit, and in CPI, reflecting the importance of domestic financing to sustain the growth of wages in the public sector in order to catch up with inflation. Further, wages in the private sector have a spillover effect on the public sector nominal wage. In fact, towards the end of the forecast horizon, innovations in net domestic credit becomes the most important source of variation in the nominal wage in the public sector. This indicates the association between the rising public sector wage bill along with rising domestic credit issuance and the continuous need of the government to finance higher wages by issuing domestic debt.
- FEVD shows that the variation in CPI remains largely explained by its own innovations as well as those of the nominal exchange rate and real GDP. Innovations in the private and public nominal wages are relatively less important sources of variation in CPI, but are certainly non-negligible.

Overall, the evidence indicates the determinants of persistent high inflation in Egypt. The continuous increase in the cost of imports in the face of currency depreciation and high growth of domestic credit to accommodate a larger fiscal deficit have sustained high inflation. The spillover effect to wages has maintained the spiral of higher inflation and the feedback to wages. Wage policy in the public and private sectors provides a sharp contrast.

The public sector wage policy has been targeting higher adjustment of wages to keep up with inflation. In contrast, private sector wages appear less flexible to insulate workers from inflationary shocks and more responsive to growth indicators. The difference reflects more efficient wage policy in the private sector.

The results help inform policymakers who are responsible for wage-setting regulations. Further, the evidence regarding wage adjustments, determinants and consequences, is relevant to the ongoing debates regarding cost of living, social equity, and wage policies, both in the public and private sectors. Tying wages to the price level is at the heart of the ongoing debate around raising the standards of living. A worker's purchasing power should not be eroded over time. While this is important for social purposes and for maintaining the "incentive to work" that the wage should provide, adjusting wages to the price level without a corresponding increase in productivity may have negative implications for the economy. On the other hand, changes in nominal and real wages certainly bear consequences for the macro-economy. The results identify the possible effect on the economy of changes in the nominal and real wages. That is, by identifying the response of the money supply and exchange rate to shocks to the nominal and real wages.

The contrast in wage adjustments in the public and private sectors should be carefully evaluated in the design of wage policies towards achieving more social justice and higher employment growth post the January 25 revolution. Automatic adjustment of wages to inflation is bound to create further inflation and erode incentives for higher growth. In contrast, growing wages in line with productivity is bound to increase incentives to create jobs and mitigate inflationary pressures towards achieving higher standard of living and increasing welfare.

6. Exploring Public-Private Wage Differential in Egypt: What is the Reality?

During the past decade, Egypt has been divided between two opposing factions with regard to the importance of the private sector in economic development relative to the public sector. Indeed after the first phase of reform in the 1990s –a phase that included privatization of a lot of public enterprises, serious evidence of corruption and layoffs of employees (that were persistent over the years) gave an impression that the private sector and the privatization process were processes for the well off to get richer at the expense of poor labor. Of course, the regime change after 25th of January and the apparent wide corruption practices among the private sector elite – especially those who were connected to the government- has fueled such a debate in favor of a greater role for the government in the economy especially on the employment issue, at the expense of the private sector.

In addition, throughout the past years, Egypt has been divided into two economies running closely but uncorrelated with each other, namely, the formal and the informal economy. While the informal economy was widely assumed to have contributed to the suppressing of wages and to have been the major employer in Egypt till recently, the private sector in the formal economy was widely thought to be the dream of every Egyptian given its relatively higher wage than the government or the public sector.

The paradox of the positive or negative role of the private sector was, however, more dominated by the negative views cast by various economic papers that suggested that the empirical evidence favored the public sector over the private sector in terms of wages. Even though the dream of a secure and well paid job in the private sector became at stake, that evidence of public wage premium was shown to be persistent even after the end of the government wage scheme in the 1990s and until 2006. Clearly, if this evidence is added to the wide view of corruption and theft of Egypt's land and resources by the few elite, any future development that is based on a greater role for the private sector will be under harsh skepticism. And because theory and country experiences suggest the counter view –that the private sector has a positive role in economic development, it became important to investigate the public- private wage differential in Egypt.

The relation between public and private wages is complex. On one hand, economic theory is not decisive about factors that primarily affect wage determination in both sectors. Many models have studied this relation and it appears that the appropriate model differs from one context to another. On the other hand, each of the two sectors has a number of characteristics that distinguishes it from the other one. Moreover, while private wages are generally perceived in the Egyptian context to be higher than public sector ones, previous empirical evidence suggests that public pay in Egypt is higher than the private pay. Data at both the macro and micro levels confirm this relation. This is true for virtually all economic activities.

In addition, the literature that treated the question of public-private wage differential has reached the same finding, emphasizing the difference in education levels between public sector employees and private sector employees. But this also was intriguing: why was the level of education in the public sector higher? Theory suggests the opposite because the private sector seeks high productivity and hence seeks to employ highly educated and highly skilled people while the public sector relies on a different institutional setup where high productivity is not a priority target. Some mentioned that the guaranteed employment scheme skewed the composition of public sector employment toward more graduates. This scheme attracted graduates and post-graduates more than other education levels because they were confident to find a job in the government even if they waited in the queue for several years.

Using the 1998 and 2006 labor surveys, previous research found that there existed a public wage premium for males and females in both surveys. The differential has even increased in 2006 compared to 1998. Even after correcting for differences among workers in the government, the public enterprise sector and the private sector, the gap between the government and the private sector and between the public enterprises and the private sector remains positive for males and females, except for the government-private sector differential for males where it is close to zero.

As these results clearly contradict economic intuition and do not specify why there is a public wage premium, the research draws on the previous literature and raises two questions: first, is the observed public wage premium in Egypt a reality? In this regard, the study analyzes the effect of

informality in the private sector on the public private wage gap. And second, what are the factors affecting wage determination in each sector? More specifically to what extent is wage determination efficient in each sector, i.e., is based on elements that reflect productivity, namely experience, education and skills. Efficiency is based on elements that reflect productivity, namely experience, education and skills, employing the Egyptian Market Labor Survey (ELMPS) 2006.

To that end, the research provides in-depth analysis of the characteristics of employment in the public and the private sectors. Wage regressions are based on the human capital model. Their aim is to show whether wages in each of the two sectors are based on efficiency variables, i.e. experience, education and skills. After controlling for sample selection bias, these regressions are run for the public, the private, the formal and the informal sectors separately. This helps to show whether the observed higher wages in the public sector are due just to a higher educational level in that sector or to a higher efficiency, i.e., a higher productivity level.

There are important differences between labor composition in the public and private sectors. Most importantly, the dominance of informal activity in the private sector leads to differences in educational levels and occupational posts. When such differences are taken into account, the public-private wage differential disappears or even changes in sign, in some cases. The findings are based on non-parametric tests for mean wages, controlling for as many workers' characteristics as possible. To that end, the data are disaggregated for each of the following sectors: government, public enterprises, private domestic sector, private informal sector and foreign and joint-venture sector.

Major findings are as follows. The public wage determination process does not reflect higher economic efficiency but it is rather due to institutional and political reasons. Wage variations in the public sector are not based on education. It is common that wage variations in the public sector are tied to seniority which can be reflected by experience. Conversely, the evidence for the private sector shows an effect of education on wages. Most of the observed gap between public and private sector wages is attributed to the larger share of informal employment in the latter.

A decline in public sector employment, coupled with reluctance of the formal private sector to absorb the increasing supply of university graduates seeking employment, may shed some light on rising unemployment among this class. Furthermore, since the informal sector does not base its wage schemes on educational attainment; university education has become a measure of a higher social standard rather than an investment in human capital that is well paid off, compared to intermediate education like vocational training.

In addition, official figures show that the increase in employment during the past years was mainly in the informal sector, which is likely to suppress wages and growth in the long term. That could be a reason behind the failure of the ongoing economic reforms in favor of private-led growth to achieve sustainable development for the poor.

Since private formal sector wages are higher, on average, than those of the public sector and private informal wages, policies should be aiming at increasing incentives and decreasing the cost of formal employment in the private sector. The scope for higher employment is much wider in the private sector and the potential to grow wages in line with productivity should be key to

increase social justice and raise the standard of living for a larger segment of the population to reap the benefits of higher growth.

Investing in and upgrading education quality-including technical education- should help achieve an efficient wage policy towards mobilizing additional supply of skilled labor that could be absorbed in economic sectors with high job content, like the manufacturing sector, an engine for the future growth of the Egyptian economy.

7. Labor Market Flexibility in Egypt: With Application to the Textiles and Apparel Industry

In light of high and persistent unemployment rate in Egypt, which stayed above 8% for the last two decades, reaching 9.4% in 2009, the paper identifies the effect of labor market rigidities on the performance of the Egyptian labor market towards increasing flexibility of the labor market. If higher flexibility is achieved, job creation will increase.

Besides persistent unemployment, under-employment and reliance on the informal economy are also key features of the Egyptian labor market. The total employment in the informal non-agricultural private sector represents 52.9 percent in 2009, despite the introduction of the new labor law no. 12 for 2003 (CAPMAS, 2009). In addition, the unemployment rate in Egypt is not faring well across middle income countries while, on the contrary, it is fairly below that of other MENA countries.

The most observable causes of unemployment are demographic pressure, skill mismatches, inefficient public sector and labor market rigidities. Despite high growth rates, the unemployment rate remained persistently high indicating that the problem is largely structural and will not be solved solely by a mere increase in output growth without deliberate efforts to address key structural impediments to increase the job content of real growth. Moreover, the concentration of unemployment among the youth and educated (the unemployment rate across those with tertiary education is 32 percent) suggests that any solution will need to involve greater labor market flexibility and educational reforms.

The research focuses on the effect of labor market rigidity on firms' employment growth in the textiles and apparel sector. Labor market rigidity is a major problem for the Egyptian economy, constraining the flexibility of firms' performance in response to changes in the economic environment. Governments usually enact labor laws to protect both workers and employers' rights. However, these laws sometimes create labor market rigidity that hinders firms' performance. As evident in the Global Competitiveness Report 2010/2011, Egypt ranks 76 and 128 out of 139 countries in hiring and firing practices and the firing costs respectively (i.e., high social security payments, severance payment, notice payment requirements, pressure for higher wages through strikes or other channels). Due to this rigidity, firms do not formally hire employees during economic upturns to avoid layoffs and associated costs during downturns or negative shocks. This increases the unemployment rate especially among youth (figure 5) and women (19.3 percent compared to 5.6 percent across males in 2008) and increases the informal employment. Hence, the overly protective hiring and firing regulations designed to protect workers have instead discouraged firms from hiring formal employment, which weakened the demand for labor.

Labor market flexibility refers to the speed with which labor markets adapt to fluctuations and changes in society, the economy or production. Institutional factors, including the legal and regulatory framework, directly shape the degree of labor market flexibility. The latter can be distinguished into three categories namely numerical, functional and nominal wage flexibility. First, numerical flexibility refers to the adjustment of the labor quantity according to the production plan in the firm, through hiring/firing employees or adjusting the working hours. Second, functional flexibility is the extent to which employees can be transferred to perform other jobs or tasks within the firm. Finally, nominal wage flexibility indicates that the employee's wage can vary according to his performance and according to the firm's production plans. This means that the wage levels are not decided collectively. In general, the research aims at identifying the effect of labor laws and institutions on these three dimensions of labor market flexibility.

In this context, the research analyzes the effect of labor market rigidity on firms' performance, particularly its effect on employment and output. It also identifies the effect of labor laws and institutions on the three dimensions of labor market flexibility, namely numerical, functional and wage flexibility. The analysis covers the Egyptian textiles and apparel industry which has been chosen due to its high employment intensity (employs 24% of total manufacturing employment) and high exports level (20% of total manufacturing exports).

The analysis employs a firm-level survey specifically conducted for this project, including a total of 75 textiles and apparel firms. The survey is conducted in 6 governorates, namely Cairo, Giza, 6th of October, Sharqeya, Gharbeya and Alexandria. The sample is distributed over small, medium and large enterprises as 39, 10 and 26 firms respectively and includes both public and private enterprises (i.e. public, 13% and private 86% of total sample). Hence, the survey data will be analyzed on three dimensions: according to the geographical region, size of the firm, and ownership structure.

Regarding ownership structure, private firms are more affected by rigid labor regulations than public firms. In addition, there are significant differences across size categories. The burden borne due to labor market rigidity is higher for small firms than for medium and large firms. This means that the regulations have a significant adverse effect on small firms in light of their high share in employment. This indicates the importance of addressing the burden of labor regulations on different firms; the laws' encumbrance could be tailored to the needs of different firms of heterogeneous size and ownership structure.

The evidence sheds light on variation in the effects and the burden of labor regulations on different players (employers and employees) in the economy. It also identifies how these rigid regulations affect employment growth. In doing so, the output identifies the most cumbersome regulations and what are the feasible options to solve them. As evident, higher flexibility of hiring and firing in the labor market will help increase total employment growth which has been significantly lagging real growth. Hence, priorities should be focused on policies that could be targeted to ease the rigidity of the labor market in light of survey results and econometric analysis.

Despite potential gains in total employment, labor unions and workers are opposing the change towards flexible labor markets. Since, these gains in total employment would be achieved through higher rates of hiring, but could involve higher rates of termination. This might explain

why there is substantial opposition to labor reforms from workers and their unions. They are afraid of the short term effects of flexible labor markets and can't depict the predicted gains on total employment in the long run, if more flexibility is introduced.

In view of the current circumstances of high unemployment rate, the role of the labor unions in protecting job security should be reconsidered. To that end, the evidence contributes to this debate. Hence, finding a solution to the dilemma of how to strike a better balance between employers' and employees' concerns towards increasing employment is timely for the ongoing policy debate of reforming labor market rigidity in Egypt. It is crucial to develop labor unions that channel labor demands in a peaceful manner in order to achieve the best out of the increased flexibility in the labor market. Social dialogue is an important element to guarantee work stability and employees' satisfaction while availing effective intermediaries and essential institutions for the functioning of flexible labor markets.

In light of country comparison, Egypt's hiring and firing regulations, and other employment benefits, are too generous to employees and burdening employers. The relevant rates should be revisited to strike a better balance between workers' rights and flexibility of doing business.

The new social security law, which reduces contribution rates, bodes well towards increasing the compliance rates, which is expected to have positive effects on the government and the private sector. Through higher formalization, more jobs can be created which carries the potential of increasing government revenues. It is important to press ahead with the implementation of the law which has been ratified by the parliament.

While it is important to reconsider the minimum wage level in Egypt, which is very low, proposed adjustments should proceed gradually. Moreover, flexibility in setting the minimum wage should consider workers' productivity and the demand for qualifications to avoid adverse effects in the form of higher unemployment and inflationary pressures.

It is important to increase awareness of regulations that aim at increasing flexibility in the labor market. The awareness campaign should educate both firms and workers about the pros and cons of implementing these regulations. Further, the role of labor market intermediaries should be more effective, by strengthening labor unions, and reinforcing the role of the National Council for Wages.

Given variation in the implication of rigidity on employment by size and ownership, regulations should be better tailored to accommodate the specifics of heterogeneous firms. Mobilizing additional employment in private small and medium enterprises, which carries the largest scope of mobilizing large employment in the short-term, requires relaxing rigidity governing hiring and firing rules in the labor market. Investing in active labor market policies is better than holding on labor market rigidities in the name of job security that has been proven to have devastating effects on the ability to mobilize jobs, even in a growing economy. It is important to strike a sustainable balance between short-term concerns about social justice and long-term vision for economic growth.

8. Why Does the Productivity of Education Vary across Individuals in Egypt? Firm Size, Gender and Access to Technology as Sources of Heterogeneity in Returns to Education

Macroeconomists generally include human capital in their growth regressions or growth decomposition exercises. Initially, the years of schooling were used as a proxy for the construction the human capital. Given the limited success of this variable explaining growth, economists began focusing on the quality of education. Hence, the returns to investment in education became a central element for growth analysis.

The Egyptian educational system is a maze through which students navigate towards the labor force. Along the way, students are sorted into groups at different stages. The first stage, basic education, is compulsory and takes 9 years to be completed: 6 years of primary education and 3 of preparatory level. After finishing this stage, individuals who wish to pursue secondary education are sorted into three possible categories: the general secondary education (3 years), the 3-year vocational education (with specializations in agriculture, industry, or commerce), or the 5-year vocational education. Those that graduate from general education and wish to continue into higher education are sorted again into university (4-year or 5-year programs) or into post secondary technical institutes (with programs from 2 to 5 years). Graduates of 3-year vocational education can also pursue their studies in post secondary technical institutions. University graduates can further pursue their postgraduate studies.

There are relatively few studies that examine the rate of return to education in Egypt. Most studies calculate a rate of return for each level, allowing for gender heterogeneity. The research measures the rate of return to investment in education in Egypt. While most studies use an average rate of return for a country it is possible that rates of return differ across groups of individuals. While there are a few studies that calculate different rates of return for males and females in Egypt, this research explores heterogeneity beyond the gender aspect. First, returns may vary depending on the specific educational path followed by the individual.

The Egyptian education system is a complex scheme in which the individuals are sorted into different groups at different stages. Hence, returns to education may vary according to the specific educational path. The research also explores the possibility that returns to education differ according to the size of the firms where the individual works, or with the individual's access to technology. Returns to education across different types of firm sizes may be due to different productivity levels across types of firms, or because large firms pay higher wages. And finally the paper explores the possibility that returns to education depend on the level of technology the individual has access to. The objective is to get insights into why does the productivity of education vary across individuals.

There are heterogeneous rates of return, depending on the specific path into which the individual is sorted. Individuals that are sorted into the general secondary-university path earn higher rates of return to education, which could be perpetuating social inequality. However, firm size, gender and access to technology are the main sources of heterogeneity. The biggest difference between rates of return for the same level of education was attributable to access to technology, as the rate of return could be two to four times larger for individuals with access to computers. The results highlight the importance of modifying education curriculum to increase access to computers in schools.

Returns to education increase with the education level. Also, returns for female education are higher. These results confirm previous findings for Egypt. Further, returns to education increase with firm size. By firm size, there are also differences in the returns to on the job training.

Workers with formal labor contracts earn more. The premium of the private sector, relative to government wages, varies by gender. While males in the private sector earn a 25% premium, compared to government employees, females in the private sector earn the same as in the private sector. The premium provides incentives for females to wait in queue for a government job, increasing female unemployment.

The regional wage premiums have decreased significantly or disappeared over time. In 1998, workers in Cairo earned a premium of 10%, relative to workers in Alexandria and canal cities, and 17%, relative to Upper and Lower Egypt. However, the most recent labor market survey in 2006 shows the first premium is not significant while the second premium has decreased to one half.

In conclusion, education does not pay off in Egypt as evident by declining rate of return. Hence, unemployment increases with the level of educational attainment and the coefficient of variation of wages decreases with the level of education. Exploring these puzzles demands a thorough review of education policies towards closing the gap between demand and supply in the labor market and restructuring spending priorities to ensure higher return on educational attainment.

9. Wages and Employment Effects of Minimum Wage in the Egyptian Public Sector

Minimum wage has become a hot issue in Egypt. Recently, the government has been discussing the minimum wage reform to regularly adjust the minimum wage (MW thereafter) to protect its value from deteriorating over time, while accounting from the poverty line, productivity, average wage, and inflation rate. The discussion has become even more critical after the 25th of January revolution that calls mainly for social equity. The problem in Egypt is that in 1984 the minimum wage was set at 35 Egyptian pounds (L.E.) per month and has been at that level till now. When the minimum wage legislation was introduced in 1984, it represented 60 percent of the GDP per capita, and it went down to only 4 percent in 2008. On the other hand, the share of the de facto minimum wage (305 L.E.) to GDP per capita decreased gradually from 66 percent to 35 percent in 1985 and 2006, respectively.

Raising the minimum wage level is usually accompanied by controversial views from the economic and social perspectives. The proponents of minimum wage claim that low wages are partly responsible for low productivity of Egyptian workers, as they are not financially motivated to exert the required level of effort. Also, in a developing country that suffers from high poverty rates and low wage levels, a high minimum wage work on reducing poverty and securing a stable standard of living. In addition, a developing labor market will probably be noncompetitive. Thus, setting a minimum wage between the current and the competitive wage level could foster employment level and economic activities. In contrast, opponents argue that wages must be determined by market forces without any government intervention, as setting wage floor would put a financial burden on the government and private businesses. This will have adverse effects on employment according to traditional economic theories.

To assess the wage and employment effect of minimum wage, the research estimates two equations for wages and employment. The increase in minimum wage increases average wage,

but has a negative effect on employment. Results are robust for the wage equation by gender and across different economic activities. The employment effect was insignificant for some economic activities. Real average wages in construction and social services sectors are more elastic to changes in the minimum wage, compared to other sectors. Also, surprisingly, employment in the social services sector was always growing regardless of the minimum wage level. Based on estimation results, raising the nominal minimum wage from L.E. 305 to L.E. 660 monthly is predicted to reduce employment by 31 percent while increasing the average wage by 75 percent.

The 31 percent decline in employment is enormous, especially in an economy that has a long history of high unemployment rates like Egypt. Therefore, the government might consider other policies to raise average wages without such huge impact on employment levels. For example, the percentage of government expenditures that will finance the increase in the wage level following the minimum wage increase could be used to introduce more effective educational system that will automatically increase the rate of return to education. Nevertheless, the fruits of the latter scenario will be harvest in the medium-term.

Moreover, when studying the minimum wage policy, one should not only consider the covered sectors but also the uncovered and incompliant sectors to minimum wage policies. The classical two-sector competitive model argues that those who will be priced out of the covered sector will join the uncovered or noncompliant sectors, thus increasing labor supply and reducing wage levels in these sectors. Although the introduction of higher minimum wage could pull a number of people above the poverty line by raising their earned incomes, it might also push others below the poverty line if they become unemployed.

One way to limit the adverse impact of minimum wage adjustment policy, while ensuring the achievement of the targeted aims, is to introduce multiple minimum wages, instead of a universal one. The experiences of a number of developing countries and the results of the research regarding diverse wage and employment effects advocate the need for variation in the minimum wage based on gender, skills, location, age, the inflation rate, the poverty line, and the specifics of economic activity regarding productivity, the share to GDP and the sector's growth rate.

Furthermore, the persistence and intensity of the impact of the minimum wage on wage and price inflation as well as employment growth is an important dimension to explore. Striking a balance between the negative impacts on employment and inflation over time and the positive effect on wages in the short-term is a very delicate balance to ensure that raising the minimum wage is a rational economic decision for employment growth and social justice.

Moreover, when studying the MW policy, one should not only consider the covered sectors but also the uncovered and incompliant sectors to MW policies. The classical two-sector competitive model argues that those who will be priced out of the covered sector will join the uncovered or noncompliant sectors, thus increasing labor supply and reducing wage levels in these sectors.

In the Egyptian private labor market, a number of scenarios could come up. On one hand, if the private sector complies with the MW policies, the wage and employment effects might be similar to what was found in the public sector provided that real average wages and productivity levels are alike in both sectors. On the other hand, if the private sector doesn't comply, the priced out

workers from the public sector will queue in the private or the informal sector; thereby, reducing the average wage in these sectors.

Furthermore, the persistence and intensity of the impact of MW on wage and employment is an important dimension to explore. If the negative employment effect and inflation lasts in the long run while the wage effect ends in the year of the MW adjustment, any positive wage effect could be out-weighted by the growing unemployment rates. Thus, if the unemployment effect is intense and its duration is long, higher MW won't be a rational decision and would harm the economy.

10. Labor Employment Practices of Informal Establishments in Egypt: Decent or Indecent Proposal?

In developing countries, informal employment accounts for half to three-fourths of non-agricultural employment. Its incidence in the industrialized countries is rising at an even faster pace. But attempts to study this phenomenon collide with obstacles such as lack of universal definition, measurability difficulties, and varying approaches to address it.

First, the literature is hands-full of definitions on informality. Some use qualitative vs. quantitative criteria (e.g. number of employees, value of assets, and sales turnover) functional definitions (complimentary relationships); operational or plurality criteria; empirical including size, and legal status; while others come from the relevant discipline such as economics, sociology, anthropology, etc.). There is no universal definition for the informal sector despite of global attempts by the International Labor Organization (ILO) since 1993 to date which have not borne fruition.

Second, an ILO study issued in 2002 showed that, in Egypt, informal employment as a percentage of total non-agricultural employment stood at 55% (46% for women and 57% for males). In addition, Egypt assumed the second-on-the-list after Tunisia when it comes to the percentage of the informal economy to GDP (1990/2) arriving to 35%. Not only that, different parties in Egypt (e.g. CAPMAS, IDSC, UNDP, WB, Ministry of Housing, Ministry of Local Development, and the former Ministry of State for Economic Development) have numerous scales for the size of the informal economy (either for settlements and/or population), quoting a recent study by GTZ (June 2009). Thus, despite of its enormity many of its features, especially labor employment practices and work decency remain unknown.

Third, two schools of thought dominate methodologies for addressing the informal sector phenomenon. On the one hand, a number of both developed and developing countries moved towards the formalization of the informal sector in order to mitigate a series of economic (macro- and micro-economic), social, and political maladies. For example, Germany, the Netherlands, Spain, Sweden, United Kingdom, France, Peru, and Ecuador went along this route. On the other hand, stood in contrast adopting *laissez-faire*, *laissez passé* approach were Kenya, India, Columbia, etc. Some of the measures taken in the direction of formalization ranged from tax waivers to imposing light-handed labor regulation. Country cases which moved towards formalization were found to realize better outcomes compared to those who nurtured the growth of the informal sector. In common, both strategies imposed lacked an integrated approach to handling the informal sector, and to addressing the needs of businesses and workers. They

adopted, as well, piecemeal measures that did not represent the voices of the disenfranchised, highly vulnerable brackets of the society, especially women and children working in the informal sector.

In Egypt, galloping unemployment (23% for females, 7% for males, and 11% in total in 2003) and corruption (or better said, lack of sufficient governance rules), were of the main triggers of the 25th of January 2011 revolution. All in all, Egypt's labor market faces persistent rigidities in hiring, firing, work schedules, employment, fringe benefits compared to OECD and MENA averages (WB and IFC 2004). Although considered as a fairly flexible employment environment compared to other regional peers, Egypt's labor market suffers from retracted productivity levels, growing population of unskilled labor, deteriorating quality education to serve a shrinking supply of jobs created, and hence an amenable environment for absorbing displaced, unemployed and underemployed Egyptians cascading into growing poor population which lacks the basic rights for a decent work environment. Such a vicious circle is likely to hamper securing a sustainable quality living for all Egyptian men and women, a major goal and aim of the nascent 25th of January Revolution.

The research on labor employment practices of informal establishments in Egypt takes into consideration all aspects mentioned above. In other words, according to CAPMAS, 96% of informal establishments in Egypt are micro- and small-enterprises, which operate in informal impoverished areas. In a generally male-dominated society, the employment tilt is towards males against females who are mostly household caretakers at the time when the bread-winner harnesses his rent-seeking function. Income disparities favor males and work against female economic empowerment towards the traditional role of bringing up children and dealing with unpaid housework. Recently, this trend is reversing under the weight of the financial crisis and economic pressures overall, leading many females to own-and-operate their micro- and small-informal ventures in the 3 main sectors of economic activity (manufacturing, trade and services). Informal establishments are part and parcel of the private sector, yet they lack one or more of the legal requirements which render them fully fledged legal entities. By their very nature, informal establishments are closely tied to their communities as they are established in highly dense informal settlements where transport cost-savings are guaranteed. The unemployed youth find a safety haven in informal sector employment, taking into consideration that Egypt's labor market does not offer unemployment compensation for the time being (see new Insurance Law 135/2010). Backward and forward linkages are required, and representation and voice through civil society's advocacy is nonexistent currently. What is the current position? What to do? How to migrate from the current position to a better one? Those, among others, represent the main crux of this research.

A couple of seminal studies funded by United States Agency for International Development (USAID) in 1999 and 2004 affirmed the merits of formalization for the poor. The elaborate studies were performed jointly by the Egyptian Center for Economic Studies (ECES), the renowned Hernando de Soto and the Peruvian Institute of Liberal Democracy (ILD). The latter study was completed on the request of the GOE (the then Minister of Finance, Medhat Hassanein). The enthusiasm of the GOE in the person of the former PM (Atef Ebeid) led to the formation of a cross-ministerial corpse to implement its recommendations. Valuable as it may be, a ministerial shuffle has revamped the new government's priorities (now former), and the policy recommendations that were of institutional nature brought them to a stall. Since then, the

informal sector continued to create jobs for much of the unemployed for the mere fact that they cannot afford to stay unemployed due to discrepancies and irregularities in the current social safety net. Those employed or under-employed in informal establishment are, also, deprived from appropriate investments in people and realization of their inventiveness due to technological, financial and other rigidities/constraints which continue to persist due to lack of support. This indecent work environment which is surrounded by health hazards, employs child labor and disintegrates women from the labor force is bidding revival in such critical time in the economic, social and political life of Egypt.

An exploratory approach using a survey tool is used to identify the features of informal employment. Drivers tested on the micro-level will have implications on the contribution of informal employment to the macroeconomic level. To that end, the research identifies and defines the most significant macroeconomic and microeconomic variables that affect employment in the informal sector (e.g. profitability, capacity & skills building, skill level, education level, corruption, productivity, degree of inventiveness & innovation, wages, salaries & incentives packages, cost of hiring and firing, social security, insurance and unemployment compensation, type of employment and legal rights, push & pull factors to informality, role of civil society institutions, effect of economic shocks on performance and employment).

The research follows a sample survey to test labor employment practices in informal establishments while taking into consideration target groups (micro- and small-enterprises, the size of sample (entrepreneurs vs. employees), establishments size (micro- vs. small-enterprises), sectors of economic activity (manufacturing, trade, and services), and gender distribution (male vs. female). The survey samples both employers and employees.

The research helps inform the following stakeholders: (i) the Government regarding the needs to enforce labor rights and offer incentives to bring the informal sector to the mainstream economy, (ii) trade unions representing the voice of the employed and employable in the formal and informal sectors, (iii) the employed and employable in the formal and informal sectors themselves, (iv) NGOs and media who oversees awareness campaigns on the rights and obligations of labor and decent work practices in an inclusive manner, and (v) the private sector.

The research pilots one of the major concentrations of informal establishments in Egypt and Cairo, that is to say, Manshiet Nasser. This site is one of the oldest informal settlements in Cairo that started since the end of World War II, occupied mostly by emigrants from Minia, and Upper Egypt governorate. They found habitation before the Moqattam cliff and towards the Nasr Road. The zone houses different social classes, with the richest living in 5-6 storey houses overlooking the City of the Dead where they market their products in the old, famous bazaar (Khan el-Khalili). Families living closer to the cliff are the poorest. They are living continuously under the threat of land-shakes (earthquakes), cracks in the plateau and large stones that could easily leading to a death disaster, reaping souls on their side from time to time. Manshiet Nasser is the shelter and business community for around 800,000 inhabitants (GTZ 2009). Micro- and small-workshops are ample with activities that range from garbage collection to welding, smelting, and pharmacists services. Income-generating activities are diversified in the 3 sectors of manufacturing, trade and services. Admittedly, the security situation in this neighborhood has been always a nightmare to the authorities which mostly dare not egress the site in normal circumstances, especially in the aftermath of the 25th Revolution when the authorities approved the survey conduct.

Survey results are generalizable over other Egypt's urbanized governorates, and offers insights into the micro- and small-informal establishments' black-box. The current survey is original compared to others performed in the early 1990s on Ma'arouf district, Cairo, or those performed over ready-made ELMS (Egypt Labor Market Survey) databases produced by the Central Agency for Public Mobilization and Statistics (CAPMAS).

Government policies are tending towards decentralized governance and listening to the voices of the poor; hence is the need to identify their needs. Informal establishments' entrepreneurs and owners do normally have a government/public sector job and supplement their household income through owning and running an informal establishment. This is a hand-to-mouth strategy with constrictions on growth and fear from the illegality within. Informal sector employees earn an income way below the poverty line and continue in this vicious circle for life. Women are disempowered and suffer from violence and suppression at home, and underpayment at work. Their potential is still untapped. However, the education system in place continues to breed a labor market gap that triggers and feeds social, economic and political unrest. Giving their growing share in the Egyptian economy, addressing the needs of the informal poor should be one of the priorities of the new government towards a modern state that fosters human and employment rights for its people and should be regarded as a public good for the global community and development partners. Developing the relations throughout the continuum using a bottom-up approach (local community to global community) should secure a benevolent for globalization.

The way in which the reform process is designed, implemented and monitored has to be distinctive in the sense that it should be based on detailed contextual diagnostics and exclusion metrics as fathomed by informal employers, employees and establishments themselves, and, therefore, requires their active participation and buy-in. It has to be over-emphasized that the reform process should be based on the needs of the employers and employees in informal areas first, who are mostly very close to the poverty line. Implementing reforms in and for the informal sector and the formal sector in the outer political lobbying circuit using such a phased approach calls for a number of different actions and policy measures, including: mobilizing shareholders, establishing consensus building, mobilizing adequate resources and planning action and monitoring progress.

The serious mehed gaps in the labor market require actions that aim at the following: enhance profitability, improve productivity, improve wages and salaries arrangements, boost social protections, enhance labor and employment conditions and practices, improve rewards to education, address pull and push factors to informality, activate the supportive role of civil society, design comprehensive strategy and programs for investment in human capital and skills development, reposition surveillance activities and curtail administrative corruption,

11. Vulnerable Employment in Egypt

Vulnerable employment is a relatively new concept. It refers to those who are employed under relatively precarious circumstances as indicated by the status in employment. Vulnerable employment is one of the main labor market challenges. It worsens decent work deficits and negatively affects productivity.

Moreover, workers in vulnerable employment suffer inadequate earnings, and difficult conditions of work. They are saddled with low wages. They are usually excluded from the social protection of minimum wage laws. They are subject to unfair deductions and illegal retention of wages. In addition; they are usually asked to work "off the clock". Due to the lack of social protection, they carry a higher economic risk especially during economic downturns.

Empirical evidence shows that contrary to conventional wisdom, expanding types of vulnerable employment especially in the informal sector during economic downturns such as the global financial crisis, does not mean that vulnerable workers are thriving during the recession. Unlike other workers, they have no cushion to fall back on and have little option but to keep operating or working through economic downturns. However evidence suggests that these economic downturns push those workers and their families further into impoverishment.

Vulnerable employment is thus highly connected to poverty. The high rate of vulnerable employment may be an indication of widespread poverty. The move away from vulnerable employment into wage work can be a major step towards economic empowerment and poverty reduction. In addition, economic growth could be much higher if everyone was given the chance of a decent job. Thus, pulling workers out of vulnerable employment is at the core of the global development challenge set out in the Millennium Declaration and its poverty-reducing goals. The ILO and the Millennium Development Goals (MDGs) Technical Working Group on Employment suggested the incidence of vulnerable employment as one of the four indicators for its new target of making the goals of full and productive employment and decent work a central objective of national development strategies (MDG Target (1B), agreed upon in 2008). The less educated, youth, females and workers in rural areas are more likely than other workers to fall in vulnerable employment.

One of the main characteristics of the Egyptian labor market is the high share of people in vulnerable employment. Vulnerable employment is one of the main labor market challenges in Egypt. Labor market policies and institutions should pay special attention to vulnerable employment in the Egyptian labor market.

This study focuses on vulnerable employment as it is one of the main labor market challenges in Egypt that worsen decent work deficits. The main questions of the study include: What is the extent of vulnerable employment in the Egyptian labor market? What are trends in vulnerable employment? What are the main types of vulnerable employment in Egypt? What are the effects of falling into vulnerable employment? What are the key socio-economic characteristics that determine the probability of falling in and exiting from vulnerable employment? Who manage to escape vulnerable employment? What are the key socio-economic characteristics that determine the probability of escaping vulnerable employment? What policy interventions do we need to pull vulnerable workers out from vulnerable employment?

Vulnerable employment absorbs more than one third of total workers in Egypt. The majority of them are unpaid family workers. Workers in rural areas especially in Upper Egypt governorates, in the lowest wealth quintiles, the youth, the elderly, non heads, the lower educated, and in the agriculture sector are more likely to fall in vulnerable employment.

Workers in vulnerable employment are more likely to fall in poverty. While vulnerable employment is female dominated, escaping vulnerable employment is male dominated. These

results raise the question about the main policy interventions needed to reduce vulnerable employment and help those in vulnerable employment in Egypt, which is one of the main objectives of the study. The results suggest the following policy implications.

Policy interventions should be based on an integrated approach. Policy interventions are classified according to the time horizon into short run policy interventions and long run interventions. Short run policy interventions should focus on workers in vulnerable employment. These policy interventions are suggested to have three targets. The first target is to encourage the self employed, who are already performing well, to grow their businesses further, and aid their transition to employer status. The second target is to provide job opportunities for those who are more likely to escape vulnerable employment through wage work and not through self employment. The third target is to help those workers in vulnerable employment who are less likely to escape vulnerable employment such as female unpaid family workers.

The analysis of labor market pathways after escaping vulnerable employment shows that some vulnerable workers are less likely to find a wage work, thus they manage to escape vulnerable employment through expanding their own small businesses. Those workers include females; heads of households, workers aged 40+, and workers with no school certificate. Those workers should be encouraged to have a small business or grow their businesses further.

Self-employment assistance is one of the main active labor market programs. Empirical evidence shows that they are an effective tool to pull the vulnerable out of vulnerability. These programs are adopted on a large scale in different Asian developing countries and several developed countries.

These programs are based on an integrated approach, depending on the fact that barriers to developing micro enterprises are not only financial constraints. These enterprises lack also technical assistance. There are several examples of comprehensive supporting programs in developing countries. One of these programs is the "*Microemprendimientos Productivos*" to support micro enterprises. The program provides beneficiaries with two complementary inputs for their self-employment activities; financial support and technical assistance. Financial support is provided in the form of grants to finance inputs and equipment; these grants are provided in-kind. Technical assistance is provided through periodic visits of tutors to the beneficiaries to assist in achieving sustainability of the financed project.

In Egypt, the Social Fund for Development (SFD) should expand its credit and non-financial services especially in regions where vulnerable employment is the highest. Limited public resources may be the main problem that precludes adopting these programs on a large scale in Egypt. However, considering that technical assistance is not less important in supporting micro enterprises, these programs may provide in the short run mainly technical assistance and non-financial services. Program services were designed to help beneficiaries gain a better understanding of the process of starting and operating a new business and to inform them of various business financing options. Beneficiaries were offered an array of training courses about the different aspects of starting and operating a business, including developing a business plan, financing, marketing, hiring staff, and various legal issues. Additionally, the program offers a business counseling session that provided an opportunity for participants to meet one-on-one with a business counselor to discuss their business idea, receive help producing or refining their business plan, and obtain information on various financing sources. In addition, NGOs and

donors should be encouraged to participate in financing these suggested programs. Also, to raise cost effectiveness of these programs, explicit criteria may be adopted to choose the beneficiaries; these criteria should depend on the previously mentioned characteristics of vulnerable workers and their geographical distribution.

These programs should be supported by regulatory reforms necessary to improve investment climate for micro and small enterprises in Egypt, including decreasing the burden of taxation, regulatory constraints and improving access to infrastructure. These constraints do affect not only growth possibilities of these enterprises but they also push them to work in the informal sector.

The second group of suggested short run policy interventions is to focus on providing job opportunities for those who are more likely to escape vulnerable employment through wage work; including workers in the lowest wealth quintiles, the youth, and those with secondary education and above. The analysis shows that those groups of vulnerable workers are less likely to be employers and are more likely to escape vulnerable employment by getting a wage work.

It is suggested that active labor market policies should play a bigger role in jobs creation for vulnerable workers in Egypt. These policies include policies implemented to increase labor demand (public works, subsidies); enhance labor supply (training); and improve the functioning of the labor market (employment services). To increase labor demand of the vulnerable workers, subsidies may be used to encourage employers to hire new workers. In addition, public works, including temporary community projects and labor-intensive projects involve direct job creation. Investments are suggested to increase in employment-intensive infrastructure programs, especially in rural areas and in the agriculture sector as the above mentioned results show that vulnerable employment rates are significantly higher in rural areas and especially among agriculture workers. These investments simultaneously serve two important goals. They are effective in creating new jobs; especially among vulnerable workers. On the other hand, they are necessary to improve living conditions in poor areas.

These measures should be accompanied by programs implemented to enhance the quality of labor supply of vulnerable workers, through specific training programs targeting them. Career Development Loans is another option. It might also be used to promote training by workers who are more likely to fall in vulnerable employment. Community schools targeting out-of-school adolescent girls, and have skills component may be helpful in reducing unpaid family work among rural girls in poor areas. There are examples of such NGOs and donor initiatives in Egypt, such as Ishraq project. However, these projects are still covering only a few number of out-of-school adolescent girls.

Concerning employment services, Results show that formal labor market intermediaries are not active in helping vulnerable workers get a paid job. Public labor market intermediaries, like offices of the Ministry of Manpower and Migration should be more active in helping vulnerable workers. They should increase their presence in rural areas. Analyzing distribution of these offices, it is found that they are mainly concentrated in urban areas. Moreover, the presence of training centers of the Ministry of Manpower in Upper Egypt is very weak in spite of the fact that educational levels are lower and vulnerable employment is more widespread in these areas. These centers should be redistributed geographically to serve the most vulnerable areas. In addition, programs they offer in Upper Egypt focus mainly on mechanical and electrical works.

These programs might be more effective if their scope is expanded to include training programs targeted to acquire skills needed in other works, including agriculture small industries.

The third suggested short run policy interventions should focus on addressing main decent work deficits among vulnerable workers so as to improve their living conditions. Decent work deficits are widespread among vulnerable workers pushing them to severe poverty. This problem should be addressed as a multidimensional problem.

First, the above analysis shows that the vast majority of vulnerable workers (90%) in Egypt are not covered by a social insurance system. Up till 2010, the Egyptian pension system was organized by six main laws. The most two important laws regarding vulnerable workers are Law 108/1976 that governs the establishment and operation of a special scheme for employers and self- employed persons, and Law 112/1980 that regulates social insurance provision to casual and informal workers. In spite of the fact that these two schemes are mandatory, only around one tenth of vulnerable workers are covered by the social insurance system. This is a major defect in this system, and it is the result of the widespread informality, low returns to beneficiaries and weak law enforcement. Another important defect is that this pension system has become unable to achieve long-term fiscal sustainability. According to official statistics, 71.1% of the beneficiaries of Law 108/1976 get less than 150 EG monthly.

The existing benefits do not provide any incentive to contribute to this system in spite of low contributions. A new pension and social insurance law 135/2010 has been approved. This law raises the retirement age, forces employers to contribute to pension payments and introduces unemployment cover for the first time. The law was designed to cut public spending and thus improve the fiscal sustainability of the pension system. However, the new system is not expected to result in an increase in the number of vulnerable workers covered by the insurance system. There are still the problems of widespread informality and weak law enforcement; effective monitoring mechanisms should be implemented to protect workers' rights especially vulnerable workers. It is worth mentioning that while the contribution rate for the self employed was increased to 20%, it is still calculated on the basis of the contributable wage that the individual will choose. In addition, according to article 47 of the law the self employed, casual and informal workers are excluded from the benefits of the unemployment insurance. The self employed, casual and informal workers should not be excluded from the benefits of the unemployment insurance as the above results show they are hurt during economic down turns.

Being uncovered by the social insurance system is not the only problem; vulnerable workers are also less likely to be covered by any health insurance system. The new health insurance law is expected to address this problem through a universal health insurance system. However, the low quality of health insurance services in Egypt is still a serious problem especially in remote and rural areas. Micro health insurance programs may be effective in addressing health needs of vulnerable workers as in other developing countries.

Another dimension of the decent work deficit problem is related to unionization. Union membership helps reducing vulnerability. There should be trade unions that represent vulnerable workers' interests and support them to address decent work deficits. However, in Egypt up till April 2011 this was not possible due to regulatory constraints. For instance, agriculture workers and small farmers were unable to have trade unions that defend their interests, the same applies to craftsmen. The first trade union defending small farmers interests have been announced in

April 2011. The study suggests that civil society organizations and the ministry of Manpower should provide technical and legal support to these unions at least in the beginning.

Long-run policy interventions should focus on alleviating vulnerable employment in Egypt, through addressing previously analyzed main determinants of vulnerable employment. The results show that the most important three determinants of vulnerable employment are education and working in the agriculture sector respectively.

Increasing investments in Education is essential to achieve comprehensive secondary education. The government and NGOs should concentrate on education specifically at basic and secondary education. Improving the quality of Education is essential, to enhance the human capital of job seekers. Current education policies in Egypt result in that many of the young graduates come out with skills and qualifications that are not relevant to the needs of employers. These policies are still biased against vocational education.

Increasing female educational level should top the agenda of education policies. The study suggests investing more in expanding female vocational schools in rural areas; especially vocational agricultural schools. Investment in vocational education and training are likely to prepare women, and especially young women, with the skills needed to qualify for good jobs in the labor market. Measures used to remove barriers to girls' education in developing countries include providing scholarships, conditional cash transfers and eliminating user fees; tracking completion and attendance rates. Considering limited public resources, the government should work with the participation of local community, civil society organizations and the private sector in implementing these measures.

Enhancing labor supply is necessary but not sufficient. There should be a substantial increase in labor demand. In the long run, vulnerable employment is less likely to be reduced unless the unemployment rate is lower. Increasing investments is necessary to achieve these growth targets. This raises the question about distribution of these investments. There is a need to redistribute investments, and invest more in rural areas especially in Upper Egypt governorates. These investments should have three main targets; improving rural infrastructure, raising productivity in the agriculture sector and creating new employment opportunities outside agriculture in rural areas.

Investing in rural infrastructure creates employment. Empirical evidence shows that investment in farm-to-market roads, irrigation systems, and portable water systems provide long-term advantages to a large percentage of vulnerable workers, especially women in the agriculture sector. Economic diversification is also an important dimension to reducing vulnerabilities.

Finally, there should be follow-up surveys evaluating vulnerable employment trends and living conditions of vulnerable workers to ensure targeted support and training.

12. Technical Education in Egypt: Gender and Public-Private Distributional Dimensions

Conventional wisdom in education policy literature has been that, while technical and tertiary skills are important for growth in developed countries, it is primary and secondary education that are related to development in poorest and intermediate developing countries. Accordingly, donor and lending agencies, including the World Bank, have been promoting investment in basic and

general education in MENA and other developing regions (World Bank, 1995a; Psacharopoulos, 1987, 1994). Amongst the reasons cited for such policy advice are low rates of returns to vocational and technical education, high cost of those types of education, and a weak relationship between vocational school graduates and the needs of the labor market.

The experience of the East-Asian economies, such as Japan, Taiwan, Singapore and South Korea, demonstrate that investments in vocational skills at the secondary school level are beneficial for both the individual and society (Tzannatos and Johnes, 1997; Green et al, 1999; Gill et al., 2000). In contrast to these successes, recent Arab and Egyptian Human Development Reports (UNDP, 2003; UNDP, 2010) highlighted the deep seated institutional, political and economic problems faced by education in the Middle East and North Africa region. Even in countries like Egypt, where reform of vocational secondary and higher institute technical education systems is now quite high on the policy agenda, recent analysis shows that the pattern of growth of technical education had little to do with a rational planning exercise or even focused on how to provide young people with workplace relevant skills. Instead it was related to haphazard efforts to divert students aspiring for higher education. Today technical education graduates in Egypt are the group of the population hit most by the inadequacies of the education system, as attested by their high unemployment rates, low returns to education and high representation amongst the lowest income or poorest of the population

This paper investigates the impact of education on labor market outcomes in Egypt, with a focus on returns to vocational secondary and technical higher education in 1998 and 2006. As previous studies identified gender and institutional sector as the most important axes of segmentation of the Egyptian labor market (Assaad, 1997, Said, 2002, 2004 and 2009) selectivity corrected earnings equations are estimated for government, non-government wage workers and non-wage workers by gender, employing a multinomial-logit model to undertake the selection correction. In addition to evaluating the returns to education at the mean of the earnings distribution, the paper will also evaluate returns to education along the entire earnings distribution, using quantile regression methods.

The rest of the paper is organized as follows. After a brief review of general trends in enrollment at the various levels of schooling in Egypt in the following section (II), Section III outlines the models underlying the estimation and rate of return to schooling calculations. Section IV introduces the data, sample of the study and empirical results of estimation of sector selection, selectivity corrected and quantile regression wage equations. Section V presents the incremental and cumulative returns to different levels of education based on the parameter estimates the extent to which they confirm to expectations based on enrollment trends. Finally, Section VI concludes by summarizing results and discussing some of their policy implications.

II. Education Structure, Enrolment Policy, and Wage Disparities between Educational Levels in Egypt since the 1990's

Conventional wisdom in education policy literature has been that, while technical and tertiary skills are important for growth in developed countries, it is primary and secondary education that are related to development in poorest and intermediate developing countries. Accordingly, donor

and lending agencies, including the World Bank, have been promoting investment in basic and general education in MENA and other developing regions. Amongst the reasons cited for such policy advice are low rates of returns to vocational and technical education, high cost of those types of education, and a weak relationship between vocational school graduates and the needs of the labor market.

The experience of the East-Asian economies, such as Japan, Taiwan, Singapore and South Korea, demonstrate that investments in vocational skills at the secondary school level are beneficial for both the individual and society. In contrast to these successes, recent Arab and Egyptian Human Development Reports highlighted the deep seated institutional, political and economic problems faced by education in the Middle East and North Africa region. Even in countries like Egypt, where reform of vocational secondary and higher institute technical education systems is now quite high on the policy agenda, recent analysis shows that the pattern of growth of technical education had little to do with a rational planning exercise or even focused on how to provide young people with workplace relevant skills. Instead it was related to haphazard efforts to divert students aspiring for higher education. Today technical education graduates in Egypt are the group of the population hit most by the inadequacies of the education system, as attested by their high unemployment rates, low returns to education and high representation amongst the lowest income or poorest of the population

This paper investigates the impact of education on labor market outcomes in Egypt, with a focus on returns to vocational secondary and technical higher education in 1998 and 2006. As previous studies identified gender and institutional sector as the most important axes of segmentation of the Egyptian labor market selectivity corrected earnings equations are estimated for government, non-government wage workers and non-wage workers by gender, employing a multinomial-logit model to undertake the selection correction. In addition to evaluating the returns to education at the mean of the earnings distribution, the paper will also evaluate returns to education along the entire earnings distribution, using quantile regression methods.

The socioeconomic changes witnessed by Egypt since the mid 1980s have had an adverse impact on the achievements of vocational graduates. Family background remained one of the crucial determinants of occupational choice, especially in Egypt, meaning that children are still likely to replicate the occupational choices of their parents. As labor markets became more polarized, vocational graduates seem to have been the least favored group both in the public and private sector, mainly because of the declining role of the public sector and because of the private sector's preference for males with post-secondary education. As a result in Egypt, low-earners are twice more likely to be vocational graduates than illiterate.

A possible explanation of these trends could be that a mechanism of path-dependency locks a specific category of workers in a secondary job market. Questions of opportunity cost and an underestimation of the value of education, coupled with dismal wage prospects and structural barriers, reduce significantly the return to vocational education, setting a vicious circle that inevitably co-opts younger generations. These dynamics deserve closer examination as ELMPS 2006 data suggest that graduates of vocational school constitute the biggest and fastest growing group among new entrants in the labor market.

Despite the attempts at reforming the vocational education system in Egypt, the logic underlying the mechanisms of today's education systems does not differ dramatically from the

initial motivations that brought about the establishment of such systems during the colonial period. The primary objective at the time was to ‘produce’ diploma-holders that would eventually be absorbed in the public sector while, for instance, the policies led by concerns of universal coverage have been formulated in Egypt only in the 1990s. The white-collar focus of the Egyptian educational system has been reinforced in 1962 with the introduction of the graduate employment guarantee, which, together with the demographic explosion witnessed in the 20th century, increased the number of students that enrolled in general secondary education with the intent to pursue university level education. As a consequence, the labor market was not able to absorb the overhang of new graduates, and, since the bulk of those graduates preferred to be employed in the government sector because of the higher wages first and then non-wage benefits at a later stage, many young entrants preferred to queue for a government job rather than seek private employment.

To counteract this phenomenon, the school system became very selective; only the top 50 percent of preparatory students were admitted into secondary education, and, of those, only the top 30 percent could enroll in the general track, with the remaining two thirds channeled into the vocational track. Tracking students at such an early stage has had repercussions beyond the students’ ability to enter university (only the top 5 percent of vocational students enrolls in university). The schooling system over-focuses on the acquisition of a diploma, so that memorization and exam-related skills take precedence over those skills that are of direct relevance to a future potential job. At the same time, while university enrolment stands at 0,7 million (compared to 12,5 million in primary schools), university absorbs 45 percent of the education budget, thus expenditure for one university student is 17 times higher than for a primary school pupil.

The evident bias for general and university education has two major outcomes on vocational and technical education in Egypt. First, vocational education represents in the eyes of families and future employers a ‘second best option’, since the highest achievers among preparatory school students usually enter the general track. Secondly, vocational programs act as a vent to ease off pressure more academic paths, with subsequent neglect on the part of the authorities. The annual cost of a student in a technical secondary school is LE 500, a level extremely low if compared to LE 2500, the amount deemed necessary to provide moderate quality technical education in a private technical school. In addition to their lower status within the educational hierarchy, vocational and technical schools suffer from other built-in inefficiencies. Students are channeled into 114 tracks that specialize on specific and often times obsolete skills and, especially because of the importance placed on the mere acquisition of credentials, young graduate enter the labor market poorly trained in skills that are out-dated and too specific to adapt to newer opportunities. The results of our precedent analysis confirm this intuition: vocational graduates in the private sector have witnessed low and declining rate of returns to education over the past two decades. At the same time vocational graduates have been hit the hardest by the shift towards less government involvement as their share among low earners increased from a high 33 percent in 1988 to a staggering 37 percent, when (illiterate workers represent only 22 percent of low earners.

The policy that aimed at achieving equality in access to higher education has yielded high benefits to those who already qualify for it rather than those who do not. The reason behind such matter is that the households with limited means send their children sometimes to work or are incapable of preparing their children to qualify for university acceptance. Thus the policy created

inequality rather than trying to achieve equality. This leads to calls for a new policy framework that targets public funds only to groups that are in need of assistance and to allow others to pay their own way. The findings of the current paper suggest that this inequity cannot simply be addressed at the university entrance stage. In fact, it starts at the sorting of entrance at the general versus vocational tracks of secondary education. It is important to recognize that the decision to pursue university education starts at that level and targeted assistance to needy students who are likely to proceed to tertiary education should also start at that point. This, bearing in mind that a high portion of the costs are likely to be in private tutoring, which simultaneously calls for steps to address this problem via raising the quality and pay of teachers at the general education level.

Reducing the number of students that would seek vocational education simply because they cannot afford formal and informal cost of general education is a partial solution. The real issue of addressing the quality and labor market relevance of vocational education remains the key to an effective reform to that system. The Egyptian authorities have already undertaken a series of projects to redress the inefficiencies of the vocational and technical education system. The complex governance mechanism that saw a sharing of responsibilities for all the different components of vocational education spread across the two ministries of education (Ministry of Education, Ministry of Higher education) and six other ministries has been brought under the umbrella of the Supreme Council for Human Resource Development (SCHRD). While the attempt at improving coordination should be praised, the SCHRD has been largely ineffective since, for instance, the Ministry of Education has not been actively involved since 2002.

Another attempt at reducing the rigid top-down approach is represented by the Mubarak-Kohl Initiative that, based on the German model, seeks to promote a greater role for partnerships between training institutions and businesses. This initiative is flanked by a Technical Vocational Education and Training (TVET) Reform, financed by the European Union, which, starting from 2004, attempts to create partnerships between vocational schools, training institutions and businesses. Changes have also been taking place with respect to the funding of vocational and technical education. The Skills Development Project (SDP), recently set up with the assistance of the World Bank, provides funding for vocational training directly to those businesses that invest in the development of their workforce, as opposed to funding the training institutions.

A final initiative, modeled on the Singaporean and Malaysian experience, led to the establishment of a Training Finance Fund (TFF) that applies a 1 percent levy on profits of businesses with more than 10 employees. Those funds (estimated at LE 350 million a year) should go towards vocational and technical training but, they should be complemented with good governance and control mechanisms of the TFF.

While all these initiatives deserve an appraisal for the establishment of mechanisms aimed at improving the performance of the vocational and technical education, one might argue that these measures will only address superficial aspects of the problem, without challenging the inherent contradictions of the system. Encouraging private businesses to invest in vocational education will be of little use if the trainees are still faced with social stigma that relegates them to low-paid jobs. An overhaul of vocational and technical education should concentrate on the two main objectives of any school system: promote social mobility and equity while being the cornerstone of economic and social development of society.

Conclusion:

Detailed analysis of the labor market in Egypt has yielded important implications to tackle structural rigidities, close the gap between supply and demand and increase the job content of growth. Key policy implications can be summarized as follows:

1. Avail more credit for the private sector, particularly small and medium enterprises, and promote exports towards growing more jobs.
2. Provide incentives, including tax incentives, to increase the job content of growth.
3. Fiscal consolidation should reduce evidence of crowding out, particularly during a boom, towards reducing the cost of borrowing and inflation and increasing incentives to avail more credit to the private sector.
4. Continued drive to reform public institutions should be aligned with growth in private employment.
5. An inclusive job-rich growth strategy is needed whereby employment criteria are integrated in sectoral strategies and incentives for formal employment are devised.
6. Improving productivity requires fighting illiteracy, developing the quality of institutions towards upgrading middle skilled workers and having a national system of certification.
7. Attracting higher FDI flows bodes well regarding boosting social justice and narrowing wage disparity.
8. Improve Egypt's global competitiveness towards increasing employment growth and welfare.
9. Improve the quality and efficiency of the educational system, particularly at the primary level; to invest in training and the creation of employment, especially for the youth.
10. Investing in and upgrading education quality-including technical education- should help achieve an efficient wage policy towards mobilizing additional supply of skilled labor.
11. Addressing the quality and labor market relevance of vocational education remains the key to an effective reform to that system.
12. Increase the scope for vocational training, and volunteer work and enhance the efficiency of placement for graduates.
13. Increase incentives for female participation in the labor market and avail more opportunities for talented labor and professionals to reduce brain drain.
14. Facilitate patent registry, increase collaboration between the private sector businesses and universities to enhance the capacity for innovation; and increase investments on R&D.

15. Improving working conditions and adhering to decent work standards contribute to higher productivity and efficiency in production towards raising employment and wages.
16. Avail channels for workers' freedom of association and invest in better health and safety standards, and eliminate discrimination to promote labor productivity.
17. Egypt's hiring and firing regulations are too generous and should be redesigned to strike a better balance between workers' rights and more flexibility in doing business.
18. Increase flexibility of hiring and firing in the labor market to help increase total employment growth.
19. Invest in developing labor unions that channel labor demands in a peaceful manner to achieve the best out of higher flexibility in the labor market.
20. Avail channels for social dialogue and collective bargaining and reinforce labor market intermediaries to reduce the risk of frequent interruptions in work activity.
21. It is important to press ahead with the speedy implementation of the newly ratified law of social security to increase compliance and formalization.
22. Increase awareness among both employers and employees of rigidity of existing labor laws and ways to introduce flexibility to achieve better results for both parties.
23. Hiring and firing regulations should be tailored to the firm's specifics, particularly SMEs that are carry the largest scope of mobilizing large employment in the short-term.
24. Investing in active labor market policies is better than holding on labor market rigidities in the name of job security that has been proven to have devastating effects on the ability to mobilize jobs, even in a growing economy.
25. Increase incentives to mobilize employment in sectors that have high job content of growth.
26. Reduce constraints on doing business, including by removing bureaucracy and red tape.
27. The public sector wage policy has been seeking higher adjustments to keep up with inflation, and has not been responsive to real GDP shocks.
28. On the other hand, private sector wages appear less flexible to insulate workers from inflationary shocks and seem more responsive to real economic activity.
29. Automatic adjustment of wages to inflation is bound to create further inflation and erode incentives for higher growth.
30. In contrast, growing wages in line with productivity is bound to increase incentives to create jobs and mitigate inflationary pressures towards achieving higher standard of living and increasing welfare.

31. A thorough study of legislations for the minimum wage should consider potential adverse effect on employment and allow flexibility for variation based on supply and demand conditions in specific sectors and by qualifications, along with productivity indicators.
32. A comprehensive study to reduce vulnerability should aim at availing financial support and non-financial services, improving qualifications, enhancing formal labor market intermediaries, and easing constraints on the demand side to increase formal absorption.
33. In the immediate term, give priority to reducing decent work deficits in the informal economy.
34. In the short and medium term, enable those currently in the informal market to move upwards along the continuum to the formal market.
35. In the longer term, create enough employment opportunities that are formal, protected and decent for all employers and employees.
36. Increase incentives and reduce the cost of formalization in the private sector, including via support of self employment.
37. Subsidies may be used to encourage employers to hire new workers.
38. There should be trade unions that represent vulnerable workers' interests; civil society organizations should provide technical and legal support to these unions.
39. Increasing investments for education, including expanding female vocational schools, particularly in rural areas should be coupled with a targeted strategy to redistribute investments to mobilize demand, as necessary.
40. Reforming the informal market requires mobilizing stakeholders, the development of an action plan and institutionalizing required changes to scale up necessary reforms.
41. Consider options to reform the pension system to increase benefits for the most vulnerable groups without overburdening employers and reducing employment.
42. It is important to strike a sustainable balance between short-term concerns about social justice and long-term vision for economic and employment growth.

In general, the scope for higher employment is much wider in the private sector and increasing formality will help raise the standard of living for a larger segment of the population to reap the benefits of higher growth. Increasing the quality of labor, and investing in skills that are in high demand will help close the gap between supply and demand and cater human capital investment to address key shortages. Reducing unemployment and growing income in line with productivity are key pillars towards sustaining high growth and achieving social equity.