Report No. 54698-EG

ARAB REPUBLIC OF EGYPT

Gender Assessment 2010

NARROWING THE GAP

IMPROVING LABOR MARKET OPPORTUNITIES FOR WOMEN IN EGYPT

Social and Economic Development Group
Middle East and North Africa Region

Document of the World Bank

CURRENCY EQUIVALENTS
(Exchange Rate as of June 2010)

Currency Unit	=	Egyptian Pound (LE)
LE1	=	US$0.18
US$ 1	=	LE5.65

ABBREVIATIONS AND ACRONYMS

MENA	Middle East North Africa
ELMPS	Egypt Labor Market Panel Survey
SYPE	Survey of Young Population in Egypt
ICA	Investment Climate Assessment
LFP	Female Labor Force Participation
GDP	Gross Domestic Product
GEME	Gender Equity Model Egypt
OECD	Organization for Economic Co-operation and Development
WDI	World Development Indicators
OLS	Ordinary Least Squares
ISIC	International Standard Industrial Classification
ELMS	Egypt Labor Market Survey
UN	United Nations
TFP	Total Factor Productivity
CAPMAS	Central Agency for Public Mobilization and Statistics
EGP	Egyptian Pound
FTE	Foundation for Teaching Economics
FMLA	Family and Medical Leave Act
EITC	Earned Income Tax Credit
JSA	Job Search Assistance
ALMP	Active Labor Market Policy
MSE	Micro and Small Enterprise

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ACKNOWLEDGMENTS

This report was led by Tara Vishwanath, with Siddharth Sharma undertaking a significant part of the empirical analysis presented in the report. Others who contributed include Umar Serajuddin (Chapter 1 and 5), Abdalwahab Khatib (Chapter 5), and Nahla El-Okdah (Chapter 5). Sahar Nasr provided indispensible advice and support both on content and client consultation.

All results in the report that reflect insights from the Survey of Young People in Egypt (SYPE) are based on contributions from the Population Council (Cairo Office); we especially thank Safaa El-Kogali, Rania Roushdy, Ali Rashed, and Asmaa Elbadawy for their timely help and support. They are also contributing a background paper with a fuller analysis of the SYPE data as it relates to gender and employment issues.

The team thanks the peer reviewers, Ragui Assaad, Emmanuel Skoufias and Roberta Gatti for insightful comments, and all participants at the roundtable meeting held in January 2010 in Cairo for their suggestions. We are also grateful for all advice received during the Concept Note review meeting in October 2010, and to Michele Davide Zini for thorough comments on the final draft. Ahmad Iman Youssef provided valuable data support in Chapter 2.

We are grateful to Ritva Reinikka and A. David Craig for overall guidance and support.

Arrangements for missions and roundtable meeting were facilitated by Amira Fouad Zaky. Finally, we thank Inosha Wickramasekera for a superb formatting job.

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PREFACE

The objective of this policy note is to examine the gender dimension of the Egyptian labor market, with a focus on identifying the scope for policies to improve female labor force participation. An update to the Egypt Gender Assessment Report of 2003, it is envisioned as a contribution to programmatic work on gender and inclusion in Egypt, helping build evidence which can inform policy aimed at improving the participation and retention of women in the labor force. Analytical and investigative in nature, it is our hope that this note will motivate discussion and debate among stakeholders in the country. The questions to be addressed in the note are also relevant for policy discussions and Bank operations in other countries, especially those in the MENA region where females face similar challenges to labor force participation.

The Egypt Gender Assessment Report of 2003 looked at gender gaps in key social and economic areas, such as legal framework and political participation, health, education, labor, and poverty. Besides laying out the underlying correlates of gender gaps in these areas, the report recommended a comprehensive list of 'strategic interventions' by sector for the government and other development actors, in areas such as investment in women's education, the re-examination of certain discriminatory provisions in the country's legal system, and the promotion of cultural norms that value women as equal partners to men. In the sphere of women's economic opportunities, the report pinpointed vulnerabilities such as high unemployment rates (particularly among the more educated), and a disproportionate dependence on an already shrinking public sector. Highlighting the need for creating productive and sustainable jobs for women in the private sector, the report suggested initiatives such as increasing women's access to training, technology, land, credit and information.

Subsequent World Bank reports have examined these issues further. A 2009 study titled "Women Workers and Entrepreneurs in Egypt" utilizes survey data on registered firms and their workers to analyze why there are so few women employed in firms. The study identifies the key challenges in this respect to be negative perceptions by employers, lack of appropriate skills, lack of access to finance, and weak social safety nets. A 2008 study titled "The Environment for Women's Entrepreneurship in Middle East and North Africa" examines the economic, social and institutional hurdles that female entrepreneurs in the MENA region have to confront, and gives policy suggestions to improve the business environment for women.

Within the gamut of issues covered by the Gender Assessment Report of 2003 and subsequent studies, the present policy note will focus on analyzing women's participation in the workforce, using rich panel data on the Egyptian labor market that have not been used in the studies alluded to above. Despite impressive advances in women's education, their labor force participation rates are very low and relatively stagnant, with fewer than a third of women of working age in the labor force in 2006. Women's participation in the labor force is associated not only with their economic empowerment, but also with greater voice, both within and outside home. Thus, understanding the constraints to their participation is a vital policy issue. Furthermore, finding ways to enhance women's access to occupations where skill is valued may in turn increase the incentives to invest in their education. Similarly, social or legal empowerment might follow from

participation. Thus, the findings in this note will help inform policy in other areas, such as education.

This policy note primarily uses household survey data from the 2006 Egypt Labor Market Panel Survey (ELMPS) and the 1998 Egypt Labor Market Survey (ELMS), both nationally representative surveys. The surveys were conducted by the Economic Research Forum (ERF) in cooperation with the Egyptian Central Agency for Public Mobilization and Statistics (CAPMAS). The ELMS of 1998 is a nationally representative sample of 4,816 households. ELMPS 2006 is a follow-up survey to the ELMPS 1998, and it included a panel component. The ELMPS 2006 included 8,349 households, of which 3,684 were from the original ELMS 1998 survey. Of the 23,997 individuals interviewed in the 1998 survey, 17,357 individuals (72 percent) were re-interviewed in 2006.

The ELMPS survey collects very detailed information on a host of individual socioeconomic and demographic characteristics, focusing strongly on education and skills. As a comprehensive labor force survey, it collects individual level information on labor force participation status, sectors of employment, hours worked, employment history, etc. In addition, the survey collects remarkably rich information on labor market characteristics such as compensation, job stability, nature of the work contract, job search, and job-specific skill acquisition. The survey also has an entire section devoted to female paid employment, where women are asked about maternity leave policy, child care, attitudes towards working after marriage, and their husband's view of their work. Women also report the details of their domestic work. Yet another module focuses on women's role in household decision making, access to financial resources, mobility and attitudes to work outside the house. The ELMPS thus offers a wealth of unexploited data for deeper examination of women's role in Egypt's labor market. Having data from the two rounds of ELMPS, especially the panel, we can examine how labor market outcomes, attitudes and behaviors have changed over time.

We also draw on some summary statistics made available to us from the recently concluded Survey of Young People in Egypt (SYPE) 2009, which was conducted by the Population Council based in Egypt. This survey was fielded to a nationally representative sample of 15,000 young people aged 10-29 years. The SYPE collected data on the five key areas of education, work, family formation, health and sexuality, and civic and political participation. Though cross-sectional, this dataset provides a unique insight into labor market issues of the youth population. Finally, we also utilize firm-level data from Egypt's 2006 Investment Climate Assessment (ICA) Survey of 1,492 firms (996 manufacturing firms and 496 firms in the services sector) to glean demand-side insights on the labor market.

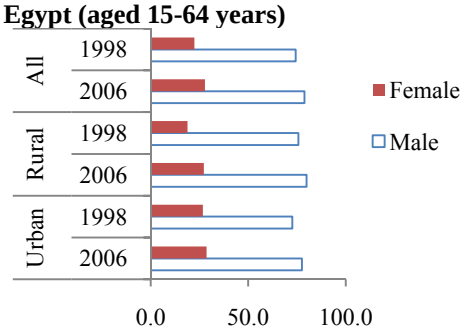
EXECUTIVE SUMMARY

1. Increasing Education, Stagnating Labor Force Participation: A Puzzle?

1. In 2006, the female labor force participation rate in Egypt was about 28 percent, a third that of Egyptian males in both rural and urban areas. This is low even by the standards of MENA, a region with some of the world's lowest rates of female labor force participation. A 2007 report by the World Economic Forum ranked Egypt 120th among 128 countries in terms of women's economic opportunity.

2. Egypt has made large gains in several other development indicators for women and girls in recent years. Child health indicators such as immunization rates and infant mortality have improved for both genders. Fertility has been declining, and women are getting married at a later age. In the context of what determines workforce participation, perhaps the most significant advance has been in narrowing the gender gap in schooling. The ratio of female to male secondary school enrollment presently stands at 0.94, and more women than men are enrolled in university. Young women's education levels have improved considerably during recent years, with the share of Egyptian women in the 15-29 year age group with a university degree rising from 6 to 12 percent, and the share of those with a vocational school degree rising from 23 to 33 percent during 1998-2006. Yet, despite their education levels rising over time, the workforce participation rate of young women has remained nearly the same (see Figure 1). Egypt's progress in the spheres of health and education has thus not translated into improvements in women's participation in the workforce.

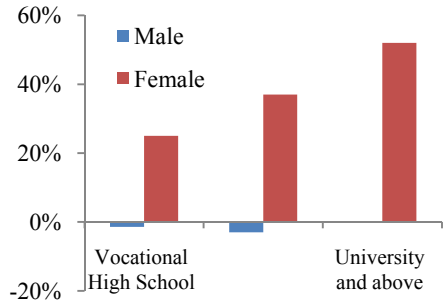
Figure 1: Labor Force Participation rates in 2006 and in 1998 among working age population in Egypt (aged 15-64 years)



Source: ELMPS 2006 and ELMS 1998

3. As in other parts of the world, at any given point in time, more educated Egyptian women *are* significantly more likely to be working. In 2006 almost 44 percent of the women out of the labor force were illiterate or without schooling. In comparison, only 31 percent of women in the labor force were uneducated. Once other characteristics (like age, household wealth, marital status and location) are held constant, the association between women's education and workforce participation is even more evident (see Figure 2). Compared to those with no education, vocational school and university graduates, respectively, were 25 and 52 percentage points more likely to be in the labor force. In the face of this strong cross-sectional relationship between

Figure 2: Education and Labor Force Participation Rates



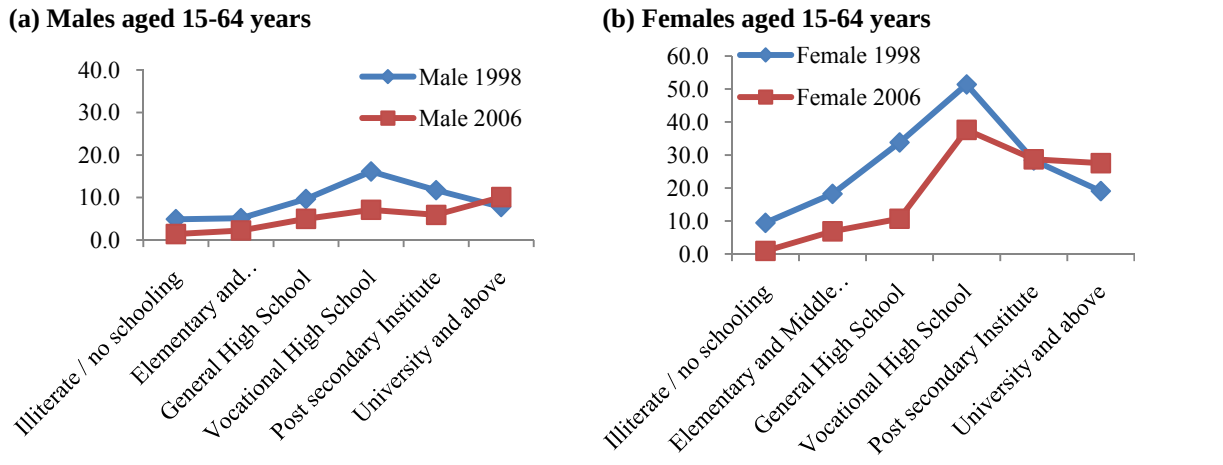
Source: ELMPS 2006
Note: Based on marginal effects in Probit estimation controlling for other characteristics. Comparison Group: No Education.

education and women's workforce participation, the fact that women's labor force participation rate has increased only marginally over time despite rising education is truly puzzling.

4. Another striking fact about women in Egypt's workforce is that they are largely concentrated in a few sectors and activities. Although the government sector has been shrinking, women continue to be heavily overrepresented in government jobs. In 2006, about 54 percent of all female employment was in government jobs. On the other hand, the formal private sector accounts for less than 10 percent of female employment; even within this sector, the distribution of female employment across firms is markedly uneven. For example, according to the 2006 Egypt ICA survey, more than 60 percent of manufacturing firms have less than 10 percent employees who were female. Only a small set of manufacturing firms (about 12 percent) have a female employee share of more than 50 percent. Moreover, female employment is concentrated in a handful of industries, such as textiles, garments and food products.

5. Nearly six in ten people in the MENA region are below the age of 25 (World Bank, 2004). Like other MENA countries, Egypt too is undergoing a demographic 'youth bulge'. A worrying sign of the pressures such demographic change puts on the labor market is that the unemployment rate among the young is over six times that among the non-youth. This is a particular concern among young women (15-29 years old), who had an unemployment rate of nearly 41 percent in 2006, about four times as high as their male counterparts. Further, more educated women are more vulnerable to unemployment. In 2006, the unemployment rate among vocational school or college educated women was nearly four times as high as that among the uneducated. Alarmingly, the vulnerability of highly educated women to unemployment has been increasing over time, with college educated women more likely to be unemployed in 2006 than 1998 (Figure 3).

Figure 3: Unemployment Rate (%) by Education across 1998 and 2006



Source: ELMPS 2006 and ELMS 1998

6. On average, Low and Middle Income countries (LMIs) show participation rates among women that are lower than those observed in the developed world. Indeed, this could simply reflect different preferences at different income levels. For instance different social norms and cultural biases might affect women's decision to enter the labor force. Undeniably, such explanation plays a significant role in LMIs. Yet, the fact that Egypt displays participation rates

among women that are almost 10 percent lower than the LMI average points out to the fact that something beyond social and cultural preferences is constraining women's decision to work outside the household. It must be that the opportunities available to women in Egypt are limited because the labor market does not function well for them. For example, the length of the workday could be too inflexible, especially for women with young children, or worse, firms perceive women as less productive than men.

7. High rates of unemployment among women–particularly the well-educated–also suggest that many of the non-participants are those who have been discouraged by the difficulty of finding *acceptable* jobs in the private sector. Indeed, women prefer to just wait for government jobs. For example, data from SYPE 2009 show that compared to men, unemployed women–particularly the more educated–are consistently more likely to use government labor office registration as their only job search method. A cost of this queuing for dwindling government jobs is that much of the unemployment among educated women is long-term. In 2006, more than 85% of unemployed vocational or college educated women reported having been looking for a job for longer than a year. Given the stagnation in government employment, this persistent crowding of women in the public sector is clearly a major proximate explanation of their persistently low workforce participation (Assaad and El-Hamidi, 2009). Policy-makers ultimately need to understand why women continue to prefer work in this sector, and what it is about the working of labor markets that limits their absorption in a dynamic private sector. An encouraging sign, however, is that younger cohorts entering the labor market appear to have more favorable attitudes towards jobs in the private sector, according to a recent survey conducted by the Ministry of Manpower and Emigration[1].

8. Perhaps the starkest indicator of the inferior labor market treatment of women, particularly in the private sector, is the gender wage gap. In Egypt, both educated and uneducated working women earn significantly less than men possessing similar labor market attributes (such as experience and education). Our analysis indicates that in 2006, among women and men who were similar in terms of experience and location, illiterate women earned about 70 percent less than illiterate men, while college educated women earned 57 percent less than their male counterparts. The gender wage gap persists even after gender differences in occupation, sector and industry of employment are taken into account. Wage gaps of such magnitudes could hardly be explained if social and cultural preferences were the only reasons behind most women's decision not to work[2].

9. Identifying constraints on women's labor force opportunities which can be redressed by policy should be a matter of priority. The direct economic cost of such labor market problems is the failure to fully utilize a valuable human resource. Egypt has invested heavily in women's education, and while education is of great intrinsic value in itself, high unemployment among educated women and large gender wage gaps point to an untapped pool of educated women who are willing to work but are unable to find suitable jobs. In fact, all women–irrespective of their

[1]The survey reports that a third of the sampled female students, enrolled in the last years of high and middle school, reported that they favored working in the private sector. Their reasons ranged from high income to the nature of work available at the private sector.

[2] While there is comprehensive de-jure protection of equal rights for women in the workplace, this does not translate into a closing of the gender wage gap as evidenced in the data used in this report.

education–would be better enabled to find more fulfilling and productive uses of their time if labor markets served them well. Moreover, an improved outlook for finding good jobs would increase women's incentive to invest in their human capital in ways that are economically relevant. Thus, addressing constraints on women's labor force opportunities will contribute to economic growth by raising investment in human capital and improving the efficiency of its allocation.

10. Economic growth is just one of the benefits to be reaped by improving women's labor market opportunities. Amartya Sen has long argued that education and participation in paid work are important determinants of female voice and agency in a society's decision making processes. Indeed, there is some evidence that the income and knowledge gained from participating in the labor market enhance women's bargaining and decision making powers within and outside the household, leading to measurable improvements in welfare indictors for women and children. Economic participation also leads to greater civic and political participation.

11. Interestingly, a recent study from India demonstrates that having women in public office can alter preexisting misperceptions about women as leaders (Beaman et al, 2009). In 1998, the Indian state of West Bengal introduced political reservation for women for positions of village councilor and chief village councilor. Villages whose council seats were reserved for women were selected randomly, which ensured that on average those villages were otherwise similar to unreserved v*i*llages. Hence, all systematic post-election differences between reserved and unreserved villages must have been due to the gender reservation. Exploiting this fact, the study finds that rural communities that have been exposed to female leaders put in place through quotas develop a positive opinion of these leaders' competence over time. To the extent that negative stereotypes about women's productivity constrain their employment, these findings are very relevant to the issue of women's labor force participation. They suggest that employers who directly observe female employees would then be less biased against hiring women. Thus, even small advances in women's participation in the workforce could set off a chain of wide-reaching improvements.

12. Not surprisingly then, women's labor force participation is a major policy concern in Egypt, with wide-spread consensus on the need to promote women's work opportunities. The Egyptian government has supported women's economic participation through both legislation and labor market programs. In the spirit of the Article 11 of the constitution of Egypt- which holds women to be the equal of men "in the political, social, cultural and economic spheres without detriment to the rules of Islamic jurisprudence (Sharia)"- the government has enacted a number of laws guaranteeing equal treatment of men and women at the workplace, such as mandated equal pay for equal work, and gender-neutral regulation of working hours in the private sector. In addition, it has passed laws intended to increase the compatibility between work and family life, such as mandating generous maternity leave and requiring firms with more than 100 female workers to provide nursery facilities[3]. Mindful of the historical concentration of female employment in a few sectors, the government has several training program to help women broaden their skills and hence gain access to new sectors. However, identifying the right policies is no easy task, since the raw facts about women's work are consistent with several

[3] For a description of the legal provisions governing women in the workplace, see Annex 5

explanations that have been put forward in the literature. A careful analysis of survey data aimed at distinguishing between these explanations therefore forms the core of this report, and is indispensable to its final objective of presenting a nuanced, informed discussion of possible policy approaches.

2. Is Growth the Silver Bullet?

13. The distribution of the female share in employment (or, 'female intensity') across industrial sectors in Egypt is very uneven. Almost half the industries have minimal (below 10 percent) female presence. Very few industries (such as education, health, social work, agriculture and textiles) have above-average female employment intensity. Moreover, the pattern of female employment intensity by industry has remained largely unchanged during 1998-2006. What happens in this small group of industrial sectors therefore has major implications for women's employment outcomes.

14. The clustering of women in a few sectors might, in particular, channel how economic growth affects women's employment. The Egyptian economy expanded at an annual rate of nearly 5 percent in the last ten years. Cross-country evidence suggests that in a middle-income developing country like Egypt, this level of growth should be accompanied by a marked increase in female labor force participation rates. One reason for this not happening in Egypt could be that female employment is concentrated in relatively low growth sectors. It is true that a few of the largest female-intensive sectors–public administration and agriculture–have been disappointing growth performers. But overall, industry-level GDP and employment growth figures show that there was no systematic relationship between industry growth (as measured by total employment or output) and female employment intensity during 1998-2006. Thus, the last decade was a period of high growth which was in no way biased against sectors which employ women. The fact that female participation rates did not rise despite such growth strongly suggests that growth by itself is not going to be the solution for Egypt's low female labor force participation. In part, this is because many female-intensive sectors are small in terms in total employment. This suggests that policy can be more effective if it is geared towards improving female employment across all sectors rather than just focusing on a few sectors that have historically been 'female intensive'.

15. Another question that arises in light of the uneven distribution of female intensity is if women are locked in low productivity activities. If female workers are constrained to work in activities where productivity is low and not rising, then the returns to work are likely to be lower for women. Not only is this undesirable from a welfare perspective, but it also renders non-participation a more attractive option for women, and could therefore be a cause of low female labor force participation. But once again, comparing growth across low and high female intensity industries shows that there was no systematic relationship between sectoral labor productivity and female intensity during 1998-2006. Nor was growth in labor productivity systematically different across high and low female intensity industries. This suggests that if women do face lower returns in the labor market, it is not just because they are locked into a few low productivity sectors. Within sector gender differences in returns could be equally important.

16. While some industries (such as food products and chemicals) experienced marked growth in both total employment and female participation during 1998-2006, the latter was stagnant in many high-growth industries. Thus, there is no reason to believe that female intensity rises automatically in growing industries. Indeed, most industries saw no change in female labor force participation rates during this period. Interestingly, some of the few industries which did see an increase in female intensity were those that have traditionally not been major employers of women in Egypt.

17. All this suggests moving beyond approaches that rely on just growth or focus on a few industrial sectors that have been deemed suitable for female workers. It is necessary to investigate fundamental constraints to women's employment in private firms that are common across industries.

3. Is There Work After Marriage?

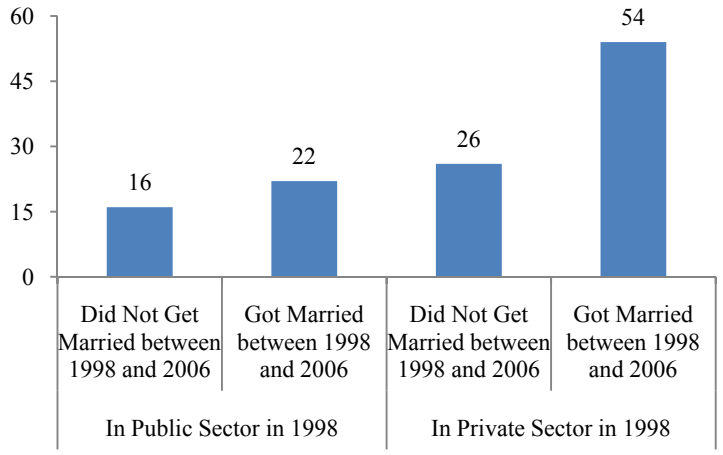
18. Given the shrinking of government sector, the future of women's workforce participation increasingly lies in the private sector. Yet, women's employment continues to be concentrated in the public sector. Private sector firms accounted for less than a quarter of urban female employment in 2006. Their share in rural female employment was even lower, hovering at around 8 percent. The majority of working urban women held government (or public enterprise) jobs, and in rural areas the government and household enterprises accounted for over 70 percent of female employment.

19. Among the several explanations that are put forward to explain why women in Egypt cluster in government jobs, perhaps the most prominent is that government jobs fit better with married life.

20. It has been asserted that work in the public sector is more compatible with women's "reproductive role", offering "shorter hours, more access to childcare, and greater tolerance for maternity leave" (Assaad and El-Hamidi, 2009). Consistent with this view, in the 2006 ELMPS survey the proportion of women workers who reported having been at work during their last pregnancy was significantly higher in the public sector. Qualitative evidence from ELPMS also supports this view. Firstly, women appear to give primacy to marriage over jobs. For instance, female respondents in ELMPS 2006 were asked whether they agreed with this statement- "*Is a thirty year old woman who has a job but it not yet married to be pitied?*". The majority of respondents did express agreement. Secondly, women perceive the private sector to be less amenable to the demands of married life, such as childcare. For instance, when asked to express their thoughts on the statement that "*A woman with a full time job cannot be a good mother*", ELMPS female respondents employed in the non-government sector were more likely to express agreement than those employed in government.

21. If women cluster in government jobs because working conditions there are more compatible with married life, then we should observe a greater exodus of women from private sector jobs after marriage. In our analysis, we tested this implication directly using ELMPS panel data. The advantage of panel data is that it follows the same individuals over time, thereby allowing us to track their labor force participation between 1998 and 2006. We used these data to measure the extent of post-marriage exit from the labor force among female panel respondents, and to test whether it was higher among those respondents who worked in the private sector in 1998. First, we measured the association between marriage and labor force participation by comparing exit rates among female panel respondents who got married between 1998 and 2006 to those whose marital status remained the same. Our result was that compared to women whose marital status remained the same, those who got married between 1998 and 2006 were significantly more likely (by about 14 percentage points) to have left the labor force by 2006. Then, we tested whether this association between marriage and exit was stronger among private sector employees. Relative to those whose marital status remained the same in 1998 and 2006, marriage reduced labor force participation by 28 percentage points among private sector employees, and only 6 percentage points among public sector employees.

Figure 4: Marriage and Labor Force Participation – Change in the probability of post-marriage exit from the labor market between 1998 and 2006



Source: ELMPS 2006 and ELMS 1998

22. Now, it is possible that this difference in post-marriage behavior reflects differences in the characteristics of female private and public sector employees. But the result held even after accounting for differences in age, education and parental education between public and private sector employees, a strong indication that the real reason is the difference in work conditions across such jobs.

23. Thus, our analysis implies that finding ways to make work and married life with children more compatible should be an important policy priority. Broadly speaking, there are four types of policies that should be considered here: maternity leave, childcare support, tax incentives and facilitating flexible schedules at work.

24. Most countries around the world have instituted some form of job-protected maternity leave policy; several also have some form of subsidized childcare. European countries are particularly generous to female employees in this regard. The median leave length of 17 major European countries from the Mediterranean and Western Europe as of 2008 was 52 weeks. Even more impressively, nearly all European countries offer at least 10 weeks of fully *paid* maternity leave. Moreover, many European countries have publicly run or publicly subsidized daycare centers, or have child-minders whose provision is subsidized through public funds.

25. Egypt is no exception to the international trend, having mandated paid maternity of up to three months, and also requiring firms with more than a hundred female employees to provide a nursery for childcare. But while maternity leave and childcare policies are universally accepted as being essential to the well-being of working women, their impact on women's wages and employment is ambiguous. The reason for this is that although such policies make it easier for women with children to work, they also raise the cost of female workers to employers. The first cost is the interruption of women's employment during leave, when employers have to temporarily adjust to the loss of a worker. The second cost is the monetary benefits the employer has to pay workers away on paid leave. Employers can react to these costs by hiring fewer women, or offering them lower wages. International empirical evidence in fact suggests that the net employment effects of paid maternity leave are at best small, and some studies have also found a negative effect on women's wages. In Egypt's case, feasibility and enforcement of mandated leave or nurseries is another concern, given that most firms are very small in size. The majority of ELMPS female respondents who worked in the private sector reported not having benefitted from paid maternity leave to the extent they were entitled to by law.

26. In view of these concerns, any revisions to Egypt's maternal leave policy will benefit from a better understanding of its effects on female employment and wages, and of why so many working women report not having access to it. It is likely that maternity leave or subsidized childcare policy on its own will not be enough in Egypt unless complemented by other measures such as scheduling flexibility, and tax incentives.

27. Interestingly, the experience of the US also suggests that a simple reliance on mandated maternity leave or childcare is not enough. In contrast to Europe, the US approach to this problem has focused on incentives, and on letting employers and employees reach mutually satisfactory work arrangements. The US does not federally mandate paid maternity leave. Although it has childcare subsidy programs, it also uses a variety of tax incentives to make work more attractive for parents, particularly mothers. For example, the Earned Income Tax Credit (EITC) incentivizes work by increasing the after-tax wage for those with low earnings. Further, since a family has to have resident children to receive a significant EITC, the EITC encourages work by making it more attractive to parents. Several rigorous studies have found the EITC to have had a large positive effect on the labor supply of women.

28. The prevalence of flexible work is said to be another major reason for the US having high female labor force participation. The beginning of flexible and part time work arrangements in the 1940s allowed a sizeable portion of female workers to remain economically active past marriage (Goldin, 2006). Since then, flexible work arrangements have become increasingly prevalent, and in 1997, 27 percent of the labor force in the U.S. had access to flexible work arrangements.

29. Policies that facilitate part time and flexible work can be valuable supplements to maternity and childcare care policies. But there might be technological limits to the feasibility of flexible scheduling in many industries. Even in the US, occupational and industry characteristics play a major role in determining the likelihood of having flexible schedules. Yet another concern is that part-time or flexibly scheduled jobs might be low-quality jobs. There is some evidence

that workers with flexible hours usually end up working longer hours than the typical 8-hour day (Golden, 2001).Thus, the main challenge in this area is to facilitate flexible work while avoiding a situation where it is automatically equated with lower work quality.

4. Minding the Gap: Expanding Job Opportunities for Women

30. In 2006, the median wage of women was lower than that of their male counterparts by 24 percent in the formal private sector and nearly 50 percent in informal jobs. Do such wage gaps reflect discrimination and other gender differences in how the labor market operates? Before reaching such a conclusion, it has to be recognized that women in wage earning jobs in Egypt differ from their male counterparts in many respects, such as education and experience, and might be earning lower wages simply because they have lower-paying attributes on average. Therefore, following a well-established literature on the analysis of gender wage differentials, we compared female and male wages after adjusting for attributes like education and experience.[4]

31. Our analysis finds that once differences in education, experience and location are taken into account, it is even clearer that women earn less than men. The estimates suggest that in 2006, women with average education who had just started working would have earned about 46 percent higher wages had they been rewarded as well as men for their human capital. Moreover, one can safely assume that this hypothetical wage gain would be much higher if not for the fact that women are largely in the public sector, where gender wage gaps are much lower.

32. It is possible that given education, experience and location, women earn less than men because they work in low wage industries or occupations. Our analysis shows that gender wage gaps survive even after accounting for differences in job characteristics such as industry, sector (government, formal private or informal firms) and occupation type (professional, clerical, blue collar workers, etc.). Moreover, this gender gap in returns is the largest in the informal sector, followed by formalized private sector employment. For example, holding experience, location and industry constant, the wage of a college educated female was lower than that earned by a college educated male by 80 percent and 50 percent, respectively, in informal and formal private sector employment.[5]

33. We also looked at the evolution of wage gaps across 1998 and 2006 by comparing cross-sections of workers in 1998 and 2006, and also by using panel data to compare wages earned by the same individual in 1998 and 2006. Both approaches suggest that in urban areas, the gender wage gap within each educational attainment group rose during this period. However, there is some evidence that the gap widened the most among the least educated, which suggests that the gender gap in the returns from acquiring education fell. In rural areas, interestingly, we find the gender gap to have fallen during 1998-2006.

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[4] Altonji and Blank (1999) conduct an extensive review of the theoretical and empirical literature that examines the determinants of differences in pay across demographic groups (including female/male wage differentials). In the context of Egypt, gender wage differentials have been analyzed, among others, by Assad and Arntz (2005) and Said (2009).

[5] Because our regressions include experience and location as explanatory variables, the estimated wage gap varies by location and experience. These estimates mentioned above correspond to the Greater Cairo region and to individuals with zero years of experience.

34. That part of the gender wage gap which cannot be explained after taking into account gender differences in observable attributes like education is often attributed to employer discrimination. But besides discrimination, the 'unexplained' wage gap could reflect other differences that are not captured in the data. Indeed, some of these unobserved differences might be better at explaining rising urban private sector wage gaps.

35. For one, it is possible that available measures of education fail to reflect finer gender differences in job-relevant skills or specialization. In fact, data from the 2009 Survey of Young People in Egypt (SYPE) reveal that compared to men, women are less likely to have specialized in fields such as business, economics and engineering. If the returns to these fields of specialization are rising faster, then this human capital differential could be a reason for the rising wage gap in urban areas.

36. Differences in college specialization cannot explain the persistently large (and even rising) gender wage gap among the uneducated. However, SYPE data also suggest that men are better placed to acquire job relevant skills outside of the formal educational system. Young women (aged 15-29 years) are less likely to report that their job requires a special skill, and among those whose jobs require a special skill, women are much less likely to have acquired that skill outside of formal education. Gender differentials in on-the-job human capital acquisition are also possible, with evidence from developed countries suggesting that women receive less on-the-job training than men (Altonji and Blank, 1999). Firm level evidence on worker training from the 2008 Egypt ICA survey supports this view by showing that the length of employer-provided training is strikingly smaller among women.

37. Another potential explanation for unexplained gender wage gaps is women's limited mobility, which prevents them from moving to jobs where they could earn the right wage given their human capital. Being mobile is increasingly salient in a growing, dynamic economy such as Egypt's, and hence immobility could also help explain rising urban wage gaps. Further, our finding that gender wage gaps exist *within* narrowly defined industry groups indicates that policy should do more than just ensure that women are able to move to growing industries.

38. Labor market 'immobility' is a multifaceted concept. To the extent that it reflects some external constraints on choices, even women's concentration in very specific fields of educational specialization can be seen as a form of immobility. For example, it is possible that women avoid some fields of study not because of preferences, because they expect that regardless of having the right specialization, they

Table 1: Job Search Methods (% Saying Yes)

	Males	Females
Enter government job lottery competition	9.71	29.31
Send job application	26.25	24.77
Inquired at work location	20.73	8.76
Applied to a job advertised in newspapers	13.12	5.74
Asked friends or relatives for help	40.42	22.05
Contacted employer	17.59	3.93
Did you register at any govt./labor office?	9.7	21.1
Have you used a regular phone in job-hunting?	47.2	24.47
Have you used a mobile phone in job-hunting?	44	19.68

Source: SYPE (2009)
Note: This table shows major job search methods or those in which there are significant gender differences.

will find it difficult to get jobs that reward such skills. In addition, restricted geographic mobility has been highlighted in the literature on Egypt (Assad and Arntz, 2005). Fresh data on the youth from the 2009 SYPE support this view, with as many as 31 percent of young women reporting that they face the risk of sexual harassment on the street. Young women are also significantly more likely to report other risks like theft, crowding and pushing on their commute. Another manifestation of women's labor market immobility, reflected in their strikingly higher unemployment rates, is that they are more constrained than males in their job search methods. Table 1, which is based on SYPE data, shows that young female job seekers are relatively restricted to using indirect, anonymous methods of job search, such as sending an application or registering at a labor office. Their male counterparts favor more direct methods, such as using the phone, contacting the employer, inquiring at the work location or asking friends and relatives for help.

39. A clear policy recommendation for ameliorating spatial mobility constraints is to improve access to reliable and safe transportation. Besides this, there are several active labor market policies (ALMPs) that can address other types of labor market mobility constraints on women, such as skills training and job search assistance, both of which are common policy tools in developed countries. Labor market training programs include classroom training, on-the-job training and work experience. They can either provide a more general education or specific vocational skills. Job search assistance services include a variety of programs aimed at improving the speed of finding a suitable job, including an assessment of the individual's skills, training to improve the job search abilities of individuals, as well as directly referring the unemployed to job openings.

5. Developing Policy, One Experiment at a Time

40. Reviews of impact studies of active labor market programs conclude that some of these programs have had positive impacts, although their message on the relative effectiveness of different types of ALMPs is mixed (Heckman, Lalonde and Smith, 1999; Kluve and Schmidt, 2002; Kluve 2006; Card, Kluve and Weber, 2009). Job search assistance programs have generally favorable impacts, which is significant given that they are also the least expensive of ALMPs. Training programs- the most widely used ALMPs in Europe- can show mixed results, but on average they are likely to have a modest positive impact on post-program employment rates, particularly in the long run.

41. What do the findings of the ALMP impact evaluation literature recommend for women's work in Egypt? Some studies indicate that the impacts of ALMPs do not differ significantly by gender (Bergemann and Van den Berg, 2006; Card et al, 2009). Therefore, given their low cost and the evidence suggesting that Egyptian women may be markedly disadvantaged in job search, job search assistance programs targeted at women are definitely worth considering in Egypt. Skills training programs need more thought, since their estimated impacts in developed countries are modest. Unfortunately, most ALMP impact evaluation studies are on a developed country. Moreover, very few of the programs studied were targeted by gender, and as a result our knowledge on any gender-specific impact is based on studies that attempted to estimate separate impacts for the same programs on men and women. Thus, almost none of the gender-specific evidence is based on rigorous evaluations. Given that most evidence on ALMPs is based on

settings that may be very different from those faced by women in Egypt's labor market, there is much value to Egypt from learning directly through policy piloting and experimentation, with rigorous evaluation designs built into such pilots from the start.

42. By targeting labor market mobility constraints which make it difficult for women to find jobs, ALMPs can also be useful in reducing unemployment among young women. In particular, high and rising unemployment among well-educated young women suggests that skills training and job search assistance could have large pay-offs. Moreover, though queuing for government jobs is a very likely reason for high unemployment, any improvement in the chances of finding good private sector alternatives to government jobs might make such queuing less attractive. Thus, high unemployment is yet another reason for recommending policy piloting and experimenting with ALMPs.

Experimenting with Employment Subsidies

43. Policy experimentation may be particularly needful in the case of employment subsidies, another type of ALMP that has been used by developed countries to encourage private firms to hire vulnerable categories of workers, such as the youth. Although studies have found that wage subsidies increase the employment rate of the subsidized group, their *net impact* and cost effectiveness may be questionable because of potential undesirable effects that are sometimes unaccounted for in an impact study. If labor markets are already working well, then subsidies are going to distort labor allocation. Furthermore, jobs for subsidized workers might come at the expense of other non-subsidized workers, and firms might lay off subsidized workers once the subsidy ends.

44. Nonetheless, wage subsidies could be a useful tool for raising female participation rates in Egypt. A key argument for them is as follows. Suppose that as discussed in the literature, private firms in Egypt hesitate to hire women due to incorrect stereotypes about low productivity of women, or that women avoid working in private firms because of misconceptions about working conditions in such firms (Mogadham, 1998). By helping bring private firms and women workers into contact, a wage subsidy program can start a process that eventually corrects such stereotypes.

45. Besides anecdotal evidence on stereotypes, we have no direct and quantitative confirmation that they matter, or that a wage subsidy program can help remove them. In this context, the World Bank's proposed Pilot Initiative to improve the employment prospects of recent graduates in Jordan should be of great interest to policy makers in Egypt.[6] This pilot will experimentally test the effectiveness of ALMPs targeted at both young graduates (particularly females) and at the firms which may hire them. The programs to be piloted include job vouchers given to selected new graduates to subsidize them for firms, as well training. Another pilot will provide employability skills training to selected youth. Participating firms and graduates will be selected randomly, thereby generating comparable treatment and control groups. Thus, this pilot initiative will provide the first rigorous, experimental estimate of the effect of wage subsidies and employability training on female employment in a MENA country.

[6] World Bank (2010)

The Gender Equity Model Egypt (GEME), a Unique Policy Pilot

46. There is evidence from Egypt that concerns about the lack of respect or decent treatment, the fear of sexual harassment and long working hours can restrict women to working in a small set of 'appropriate' or highly feminized firms. Hence, encouraging firms to make their work environment more 'gender friendly' could be a useful program for improving women's mobility across private firms. Yet, there is almost no direct evidence on whether such demand-side interventions work. In this context a small pilot project, the GEME, has been initiated under the World Bank's Gender Action Plan to promote gender equity in private firms by engendering policies which facilitate equal access to jobs and opportunities for training and professional development within private firms. Under the GEME, participating firms undergo a training program that includes several modules on practical steps to improve gender equity. At the end of this program, firms passing an audit receive a Gender Equity Seal. Given the lack of evidence in this area, lessons from the evaluation of the GEME pilot will be of vital importance to the future of such programs.

Encouraging Women's Self Employment

47. Another policy area in which there is much scope for careful experimentation in Egypt is encouraging women's entrepreneurship through the access to entrepreneurial training and finance. Helping women start their businesses and become employers rather than job seekers has been recognized as a crucial strategy for improving women's economic participation in Egypt. Running one's own business can make it far easier for women to achieve compatibility between work and marital life. But entrepreneurship among Egyptian women does not seem to have progressed much beyond self-employment, with only about 3 percent of Egyptian women working in the non-farm sector report being an 'employer'. Moreover, this self-employment is mostly rural and possibly of low quality, with 80 percent of the Egyptian women who are self-employed (in the non-farm sector) not possessing even high school education. Unfortunately, labor force survey data are not very useful in identifying constraints to entrepreneurship. Firm-level data from Egypt ICA surveys do hint that female firms owners find it more difficult to access finance, but it is difficult to infer from this if finance or managerial skills is a binding constraint.

48. Rigorous gender specific evidence on the impact of actual access to finance programs is very nascent, and suggests caution in relying too much on this approach. For example, an experiment which gave grants to microenterprises in Sri Lanka found much higher returns to capital for males than females (de Mel et al. 2009). Banerjee et al. (2009) study the impact of expanding group lending to women in slum areas in India, finding only modest effects on profits.

49. The World Bank's impact evaluation of the Micro and Small Enterprise (MSE) lending project in Egypt is an important new initiative in this area. One important component of this MSE lending program will be to use post office branches as loan outlets. Besides offering a standard microfinance loan product, it is proposed that the post office branches will have a product targeted at female household heads with the aim of providing them with productive employment opportunities. The impact evaluation project seeks to measure the impact of access to this finance on entrepreneurship -particularly among women- using a rigorous experimental

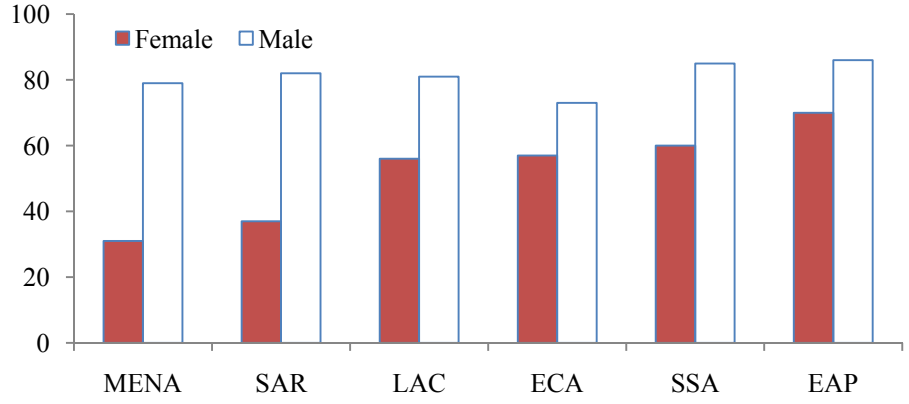
methodology. It will be the first such experiment to measure the impact of microfinance in the Middle East and North Africa, and will also be first randomized evaluation of a large government microfinance program. Thus, its findings will be very relevant to the design of policies promoting women's entrepreneurship.

1. WOMEN AND WORK IN EGYPT: THE FACTS

I. Women's Participation in the Labor Force in Egypt

1.1 Women's participation in the labor force in the Middle East and North Africa (MENA) region is lower than in any other region in the world. At 26 percent, MENA's female participation rate is considerably lower than even the low and middle income country (LMI) average of 39 percent.[7] For men, however, participation rates in MENA countries are similar to that in other regions (see Figure 1.1). Understanding what constrains women's participation in the workforce is therefore one of the core development challenges that MENA countries face.

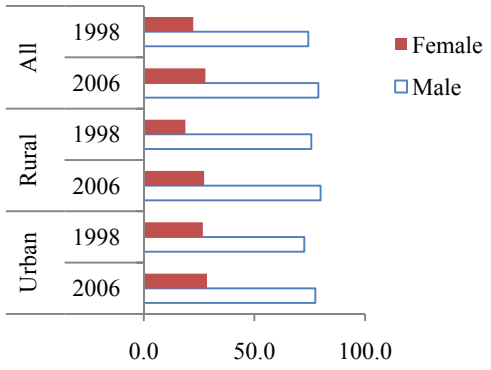
Figure 1.1: Labor Force Participation rates in 2006 (ages 15-64 years)



Source: World Bank Central Database (September 2008)
Note: MENA = Middle East and North Africa, SAR = South Asia Region, LAC = Latin American and Caribbean, ECA = Europe and Central Asia, SSA = Sub-Saharan Africa, and EAP = East Asia and Pacific

1.2 Within the MENA region, female labor force participation levels in Egypt fall in the bottom third.[8] In 2006, the female labor force participation rate in Egypt was about a third of that of males in both rural and urban areas (Figure 1.2). Not surprisingly, a 2007 report by the World Economic Forum ranked Egypt 120th among 128 countries in terms of women's economic opportunity.

Figure 1.2: Labor Force Participation rates in 2006 and in 1998 among working age population in Egypt (aged 15-64 years)



Source: ELMPS 2006 and ELMS 1998

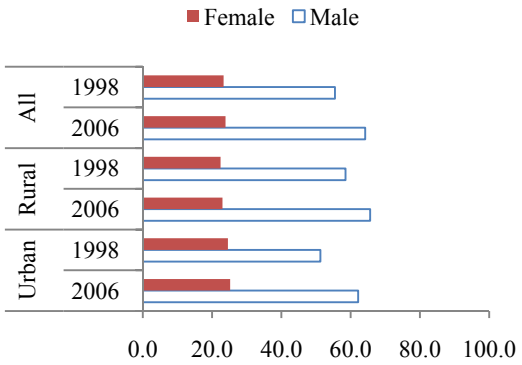
1.3 In recent times, Egypt has achieved consistent improvement in several other development indicators for women and girls. For example, the gender gap in school enrolment has narrowed significantly over time; the ratio of

[7] All the statistics in this paragraph are cited from the World Bank Central Database (August 2009).
[8] According to 2007 figures obtained from the World Bank's Development Data Platform.

female to male secondary school enrollment presently stands at 0.94, and more women than men are enrolled in university.[9] Child health indicators such as immunization rates and infant mortality have improved for girls and boys alike. Fertility has been on the decline, reducing the health risks for women and their children, and women are getting married at a later age.[10] However, in Egypt, as in many other countries in the MENA region, progress in these spheres has not translated into improvements in women's participation in the workforce. This phenomenon—where in women's labor force participation levels are substantially lower than is to be expected given their progress in other developmental markers—has been referred to as a 'gender paradox'.[11]

1.4 The persistence of the gender paradox is underscored by the contrast between trends in labor force participation and education among young women (aged 15-29). While participation in labor force increased from about 55 percent to 64 percent between 1998 and 2006 among young men, participation rates remained near-stagnant at about 24 percent among their female counterparts (Figure 1.3). Yet, young women's education levels improved considerably during those eight years, with the share of Egyptian women in the 15-29 year age group with a university degree rising from 6 to 12 percent, and the share of those with a vocational school degree rising from 23 to 33 percent. Even with increased education levels over time, women's economic participation remained dormant.

Figure 1.3: Labor Force Participation rates in 2006 and in 1998 among youth population (aged 15-29 years)



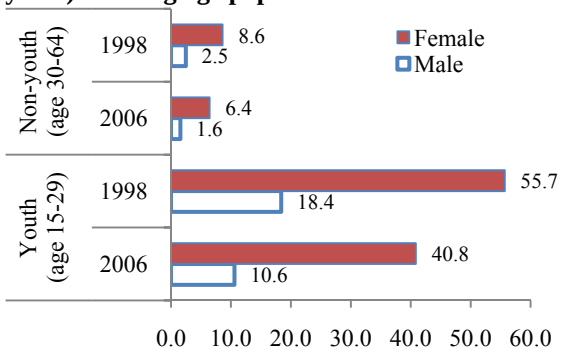
Source: ELMPS 2006 and ELMS 1998

1.5 Another major gender issue in the Egyptian labor market is that women who work are strikingly confined to a narrow range of sectors. To begin with, 58 percent of rural female employment is in agriculture, while government jobs account for 55 percent of urban female employment. Unfortunately, while the rural agricultural sector has a limited capacity to absorb employment, government employment in Egypt has been shrinking over time. As such, while international evidence suggests that growth in female labor force participation is accompanied by major diversification in women's jobs, the remarkable degree of women's employment clustering (that the above facts hint at) must be impeding women's prospects for participation in the Egyptian economy.

[9] World Bank's Development Data Platform (2007).
[10] World Bank's Development Data Platform (2007).
[11] World Bank (2004).

1.6 At a time when the country is undergoing a demographic transition characterized by a 'youth bulge',[12] Egypt's labor market is also characterized by a high degree of youth unemployment, with the unemployment rate among the young being over six times that among the non-youth. In this respect as well the gender dimension is compelling: the unemployment rate among females is substantially higher than that of males, both among the youth and the non-youth population (Figure 1.4).

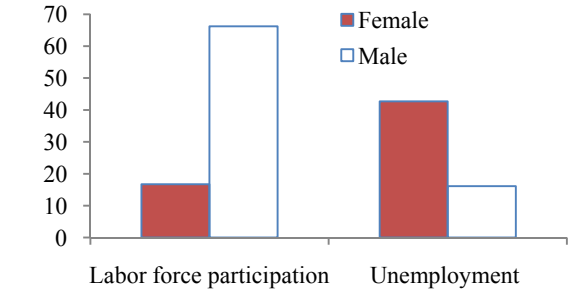
Figure 1.4: Unemployment rates in 2006 and in 1998 among youth (15-29 years) and non-youth (30-64 years) working age population



Source: ELMPS 2006 and ELMS 1998

1.7 Even the latest data do not show improvements in labor force participation patterns among young women. Data from the 2009 Survey of Young People in Egypt (SYPE) indicate that the labor force participation rate among female youth (aged 15-29 years) continues to remain far lower than that for men. In fact, it actually declined to 17.2 percent in 2009 from 24 percent as reported from ELMPS 2006. Among young women, unemployment continued to remain very high at 42.7 percent. This also is a slight increase from the levels of 2006.

Figure 1.5: Labor Force Participation and Unemployment rates in 2009 youth population (aged 15-29 years)



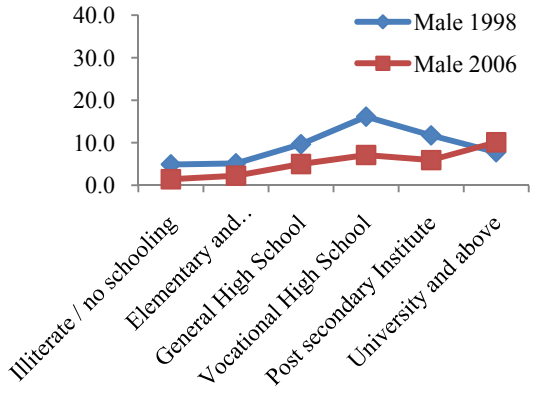
Source: SYPE 2009

1.8 Worryingly, vulnerability to unemployment rises with higher levels of education, and more so for women. Figure 1.6 plots unemployment rates by education for working age males and females in 1998 and 2006 to illustrate this. Women had considerably higher unemployment rates than men at all levels of education in both 1998 and 2006. Rather alarmingly, the vulnerability of highly educated women to unemployment has been increasing over time; for female university graduates, unemployment levels rose almost by a third from 19 to 27.5 percent during those eight years at a time when their labor force participation rates remained virtually stagnant. Another worrying trend is that unemployment rates among women with vocational school education are very high, and do not appear to be falling as much as they are for men.

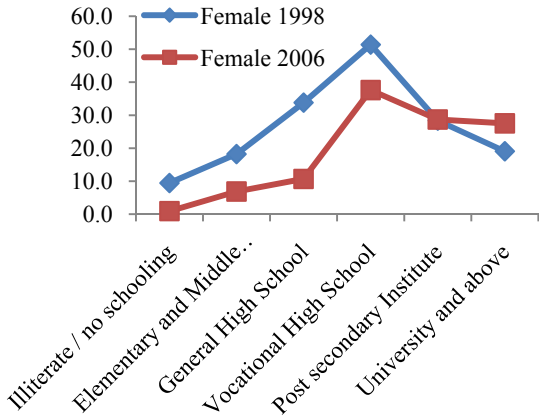
[12] Projections based on the ELMPS 2006 and the ELMS 1998 suggest that the population's share of individuals aged 20-29 rose from 16 percent to 20 percent between 1998 and 2006. The youth population is experiencing such an increase in other MENA countries as well. A World Bank (2004) study points out that six in ten people in the MENA region are below the age of 25.

Figure 1.6: Unemployment Rate (%) by Education across 1998 and 2006

(a) Males aged 15-64 years



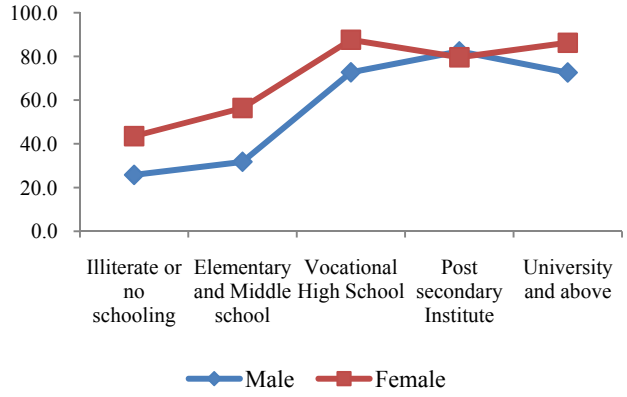
(b) Females aged 15-64 years



Source: ELMPS 2006 and ELMS 1998

1.9 ELMPS data also suggest that long spells of unemployment may be common in Egypt, especially among women. In 2006, more than 40 percent of unemployed women with middle schooling or less had been looking for a job for over a year (Figure 1.7). Worse, better-educated women are not only more prone to unemployment, but also suffer from longer spells of unemployment. Among unemployed women with a vocational or university degree, more than 85 percent had been unemployed for longer than a year in 2006.

Figure 1.7: Education and Long Spells of Unemployment (% of unemployed who have been unemployed for > 1 year)



Source: ELMPS 2006

1.10 These facts make a compelling case for our intended policy-oriented analysis of women's labor force participation in Egypt. At the outset, we should acknowledge that among other things, this phenomenon could well reflect a voluntary choice among women to not work. To the extent it is so, low level of participation is not an obvious policy prerogative. But it is likely that among those not participating there are many who were discouraged or constrained from entering the labor force. For example, some employers might be less willing to hire women because due to lack of information or prejudice, they consider women less productive than men.

1.11 Identifying the market failures or inefficiencies that cause low labor force participation by women *is* a critical policy issue, and will therefore be the focus of this policy note. Such labor market problems impede the economy from fully utilizing a valuable human resource. These costs are all the greater for Egypt because it has invested heavily in women's education. While education is of great intrinsic value in itself, high unemployment among the educated points to an untapped pool of educated women who are willing to work but are unable to find suitable

jobs. In fact, all women- irrespective of their education- would be in a position to find more fulfilling and productive uses of their time if labor markets served them well. Improved outlook for a rewarding career would also increase women's incentive to invest in their human capital in ways that are economically relevant. Thus, addressing constraints on women's labor force opportunities will contribute to economic growth by raising investment in human capital and improving the efficiency of its allocation.

1.12 The significance of raising female participation in the labor force may go well beyond its role in raising incomes. There is much evidence that the income and knowledge gained from working outside enhance women's bargaining and decision making powers, both within and outside the household. This in turn has beneficial impacts on the lives of women and their households (see Box1.1 for more details).

Box 1.1: What Do We Know About Women's Labor Force Participation and Impacts on Household Welfare?

Studies from across the world indicate that increased control of women over household resources is associated with their enhanced well-being and status. For example, a study on India shows that female mortality is lower where female labor force participation rates and earnings are higher.[13] At the same time, while higher income is associated with higher level of welfare for household members, the marginal impacts are considerably greater if the income is in the hands of the mother. As women gain more access over spending, a larger share of household resources tends to be devoted toward children's education, health and nutrition.[14] Although similar MENA-specific empirical evidence is scarce, there are plenty of compelling examples from all over the developing world.

Evidence from Brazil shows that additional income in the hands of a mother is associated with substantial improvements in child survival and nutrition levels compared to additional income in the hands of a father. The estimated marginal effect of a woman's income on child survival is almost 20 times larger than that of a male's income; for indicators of child nutrition like weight-for-height and height-for-age, the effects of additional income in the hands of women are four to eight times as large (Thomas 1990, 1997).[15]

Studies from Bangladesh report similar findings. Women's borrowing from microfinance programs appears to impact child welfare more substantially than does borrowing by men; borrowing by women leads to significant improvements in children's nutritional levels, and in school enrollment levels of both boys and girls. [16] Thus, we find strong international evidence of tangible links between women's access to resources and their labor force participation on income and on broader household level welfare indicators.

1.13 The externalities of female participation in the workforce also reach beyond the household. Amartya Sen has long argued that education and participation in paid work are important determinants of female voice and agency in a society's decision making processes,[17] and there is rising evidence that economic participation generates substantial positive

[13] Rosenzweig and Schultz (1982).
[14] For a detailed discussion of this issue see Chapter 4 in World Bank (2006).
[15] Thomas (1990) and Thomas (1997).
[16] Pitt and Khandker (1998), Khandker (1998).
[17] Sen (1990).

externalities in the form of greater civic and political participation. A 23 country study during the period 1945-2000 shows that low levels of female labor force participation can contribute to women being underrepresented in public life "both by reinforcing traditional voter attitudes toward women (a demand-side feature) and by constraining the supply of women with professional experience and resources who are capable of mounting credible electoral campaigns."[18] In this context, it is instructive to note that according to data available in 2004, the lowest level of female parliamentarians worldwide was in the Arab States (six percent).[19]

Box 1.2: Externalities from Women's Participation: Example from Rural India

In addition to their low levels of workforce participation, women remain vastly underrepresented in local and national politics. As of July 2006, women accounted for only 17 percent of parliamentarians worldwide. Over a hundred countries around the world have introduced some sort of affirmative action policies for women in public office. But how might quotas work? One reason to expect quotas to have a long-term impact on the electoral outcomes for women is that they force voters to observe women in political leadership positions. If women, on average, perform better than anticipated by voters, then voters will be more willing to elect women candidates in future elections, even in the absence of quotas.

Indeed, a recent study from India demonstrates that having women leaders can alter preexisting misperceptions about women as leaders.[20] In 1998, the Indian state of West Bengal introduced political reservation for women for positions of village councilor and chief village councilor. Villages whose council seats were reserved for women were selected randomly in every election. Exploiting this experimental assignment of reservation, the study finds that rural communities that have been exposed to female leaders put in place through quotas develop a positive opinion of these leaders' competence over time. Additionally, the example of these female leaders is likely to encourage greater involvement of other women in public life.

To the extent that negative stereotypes about women's productivity constrain their employment, such findings are very relevant to the issue of women's labor force participation. They suggest that employers who directly observe female employees may no longer be biased against hiring women. Thus, even small advances in women's participation in firms could set off a chain of positive feedback.

1.14 It is no surprise therefore that women's labor force participation has emerged as a major policy concern in Egypt, and that there is a wide consensus on the need to promote women's work opportunities. The key labor market patterns with respect to gender are consequently well documented in the literature, and a range of explanations have been put forth. But there have been few attempts to rigorously seek answers by going beyond descriptions of the data. Because the observed patterns are consistent with several hypotheses, and because these hypotheses have very different policy implications, there is tremendous scope for utilizing rich survey data from Egypt to conduct a deeper analysis of these questions.

[18] Iverson and Rosenbluth (2008).
[19] Beaman et al. (2009).
[20] Beaman et al. (2009).

1.15 The rest of this chapter presents the basic diagnostics on gender and labor market outcomes using ELMPS data. To lay the groundwork for the detailed analysis undertaken in later chapters, we first profile women who work and where they work.

II. Which Women Work? Determinants of Labor Force Participation in Egypt

1.16 When comparing the education and age profile of labor force participants and non-participants in Egypt across women and men, two facts stand out. Firstly, among women it is the more educated who are more likely to participate in the labor force. A large proportion of women out of the labor force (44 percent) are illiterate or without schooling. In comparison, only 31 percent of women in the labor force are illiterate or without schooling (Table 1.1). In contrast, the share of the illiterate or unschooled is actually smaller among men who are out of the labor force, compared to those who are in the labor force. Secondly, while about 83 percent of non-participating men are young (aged 15-29 years), the age profiles of women in and out of the labor force are less skewed.

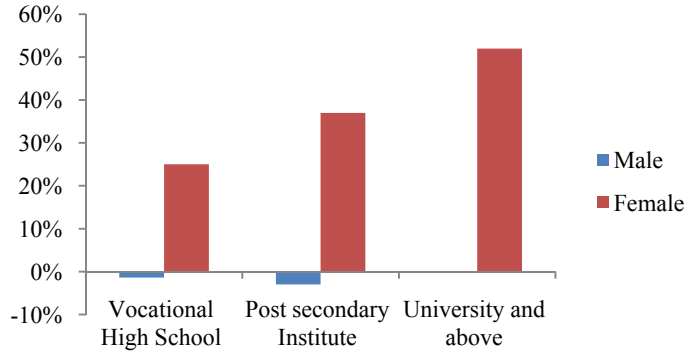
Table 1.1: Education and Age Profile by Labor Force Participation in 2006

	Males		**Females**	
	Currently In Labor Force	Currently Out of Labor Force	Currently In Labor Force	Currently Out of Labor Force
Education share				
Illiterate or literate without schooling	28.1	11.2	***31.2***	***43.5***
Elementary and Middle school	17.1	38.2	6.3	20.4
General High School	1.0	20.4	0.4	6.7
Vocational High School	32.0	23.2	32.7	21.6
Post secondary Institute	4.8	2.3	6.2	2.4
University and above	17.1	4.8	23.2	5.4
Total	100.0	100.0	100.0	100.0
Age Groups				
Share aged 15-29 years	40.1	***83.4***	43.0	52.9
Share aged 30-44 years	35.6	1.8	35.3	23.2
Share aged 45 years and above	24.4	14.8	21.7	24.0
Total	100.0	100.0	100.0	100.0

Source: ELMPS 2006

1.17 Regressions in which we account for differences in other characteristics (like age, marital status and location) confirm that while men participate in the labor force regardless of education levels, higher education is strongly linked to participation for women (see Figure 1.8).[21] Compared to women with no education, women who are in vocational school are 25 percentage points more likely to be in the labor force. In an even stronger contrast, compared to women with no education, female university graduates are 52 percentage points more likely to be in the labor force.[22]

Figure 1.8: Education and Labor Force Participation Rates



Source: ELMPS 2006
Note: Based on marginal effects in Probit estimation controlling for other characteristics. Comparison Group: No Education.

1.18 While our focus is on constraints to participation, it is worth noting at this juncture that the positive relationship between women's work and education is consistent with standard hypothesis about unconstrained labor supply: less educated women have lower expected returns from labor force participation. More educated women could also have a stronger preference for working outside home than less educated women. Moreover, this preference could be related to cultural imperatives. Unsurprisingly, societal beliefs in the predominance of women's domestic role, 'codes of modesty' that enforce mobility restrictions on women, and men's role as the main wage earner in the household are all often mentioned in this context in Egypt. Box 1.3 has a more detailed discussion of this.

[21] Figure 1.8 plots the estimated coefficients on education dummies from Probit regressions which control for individual characteristics such as age, marital status, number of children, and location. See Table A 1.2.1 in Annex 1.2 for details of the Probit estimation. All coefficients measure differences relative to uneducated, unmarried women with no children.

[22] The estimated coefficient on high school education (not shown in the graph) is negative. This is because in the 15-64 age group, a high proportion individuals reporting 'high school education' are in fact still in school.

Box 1.3: Cultural Norms and Women's Work in Egypt

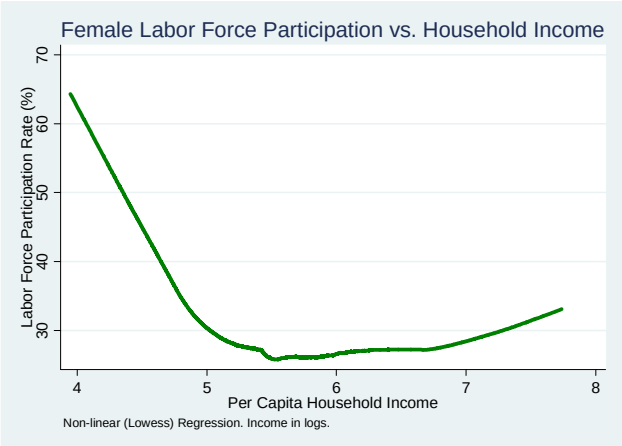
The role of cultural and social norms in constraining women's participation in the workforce in Egypt is highlighted widely in the literature. Studies point to the value system of honor, where family honor depends on the conformity of females to "modesty codes" which restrict their activities to the home. Researchers have also cited kin-ordered patriarchal and agrarian structures as reasons for restricting women from working.[23] An important manifestation of prevailing cultural norms is the restriction on women's mobility. For example, Assaad and Arntz (2005) argue that women's restricted mobility limit their participation in the workforce. Using cross sectional data in Egypt from 1988 and 1998, they show that while men's geographical mobility increased significantly over those ten years allowing them to pursue private sector jobs, women's mobility remained stagnant.

Perceptions of prevailing cultural norms at the workplace, especially in the private sector, are also cited as a barrier to women's working. Work conditions in much of the private sector is typically considered 'unsuitable and hard' for women. At the same time feelings of insecurity at male-dominated work places, such as in small sized business entities with informal work arrangements, deter women from seeking jobs there.[24]

Finally, institutional and legal factors, sometimes borne out of traditional social norms and sometimes resulting from genuine attempts to help women in the workplace, can negatively impact their work opportunities. The literature suggests that legal restrictions on women's work hours and work times in certain types of jobs lower their employment options in Egypt. For example, women are not allowed to work in certain types of jobs like in bakeries, bars and restaurants. They are also not allowed to work at night, except in certain specific situations. On the other hand, 'enabling' legislation such as guaranteed benefits to women in the workplace might lower their employability by increasing the employers' costs of hiring women.[25]

1.19 Besides education, income appears to be another strong correlate of women's labor force participation. Interestingly, as in other developing countries, a U-shaped relationship is observed between unearned wage income (that is, income of other household members) and women's participation in the labor force in Egypt (Figure 1.9). Women from the poorest of households have the highest participation rates. Among middle-income households, women's participation falls, but again rises among upper-middle and high income households. The common explanation for this U-shape is as follows. In the poorest households women are likely 'pushed' into the labor force. However, women's "unearned" income—spouse earnings and other profits or transfer income of the family—exert a

Figure 1.9: Female labor force participation vs. household income



Source: ELMPS 2006.
Note: This graph is estimated for wage workers

[23] Assaad and Barsoum (2009) survey this literature.
[24] Assaad and Barsoum (2009).
[25] Assaad and Barsoum (2009), Kandil (2007), World Bank (2003).

negative income effect. This is because as income levels rise, households can afford decreasing the amount of time that women devote to work and substitute towards unpaid household activities. This results in reduced work hours and possibly withdrawal from the labor force for women belonging to wealthier households. Beyond a point, however, as new opportunities for work open up with education, women are 'pulled' into the labor force.

1.20 Consistent with this view, in regressions where we hold other characteristics of women (such as education) constant, a negative relationship between wealth and women's participation in the workforce is observed. Compared with women belonging to households in the lowest wealth quintile, women in other wealth quintiles are between 9 to 12 percentage points less likely to be in the labor force.

1.21 Regressions also suggest that marriage and children exert a strong negative influence on women's labor force participation status. In the 2006 ELMPS cross-section, married women are almost 30 percentage points less likely to participate in the labor force than are unmarried women (holding other attributes such as education and age constant).

1.22 Another interesting finding is that spatial (Governorate level) differences in participation rates are more pronounced for women. Rural women are more likely to participate than urban women. This could well be a consequence of lower incomes of husbands in rural areas.[26] Besides, most rural female employment is in household enterprises, where it might be easier to combine childcare with work.

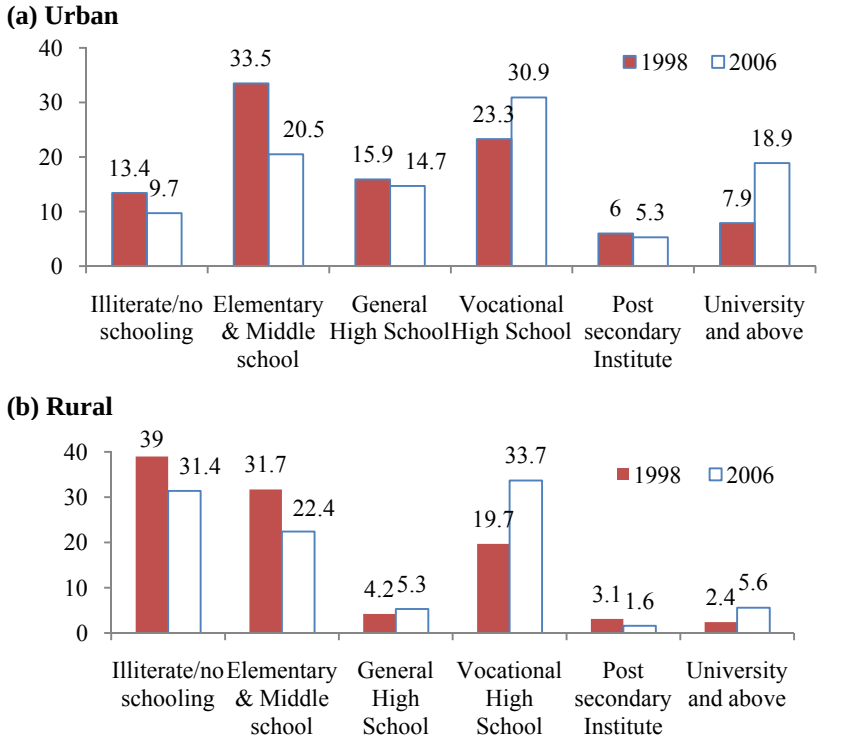
[26] Assaad and Barsoum (2009).

Women's Participation in the Labor Force Over time (1998 to 2006)

1.23 Looking over time, the most striking fact about Egypt is that its female labor force participation is not keeping pace with rising female education levels.

1.24 Education levels of both urban and rural women have increased between 1998 and 2006. For instance, the share of the university educated in the female working age youth population (aged 15-29 years) has increased from 8 to 19 percent in urban areas; while very low in rural areas, this figure has increased there from 2 to 6 percent. The urban female labor force participation rate, on the other hand, has remained stagnant at 25 percent. Although the participation rate has increased from 18 to 27 percent in rural areas, the next section will show that most of this increase appears to be driven by employment in agricultural household enterprises, instead of the sectors where more educated women would be expected to find employment.

Figure 1.10: Education of Females aged 15-29 in 1998 and 2006



Source ELMS 1998 and ELMPS 2006

1.25 As a result of these trends, the more educated account for an increasingly large share of women *not* in the labor force. For example, the share of the university educated among urban women not in the labor force rose from 3.9 percent in 1998 to 9.6 percent in 2006, while the share of the vocational school educated among rural women not in the labor force increased from 6 to 21 percent. At one level, this is not puzzling: as we will show below, women are mostly concentrated in the government sector,

Table 1.2: Distribution of Education among out of labor force working age females (aged 15-64 years) across 1998 and 2006

	Urban		Rural	
Education share	**2006**	**1998**	**2006**	**1998**
Illiterate/no schooling	31.3	42.5	53.0	68.7
Elementary & Middle school	22.6	29.0	18.7	21.4
General High School	10.2	10.2	3.9	2.6
Vocational High School	22.2	11.7	***21.1***	***6.1***
Post secondary Institute	4.1	2.7	1.1	0.6
University and above	***9.6***	***3.9***	2.1	0.7
Total	*100.0*	*100.0*	*100.0*	*100.0*

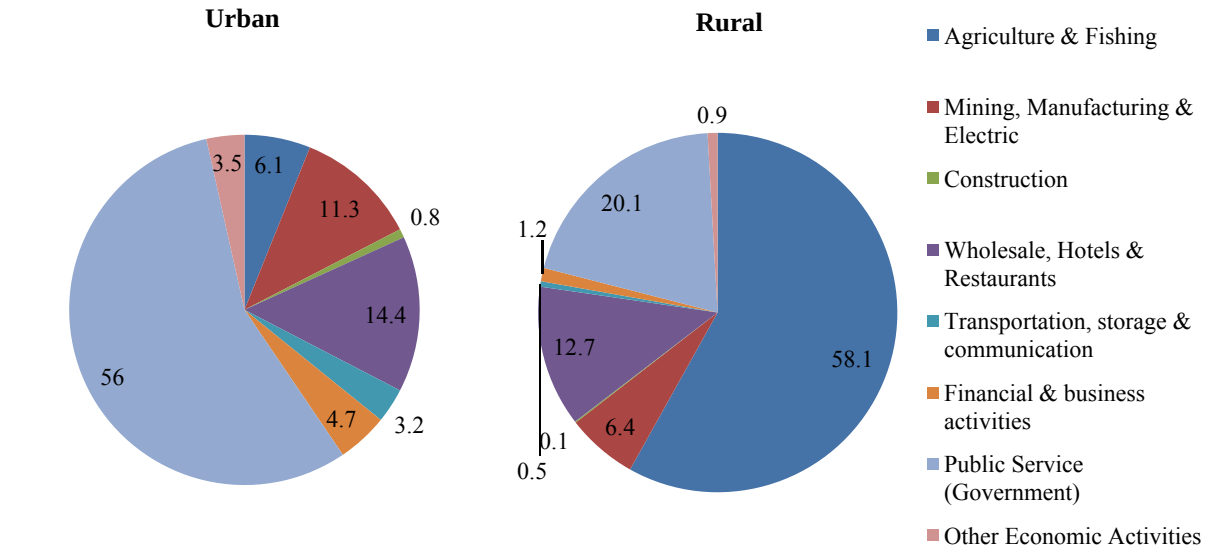
Source ELMS 1998 and ELMPS 2006

which has not been expanding. At the same time, it is worrying that a dynamic private sector is unable to absorb the growing ranks of educated women.

III. Where Do Women Work?

1.26 Women in Egypt overwhelmingly work in a narrow set of jobs, hinting at stark gender differences in women's preferences over or access to jobs. A preliminary analysis of the ELMPS data gives a picture of clustering and low job mobility among Egyptian women. Figure 1.11 looks at the sector-wise employment profile, by gender and by rural/urban location, highlighting two areas in which women cluster: government and agriculture. In urban areas, a remarkable 56 percent of all female employment is concentrated in the government sector. In contrast, only 19 percent of male employment is in this sector (see Table A 1.1.1 in Annex 1.1). Even more remarkably, 58 percent of rural women are employed in agriculture and fishing, and a further 20 percent in the government sector.

Figure 1.11: Profile of Employed Women (Ages 15-64)



Source: ELMPS 2006 and ELMS 1998

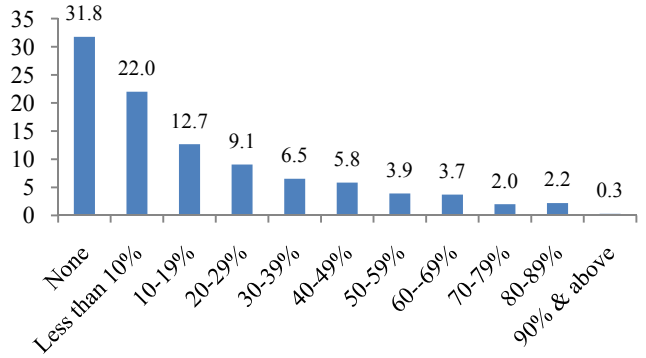
1.27 Women also work fewer hours than men (see Table A1.1.1 in Annex 1.1), especially in rural areas, suggesting that women who participate in the labor market may devote significant time to household responsibilities. ELMPS data also indicate that women are spatially less mobile, having significantly shorter travel time to workplace than men. Strikingly, 27 percent of employed women work from home, with a reported travel time of zero. For men, this proportion is just 1 percent.

Box 1.4: Why Do Women in Egypt Work in Such a Narrow Set of Jobs?

Studies have given considerable attention to gender related employment segregation in Egypt. Assaad and Arntz (2005) attribute the limited participation of Egyptian women in the workforce to their restricted geographical mobility. They also observe that women in Egypt tend to cluster in the government sector, and that opportunities outside the government are highly segmented across gender lines. Only nine job types captured 95 percent of female nongovernmental paid work.[27] Studies suggest that public sector jobs might be preferred by women because they offer more benefits and guarantees regarding maternity leave, social security, and because their hours of works are more flexible and compatible with women's household responsibilities. The preference for government jobs is particularly pronounced among married women. This preference could also be due to social norms that deem government jobs as more 'appropriate' for women.[28] Segmentation is also consistent with employer discrimination. Chapters 3 and 4 of this report investigate these issues in detail.

1.28 The 2006 Egypt ICA surveys data from manufacturing firms adds to the picture of segmentation. Figure 1.12 shows that more than 60 percent of manufacturing firms had less than 10 percent employees who were female. Only a small set of manufacturing firms (about 12 percent) had more than 50 percent of employees who were women.[29]

Figure 1.12: Distribution of Firms (%) by Female Employees

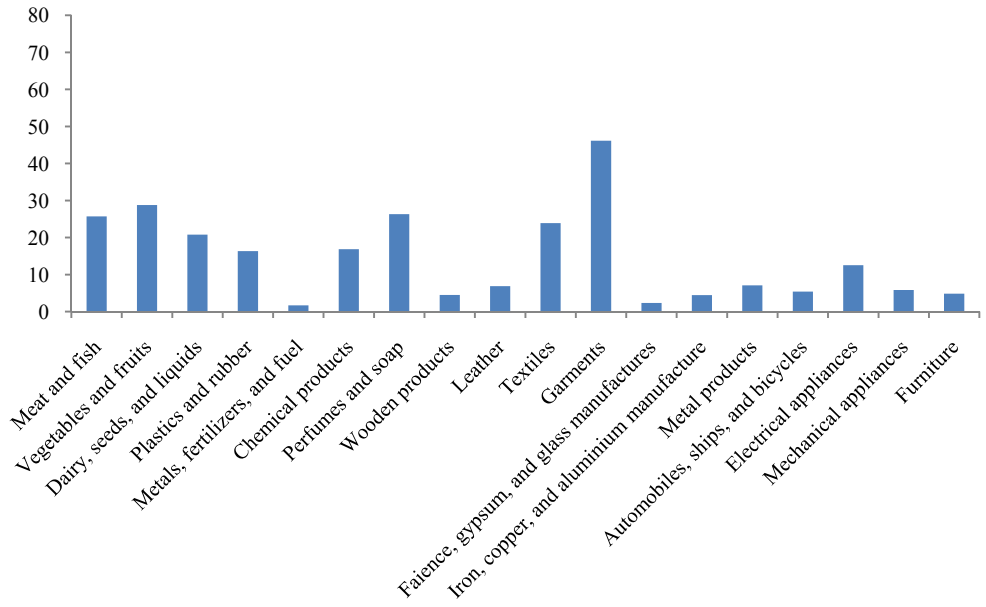


Source: Egypt ICA Survey 2006

1.29 In fact, as shown in Figure 1.13, most industries have very little female employment, while some, such as textiles, garments, fruits and vegetables, meat and fish, and perfumes and soap are notable in their concentrated levels of female employment.[30] Women could be concentrating in these firms because these firms provide a better environment for female employees, because of network effects in employment (women helping women get jobs), or because these are in sectors in which women have a comparative advantage.

[27] Clerical work, teaching, and domestic service are the three major occupational fields for women (Assaad and Arntz, 2005).
[28] Assaad and El-Hamidi (2009), Kandil (2007).
[29] The 2006 ICA survey did not have gender disaggregated information on the number of workers employed by service sector firms.
[30] These patterns of sex segregation in firm-level employment were also noted in the 2009 World Bank report on "Women Workers and Entrepreneurs in Egypt".

Figure 1. 13: Distribution of Female Employees (%) by industry



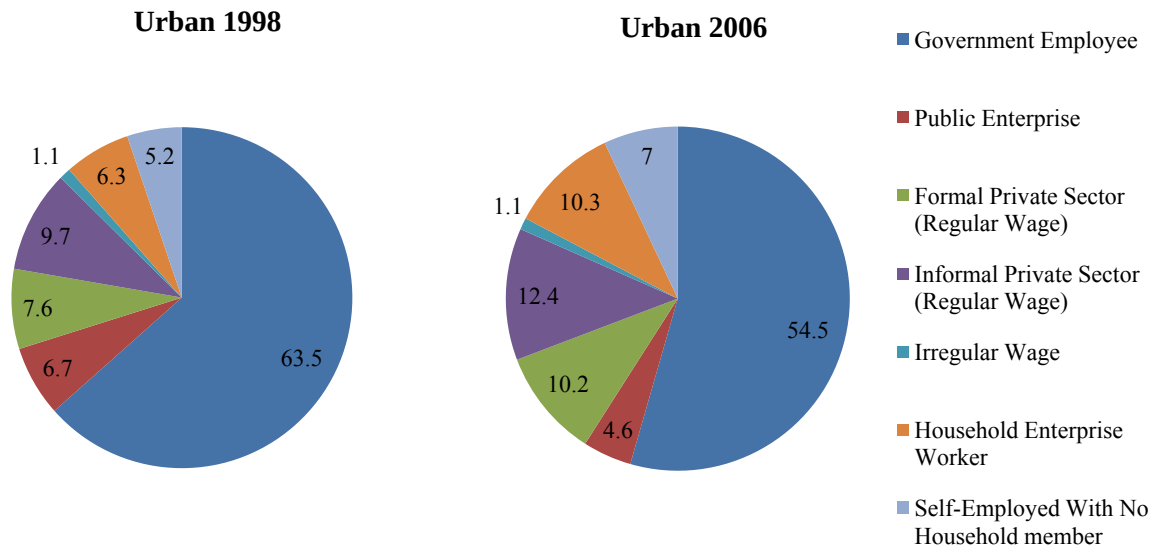
Source: Egypt ICA Survey 2006

1.30 The 2008 Egypt ICA survey reveals very similar patterns to the 2006 ICA survey. The 2008 ICA survey contains gender disaggregated data on the number of workers for firms in the services and the informal sectors as well. According to the 2008 ICA survey both these sectors employ very few women; about 13 percent of all employees in service sector firms are women, whereas only 5 percent of all employees in informal sector firms are women. This point is further magnified by the observation that about 40 percent of service sector firms employ no women while almost 90 percent of informal sector firms employ no women.[31]

1.31 Not only do Egyptian women work in a narrow set of jobs, but also there is little evidence of diversification over time. In particular, women do not appear to be moving into the formal private sector or into self-employment, the sectors which could potentially offer the most possibilities for growth. Looking first at urban areas, between 1998 and 2006, as the share of the government sector in urban female employment declined, the sectors which experienced the largest increases in their shares were household enterprises and the informal sector (Figure 1.14). Similarly, when employment is broken up by economic activity, there is no evidence of a major increase in the shares of the services or manufacturing sectors in urban female employment.

[31] For the first time, the 2008 Investment Climate Enterprise survey included 500 informal firms from a sample frame of 25,000 firms. These 25,000 firms were identified by the Center for Social Research at the American University in Cairo as "informal" if they met at least one of three criteria: they were unregistered, they were unlicensed, or they kept no formal accounts.

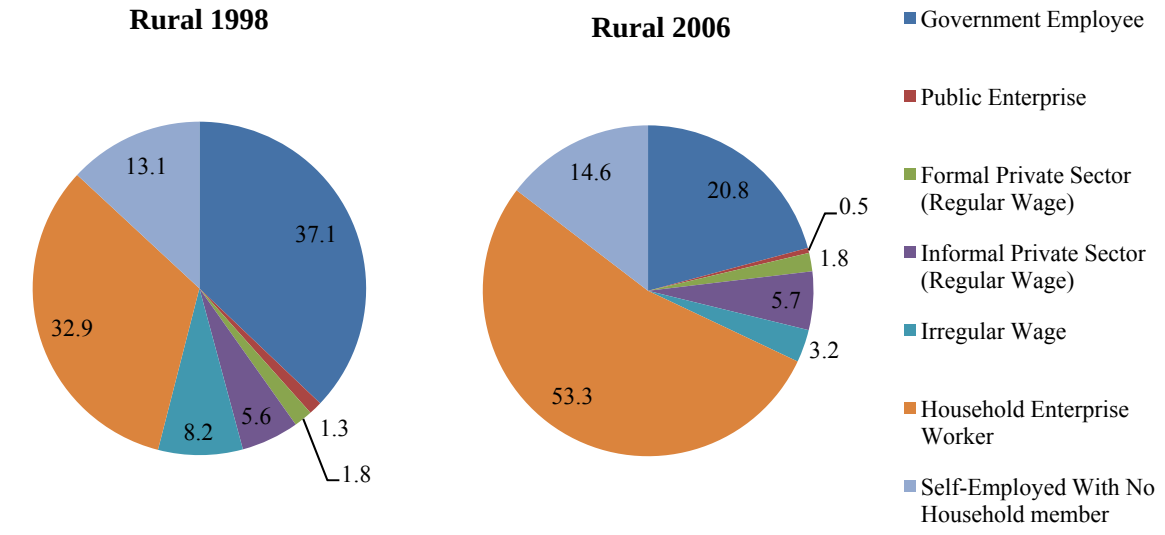
Figure 1.14: Changes in the Profile of Female Employment (Urban)



Source: ELMPS 2006 and ELMS 1998

1.32 In rural areas, the majority of rural female employment is in agricultural household enterprises. It does not appear that rural women are moving out of agriculture and household enterprises, and into wage earning jobs or self-employment (Figure 1.15). In fact, between 1998 and 2006, the share of household enterprises in rural female employment *rose* from 33 percent to 53 percent, while that of wage and self-employment stayed the same.[32]

Figure 1.15: Changes in the Profile of Female Employment (Rural)



Source: ELMPS 2006 and ELMS 1998

[32] Assaad (2009) notes that some of the increase in rural female LFP could be due to better measurement of productive activity in the primary sector in ELMPS 2006 compared to ELMS 1998. So some of this increased bunching is likely spurious, but nonetheless, we can say that rural women show no sign of moving out of the primary sector.

IV. Issues Probed in the Policy Note

1.33 Having presented the broad patterns in women and labor force participation in Egypt, we will now give the roadmap of the main body of this report. The basic objective of the note is to improve our understanding of the constraints that Egyptian women face in participating in the labor force, analyzing rich survey data to better identify policy areas where interventions are promising and realistic. The remarkably low and unchanging labor force participation patterns among women in Egypt suggest that this challenge has no easy or even comprehensive solution. Thus, our report approaches this issue from several angles.

1.34 We start by recognizing that to the extent the phenomenon of low female labor force participation is rooted in culture, there are limits to the role of policy. But while cultural factors are widely regarded to inhibit women's choices to work, this phenomenon is not unique to Egypt. Social norms against women working outside home have prevailed in all cultures at some point in time. Even the United States and Europe are not exceptions to this. Indeed, if anything, the experience of the U.S. shows that cultural norms need not be viewed as a static entity that is destined to hinder women's role in the workforce. Culture itself can evolve along with other changing economic, social and technological realities, many of which can actually be influenced by policy. Box 5 presents the U.S. as a case study in how the evolution of women's labor force participation has been a complex, multi-dimensional and long-term process of change which is ultimately so deep-seated that it has been called a 'Quite Revolution' (Goldin, 2006).

1.35 Looking at the historical experience of developed countries with regard to women's labor force participation, it is sometimes suggested that given steady economic growth, an increase in women's participation rates to the levels currently seen in the U.S. and Europe is only a matter of time for developing countries. **Chapter 2** of this report examines this link between growth and women's labor force participation in Egypt's case.

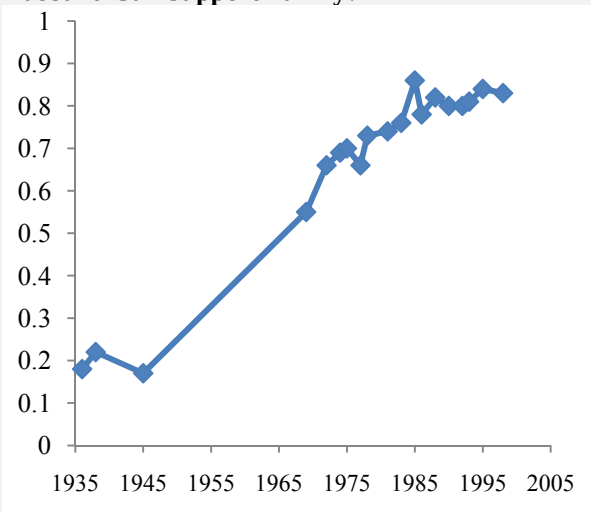
1.36 In the last ten years, while the per capita income of Egypt grew at an average annual rate of 3 percent, the labor force participation rate of women aged 15-29 stayed nearly the same. This alone should suggest that growth is not the answer for Egypt. We should however be careful in drawing general conclusions from this episode. For one, it is possible that growth during this period was skewed against those sectors of activity which employ women more intensively. In Chapter 2, we delve deeper into this issue by looking at sectoral differences in growth and female employment in Egypt during 1998-2006. In particular, we compare growth in industries that differ in the share of female workers in total employment. Besides examining whether growth during this period was biased against such female intensive sectors, this sector-level descriptive analysis also helps in understanding whether the increase in female employment intensity during this period was concentrated in high or low growth sectors.

Box 1.5: Culture or Norms may inhibit women, but over time culture can change

Evidence from countries suggests that culture or social norms can change, albeit slowly. A case in point is the United States. Toward the latter part of the eighteenth century in Colonial America, women could not own property or sign contracts without their husbands. They could not vote or hold political office. These restrictions were harsher than those that exist in developing countries today (Geddes and Lueck 2002). Even at the first half the twentieth century views about women were extremely traditional. But that has changed. Figures 1.16 and 1.17 illustrate this through an example of perceptions about women's joining the labor force. In 1936, fewer than 20 percent of individuals sampled agreed with the question "Do you approve of a married woman earning money in business or industry if she has a husband capable of supporting her?" In 1998, over 80 percent of respondents agreed with the question.

In the case of the U.S. evolutions in cultural attitudes over time have gone hand in hand with radical changes in women's economic participation levels.

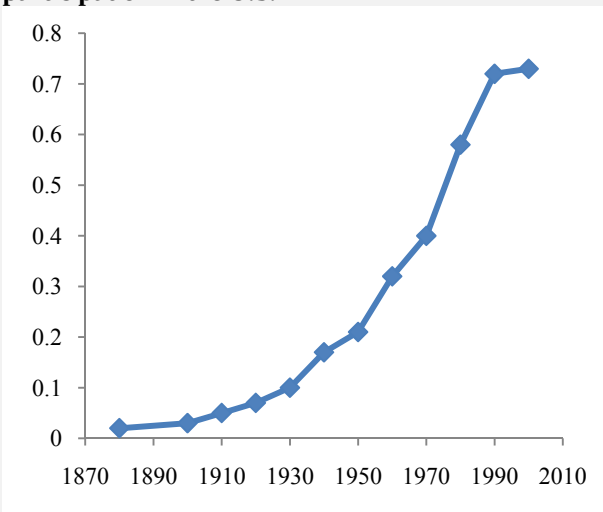
Figure 1.16: Do you Approve of Wife Working if Husband Can Support Family?



Source: 1936-1938 and 1969 numbers are from the Gallup Poll (1972), 1945 is from Benjamin I. Page and Robert Y. Shapiro, The Rational Public, University of Chicago Press, 1992; pp. 101, 403-4. 1972 onwards are from the General Social Survey.

Note: These diagrams were taken from Fernandez (2007)

Figure 1.17: Married Female Labor Force participation in the U.S.



Source: U.S. Census data 1880-2000. Percentage of white, married (spouse present) women born in the U.S., 25-44 years old (non-agricultural, non-group quarters), who report being in the labor force.

Claudia Goldin (2006) attempts to explain the dramatic change in the U.S. female workforce. She portrays the changes in the female workforce to have proceeded in long evolutionary phases culminating in a 'quiet revolution'. During the 1930s to 1950s women's work underwent an evolution which Goldin ascribes to a confluence of factors over that period: growth in education; increased demand for clerical and other types of office work; nicer, cleaner, safer, and thus more respectable and acceptable jobs for married women; new technologies that made household tasks quicker; the occurrence of World War II leading to a huge demand for labor; and the introduction of scheduling flexibility. Consequently, women's economic participation rates took off in the 1950s and 1960s. Following 1960s a 'quiet revolution' took place, when labor force participation of women rose even more sharply through the 1970s and the 1980s. The older generation of women acted as role models for the younger cohorts. This was a time when women's job *horizons* expanded, in the sense that women developed better expectations of their future work lives. To that end women could invest in formal education and "they could plan for careers rather than jobs." Simultaneously, women's careers became an important part of their *identity* or *individuality*, rather than being peripheral to it (Goldin 2006).

1.37 The analysis in Chapter 2 shows that Egypt's recent growth has been 'neutral' with respect to female employment intensity, in the sense that it was not limited to either high or low female employment intensity sectors. Yet, aggregate female employment remained nearly the same. This suggests that policy should not be focused on just ensuring that female intensive sectors grow. Instead, we should move away from the notion that most sectors are inherently not suitable for the expansion of women's employment, and ask why their female intensity is low or stagnant. Indeed, female employment intensity did increase significantly during 1998-2006 in a few sectors which are traditionally not female intensive. Understanding these patterns better requires a more micro-level analysis of the determinants of women's participation.

1.38 **Chapter 3** transitions to a micro-analytical approach to the question of women's labor force participation, focusing on the role of compatibility between private sector work and marital life in explaining why women work predominantly in the public sector in Egypt. It has been asserted that work in the public sector is more compatible with women's "reproductive role", offering "shorter hours, more access to childcare, and greater tolerance for maternity leave."[33] Indeed, survey data from Egypt indicate that women in the private sector are relatively less likely to have been at work during pregnancy, and are also less likely to have been allowed paid maternity leave. These facts suggest that women in Egypt are more likely to leave their jobs after marriage if they work in the private sector, but there is only limited and indirect evidence to this effect.

1.39 In Chapter 3, we explore this issue in depth using ELPMS panel data which allow us to track how participation changes over time for the same individual. We first establish that for women employed in 1998, the likelihood of not being in the workforce by 2006 was much higher among those in non-government jobs. Moreover, women are significantly less likely to perceive a conflict between married life and work if they work for the government. We then test directly if there is frequent post-marriage exit from the labor force among Egyptian women, and to a greater extent in the private sector. Our analysis show this is indeed the case: relative to those whose marital status remained the same in 1998 and 2006, marriage is associated with a 28 percentage points reduction in labor force participation among private sector employees, and a 6 percentage points reduction among public sector employees. This holds even after accounting for difference in attributes such as own and family education between public and private sector employees, which strongly suggests that the reason women are more likely to leave private jobs after marriage is not cultural but that such jobs are less flexible in accommodating the needs of married women. Therefore, finding ways to make work and married life more compatible should be an important policy priority.

1.40 ELMPS data show that in 2006, the median wage of women working in the formal private sector in Egypt was 24 percent lower than that of their male counterparts. To what extent do these gender wage gaps reflect discrimination against female employees or other failures in the functioning of labor markets? This is an important policy question because receiving lower wages than men possessing similar levels of human capital can discourage women from participating in the labor force. Examining micro-level data to better understand this issue is the focus of **Chapter 4.**

[33] Assaad and El-Hamidi (2009).

1.41 Our first concern in this analysis is that women in wage earning jobs in Egypt differ from their male counterparts in many respects, such as education and experience, and might be earning lower wages because on average they have lower-paying attributes. We show that even after differences in education and experience are taken into account it is clear that women earn significantly less than men. This is true at every level of experience and education, and holds even after we adjust for differences in job characteristics such as location, industry and occupation. Our estimates suggest that given their labor market attribute, women's wages would have been 6 percent higher in 2006 had they been paid as much as men for those attributes. Further, using panel data to compare wages earned by the same individual in 1998 and 2006, we find evidence that gender wage gaps have remained persistently high in urban areas, although there is some indication that the gap in the returns to higher education is declining.

1.42 Chapter 4 then discusses possible reasons for such persistent wage gaps with a view to informing the policy debate on improving women's labor market outcomes in Egypt. The key challenge here is that ascribing unexplained wage differentials to discrimination assumes that differences in job characteristics between the jobs held by men and women—such as occupation, industry, part-time work—are solely the result of differential tastes by women for the jobs they want to hold. But what if they are also a reflection of constraints that women face in the labor market (because they are denied access to other jobs)? To the extent that such differences reflect constraints and not choice, they should fall under the purview of policy.

1.43 We therefore examine the possibility that wage differentials are the outcome not just of discrimination, but also of women's constrained job mobility, and educational choices that might be 'constrained' by limited expectations of finding private sector jobs after school. Another possibility we consider is that gender differences in job turnover and part-time work that arise because of lifecycle events such as marriage or childbirth lead to less on-the-job advancement for women. We also present evidence in favor of these alternative explanations from the recently concluded Survey of the Young Population in Egypt.

2. ECONOMIC GROWTH AS BOTH CASUALTY AND CAUSE OF GENDER INEQUALITY? : GROWTH AND FEMALE LABOR FORCE PARTICIPATION IN EGYPT

I. Does Gender Inequality Hamper Growth?

2.1 The Egyptian economy expanded at an annual rate of nearly 5 percent in the last ten years.[34] A question often raised is if this growth rate would have been even higher in the absence of gender inequalities. The answer is not easy. If gender differences in areas such as education and labor force participation are the result of efficient economic choices, then these differences do not necessarily imply a cost in terms of economic growth. But if these inequalities are the result of market failures, or a reflection of religious or cultural preferences, then addressing these underlying causes would aid growth.

2.2 Empirical evidence on the growth costs of gender inequality is limited, but what little there is does suggest that such costs are not trivial. It is by now well established that there is a negative correlation between gender inequality and growth across countries. Many empirical studies have found that the relationship between economic growth and gender inequality in education and in labor force participation is significantly negative (Esteve-Volart, 2000; Knowles et al., 2002; Klasen, 1999; Gatti and Dollar, 1999; Klasen and Lamanna, 2003). For example, Klasen (1999) finds that an increase in the female-male ratio of growth rate in years of schooling from 0.5 to 1 is associated with a 0.4 percentage point higher annual rate of per capita GDP growth.

2.3 Based on Klasen and Lamanna (2003), which has the most recently updated data, we will illustrate the magnitude of such costs in Egypt. Specifically, we look at gender inequality in labor force participation (as measured by the share of women in the total labor force), and conduct a though experiment. In 1998, women comprised 22 percent of the labor force in Egypt. Suppose that instead, Egypt had the same rate of female labor force participation as East Asia (about 40 percent). Then, Klasen and Lamanna's study indicates that Egypt's annual per capita income growth rate during 1998-2006 would have been 4.5 instead of 3 percent.[35] It would thus appear that gender inequality in labor force participation has imposed substantial costs on Egypt's economic growth. Of course, there are many caveats to such a thought experiment, which are carefully explained in Box 2.1. The main caveat is that such experiments are based on cross-country studies, which suffer from serious econometric issues. Their fundamental limitation is that the correlation between gender inequality and growth does not imply causation. The causation might even be running in both directions.

[34] As measured by GDP in constant prices. Source: WDI Central.

[35] These calculations are based on the estimates reported in Regression 8 in Klasen and Lamanna (2003). Total years of schooling by gender and per capita growth rate in Egypt, OECD and East Asia are from WDI Central, and Tables A2-A3 in Klasen and Lamanna (2003).

Box 2.1: Cross-Country Evidence on the Costs of Gender Inequality

The evidence on the costs of gender inequality is largely based on cross-country correlations between economic performance and gender inequality. But a fundamental problem in interpreting this correlation is that the causation could be running either way. Another possible explanation is that both growth and gender inequality are simultaneously determined by other factors, causing a spurious correlation between them.

Klasen and Lamanna's (2003) approach is to examine the relationship between initial gender inequality and subsequent growth. While it is true that reverse causality is not a concern here, it is still possible that initial differences in gender inequality levels across countries are correlated with other determinants of subsequent growth. In other words, simultaneity remains a serious concern.

Gatti and Dollar (1999) and Klasen (1999) attempt to deal with the simultaneity issue by employing instrumental variables. Klasen (1999) argues that educational spending, initial fertility levels, and the change in the total fertility rate can predict gender differences in growth in educational attainment across countries. Thus, assuming that they do not have a direct effect on growth, these variables are suitable instruments for gender inequality in education. Gatti and Dollar (1999) make a similar argument for using religious preference, regional factors, and civil freedom as instruments for gender inequality in education in a cross-country growth regression. In both studies, the instrumental variable estimates imply that gender inequality imposes a significant cost on growth. Klasen's estimates, for example, lead him to conclude that had South Asia and Sub-Saharan Africa done more to promote gender-balanced growth in education during 1960-1992, their per capita GDP growth could have been up to 0.9 percent faster per year.

The validity of these estimates of the cost of gender inequality in education hinges on the assumption that the variables used as instruments do not affect growth directly, doing so only indirectly through their effect on gender inequality in education. This is arguably a tenuous assumption, given the common belief among (even among economists) that religion determines growth in many ways. For instance, India's persistently slow rate of growth during the mid-20th century was often attributed to socio-religious factors, and even dubbed the "Hindu rate of growth" by economists.

Moreover, finding plausible instruments for gender bias in labor force participation is evidently even more difficult, since to our knowledge no study so far has attempted this. Klasen (1999) admits that he is unable to find plausible instruments for gender bias in employment, cautioning that his OLS results of a negative correlation between gender bias in employment and growth could reflect causation from growth to gender bias.

2.4 In view of the serious empirical challenges in obtaining precise estimates of the "growth costs" to Egypt of gender inequality in employment, what is really important–especially for the purpose of policy design- is to focus on understanding the *causes* of inequality. In theory, so long as gender inequality is the result of social preferences or market failures, it signals an economically inefficient allocation of human resources, and therefore involves a trade-off with growth. The exact policy prescription relies not on knowing the terms of this tradeoff, but on understanding its causes.

2.5 Economic theory also indicates another conceptual drawback with the common approaches to inferring the costs imposed by gender inequality: gender differences in labor force participation rates are merely an *outcome* of gender 'inequality' in labor markets. That is, they

reflect underlying labor market imperfections that skew labor force participation opportunities against women, and it is these imperfections that should be the focus of policy. A better way to conceptualize gender inequality is in terms of *opportunity*. Moreover, removing gender bias in opportunity is an important goal in itself, and does not need any justification based on its growth benefits.

Can growth contribute to reducing gender inequality?

2.6 Will sustained growth itself will be enough to eventually remove gender differences in LFP? As we explain below, there is some empirical support for this expectation.

2.7 Many cross-country studies find a U-shaped relationship between per capita income levels and female labor force participation (Mammon and Paxson, 2000; Goldin, 1995). That is, starting at very low levels of per capita income, women's participation in the workforce first falls as the country grows, but eventually starts to rise. Mammon and Paxson (2000) express the widely accepted explanation behind this U-shape:

"For very poor countries, female labor force participation is high, and women work mainly in farm or non-farm family enterprises. Development initially moves women out of the labor force, partly because of the rise in men's market opportunities and partly because of social barriers against women entering the paid labor force. However, as countries continue to develop, women's education levels rise, and women move back into the labor force as paid employees holding mainly white-collar jobs."

Since Egypt is a middle-income developing country, the U-shape hypothesis implies that growth should improve female LFP in Egypt.

2.8 Interestingly, there is evidence that this aggregate relationship between labor force participation and national income levels is generated by a similar relationship at the micro level. A U-shaped relationship between income and labor force participation has been observed not only in cross-country data, but also across households within a country (Mammon and Paxson, 2000). The explanation given for this is fundamentally similar to that given for the cross-country relationship. In very poor households, women are 'pushed' into work because of poverty. An increase in the income of other household members exerts an unambiguously negative 'income effect' on the woman's own labor supply, resulting in reduced work hours and possibly, withdrawal from the labor force. This explains why participation initially falls with income. Beyond a point, as new opportunities for work open up with education, this income effect is overcome and women are 'pulled' into remunerative work.

2.9 As described in Chapter 1, there is indeed a U-shaped relationship between family income and women's labor force participation in Egypt.[36] Women from the very poorest of households have the highest participation rates. Work force participation rates then fall in middle-income households, but show a marked rise among upper-middle and high income households.

[36] Excluding that earned by the female respondent in question.

2.10 The fact that Egypt is no different from other developing countries in this respect should also support the hypothesis that growth will raise women's labor force participation. But once again, we urge caution in drawing conclusions based on a correlation, regardless of whether it is a cross-country or a micro level correlation. Cross-country studies of the effect of income growth on women's labor force participation have to live with the same fundamental limitations as studies of the effect of gender inequality on growth: two-way causality and simultaneity. Clearly, there is a robust empirical regularity that middle-income countries have experienced rising female LFP with rising incomes. Whether this implies that growth itself is the answer to raising female LFP in such countries remains an open question. [37]And regarding the household level U-shaped curve, a serious concern is that in a cross-section, richer households might differ from others along dimensions other than income. In fact, common explanations for the U-shape speculate that the positive relationship between income and women's work in richer households is not due to income per se, but the educational and labor market opportunities resulting from higher incomes. This hints that growth in income alone is not going to be the determining factor for women's labor force participation over time. Equally important will be how this growth changes women's returns from working, and the demand for their labor.

2.11 In the last ten years, while the per capita income of Egypt grew rose at an average annual rate of 3 percent, the labor force participation rate of women aged 15-29 stayed nearly the same. This alone should suggest that growth is not the answer. We should however be careful in drawing general conclusions from this episode. For one, it is possible that growth during this period was skewed against those sectors of activity (that is, 'industries') which employ women more intensively.[38] In this chapter, we delve deeper into this issue by looking at sectoral differences in growth and female employment in Egypt during 1998-2006. In particular, we compare industries based on how they differ in the share of female workers in total employment (which we call "female employment intensity"). Besides examining whether growth during this period was biased against such female intensive sectors, this sector-level descriptive analysis also helps in understanding whether the increase in female employment intensity during this period was concentrated in high or low growth sectors.

2.12 Finally, we use sectoral labor productivity data to examine whether employment opportunities for women are concentrated in sectors where labor productivity (and hence the wage rate) is low or not growing. This is an important question from not only the welfare perspective, but also from the point of view of economic efficiency. Evidence that women are working in low return sectors signals the existence of mobility barriers which prevent them from moving to higher return sectors. Moreover, such restricted employment opportunities could be one reason for low and stagnant female labor force participations rates. Given the significance of this question, we will first explore it at aggregate level in this chapter, and then examine it further at a more micro-econometric level in Chapter 4.

[37] Gatti and Dollar (1999) suggest that the implication of their finding of a positive correlation between income and gender equality is not that growth is all that is needed to eliminate gender inequality. More significantly, their findings that gender inequality is also explained by religious variables, regional effects, and civil liberties suggest that there is considerable scope for direct action on gender issues.

[38] The word 'sector' as used in this chapter refers to industrial or activity groups.

II. Female Share in Employment and Growth by Sector, 1998-2006

2.13 We proceed with our analysis on growth and women's labor force participation by describing how female employment intensity has been varying across different sectors of activity. We used data on the sector of employment of persons surveyed in ELMS 1998 and ELMPS 2006 to calculate the sector-wise share of women in total employment in these years. The sectors are defined by 2-digit ISIC categories.[39] Table 2.1 presents this information along with total sectoral employment in 1998 and its growth during 1998-2006. The sectors are sorted in increasing order of female employment share in 1998.

2.14 As Table 2.1 shows, agriculture is by far the most prominent high female employment sector in the Egyptian economy. Leaving agriculture aside, the share of women in total employment in Egypt was 19 percent in 1998 and 21 percent in 2006. Thus, as a rule of thumb, a sector with female employment share above 20 percent may be considered "female employment intensive". Ignoring those sectors which have very small shares in overall employment, the most female employment intensive sectors in Egypt are health, education and the manufacture of apparel. The government, retail, post and telecom are other major female intensive sectors. In general, women are underrepresented in manufacturing.

Table 2.1: Female Employment in Egypt by Sector across 1998 and 2006

SECTOR	% Female 1998	% Female 2006	Total Employment 1998	Growth in Total Employment, 1998 to 2006
Fishing, aquaculture and service activities incidental to fishing	0	0	69	50
Mining of coal and lignite; extraction of peat	0	0	4	-100
Extraction of crude petroleum and natural gas	0	0	15	160
Other mining and quarrying	0	0	21	19
Tanning and dressing of leather; manufacture	0	14	76	-26
Manufacture of paper and paper products	0	4	20	114
Manufacture of rubber and plastics products	0	0	6	316
Manufacture of rubber and plastics products	0	1	148	50
Manufacture of basic metals	0	1	63	-11
Manufacture of motor vehicles, trailers and semi-trailers	0	0	25	0
Manufacture of other transport equipment	0	0	28	-60
Manufacture of furniture; manufacturing n.e.c.	0	0	273	54
Recycling	0	0	14	-100
Land transport; transport via pipelines	0	1	661	70
Real estate activities	0	0	10	-60
Research and development	0	25	1	300
Manufacture of chemicals and chemical products	1	14	62	185
Activities of membership organizations n.e.c.	1	6	89	104

[39] ISIC is the UN's International Standard of Industrial Classification of All Economic Activities. There are about 60 2-digit ISIC categories in all. Although the EMPS identifies the 3-digit ISIC code of respondents, we were unable to conduct our analysis at the more detailed 3-digit level because ELPMS 2006 used a newer version of the code which can only be matched to the version used in ELMS 1998 at the 2-digit level of aggregation.

SECTOR	% Female 1998	% Female 2006	Total Employment 1998	Growth in Total Employment, 1998 to 2006
Construction	2	1	1096	55
Manufacture of fabricated metal products	3	0	160	22
Manufacture of electrical machinery and apparatus n.e.c.	4	21	50	-72
Electricity, gas, steam and hot water supply	5	8	103	23
Supporting and auxiliary transport activities	5	13	103	46
Other service activities	5	7	577	-65
Manufacture of wood and of products of wood	7	11	167	-3
Manufacture of textiles	10	18	270	0
Manufacture of coke, refined petroleum products and nuclear fuel	10	11	157	-36
Wholesale trade and commission trade	10	12	120	64
Air transport	10	13	38	0
Publishing, printing and reproduction of recorded media	11	4	70	25
Hotels and restaurants	11	8	343	81
Sewage and refuse disposal, sanitation and similar activities	12	8	48	-6
Manufacture of machinery and equipment n.e.c.	13	2	138	-18
Computer and related activities	14	13	14	485
Recreational, cultural and sporting activities	14	12	112	14
Manufacture of food products and beverages	15	43	407	85
Financial intermediation	15	17	101	39
Sale, maintenance and repair of motor vehicles and motorcycles	17	0	165	170
Collection, purification and distribution of water	20	17	43	55
Post and telecommunications	21	19	119	86
Other business activities	21	22	118	121
Public administration and defense	22	23	1830	3
Retail trade	23	23	1842	43
Manufacture of medical, precision and optical instruments, watches and clocks	25	44	8	12
Activities auxiliary to financial intermediation	25	0	8	-87
Water transport	28	0	14	42
Manufacture of tobacco products	30	6	20	-20
Manufacture of wearing apparel	34	46	279	31
Education	44	46	1765	19
Health and social work	50	54	460	45
Manufacture of radio, television and communication equipment and apparatus	64	6	28	-42
Agriculture, hunting and related service activities	66	60	8920	20
Insurance and pension funding	79	49	49	53

Source: ELMPS 2006 and ELMS 1998

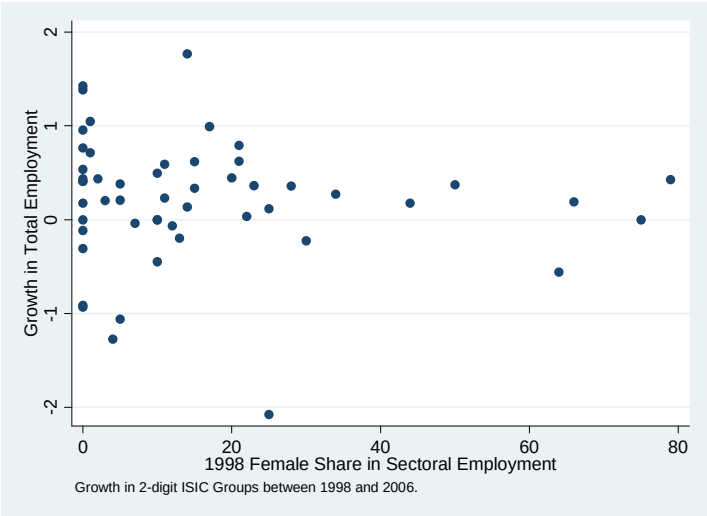
2.15 What is striking about these numbers is how skewed the distribution of female intensity is across sectors. Nearly half the sectors have minimal (less than 10 percent) female presence. Very few sectors- activities such as education, health, social work, agriculture and textiles- have

above-average female employment intensity. What happens in this small set of sectors therefore has major implications for women's employment outcomes, especially in light of the fact (described below) that the pattern of female employment intensity by sector has remained largely stable during 1998-2006. In particular, sectoral differences in growth and labor productivity will really matter to women's employment and earnings.

2.16 At a glance, Table 2.1 does not hint at any systematic relationship between sectoral growth (as measured by total employment) and female employment intensity during 1998-2006. Several of the major female intensive sectors- apparel, retail, health, post and telecom- grew at relatively respectable rates. Some others did not do as well, particularly the government sector, which was stagnant. At the same time, some of the least female intensive sectors, such as the paper, rubber and chemicals industries were star performers in total employment growth.

2.17 Figure 2.1 confirms this impression by presenting a scatter plot of the relationship between female employment intensity in 1998 and total employment growth in the next 8 years. There is no systematic relationship between the two; in other words, growth has been neutral with respect to female employment intensity. Figure A 2.1.1 in Annex 2.1 reveals that this non-relationship with female employment intensity is robust to measuring growth in terms of sectoral GDP instead of employment.[40]

Figure 2.1: Sector-wise Employment Growth vs. Female Intensity



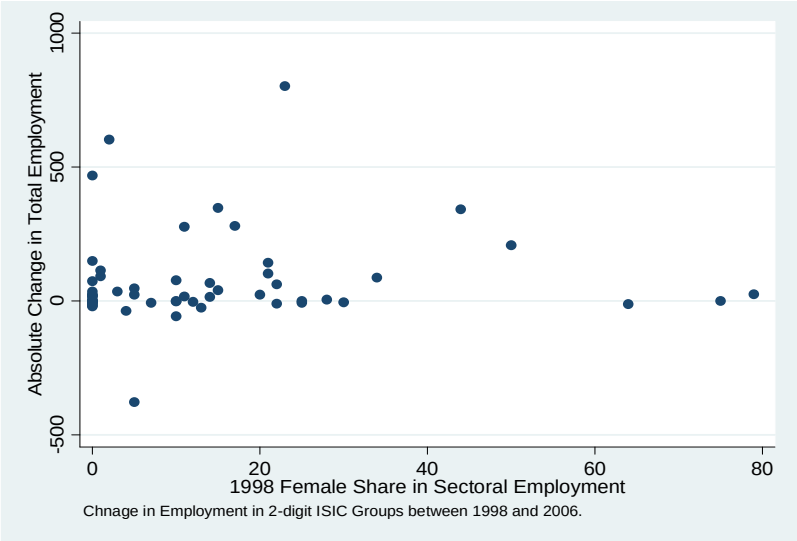
Source: ELMS 1998 and ELMPS 2006

2.18 This finding is clearly significant to our discussion on whether growth alone is enough to improve women's labor force participation in Egypt. It tells us that the last decade was a period of high growth which was not biased against the sectors which employ women. The fact that overall female LFP did not rise in the face of this growth strongly suggests that growth by itself is not the solution.

[40] We stress that this analysis is purely descriptive. Since the observed growth in sector employment was determined by changes in both labor demand and in female labor supply, we cannot claim to be drawing causal conclusions about the impact of sector-wise labor demand growth on female employment from these patterns. To give an example of such joint causation, suppose that women have a strong preference for working in certain sectors. Then increases in female labor supply due to exogenous factors would benefit those sectors more, causing them to grow faster than others even in terms of *total* employment.

2.19 If substantial growth was experienced in high and low female participation sectors alike, what limited the growth in total female employment in Egypt? One reason for this is that many female-intensive sectors are not large enough for their growth to have a big impact of overall female employment. In contrast, a few of the female-intensive sectors which have been disappointing growth performers, specifically public administration and agriculture are very large and matter a lot. Thus on average, high female intensity sectors saw smaller *absolute* increases in total employment than low female intensity sectors (Figure 2.2)

Figure 2.2: Sector-wise Absolute Employment Change vs. Female Intensity

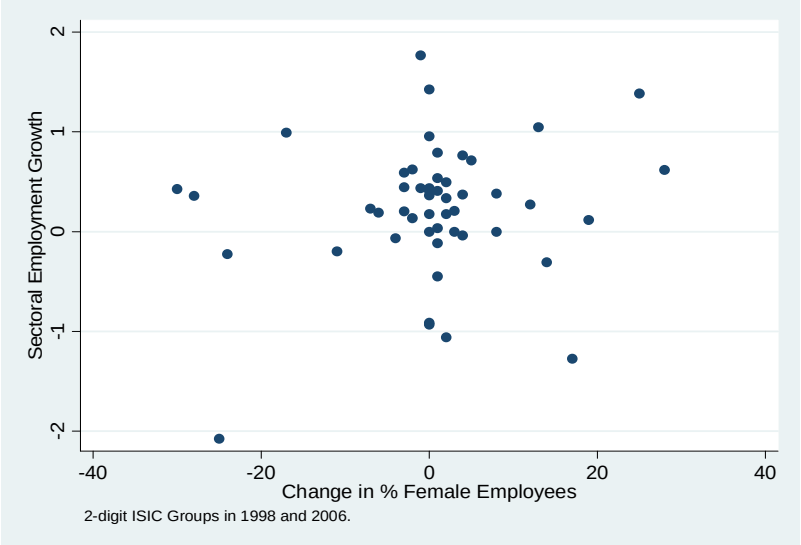


Source: ELMS 1998 and ELMPS 2006. Change in Employment in 1000s.

2.20 Focusing on just growth loses sight of the fact that sectoral female intensity itself need not be static. In fact, another key reason for the low association between growth and female workforce participation in Egypt is evident when we look at changes in female employment intensity within sectors. In Table 2.1, important sectors which experienced substantial increases in the share of females in employment during 1998 and 2006 are highlighted. Interestingly, most of these sectors are in manufacturing: chemicals, leather, textiles, food products and beverages, and apparel. Some of these are industries which have traditionally not been considered as potential employers of women in Egypt. There appears to have been some de-feminization in agriculture, and in publishing/printing. But in most sectors, female employment intensity was stable during 1998-2006, especially in traditionally female-intensive service sectors such as health, education and government.

2.21 Next, Figure 2.3 shows that the increase in the share of women in employment during 1998-2006 was on average unrelated to total employment growth across sectors. Going back to Table 2.1, we see that while some sectors, such as food products and chemicals, experienced marked growth in both total employment and female participation, the latter was stagnant in many high-growth sectors such as wholesale and retail trade, hotels and restaurants, post and telecom, health, and the paper, rubber and computer industries. Thus, there is no clear tendency for women to be increasingly participating in growing industries. This suggests that growth itself does not draw in more women into the workforce. This pattern is most surprising in those high-growth sectors that were highly female intensive to begin with - retail, health and telecom. Finally, several of the industries which have seen a large increase in women's participation were poor performers in overall employment growth. In particular, looking back at Table 2.1, these sectors are leather, textiles and apparel. This trend has negative implications for the future of female LFP in Egypt.

Figure 2.3: Feminization versus Growth



Source: ELMS 1998 and ELMPS 2006

2.22 In sum, the conclusion which emerges from this analysis is that any policy which seeks to increase female LFP in Egypt should be focusing on the determinants of female employment intensity within sectors, and not just on growth. Female employment intensity did not increase on average, staying close to 20 percent of aggregate employment in both years, and there was no sign that the increases in female employment intensity are systematically concentrated in high-growth sectors.

III. Female Participation and Labor Productivity

2.23 Besides the stagnation in female participation rates in many important and growing sectors, another issue which should be of concern to policymakers is the relationship between productivity and female participation rates across sectors. This is particularly significant in light of the extremely skewed cross-sector distribution of female employment intensity. If female workers are "constrained" to work in activities where productivity is low and not rising, then the returns to work are likely to be lower for women. Not only is this undesirable from a welfare perspective, but it also renders non-participation a more attractive option for women, and could therefore be a cause of low female labor force participation. Moreover, low productivity sectors probably have poorer growth prospects, which have negative implications for female labor force participation in the long run.

2.24 We used data on sectoral GDP and employment to calculate output per worker in each 2-digit ISIC sector. This is a very basic measure of *labor* productivity, and the best we could do given the limited output and input data available to us. When we interpret the results below, it is therefore necessary to keep in mind that cross-sector differences in labor productivity could be due to differences in not just capital intensity or technology, but also human capital per worker (See Box 2.2).

Box 2.2: Labor Productivity versus Total Factor Productivity

In our analysis of productivity we use the concept of labor productivity, as measured by output per worker. This is different from another commonly used concept of productivity, called Total Factor Productivity (TFP). TFP is a variable which accounts for effects in total output not caused by measurable inputs such as capital and labor. Thus, it is a 'residual' or intangible, and as it can range from technology to the knowledge of the worker (human capital). Estimating total factor productivity in a sector requires data on that sector's output and all its tangible inputs. For example, suppose that there are only two tangible, measured inputs- capital and labor. Then part of the difference in output across sectors can be explained by the differences in their labor and capital usage, and the remaining is accounted for by differences in their TFP.

The fact that we are measuring labor productivity, and not TFP, has the following implications for how to interpret the results. Firstly, it is important to keep in mind that cross-sector differences in labor productivity could be reflective of their differences in capital per worker, and not just of differences in TFP. Secondly, since our measure does not account for the human capital of workers, a difference in output per worker does not necessarily imply a difference in the returns to labor. It is possible that sectors with high output per workers have more educated workers on average.

2.25 This caveat is significant because we are primarily interested in examining whether women are clustered in low wage sectors. We do so by testing if women are clustered in sectors with low output per worker, but since sectors with low output per worker could have less educated workers on average, it is not necessary that those are also low wage sectors. Nevertheless, given Egypt's advances in female education, there is no reason to suspect that female intensive sectors have less educated workers on average. Therefore, a systematic negative relationship between female employment intensity and labor productivity would strongly hint at the existence of inter-sectoral mobility constraints that are keeping women locked into low return sectors.

2.26 A simple scatter-plot of female employment intensity versus labor productivity (as measured by output per worker) indicates that there is no systematic relationship between the two (Figure 2.4). Female employment is equally likely to be concentrated in high and low labor productivity sectors.[41] Next, Figure 2.5 shows that there is also no systematic correlation between female employment intensity in 1998 and the growth in labor productivity during 1998-2006. Finally, we see no correlation between the growth in female employment intensity and labor productivity during this period (See Figure A 2.1.2 in the Annex 2.1)

[41] This non-relationship also holds between total female employment and labor productivity in each sector. Regression analysis also reveals no statistically significant correlation between female intensity and labor productivity.

Figure 2.4: Output per Worker vs. Female Intensity

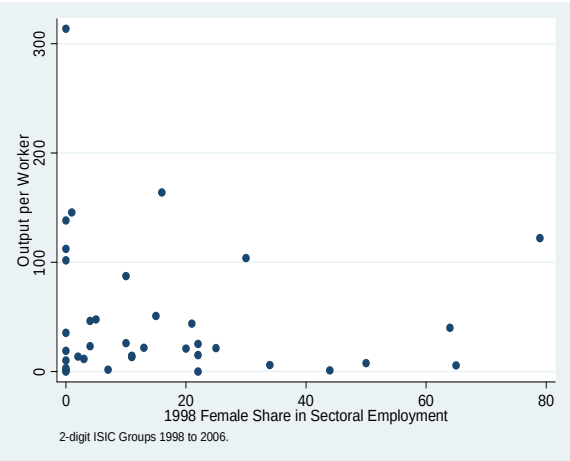
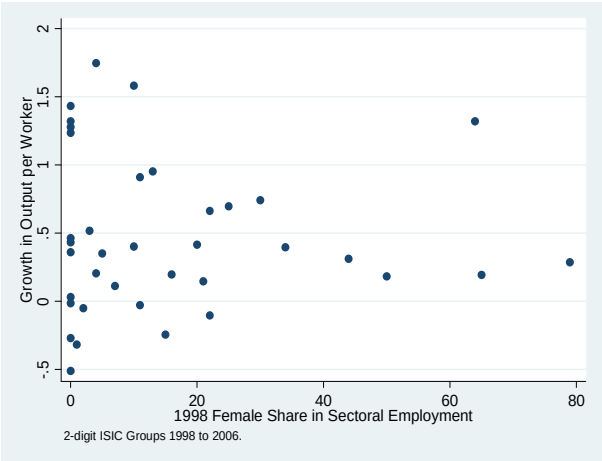


Figure 2.5: Growth in output per Worker vs. Female Intensity



Source: ELMPS and CAPMAS

2.27 Thus, there is no suggestion in these aggregate trends that female workers are locked in low labor productivity sectors. Subject to the caveat discussed above, one policy implication of this analysis is that shifting women's employment from certain sectors into certain others need not be a major priority area in the near future. Instead, the immediate focus should be on within-sector increases in female employment. Another implication relates to the common concern that women earn less than men on average. These patterns suggest that in investigating gender differences in returns to labor, there may be more to gain by examining *within-sec*tor differences in the wages of men and women, rather than differences in average returns *across* female and male intensive sectors.

IV. Concluding Remarks

2.28 Cross-country studies of the economic cost of gender equality would lead us to conclude that low female labor participation is significantly hurting Egypt's income growth. We have argued, however, that while this may be one of the many justifications for examining gender issues in Egypt, the more important policy question for Egypt is the reverse one, that is, whether economic growth itself will remove gender inequalities in economic participation. In this chapter, we approached this question from a macro perspective, examining aggregate trends in growth and female employment share by sector.

2.29 In Egypt, women's employment is concentrated in relatively few sectors. Moreover, in most sectors, the share of women in employment changed little during 1998-2006. As a result, the aggregate increase in female employment during this period would have depended crucially on which sectors grew. Our analysis has shown that growth was `neutral' with respect to female employment intensity, in the sense that it was not limited to either high or low female employment intensity sectors. Yet, aggregate female employment remained nearly the same. This indicates that policy should not just be about ensuring that traditionally female intensive sectors grow. In fact, between 1998 and 2006 female employment intensity did increase significantly in a few sectors which are traditionally not female intensive.

2.30 Our analysis also showed that female intensive sectors in Egypt do not have systematically lower labor productivity than other sectors. This suggests that if women do face lower returns in the labor market, it is not just because they are locked into a few low return sectors. Within sector gender differences in returns could be equally important.

2.31 Thus, the analysis in this chapter highlights the importance of moving beyond an approach focused on sectors or industries that are seen as being inherently more amenable to female employment. Instead, we need to investigate what fundamentally constrains women from finding employment in private firms, irrespective of the industry. The next two chapters of this report therefore transition to a more micro-level analysis of the determinants of women's participation. We begin by exploring the role of compatibility between private sector employment and life events such as marriage in Chapter 3. Then in Chapter 4 we examine gender gaps in wages, with a view to identifying constraints that prevent women from earning as well as men with similar labor market attributes.

3. MARRIAGE, MOTHERHOOD, AND FEMALE LABOR FORCE PARTICIPATION

3.1 In 2006, private sector firms accounted for less than a quarter of female employment in urban Egypt. Their share in rural female employment was even lower, hovering at around 8 percent.[42] The majority of working urban women held government jobs, and in rural areas the government and household enterprises accounted for over 70 percent of female employment. How, then, can policy facilitate the participation of women in an economy where the private sector is increasingly important? This issue of occupational segmentation lies at the heart of understanding what constraints women's labor force participation in Egypt.

3.2 There are several potential explanations for why women's employment remains concentrated in the public sector. Discrimination against women by private employers, the misperception that women are less productive, skills mismatch, and a cultural preference for working in government are all commonly cited as reasons[43]. In this chapter, we will concentrate on the role of compatibility between private sector work and marital life. Given that women's exit from the workforce following marriage is a current topic of discussion even in developed countries, we believe that this could be an important determinant of women's labor force patterns in Egypt.

3.3 Indeed, studies from developed countries are the main source of evidence that the evolution in married women's work has depended on improved compatibility between work and marred life. The spread of scheduled part-time work in the 1940s and 50s is held to be a major factor behind soaring rates of workforce participation among married women in the US after World War II (Goldin, 2006). This also shows up in more recent data, with evidence than in the 1980s, US states with higher female labor force participation rates had significantly higher rates of part-time employment among married women.

3.4 How does post-marriage exit from the labor force relate to the clustering of women in government jobs in Egypt? It has been asserted that work in the public sector is more compatible with women's "reproductive role", offering "shorter hours, more access to childcare, and greater tolerance for maternity leave" (Assaad and El-Hamidi, 2009). Consistent with this view, in the 2006 ELMPS survey the proportion of workers who reported having been at work during their last pregnancy was significantly higher in the public sector. As many as 86 percent of public sector workers who had a baby while working were given paid maternity leave of at least six weeks, in contrast to only 47 percent of those working in the formal private sector (Assaad and El-Hamidi, 2009). Data from the recently concluded Survey of Young People in Egypt show

[42] These figures refer to employment in formal and informal private firms. Unless other mentioned, all figures are from ELPMS 2006 and ELMS 1998.

[43] The Egyptian Ministry of Manpower and Emigration recently conducted a survey of working women in the private sector in governorates in Greater Cairo, Lower and Upper Egypt and border and Suez Canal cities. 40% of sampled employers stated that they favored female workers because they are more honest, committed, and serious and devoted to work. 50% of sampled employers stated that female workers are more stable at work than male workers, and that they assumed leadership and supervisory positions at their facilities.

that the percentage of working women aged 15-29 years who complain of long working hours is significantly higher in the private sector (50 percent versus 32 percent in the public sector).

3.5 Given evidence from other countries that flexible hours and maternity leave have mattered to married women's work, the above facts do suggest that women in Egypt are more likely to leave their jobs after marriage if they work in the private sector. However, there is only limited evidence to this effect. In recent research, Assaad and El-Hamidi (2009) find that looking across a representative sample of Egyptian women, the peak rate of participation in the private sector is observed among women of age 23, which is close to the median age of marriage. But women's participation in public sector employment finds its peak among those older than 35, which suggests that there is greater post-marriage retention in government. The shortcoming of this cross-sectional evidence is that it could be reflecting declining rates of government sector participation in younger cohorts. That is, it could be that women aged 35 today participated in government employment to the same extent as they do today when they were 23 years old.

3.6 In this chapter, we will explore this issue in depth using ELPMS panel data. The major advantage of this analysis is that in the panel, we can directly track how participation changes over time. We first describe how men and women differed in how their labor force status changes between 1998 and 2006. This transition analysis establishes that among those employed in 1998, women were much more likely to have left the workforce by 2006, and to a greater extent if they were in a non-government job. We also present evidence from the survey that women working in the government are significantly less likely to perceive a conflict between married life and work, which suggest that they are less likely to stop working after marriage.

3.7 Our next step is to test more directly if there is substantial post-marriage exit from the labor force among Egyptian women, and if it is higher in the private sector. We do so by estimating regressions comparing exit rates among women who got married between 1998 and 2006 to those whose marital status remained the same. Our result indicates that women who got married between 1998 and 2006 were significantly more likely (by about 14 percentage points) to have left the labor force by 2006. Critically, this association between marriage and exit is stronger among private sector employees. Relative to those whose marital status remained the same in 1998 and 2006, marriage reduced labor force participation by 28 percentage points among private sector employees, and only 6 percentage points among public sector employees. Finally, we show that this result could not be an artifact of difference in characteristics such as age, education and parents' education between public and private sector employees, which strongly suggests that the reason women are more likely to leave private jobs after marriage is that such jobs are less flexible in accommodating the needs of married women.

3.8 What is it about getting married that makes flexibility in work schedules so important? The real reason is generally seen to be the need for childcare that almost inevitably follows marriage. In fact, in our data the effects of marriage are virtually indistinguishable from those of having a child: Among women in the ELMPS panel who got married between 1998 and 2004, nearly 94% had had a child by 2006. Despite this, regression analysis suggests that even after accounting for marriage during 1998-2006, the addition of a child to the household during this period further increased the probability of exit from the labor force, and more so among those employed in the formal private sector. Moreover, when asked to express their thoughts on the

statement that "A woman with a full time job cannot be a good mother", ELMPS female respondents employed in the non-government sector were more likely to express agreement that those employed in the government. All this suggests that childcare is at the very least an important consideration in the labor force decisions of the married.

3.9 Thus, our analysis implies that finding ways to make work and married life with children more compatible should be an important policy priority. As we discuss in later chapters, there is a menu of policy options to consider when seeking to achieve this by influencing the availability of flexible hours, maternity and childcare support.

3.10 Our focus on these specific workplace conditions does not mean that we consider them to be the only reason why women in Egypt concentrate in government jobs. But we do believe that policies targeting this problem have the potential to lead to huge improvements. The reason is that no matter what its original causes, occupational segregation can be self-reinforcing. For example, if women expect to find work in government jobs, then they might choose to acquire only those skills which they see as being useful in such jobs. Having limited their skill set at the outset, they will then find it difficult to compete with men for private sector jobs. Similarly, so long as private employers underestimate women's productivity, they will not hire them, and are therefore unlikely to be in a position to observe firsthand that women can be equally productive. This self-reinforcing nature of occupational segmentation implies that even small changes to the status-quo can ultimately lead to big improvements through multiple channels of positive feedback. Finding even one policy 'trigger' that works could therefore bring about far-reaching changes.

3.11 As an illustration of such feedbacks, consider the US experience. We mentioned earlier that part of the reason behind rising labor force participation among married US females in the 1950s and 1960s was the introduction of flexible work schedules. It is said that observing this generation of women work after marriage altered the next generation's expectations about life after marriage. Young women began to see a career as a lifetime possibility, and were therefore more likely to invest in this future by attending college and choosing fields that were more valuable in the job market. This feedback into skill acquisition led to such deep changes in women's workforce participation in the US that it has been dubbed a 'quite revolution' (Goldin, 2006).

3.12 The rest of this chapter is organized as follows. Section I describes basic labor force transition patterns in the panel data spanning 1998 and 2006. Section II presents qualitative evidence on attitudes towards marriage and work. Section III examines marriage and workforce participation patterns in a cross-section, followed by panel regressions in Section IV which establish that post-marriage retention is higher in the government sector. Section V concludes with a discussion on suggested policy directions.

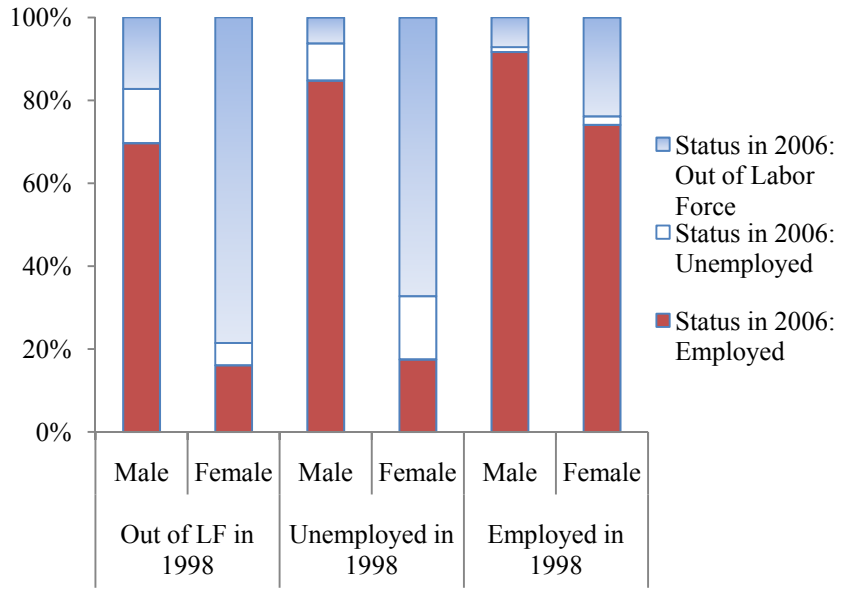
I. Gender Differences in Labor Market Transitions

3.13 Labor force participation rates observed at a single point in time can hide significant changes in labor force status over individual life cycles. To give an illustration, it is entirely possible that while the aggregate female labor force participation rate at any given point in time

is 25 percent, the majority of women are going to participate in the work force at some point in their lives. In this section, we will attempt to tease out such transitions at the individual level, among those ELMPS respondents who were surveyed in both 1998 and 2006 (the 'panel' individuals).

3.14 In Figure 3.1, we describe how individuals transitioned between not participating, being employed or unemployed between 1998 and 2006.[44] The first two bars, which look at respondents who were not in the labor force in the 1998 round of the survey, suggest that non-participation might be a long-term status for most Egyptian women. 73 percent of all women in the ELMPS panel were out of the labor force in 1998, and of those 79 percent were out of the labor force in 2006 as well. In contrast, the majority of males who were not in the labor force in 1998 were employed in 2006. Next, focusing on persons who were unemployed in 1998, it would appear that unemployment often causes women to drop out of the labor force, perhaps due to discouragement. Of the women who were unemployed in 1998, about 67 percent were out of labor force in 2006; for men, the corresponding rate was a mere 6 percent.

Figure 3.1: Transitions in Labor Force Participation Status across 1998 and 2006



Source: ELMPS 2006 and ELMS 1998

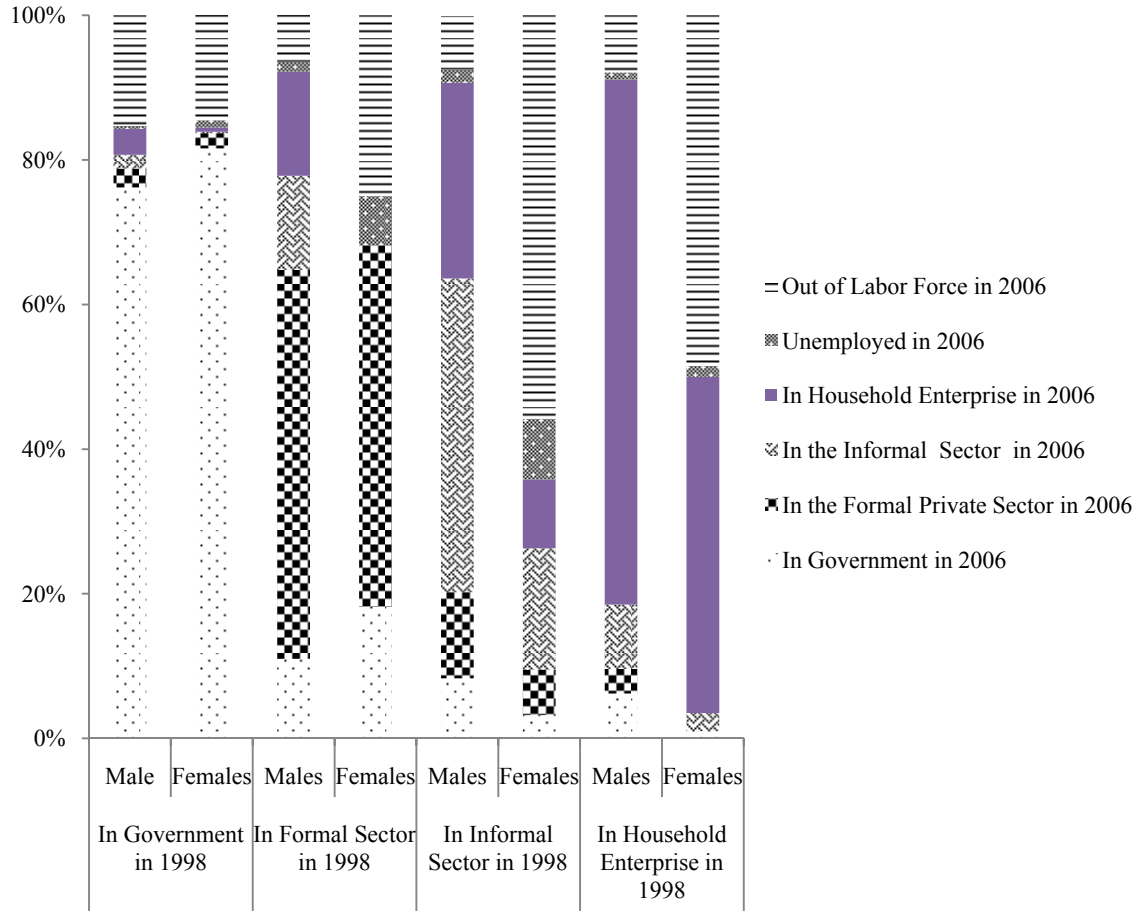
3.15 Finally, and perhaps most significantly, we see some direct evidence that many working women are likely to exit the workforce in the future. About 25 percent of women who were employed in 1998 were out of the labor force in 2006. Among men, this exit rate was only 7 percent.

3.16 Figure 3.2 presents more detailed workforce transitions graphically, disaggregating employment into the government sector (including public enterprises), the formal private sector, informal employment (including irregular wage workers) and household enterprises (including the self-employed).[45] In keeping with the notion that government jobs are prized, we first observe that individuals in government jobs tend to not leave them: 76 percent of the men and 82 percent of the women who were in this sector in 1998 were still employed there in 2006. This notion is reinforced by another discernible pattern in Figure 3.2: those employed in formal sector private firms have a noticeable tendency to move into government jobs over time, while

[44] The transition matrix on which Figure 3.1 is based is presented in Table A 3.1.1 in Annex 3.1.
[45] Table A 3.1.2 in Annex 3.1 gives the detailed transition matrix.

the reverse movement is much smaller. Interestingly, this jump from private to public sector jobs is larger among women, which suggests that women value government jobs even more than men do. While 11 percent of the men employed in the formal sector had joined government service by 2006, for women this figure was 18 percent. Thus, it would appear that women who are able to do so tend to gravitate to the public sector, and are also more likely to remain there.

Figure 3.2: Transitions in Labor Force Participation Status Across 1998 and 2006



Source: ELMPS 2006 and ELMS 1998

3.17 Figure 3.2 also points to a worrying pattern of low 'upward mobility' of women from informal employment into government or formal private sector jobs. About 20 percent of the men who were in informal jobs in 1998 were working for the government or the formal sector by 2006. For women, this flow was only around 9 percent.[46] Of the men who were self-employed or working in a household enterprise in 1998, 10 percent had moved up into government or the formal private sector by 2006. The corresponding figure for women is a mere 1 percent

3.18 Another point emerging clearly in Figure 3.2 is that while employment is 'sticky' for both genders, in the sense that for most persons the sector of employment was the same in 1998

[46] Wahba (2009) discusses how mobility from informal to semi-formal/formal employment is highly segmented along education and gender in Egypt.

and 2006,[47] there are clear gender differences in what happened to those who changed their employment status between 1998 and 2006. Men were more mobile across sectors, switching between public, formal and informal sectors to a greater extent than women. Among women, the most likely change was an exit from the labor force. Significantly, the exit from workforce was more likely among women who were in non-government jobs to begin with. About 15 percent of women who were government employees in 1998 were out of the labor force in 2006. In contrast, as many as 25 percent of women who were in formal private firms in 1998 and nearly half of those in informal jobs or household enterprises in 1998 were out of the labor force in 2006.

II. Attitudes towards Marriage and Employment

3.19 We saw in the transition analysis in the preceding section that in Egypt women are much more likely than men to stop working. Does this exit from the workplace relate to a life-cycle event? In the previous section we discussed that as in many other developing countries, this interruption or ceasing of employment among Egyptian women is often ascribed to the competing demands of marriage and child care. Indeed, as we shall describe below, attitudinal information gleaned in ELMPS 2006 indirectly supports this view.

3.20 Some of these attitudinal questions to women relate to the importance that is given to marriage relative to working in a job. Not surprisingly, the replies to these questions indicate that many Egytian women give primacy to marriage over jobs. Specifically, women were asked whether they agree with this statement- "*Is a thirty year old woman who has a job but it not yet married to be pitied?*". The majority of women agreed with this statement (Figure 3.3a). Likewise, as many as 40 percent of female respondents *disagreed* with the following statement- "*Girls should go to school for not just jobs but also marriage*" (Figure 3.3b). Surprisingly, regression analysis shows that more educated were not more likely to agree with the above statement, suggesting that the main motive behind acquiring education was an improvement in their marriage prospects, and not better jobs.

Figure 3.3: Attitudes About the Compatibility Between Work and Married Life

Source: ELMPS 2006

[47] The informal sector appears to be one exception to this rule.

3.21 Another set of questions in ELMPS relate to attitudes or perceptions about the compatibility between work and married life. When asked to express their thoughts on the statement that "*A woman with a full time job cannot be a good mother*", almost 80 percent of female respondents disagreed with it. Similarly, when asked about whether "*Having a full-time job interferes with a woman's ability to have a good life with her husband"*, most women disagreed. Hence, it would seem that most women believe that in principle, work and married life are not incompatible. But interestingly, regression analysis indicates that compared to other women (including those working in private firms), those who were employed in a government job were significantly more likely to disagree with these statements. For example, government employees were 36 percentage points more likely to disagree with the statement that "*A woman with a full time job cannot be a good mother*". Assuming that their answers are informative of their own work experience, this suggests that women employed in government jobs have found it easier to balance their work and married life.

III. Marriage and Work Force Participation in a Cross-section

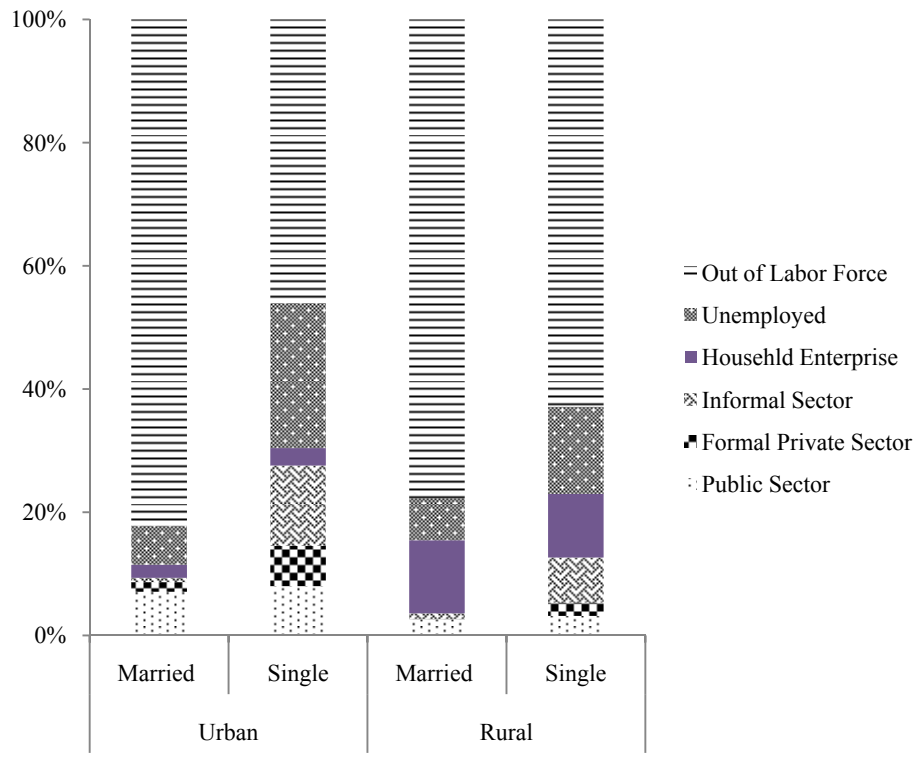
3.22 We explained in section II that women's responses to certain attitudinal questions in ELPMS 2006 suggest two things about marriage and work. Firstly, women give a lot of importance to marriage, and perhaps even think of education as primarily a way to improve marriage, and not job prospects. Secondly, women in the public sector are more likely to state that work and married life are not incompatible, which suggests that this incompatibility is a real constraint to women's work in the private sector. Although these patterns are very consistent what past studies have noted about attitudes on marriage and work-life compatibility in Egypt, they should be taken with a grain a salt, since attitudes alone do not determine behavior. What evidence is there in actual labor market outcomes to support this hypothesis on the role of marriage?

3.23 Consistent with the view that marriage seriously alters their work force participation, the labor market profile of married women does look very different from that of unmarried women in a representative cross-section of Egypt's young working age population (ages 15-29 years). This is depicted in Figures 3.4, which are based on 2006 ELMPS data.[48]

[48] Figure 3.4 corresponds to women aged 15-29 years, either married or single ('never married'). It ignores divorced or widowed women, who comprise less than 1 percent of ELMPS female respondents aged 15-29.

3.24 Compared to single young women, a markedly larger fraction of married young women were out of the labor force in 2006. This was true of both urban and rural areas, although the contrast was greater in urban areas. Married young women were much less likely to be employed in private enterprise. In urban areas, 19 percent of single women were employed in a formal or informal private firm, as opposed to less than 3 percent of married women. In rural areas, almost 10 percent of single women were employed in a private firm (mostly informal), compared to less than 2 percent of married women.

Figure 3.4: Labor Market Profile of Married versus Single Women



Source: ELMPS 2006

3.25 Strikingly enough, the share of government jobs was nearly identical among married and single young women (around 7-8 percent in urban and 3 percent in rural areas). The same held for the share of household enterprises (around 2-3 percent in urban and 13 percent in rural areas). Thus, it would appear that marriage is associated with a large reduction in work force participation rate among young women, and that this reduction is achieved overwhelmingly at the cost of private sector employment. Married urban women rely largely on government jobs, while married rural women rely largely on either government jobs or household enterprises. This is significant because these types of jobs offer more flexibility to married women than those in private firms.

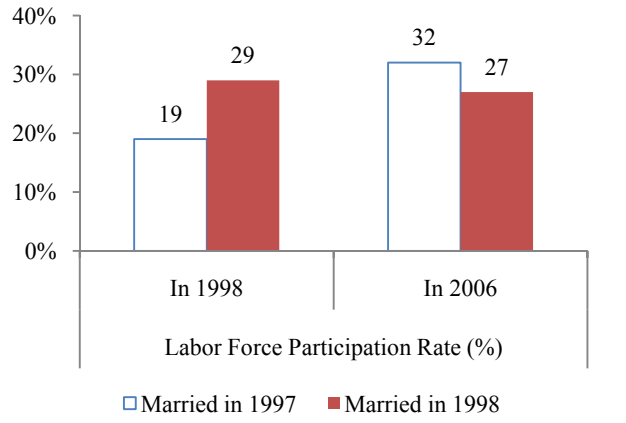
3.26 As described earlier, cross-sectional analysis has major limitations. In a cross-section, married and single women could differ along several dimensions and it is possible that those differences, and not marriage, are the real cause of the differences in their employment outcomes. The most obvious difference is age- married women are older. This is why we restricted our analysis to women aged 15-29 years. Even so, significant age differences remained between the two groups. For instance, in urban areas the average single woman in the 15-29 age group was 20 years old while the average married woman in the same age group was nearly 24 years old. Thus, single women were more likely to be new entrants to the labor force, and not surprisingly, Figure 3.4 reveals that they did have a significantly higher incidence of

unemployment than married women. So could it just be that married women participate less because more of them are older, discouraged workers?

3.27 We cannot rule out alternative explanations such as this one without more careful analysis. To begin with, more direct evidence that women leave the work force right after marriage or child birth would be very useful. We could see this if we had information on the same set of women for multiple and, ideally speaking, frequent intervals of time such as annually. In later analysis in this chapter, we will exploit that fact that we have panel survey data on the same individuals for 1998 and 2006 to get at this issue.

3.28 Preliminary examination of the panel data does, in fact, suggest that there is a decline is labor force participation right after marriage. Figure 3.5 looks at women aged 15-29 in 1998 who were interviewed in both rounds of ELMPS, focusing on two subgroups who got married within two years of each other: those who married in 1997, and those who married in 1999. The first group of women was 'just married' at the time of the 1998 survey and the latter were close to marrying. The advantages of comparing these groups of women are two-fold. Firstly, women who married in 1999 were not much younger than those who married in 1997, and hence age-related explanations for differences in their labor force participation rates are less compelling than in case of a cross-section of *all* women aged 15-29 years. More broadly, these groups are likely to be at similar points in their life-cycles, and much more so than all single versus all married women in a cross-section. Secondly, by comparing these groups we can be sure that the observed work force exit occurs just after marriage, and does not in fact precede marriage.

Figure 3.5: Marriage and Labor Force Participation



Source: ELMPS 2006 and ELMS 1998

3.29 Figure 3.5 gives us two interesting insights into the dynamics of marriage and women's work Egypt. The main finding is that in 1998, women just married (in 1997) had a markedly lower labor force participation rate than women about to be married (in 1999). This indicates that many women leave the labor force within a year of marriage. Further, in 2006 the participation rates were more similar across these groups, suggesting that some women rejoin the labor force several years after marriage. This second observation also suggests that the difference in their participation rates in 1998 was not reflective of some random, fixed difference in the two groups.

3.30 We would have liked to compare these groups more closely, but are constrained by the small sample size.[49] Nevertheless, this analysis suggests strongly than women have a tendency to leave the workforce shortly following marriage. This supports the hypothesis that differences in the labor force outcomes of married and single women are a direct consequence of marriage and

[49] The sample size of the 'just married' and the about to be married group in ELMS 1998 was 52 and 67, respectively.

married life. In the next section, we will build on this insight by comparing women in the ELMPS surveys who got married between 1998 and 2006 to those who did not.

IV. Marriage and Work Force Participation over Time

3.31 When showing that married women participate less in non-government employment than those still single that in a representative cross-section of young Egyptian women, we noted that this fact could be reflective of other differences between married and single women instead of a causal effect of marriage on women's employment. To our knowledge, prior quantitative evidence on the relationship between marriage and women's workforce participation in Egypt, (such as that in Assaad and El-Hamidi (2009)) is also based largely on cross-sectional data and hence suffers from similar limitations.

3.32 ELMPS panel data allow for a more direct alternative analytical approach to this issue. With these data, we can track how the labor market outcomes of women changes between 1998 and 2006. The simple transition analysis in section I made use of this information to show how women who were employed in the government sector in 1998 were more likely than those employed in the private sector to stay on in a job in 2006. In this section, we describe the results from more rigorous multivariate regression analysis of these panel data. This analysis seeks to answer three questions, as spelled out below.

3.33 The first question is how women's labor force exit between 1998 and 2006 differed by their sector of work in 1998. This part of the analysis is in principle the same as the transitions described in section I. But in a simple transition matrix, the difference in the patterns of transition across women initially employed in different sectors could reflect other systematic differences between these groups. In a multivariate regression framework, we can allow the transition rates to vary not just by sector of employment but also by other relevant characteristics such as age in 1998, thereby better distinguishing the effects of the initial sector of work.

3.34 The second question that we investigate in these regressions is how women's labor force exit is related to marriage. The ELMPS panel contains more than 5000 women aged 15-64 in 1998, of whom 17 percent got married between 1998 and 2006. We can estimate the rate of labor force exit after marriage directly by comparing exit in this group to that among women whose marital status remained unchanged between the two rounds.

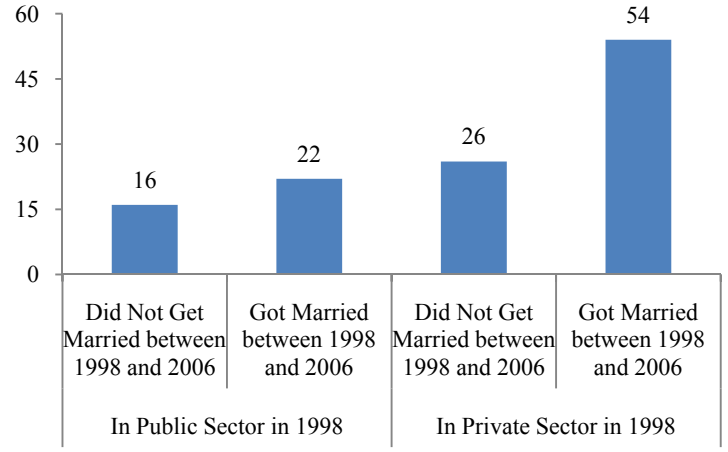
3.35 Finally, we examine how the post-marriage exit differed by sector of employment in 1998. In particular, we compare the post-marriage exit rate across women employed in government jobs and those employed in private firms in 1998. This analysis gets to the heart of the question of whether lower *private* sector participation among married women is a consequence of marriage itself. Moreover, before ascribing their difference in post-marriage exit to their type of employment in 1998, this analysis controls for other differences in characteristics between women employed in public and private sectors in 1998. Annex 3.2 describes the panel regressions in detail. We will now outline the key results.

3.36 Our panel regression estimates of how the rates of exit from the labor force by 2006 varied according to the sector of employment in 1998 is consistent with the basic transition matrix presented in section I. Most importantly, among those women who were working in 1998, government/ public sector employees were the least likely to exit the labor force by 2006. Specifically, the rate of exit of female private firm employees was about 12 percent points higher than that of female government employees, and this difference was statistically significant. The rates of exits of those working in an informal firm, household enterprise or of those self-employed were even higher, being about 35 percent points higher than the exit rate of government employees. Note that these since estimates control for difference in age, we are certain that this pattern does not just pick up any systematic age differences across government and non-government workers. We also confirm that these patterns hold in both urban and rural areas.

3.37 Next, we consider the relationship between marriage and labor force participation. The regression result indicates that on average, relative to women whose marital status was unchanged, those who got married between 1998 and 2006 were significantly more likely (by about 14 percentage points) to have left the labor force by 2006. Since the estimations allow the exit rate to differ by age and age squared, we have controlled for age related differences in exit rate. This was necessary given that the probability of marriage during 1998 and 2006 must have depended on age in 1998. Hence, this is far more compelling than cross-sectional patterns as evidence of post-marriage exit from the labor force among women in Egypt.

3.38 Our final and most interesting finding is on the difference in post-marriage exit between public and private sector jobs. Controlling for age effects in exit, we find that the association between marriage and labor force exit is far weaker in the government (public) sector. Figure 3.6 describes the main result in a graph, where for illustration we show what the regressions imply in the hypothetical case of women aged 20 years in 1998.[50] According to our estimates, a woman aged 20 and working in a government job in 1998 would have a 16 percent chance of exiting the labor force by 2006 if she did not get married in the interim, and a 22 percent chance of exiting if she did get married. If she were employed in a formal private firm in 1998, then these rates would have been 26 and 54 percent, respectively. Thus, while the exit

Figure 3.6: Marriage and Labor Force Participation



Source: ELMPS 2006 and ELMS 1998

[50] It is necessary to fix the age because in the regression specification, the 1998-2006 exit rate depends on age, sector of employment in 1998 and whether married between 1998 and 2006. Further, the effect of marriage is allowed to depend on the sector of employment in 1998. These numbers correspond to the regression reported in Column (2) of Table 3.2.3 in the Annex 3.2. In this specification, the exit rate is allowed to vary by age in a fully flexible manner, as explained in the Annex.

rate is higher among private sector workers, the increase which is explained by marriage is also much higher among private sector workers. In other words, the 'effect' of marriage was to raise the exit rate of a government employee by 6 percentage points and that of a private employee by 28 percentage points. This 22 percentage point difference in the effect of marriage is statistically significant. Similarly, we find that the effect of marriage on exit among informal sector employees is significantly higher than among government employees.

3.39 It is possible that women working in government jobs have higher retention rates post-marriage not because government jobs are more flexible, but because they are more educated than those working in other sectors, and stand to lose more in monetary terms by leaving their jobs altogether. In fact, very recent evidence from US census data suggests that more educated women there are more likely to stay in the labor force after having children.[51] In the context of Egypt, another consideration is that social norms among the more educated might be more permissive of work after marriage. Therefore, we need to distinguish between the effect of education and that of sector of employment on the post-marriage exit rate. We do so in the regressions by allowing the effect of marriage on labor force exit to vary by the respondent's education, and even by her parent's education. Our main result of a higher post-marriage retention rate in the public sector is unaffected by the addition of these education controls. Thus, our panel analysis strongly suggests that married life is more compatible with women's work in the government sector, compared to the private sector.

3.40 In the final set of regressions, we repeated this exercise separately for rural and urban women. Here, we found evidence that the difference in post-marriage labor force exit rates across government and informal sector employees is largely an urban phenomenon. In rural areas, the difference in the effect of marriage across government and informal employees was statistically not significant.[52] This suggests that informal sector work in rural areas, which consists primarily of animal husbandry and processing of dairy products, et cetera, is just as compatible with marriage as government work. The line between women's productive and reproductive roles in rural areas is much more blurred. Interestingly, we also found that if we focus on just urban areas, there is some evidence that post-marriage retention rate in the highest among women working in household enterprises, higher even than that among government employees. Given that work in a household enterprise is likely to be very flexible in terms of hours, this result also goes to support the idea that married women are more likely to keep working if work hours and married life are compatible.

V. Conclusion

3.41 The analysis is this chapter has made the case that women's participation in private sector is constrained by an incompatibility between such employment and marital roles, which include the need for taking care of children. In light of the large magnitude of the estimated effects, this should be a policy priority.

[51] Day and Downs (2009).

[52] We could not test for difference in post-marriage labor force exit rates across government and formal private sector employees in rural areas because of the small sample of formal private sector employees in rural areas.

3.42 Not surprisingly, seeking to make employment compatible with marriage and childcare, most countries around the world have instituted some form of maternity leave and childcare subsidy policy. Egypt is no exception, having mandated paid maternity of up to three months and requiring large employers to provide a nursery for childcare. But while maternity leave and childcare policies are universally accepted as being essential to the well-being of working women, their impact on women's wages and employment is ambiguous. The reason for this is that although such policies make it easier for women with children to work, they also force employers to share in the cost of their female employees' childcare, thereby reducing their incentives to hire women. In Egypt's case, enforcement of such policies is another concern, given that the majority of firms are very small in size.

3.43 Another approach to making it easier for women to maintain the balance between work and family life is allowing for part time and flexible work. But there might be technological limits to the feasibility of flexible scheduling in many industries. Yet another concern is that part-time or flexibly scheduled jobs might be low-quality jobs. Hence, there is a need for careful thought on the design and scope of such policies. We will discuss these issues in greater detail in Chapter 5 of this report.

4. THE GENDER WAGE GAP IN EGYPT: MYTH OR REALITY

I. Setting the Context

4.1 In 2006, the median wage of women working in the formal private sector in Egypt was 24 percent lower than that of their male counterparts. This gender wage gap was even bigger-nearly 50 percent—in informal jobs.[53] To what extent do these reflect discrimination against female employees? This is an important policy question in its own right and also because wage discrimination can discourage women from participating in the labor force. But the answer is not obvious. Women in wage earning jobs in Egypt differ from their male counterparts in many respects, such as education and experience, and might be earning lower wages because on average they have lower-paying attributes. Unraveling this issue to the best extent possible given our data will be the focus of this chapter.

4.2 Examination of the gender wage gap has drawn considerable attention worldwide, especially in the United States. This literature emphasizes the importance of gender differences in human capital (education and experience), and in the occupational structure by gender. The *residual* wage gap, which is left unexplained after accounting for differences in observed characteristics for men and women, is commonly attributed to 'discrimination' in the labor market.[54] In this vein, studies have found that while the narrowing of the gender wage gap in the US during the 1980s and the 1990s was partly because women's labor market characteristics like job experience and education became more similar to that of men, there was also a decrease in the residual (unexplained) differential. The latter has been interpreted as evidence of a decline in discrimination, perhaps as a delayed effect of the 1964 Civil Rights Act, and the Equal Employment Opportunity Commission.[55]

4.3 Not surprisingly, this question has been of much interest to researchers in Egypt. Computing gender wage gaps after adjusting for attributes like education and experience, Assaad and Arntz (2005) state that female wage workers would have earned 4 percent more in 1998 had they been rewarded as well as male workers for their attributes. Looking at just the private sector, this gain would have been 27 percent. Said (2002) presents evidence that such gender wage inequalities increased in the 1990s. El-Hamidi and Said (2008) report that in 2004 the share of the gender wage gap not explained by different attributes was about 60 percent in professional and white collar jobs, and 77 percent in blue collar jobs.

[53] Unless otherwise mentioned, all statistics for Egypt mentioned in this chapter are based on data from ELMPS 2006 and ELMS 1998.

[54] Goldin (1990) presents an historical analysis of the gender wage gap in the United States, and Altonji and Blank (1999) conduct an extensive review of the theoretical and empirical literature that examines the determinants of differences in pay across demographic groups (including female/male wage differentials. More recently, Pissaredes et al. (2005) examine the gender wage gap in a cross-section of European counties.

[55] See Blau and Kahn (1997) and O'Neil and Polachek (1993)

4.4 In this chapter, using ELMPS data to measure gender wage gaps in 2006, we show that once differences in education and experience are taken into account it is clear that women earn significantly less than men. This is true at every level of experience, education, and holds even after we adjust for differences in job characteristics such as location, industry and occupation. Our estimates suggest that in 2006, women with average education who had just started working would have earned about 46 percent higher wages had they been rewarded as well as men for their human capital.

4.5 To gain more insight into why women earn less, we compare these adjusted wage gaps across sectors and occupations. Then, we look at the evolution of the gaps across 1998 and 2008 by compare cross-sections of workers in 1998 and 2006, and also by using panel data to compare wages earned by the same individual in 1998 and 2006. Both approaches suggest that in urban areas, the gender wage gap within each educational attainment group rose during this period. However, there is some evidence that the gap widened more among the least educated, which suggests that the gender gap in the returns from acquiring education fell. In rural areas, interestingly, we find the gender gap to have fallen during 1998-2008.

4.6 After describing these wage differentials, we discuss their possible causes with a view to informing the policy debate on improving women's labor market outcomes in Egypt. Although the default explanation for unexplained wage differences tends to be employer discrimination, the issue is not quite so simple. By definition, the unexplained wage gap is that part of the wage gap which remains after all *observable* gender differences in the relevant attributes have been taken into account. But the researcher's information on characteristics such as occupation and skill is often crude, which means that in addition to any discriminatory male wage premium, the residual might still contain unobservable but critical gender differences in labor market attributes that data do not often capture.

4.7 Another subtle but very policy relevant problem concerns the *interpretation* of the residual. Equating discrimination with the unexplained residual assumes that differences in job characteristics between the jobs held by men and women- such as occupation, industry, part-time work—are solely the result of differential tastes by women for the jobs they want to hold. But what if they are also a reflection of constraints that women face in the labor market (because they are denied access to other jobs)? To the extent that differences in observable attributes reflect constraint and not choice, they should fall under the purview of policy.

4.8 Indeed, looking beyond employer discrimination, constrained occupational choice is a major theme in the literature seeking to explain the unexplained part of the wage differential. Assaad and Arntz (2005) suggest that the source is entry discrimination resulting from the "gender-typing" of jobs, or other barriers to entry that restrict female wage workers to a limited number of narrow labor market segments. They also point attention to women's restricted geographic mobility. Assaad and Barsoum (2009) has described working conditions in some parts of the private sector as dissuading women from pursuing such jobs. Highlighting another interesting possibility—stereotypes—Moghadam (1998) notes that employers widely believe that the productivity of women declines after marriage, and are likely to prefer them only in occupations that are not intensive and where there are high turnovers.

4.9 In light of the wage gap patterns we have observed in our analysis, we revisit these causes at length in the final section of this chapter. The discussion therein also draws upon insights on occupational mobility and skill acquisition patterns from the recent Survey of the Young Population in Egypt (2009).

II. Analyzing the Gender Gap in Wages in a Cross-Section

Descriptive Statistics

4.10 According to ELMPS data, the median hourly wages of both female and male wage workers were close to 2 EGP. But it is difficult to infer much about gender wage differentials from this alone because several key labor market attributes of female and male wage workers in Egypt are markedly different. A larger proportion of female workers are college educated: according to ELMPS data in 2006, 49 percent of them possessed a university degree as opposed to only 26 percent of male workers (Table 4.1). They are also more likely to reside in urban areas, to work for the government, and to work in the service industry. Given that women possess 'superior' characteristics on average, the fact that women's median wages are not significantly higher than those of men suggests that women are paid less than men with similar attributes.

Table 4.1: Key labor market attributes of female and male wage workers in Egypt (in %)

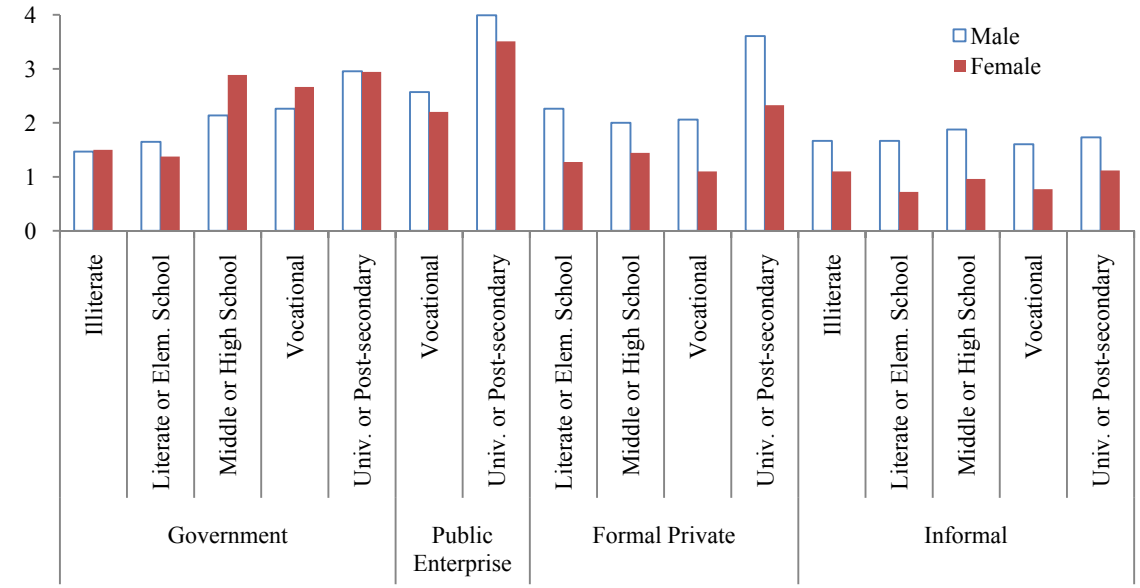
	Women	Men
Experience	14.4	17.7
EDUCATION		
Illiterate	5.6	0.1
Literate/Elementary	4.0	18.4
Middle/High school	2.3	6.3
Vocational	39.3	34.3
Univ./Post-Secondary	48.8	26.4
REGION		
Gr. Cairo	23.4	17.7
Alexandria/Suez	15.3	12.0
Urban Lower	16.9	12.3
Urban Upper	19.6	15.2
Rural Lower	19.1	24.7
Rural Upper	5.7	18.2
SECTOR		
Government	68.3	34.2
Public Enterprise	4.5	8.5
Formal Private	10.1	16.1
Informal	17.1	41.2
INDUSTRY		
Agriculture	3.3	9.3
Manufacturing	10.4	20.1
Construction	0.7	12.1
Trade	7.0	14.2
Transport	2.9	10.4
Finance	4.5	3.2
Public Service	68.8	26.7
Other Service	2.4	4.0
Legal Work Contract	77	52

Source: ELMPS (2006)

4.11 Indeed, comparing wages by sector and education levels, we see that women earned less than men in the private sector at all levels of educational attainment (Figure 4.1). The median wage for a formal private sector male worker with university education was 3.6 EGP, while that of a comparable female worker was only 2.3 EGP. Among those with a vocational degree, males had twice the median wage of females in the formal private sector. There were even larger wage gaps between female

and male informal workers, within every educational category.[56] The one sector in which men and women had similar median wages was the government, and in fact the median wage for females with a vocational degree exceeded that of males with the same education in such jobs.

Figure 4.1: Median hourly wages for males and females by sector and education levels

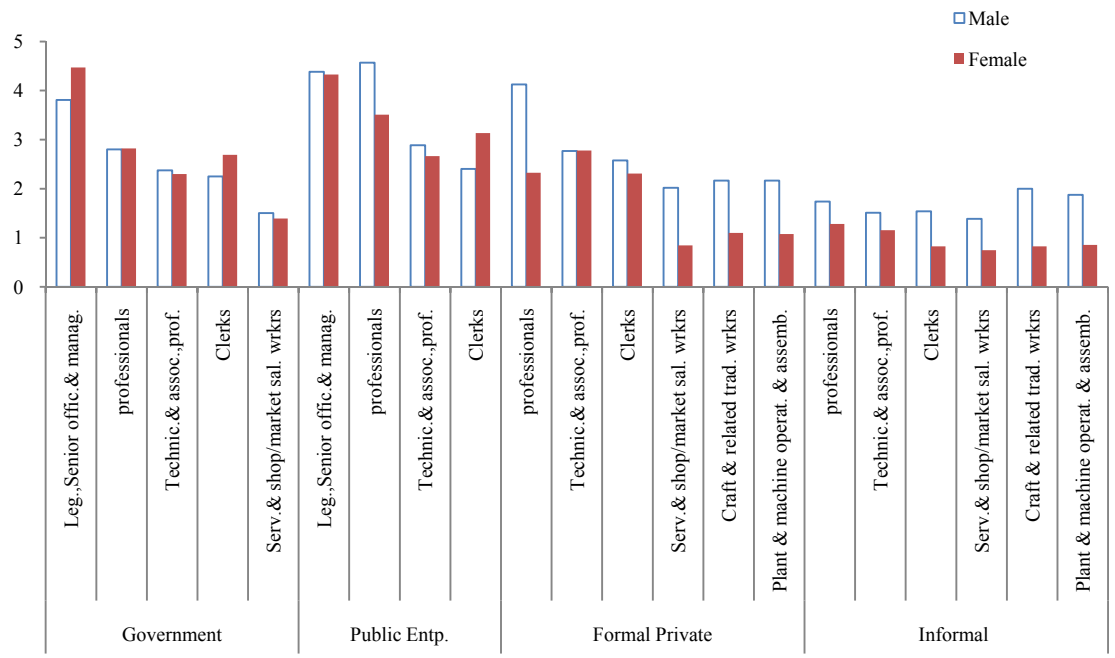


Source: ELMPS (2006)

4.12 Wage gaps are also evident when we compare women and men in the same type of occupation. Figure 4.2 shows that in the private sector, women had lower median wages than men in both blue and white collar occupations. For example, the median wage for a formal private sector professional was 4.1 EGP among males and 2.3 among females. The only occupation in which women appear to have earned nearly as much as men in the formal private sector is clerical work. Just as in Figure 4.1, gender wage gaps were non-existent or even reversed in some occupations in the government.

[56] Throughout this chapter, education attainments are categorized into the following: *illiterate*, *elementary* (which includes literate without school and those with elementary schooling), *high school (*which includes those with middle school*)*, *vocational* and *university* (which includes those with a post-secondary or university degree.)

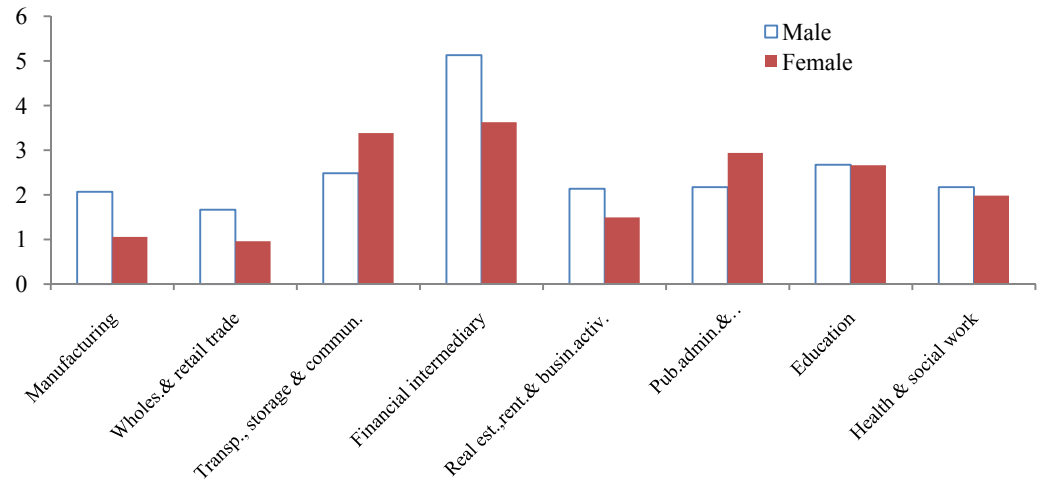
Figure 4.2: Median hourly wages for males and females by sector and occupation levels



Source: ELMPS (2006)

4.13 Figure 4.3 suggests that women earn less than men in many industries. Notably, the median male wage in manufacturing is twice that of females. But in some service industries where female employment is heavily concentrated, such as education, health and social work, the gender wage gap is much lower.[57]

Figure 4.3: Median hourly wages for males and females by industry



Source: ELMPS (2006)

[57] We limit these figures to industries, sector or education groups in which we observe at least 15 men and 15 women wage workers in the ELMPS sample.

4.14 Thus, as we begin to compare female workers to male workers with similar attributes, looking at different types of attributes one at a time, the picture that emerges is that lower wage among women are the norm in the private sector. Gender wage gaps are less apparent in the government and in public enterprises. The next step in our analysis is to extend this approach through multivariate regressions, comparing wages among women and men while accounting for differences in attributes along multiple dimensions simultaneously.

Regression Analysis

4.15 Following common practice in the literature, we examine gender wage gaps by estimating the determinants of hourly wages (in logs) in multivariate regressions using ELMPS 2006 data.[58] In these regressions, which are estimated separately for female and male workers, wages are regressed on relevant attributes like experience, education and region indicators.[59] The purpose of these regressions is to measure how the 'returns' to these key attributes (like experience and education) vary by gender. Annex 4.1 describes the econometrics of this analysis. This regression approach is fundamentally similar to our previous analysis of comparing wages among men and women with similar education, similar occupations and so on, except that the regressions allow us to account for difference in several attributes at once.

4.16 In our first regressions, the explanatory variables are experience (and experience squared), indicators for educational level and region.[60] Figures 4.4 and 4.5 present the main results, depicting by gender the predicted wages at different levels of education and experience.

4.17 Figure 4.4 shows the predicted wage in 2006 for men and women at different level of educational attainment, holding constant their experience (at zero years) and location. There is a clear gender gap in all educational categories. Illiterate men are estimated to have earned nearly 75 percent more than illiterate women, while college educated men earned about 57 percent more than women with the same education. The gap was slightly lower among vocational degree holders (about 40 percent).

[58] Measuring wages in logs makes the estimates less susceptible to extreme values and also allows a more convenient interpretation of the results, since difference in the log of wages is approximately equivalent to percentage differences in absolute wages. Note that before taking the logs, wages were rescaled; they were multiplied by 100 to avoid negative values.

[59] The regions are Greater Cairo, Alexandria and Suez, Upper Urban, Upper Rural, Lower Urban and Lower Rural. The wage regressions include dummies for these regions.

[60] Annex 4.1 presents all the regression results. In all the graphs based on wage regressions in this chapter (Figures 4.4-4.11), the estimates depicted correspond to the Greater Cairo region and to individuals with zero years of experience unless otherwise noted.

Figure 4.4: Predicted Wage (in logs) by Education

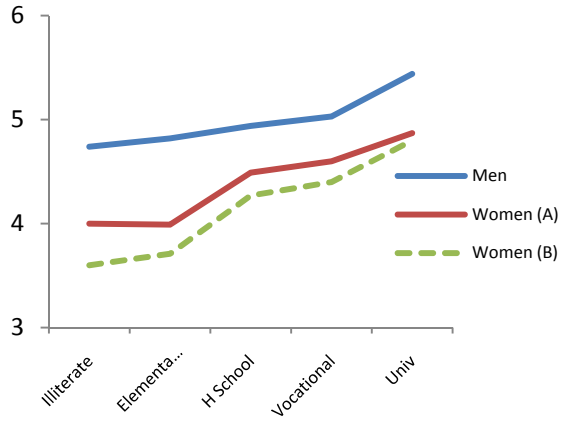
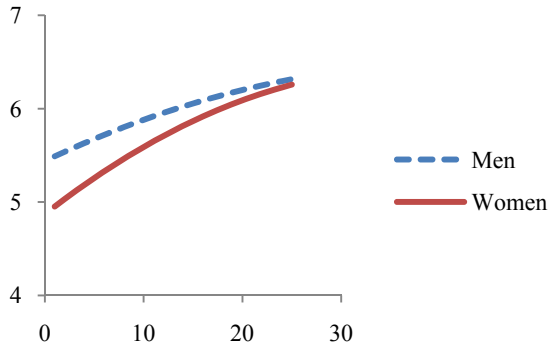


Figure 4.5: Predicted Wage (in logs) by Experience



Source: ELMPS (2006)
Note: In Figure 4.4, the estimates shown in the plots labeled *Men* and *Women (A)* correspond to OLS, while those shown in *Women (B)* are based on Heckman Two-Step Estimation which corrects for selection into wage work.

4.18 Figure 4.5 displays how the returns to experience varied by gender, holding education and region constant. Starting with no experience, men earn higher wages, and continue to do so as experience rises. But the graph also suggests that the wage gap gets smaller as we compare more experienced workers. However, we urge caution in interpreting this as evidence of a narrowing of the gender gap with rising experience. The main reason for this caution is that women with 20 years of experience in 2006 are very likely to have been working in very specific sectors, such as the government. In fact, later in this chapter we will see that a very different picture emerges if we track the same workers over time.

4.19 A common concern with estimating how wages vary by attributes like education is that we do not observe the wages that currently non-working individuals would be earning if they were in a job. Because it is those who receive better wage offers who are more likely to be in jobs, not accounting for non-workers can lead to overestimation of wages. This 'selection bias' could be especially relevant among women, given their high rates of non-participation. In order to account for selection into work, we re-estimated the wage equations using the Heckman selection correction method.[61] The 'selection-correction' had virtually no effect on the wage estimation for men, but as expected, women's wages were found to be slightly lower after correcting for selection. In Figure 4.4, the dotted line shows the selection-corrected estimates for women's wages. Though the gender wage gaps implied here are larger than those measured by ordinary regressions, the difference are small in magnitude, except among the illiterate. The ordinary regression estimate of the wage gap among the college educated is 57 percent, whereas their selection-corrected wage gap is 64 percent. The selection corrected wage gap among the illiterate is about 100 percent, as compared to the ordinary regression estimate of 75 percent.

4.20 Since the Heckman estimates of the wage gap are largely similar to the ordinary regression estimates, the rest of this chapter will present only the latter, which have the methodological virtue of relying on fewer technical assumptions. However, we note that in the

[61] Annex 4.1 describes this technique and its underlying assumptions in detail.

face of selection, these simple regression estimates of gender wage gaps are probably on the *conservative* side.

4.21 Having estimated how wages vary by education and by experience, we are now in a position to quantify how much of the *overall* gender wage gap in Egypt in 2006 was explained by gender differences in these attributes, and how much was purely due to differences in how the labor market was rewarding these attributes. Box 4.1 below explains the methodology behind this 'wage decomposition'.

Box 4.1: Decomposing Wage Differences between Females and Males

One way to explore the wage differential between groups is to decompose into 'explained' and 'unexplained' components. Suppose that the wage for males ('*m*') can be written as

$$wage_m = \beta_m X_m + u_m$$

Here, X_m denotes a set of characteristics like education and experience. The coefficients on the characteristics- the β_m - measure the rewards (or 'returns') to the attributes among males. For example, the β_m corresponding to experience measures the effect of an increase in years of experience on the wage of males.

As with males, we estimate the wage for females ('*f*'), with β_f measuring the returns to attributes among females.

$$wage_f = \beta_f X_f + u_f$$

Thus, the *mean* predicted wage for men is $\beta_m \bar{X}_m$, where $\bar{X}_m$ are the means of the various male characteristics, and β_m the estimated returns to the characteristics (estimated in regressions). Similarly, the predicted mean wage for females is $\beta_f \bar{X}_f$. The gender difference in these mean wage can be written as

$$\beta_m \bar{X}_m - \beta_f \bar{X}_f \equiv \beta_m(\bar{X}_m - \bar{X}_f) + (\beta_m - \beta_f)\bar{X}_f$$

$\beta_m(\bar{X}_m - \bar{X}_f)$ is the part of the wage gap can be *'explained'* by the differences in the mean characteristics of females and males. $(\beta_m - \beta_f)\bar{X}_f$ is the *unexplained* component of the gender wage gap: it is the predicted increase in the mean female wage if, given their mean attributes $\bar{X}_f$, females were rewarded as well as males for each characteristic.

4.22 Earlier in this chapter, we noted that the average wages among female and male workers in 2006 were similar, and speculated that this was because while females are rewarded less than males for the same human capital endowment, the average human capital endowment of female workers is superior to that of male workers. The wage decomposition underscores this point. Our estimates indicate that at their *average* levels of education, experience and location, if women were rewarded as well as men were for these attributes, their mean wage would have been 6 percent higher in 2006. On the other hand, if women possessed the *same* average education, experience and location as men but continued to be paid as low as they are for these

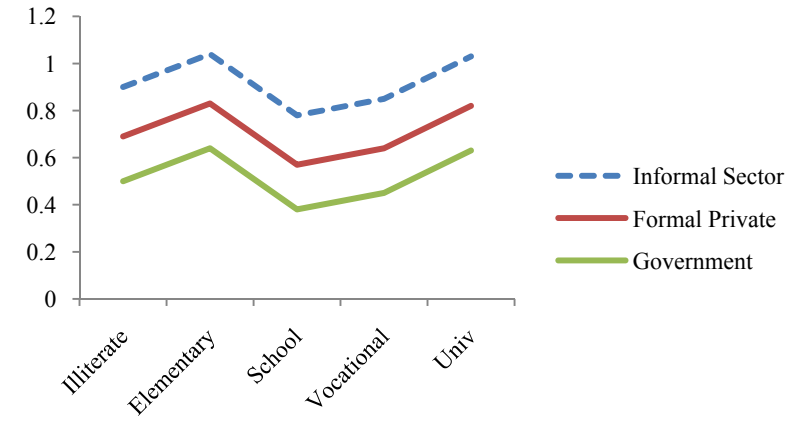
attributes, then they would have earned about 7 percent lower wages. Thus, though women earn less for each individual attribute, this gender wage gap is hidden by the fact that the average working woman possesses better attributes than the average working man.

4.23 Compared to raw gender wage gaps of the order of 55-75 percent (Figure 4.4), the 6 percent estimate of the total 'unexplained wage gap' seems low. A key reason for this is that the wage decomposition described above corresponds to a woman of *average* experience level, which is about 14 years. As shown in Figure 4.5, the estimated raw gender wage gap declines sharply with experience, and we have urged caution in reading too much into this estimated relationship given that older women work in the government. Estimates of wage gaps among inexperienced female workers are more reliable, and also higher. Indeed, our raw wage gaps imply that if women with no experience but average education and location were paid as well as men, then their wages would be about 46 percent higher. In other words, our estimates imply an unexplained gender wage gap of 46 percent among inexperienced workers.

Is Occupational Segregation or contractual status driving the Wage Gap?

4.24 It is possible that women's earnings appear to be lower not because they are paid less despite having the education, experience and location but because a woman might have the same education, experience and location as a man but is still likely to be employed in a different, lower paying sector, occupation or industry. To account for this possibility, we included the sector of work, occupation and detailed 3-digit industry in the regressions.[62] These regressions indicate that even after we hold not just experience and location but also sector, occupation and industry constant, women earned significantly less than men no matter what their level of education. Further, as shown in Figure 4.6, this gender gap in returns is the largest in the informal sector, followed by formalized private sector employment. For example, holding experience, location and industry constant, the wage of a college educated female was lower than that earned by a college educated male by 80 percent and 50 percent, respectively, in informal and formal private sector employment.

Figure 4.6: Gender Wage Gap (in logs) by Sector

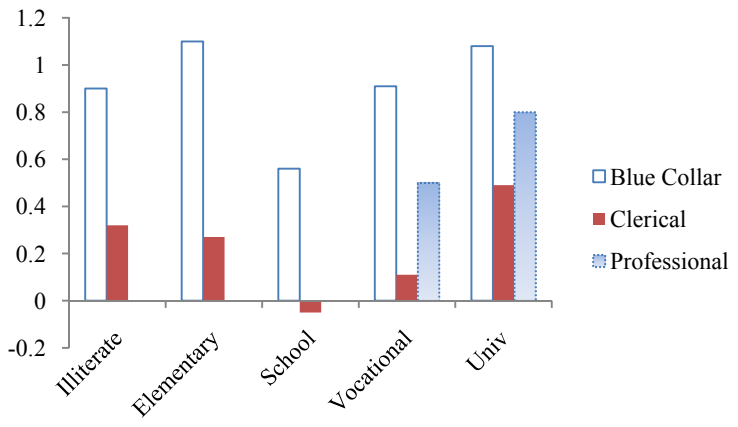


Source: ELMPS (2006)

[62] The sectors are *government, public enterprise, formal and informal* firm. The occupational categories are *professionals* (including legal and senior officers and management), *clerical and other 'technical' staff*, *skilled workers* (which includes craftspeople and machinery operators) and *unskilled workers* (which includes elementary occupations, agricultural and service sector workers).

4.25 We also observe that holding experience, location, sector and industry constant, there were marked gender differences in wages earned by occupation (Figure 4.7). These gender gaps were the largest in blue collar jobs, and the smallest in clerical jobs. Interestingly, there is evidence of gender gaps even among professionals, with university educated males earning 50 percent more than similarly educated females.

Figure 4.7: Gender Wage Gap (in logs) by Occupation



Source: ELMPS (2006)

4.26 As discussed earlier, if we consider only three attributes- education, experience and location- then female wage workers on average had better endowments than male workers in 2006, with our estimates suggesting that had the labor market rewarded them for these attributes as well as it did males, their average wage would have been 6 percent higher. Does this continue to hold even as we expand the set of attributes to include sector, industry and occupation? Our new estimates suggest that given their average education, experience and location *as well as* their average sector, industry and occupation, women would have earned only 1 percent more than men had they been paid as well as men for these endowments. This gain is markedly lower than the 6 percent gain predicted when only mean endowments of education, experience and location are considered.

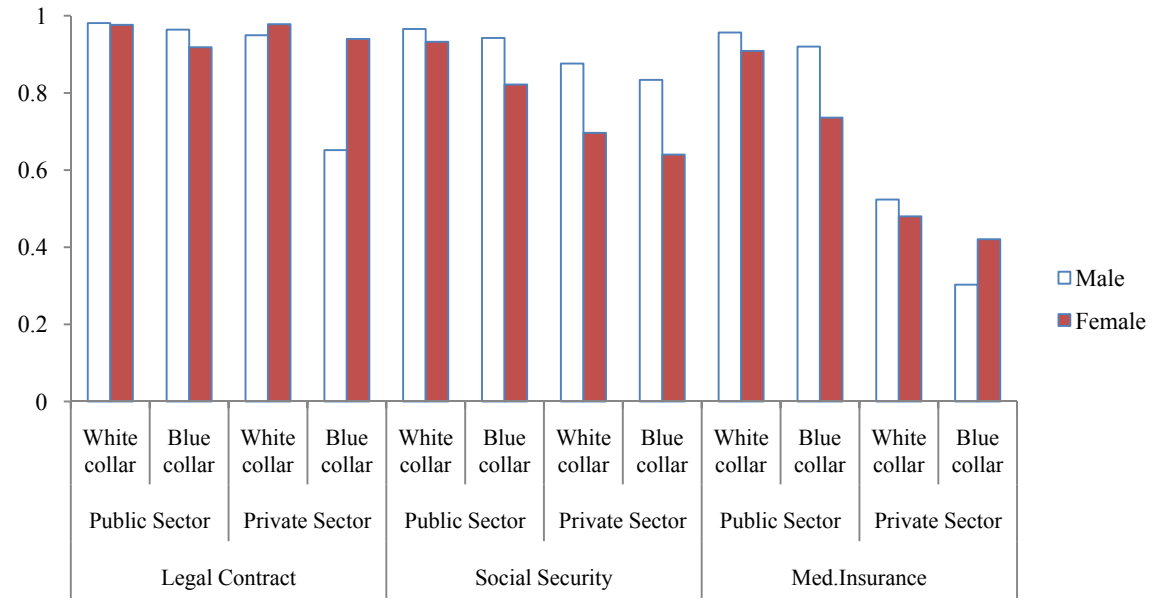
4.27 Thus, when we include their average sector, industry and occupation in the set of relevant attributes, wage earning women do not appear to have had markedly superior attributes to wage earning men on balance, despite being better educated. Since the government sector pays well, the concentration of women in government jobs cannot explain this. We surmise that it is their concentration in certain industries that lowered the average 'quality' of their attributes as recently as 2006. However, given the sheer variety in industries, identifying such industries would however require a larger sample of working women than that in the ELMPS.

4.28 This finding raises an important issue that was alluded to earlier in this chapter. The standard practice in the literature that seeks to explain wage gaps between different groups in the population is to correct for differences in attributes between these groups and identify earnings gap that persist after these differences are taken into account. The presumption here is that differences in characteristics like education and industry of employment reflect differences in preferences. Hence, only the unexplained gaps that remain after correcting for differences in characteristics are attributed to discrimination or other sources of differential labor market treatment. If we follow this approach then as mentioned earlier, our estimates suggest that women were earning about 7 percent lower wages because of gender differences in the labor market rewards to human capital. However, as several studies have noted, even differences in attributes such as occupational choice can be the outcome of discrimination or other market

failures. In that case, the 7 percent figure is an underestimate of the negative effect of gender discrimination or market failures on women's wages.

4.29 This issue is particularly salient to Egypt, given our limited understanding of why women are clustered in types of jobs. Critically, if women are somehow constrained when choosing their educational specialization and industry of employment, then ignoring gender differences in such endowments leads to an underestimation of differential treatment of women in the labor market. In this respect it is significant that according to our regressions, women's attributes are on average 'inferior' in some dimension(s) like occupation or industry. While it is possible that this is the accidental outcome of preferences for certain kinds of jobs, we suspect that it is in fact an outcome of constrained or distorted decision-making. If so, our estimate of 7 percent understates the gender gap in wages resulting from market failures.

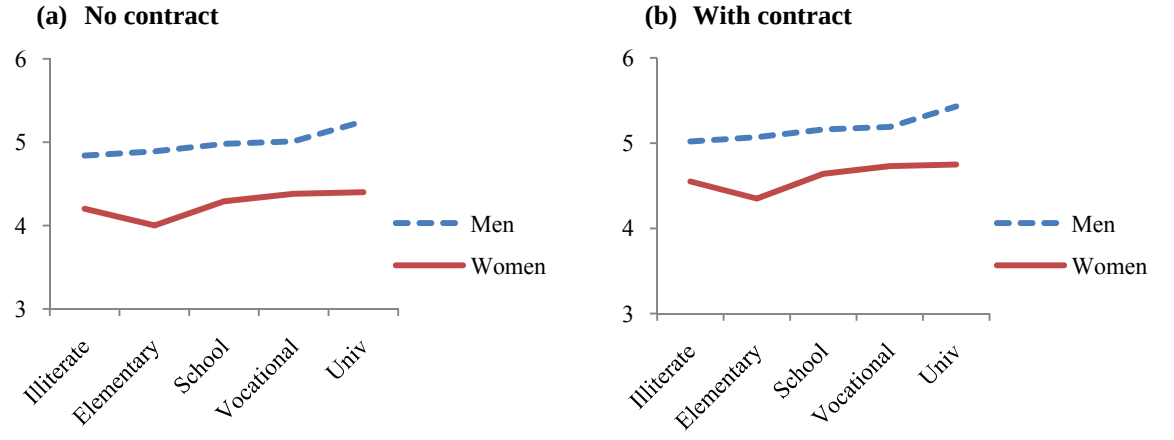
Figure 4.8: Incidence (%) of Legal Contract, Social Security and Medical Insurance Across Men and Women in the Formal Sector



Source: ELMPS (2006)

4.30 In our final regressions on wages in 2006, we considered differences in the prevalence of legal work contracts between women and men. As shown in Figure 4.8, women are more likely to have a legal work contract than men in the formal private sector. Since jobs with contracts could be better paying, it would be interesting to compare gender gaps while holding contracts constant. Our results indicate that as expected, once the effect of legal contracts is removed, the wage gap rises (Figure 4.9). We also observe that given education, experience, location, sector and industry, the gender gap is narrower in jobs with contracts, which indicates that having a legal contract helps women relative to men.

Figure 4.9: Predicted Wage (in logs) for contract and no contract jobs



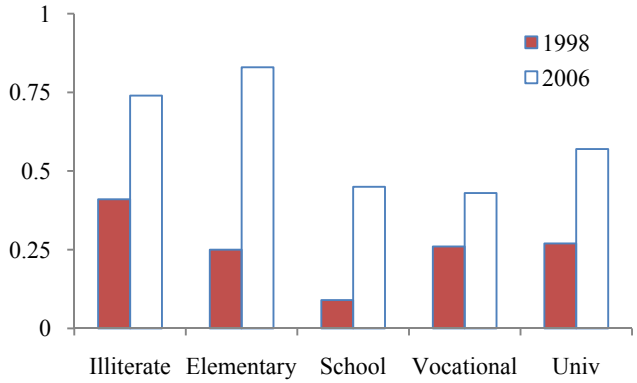
Source: ELMPS (2006)

III. How has the Gender Wage Gap evolved since 1998?

4.31 According to ELMPS data, in 1998 the median wage of wage workers was 1.6 EGP among males and 1.7 EGP among females (expressed in real terms, in 2006 prices). Thus, just as in 2006, wage earning women on average did *not* have lower wages than men. But given that women are revealed to earn substantially less than males in 2006 once education and other attributes are taken account, it would not be surprising to uncover a similar gender gap in the past. If anything, in light of the fact that women's educational attainment has *improved* over time, the stagnation in the raw gender wage gap suggests that the underlying inequality has risen. Indeed, when we repeat the regression analysis described in the previous section using 1998 data, estimating wage regressions that take into account education, experience, location, sector and other attributes, it emerges that there were significant gender wage gaps in 1998.

4.32 Further, in urban areas, this gender differential appears to have increased during 1998-2006. Figure 4.10 plots the gender wage gaps estimated from 1998 and 2006 cross-sectional data, wherein differences in attributes like experience, location, and education are taken into account. These results are also robust to taking sector and industry of employment into account. The estimates, which for illustration correspond to the Greater Cairo region, show that the gender gap widened in every educational attainment group. Among college educated wage workers, it rose from 27 percent in 1998 to 57 percent in 2006, while among illiterate wage workers it rose from 41 percent to 71 percent. Moreover, our regressions suggest that this increase occurred in all sectors: the formal private sector, informal firms and interestingly, even among government employees.

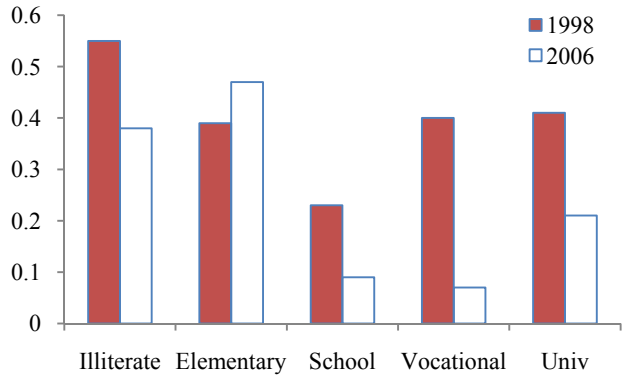
Figure 4.10: Urban Gender Wage Gap (in logs), 1998 and 2006



Source: ELMPS (2006) and ELMS (1998)
Note: 'Urban' here refers to the Greater Cairo region

4.33 In contrast to urban areas, our estimates suggest that gender wage gaps have fallen in rural areas. For illustration, Figure 4.11 plots the gender wage gaps estimated from 1998 and 2006 cross-sectional data for rural Lower Egypt. It shows that the gap fell by 16 percent points among illiterate workers and 20 percent points among college educated. It rose, however, among those with elementary education.

Figure 4.11: Rural Gender Wage Gap (in logs), 1998 and 2006



Source: ELMPS (2006) and ELMS (1998)
Note: 'Rural' here refers to 'Rural lower' region

4.34 Our results also indicate that while the gender wage gap increased within all educational categories in urban areas, this increase was in general larger among the less educated. In the private sector, for example, the wage gap rose by 34-41 percentage points among those with high school or less education, 12 points among those with vocational education, and 25 points among the college educated. This pattern implies that gender gaps in the *returns* to acquiring more education may have decreased in urban areas.[63] A similar pattern held in rural areas, where our estimates suggest that the decline in the gender wage gap was largest among those with vocational or university education.

4.35 As described in Chapter 3, there is considerable labor market exit and interruption among women in Egypt. As a result, compared to males a larger proportion of female wage workers in 2006 would have been new entrants to the labor market. It is possible that a large component of the rising gender wage differential in urban areas is due to high gender wage gaps among new entrants, and that the wage gap did not increase much with time among individuals who were employed in both 1998 and 2006. Clearly, distinguishing between these alternatives is important for policy purposes.

4.36 Therefore, we exploit the ELMPS panel component to get a better understanding of how wages evolved for the same individuals during 1998-2006. This gives a better sense of how wage growth along the career path differs by gender.[64] Moreover, since the main difference between panel and cross-sectional estimates of wage changes is that the cross-sectional estimate of wage

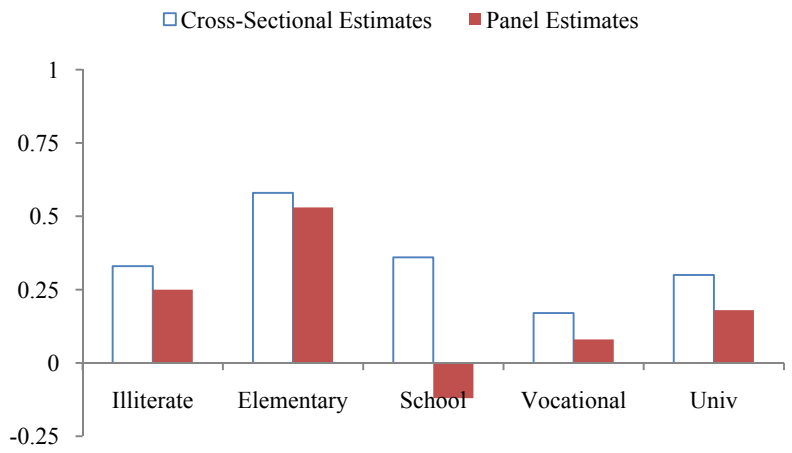
[63] Said (2009) also finds that the gender gap in the returns to education fell between 1998 and 2006, although her estimates of this decline are larger than ours.

[64] The panel could give a 'biased' estimate of individual level wage changes if those individuals who left the panel between 1998 and 2006 had (or would have had) systematically different wage growth that those who stayed in both years. Panel attrition is one possible source of this bias; however, Barsoum (2009) and Assaad and Roushdy (2009) argue that based on observable characteristics, panel attrition in ELMPS was for the most part random. A second potential source of bias is that among individuals who left wage earning jobs between 1998 and 2006, the decision to leave was related to the how their wages were changing. This could be a bigger issue among women simply because more women left their wage earning jobs during this period. However, we argue that this exit affects measured wage changes similarly in both the panel and the cross-sectional comparison across ELMPS 2006 and ELMS 1998. Hence, it is unlikely to be a source of bias when comparing panel and cross-sectional estimates of changing gender gaps.

in 2006 includes not only those who were working in both 1998 and 2006 but also new workers, comparing these estimates can give a sense of how much of the change in the gender wage gap is due to net entry.

4.37 In the first set of panel regressions, we analyzed the relationship between the change in wages (measured in logs) during 1998-2006 and experience, education and location in 1998. The regressions were estimated separately for male and female panel respondents who were wage workers in both rounds of ELMPS. Figures 4.12 and 4.13 present the main results of the panel analysis, displaying the difference between the estimated growth in the wages of males and females. For comparison, the corresponding cross-sectional estimates of the change in gender wage gap are also displayed.[65]

Figure 4.12: Urban Gender Gap (in logs) across 1998 and 2006



Source: ELMPS (2006) and ELMS (1998)
Note: 'Rural' here refers to 'Rural lower' region

4.38 Looking first at the predictions for urban areas (for illustration, Greater Cairo) in Figure 4.12, the basic message is that among those who worked in both 1998 and 2006, on-the-job wage growth was faster among males. Holding experience and location in 1998 constant, the mean increase in wage among college educated male workers was about 18 percentage points higher than that among similarly educated female workers.[66] The increase in the gender wage gap among illiterate workers was even higher, at 25 percentage points. Vocational school educated workers saw a smaller but still notable increase of 8 percent points.

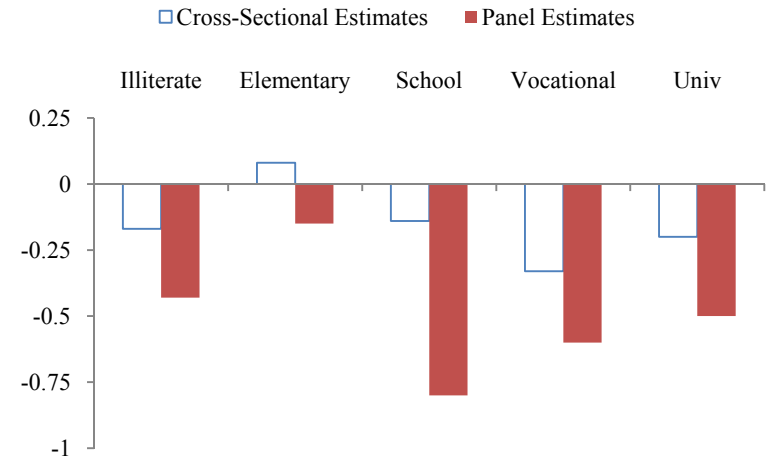
4.39 The gender differential in wage growth rate appears to have been larger among the less educated, which is line with the cross-sectional finding that gender gaps in the returns to education may be falling over time. Another interesting pattern is that the estimated increase in the gender wage gap in the panel is a little lower than that in the cross-sections.[67] This suggests that the widening urban gender gap is an outcome not just of gender differences in wage growth within the same set of workers but also of gender gaps among entrants being higher in 2006 than they were in 1998.[68]

[65] We would like to stress that our panel estimates of wage change among women are less precise than the corresponding cross-sectional estimates, particularly when comparing across educational categories. But in general, the two approaches yield consistent results.
[66] The estimates shown are the predicted changes among those with zero experience and Greater Cairo location in 1998.
[67] Although the difference is not large enough to be statistically significant.
[68] Our finding of the gender wage gap rising with time in the panel seems to be in contrast to our observation that in a cross-section, gender wage gaps appear to fall with experience. But upon deeper reflection, these findings are not

4.40 In additional panel regressions, we took into account factors like sector, occupation and industry of employment in 1998. But even holding these constant, the observed increase in the gender wage gap in urban areas remained nearly the same within each educational category. This indicates that the faster rise in men's wages during 1998 and 2006 could not be driven by their being more likely to have been working in faster growing industries. Even among men and women who had observably similar private sector jobs in 1998, the growth in wages was 30-50 percentage points higher among the men.

4.41 Finally, in our panel results as well we observe that in contrast to urban regions, the gender wage gap fell in rural areas. For illustration, Figure 4.13 presents the panel and the corresponding cross-sectional estimates for rural Lower Egypt. Given the imprecision in the panel estimates, we wish to avoid reading too much into the magnitudes of these estimates. However, an interesting overall pattern is that the decline in the wage gap in the panel is even larger than that in the cross-section, which suggests that falling rural wage gaps are more due to a narrowing in wage differences among those who have been working since 1998 and earlier, than due to smaller wage gaps among those entering into employment after 1998.

Figure 4.13: Rural Gender Gap (in logs) across 1998 and 2006



Source: ELMPS (2006) and ELMS (1998)
Note: 'Rural' here refers to 'Rural lower' region

IV. Explaining Gender Wage Differentials: Is this discrimination?

4.42 The preceding sections make it amply clear that there are substantial gender wage gaps in Egypt in both rural and urban areas which cannot be explained by differences in the observable characteristics of women. We will now discuss their potential causes, with the intent of identifying constraints or market failures that worsen women's labor market outcome and call for thought on designing the right policy interventions.

4.43 Despite discrimination by employers being a widely discussed reason for gender wage differentials, our focus in this section will on other potential explanations. This is not to say that we believe discrimination to be an unlikely candidate. Our reasons for focusing on other explanations are two-fold. First, even the existence of discrimination (in its purest sense) is

at odds. In the cross-section of 2006, we saw that individuals with 9 years of experience had a lower gender gap than those with 1 year of experience. This does not rule out the possibility that the gender gap among those individuals who had 9 years of experience in 2006 may have been much smaller back in 1998. Indeed, this is suggested by our finding that gender gaps were generally smaller in 1998.

notoriously difficult to prove because the researcher has limited information at his disposal when trying to adjust for all possible differences between female and male workers.[69] Second, and more importantly, it is not clear how deep-seated prejudices or cultural preferences can be resolved through policy intervention. One exception to this is if employers' differential treatment of women workers is due to misconceptions or misinformation about their productivity (Moghadam, 1998). There is then some scope for informational policy intervention, and hence we will discuss this case in following chapter of this report.

Do mobility constraints impede job market opportunities for women?

4.44 An explanation which has received considerable attention in the literature is women's limited mobility, which prevents them from moving to jobs where they could earn the right wage given their human capital. This immobility can take several forms, such as restricted geographic mobility, which has been highlighted in Assaad and Arntz (2005). During 1988-98, a period of wide-ranging structural change in the Egyptian economy following market-oriented reforms, males were better able to take advantage of new opportunities, as evidenced by the larger increase in their commute time. The authors argue that although social norms (or, preferences) are part of the reason for women's low mobility, there is room for policy in providing safer transportation to women.

4.45 Fresh data on the youth from the 2009 SYPE support this view, with as many as 31 percent of young women (aged 15-29) reporting that they face the risk of sexual harassment on the street. Young women are also significantly more likely to report other risks like theft, crowding and pushing on their commute. Young women also report walking as their main means of transport (22 percent), which suggests that they are not very mobile. A clear policy recommendation for ameliorating spatial mobility constraints is to improve access to reliable and safe transportation.

4.46 Immobility can mean more than just restricted spatial movement, and in the case of female job seekers, another manifestation of this problem is that they are more constrained than males in their job search methods. Table 4.2, which is based on SYPE data, shows that young female job seekers are relatively restricted to using indirect, anonymous methods of job search, such as sending an application or registering at a government/labor office. Their male counterparts favor a range of more direct methods, such as using the phone, contacting the

Table 4.2: Job Search Methods (% Saying Yes)

	Males	Females
Enter government job lottery competition	9.71	29.31
Send job application	26.25	24.77
Inquired at work location	20.73	8.76
Applied to a job advertised in newspapers	13.12	5.74
Asked friends or relatives for help	40.42	22.05
Contacted employer	17.59	3.93
Did you register at any govt./labor office?	9.7	21.1
Have you used a regular phone in job-hunting?	47.2	24.47
Have you used a mobile phone in job-hunting?	44	19.68

Source: SYPE (2009)
Note: This table shows major job search methods or those in which there are significant gender differences.

[69] Altonji and Blank (1999) discuss this issue in detail and review the relevant empirical literature, including some audit studies and natural experiments from the US which suggest that there is some gender bias among employers.

employer, inquiring at the work location or asking friends and relatives for help. For instance, about 18 percent of male job seekers report that they contacted employers, as opposed to only about 4 percent of female job seekers. 47 percent of the former have used a phone in job hunting, in contrast to 24 percent of the latter.

4.47 Working conditions can be another implicit mobility barrier for working women. Using evidence gleaned from interviews and focus group discussions, Barsoum et al. (2009) argue that poor 'job quality' is very salient to working women. Women worry about the lack of respect or decent treatment, the fear of sexual harassment and long working hours, which can restrict them to working in a smaller set of 'appropriate' or highly feminized firms. Despite this qualitative evidence, however, quantitative evidence on these dimensions in the SYPE is less compelling, with relatively more evidence in favor of the view that fear of sexual harassment is a major constraint. 66% of the female respondents (aged 15-29) who were employed in the private sector reported experiencing some form of sexual harassment, and of these 16 percent reported facing this at work. 50 percent of female workers complained about long working hours in the private sector, but then so did 40 percent of male workers. While females were more likely to complain of 'maltreatment from supervisor' and exhaustive workload, the gender gap in these numbers is not very convincing.

4.48 Our analysis of ELMPS panel data has shown that there are considerable inter-industry gender wage gaps, even when industries are measured at the detailed 4-digit level. Moreover, the ELMPS panel reveals that females were no less likely than males to have changed their broad 2-digit industry of employment between 1998 and 2006. These facts suggest that *intra-industry (or, inter-firm) mobility* is a major part of the problem. This is also supported by the finding reported in Chapter 1 that the inter-firm distribution of female employees is heavily skewed, and by the conclusion in Chapter 2 that on average, within-sector feminization rates have been stagnant in the last decade. Finally, our findings that the gap may be falling in rural areas and rising to a lesser extent among those with a vocational degree as compared to other educational groups suggest that mobility is a bigger concern in urban areas, and more so among the least and the most educated.

4.49 Although we have accounted for differences in educational attainment in measuring wage gaps, finer differences in human capital could yet be an important component of the unexplained residual among those with vocational or college education. For instance, it could be that women in Egypt cluster into very different fields of specialization from men. Indeed, Table 4.3 (based on 2009 SYPE data) reveals that women are less likely to have specialized in fields such as business, economics and engineering. If the returns to these fields of specialization are rising faster, then this human capital differential could be a reason for the rising wage gap. Our finding that wage gaps are the smallest and most stable in clerical occupations- where fine distinctions in specialization are less likely to matter- is consistent with this idea

Table 4.3: Distribution of College Specialization (%)

	Males	Females
Education	13.22	23.88
Religious/Law	18.15	15.64
Military/Police	2.64	0.42
Computers	1.32	0.73
Home Econ/Soc Work	4.69	3.96
Urban Planning/Engineering	11.3	3.44
Arts & Sciences	14.78	24.09
Bus./Econ	25.24	18.56
Agriculture/Vet	2.52	1.88
Med/Dent/Pharmacy	5.17	5.84
Other Health Sciences	0.96	1.56

Source: SYPE (2009)

4.50 A critical policy question is whether this differential pattern of educational specialization is a matter of preferences, or reflects some other constraint on the part of women. A particularly vexing possibility is that women avoid some fields of study because they believe that regardless of having the right specialization, they will find it difficult to get jobs that reward such skills. The policy conundrum here is that if this is the case, then an intervention of the labor supply side (that is, one seeking to affect educational choices) might not work unless there is a coordinated intervention on the labor demand side.

4.51 Differences in college specialization cannot explain the persistently large (and even rising) gender wage gap among the illiterate and the less educated. However, SYPE data also suggest that men are better placed to acquire job relevant skills outside of the formal educational system. Young women are less likely to report that their job requires a special skill (50 percent for males versus 42 percent for females). Further, Table 4.4 shows that of those whose jobs require a special skill, women are much less likely to have acquired that skill outside of formal education (such as through a craftsman).

Table 4.4: Acquiring Job Relevant Skill (% saying Yes)

	Males	Females
Regular schooling	12.42	35.04
Organized technical education	26.73	41.45
Through contractor	1.88	0.43
Through craftsman	45.71	4.7
Public enterprises employer	0.15	0
Private sector employer	3.54	1.71
Language courses/programs	1.43	8.12
Computer courses/programs	3.31	12.82
Secretarial courses/programs	0.3	1.28
Through family	11.82	6.84

Source: SYPE (2009)

4.52 Moreover, we cannot discount gender differentials in on-the-job human capital acquisition. Accumulated evidence from developed countries suggests that women receive less

on-the-job training than men (Altonji and Blank, 1999). In the case of Egypt, Table 4.4 shows that men were twice as likely as women to have acquired their job-specific skill through the employer. Firm level evidence on worker training from the 2008 Egypt ICA survey also supports this view. According to the ICA survey, the average percentage of manufacturing firm workers receiving training was similar across genders (5-7 percent). But the length of training was strikingly smaller among women. Among skilled workers receiving training, 78 percent of the men received training lasting over 1 week, while only 38 percent of the women did so. Similarly, among unskilled workers receiving training, these shares were 53 and 26 percent respectively. Gender differences in on-the-job skill acquisition have been linked to gender differences in job turnover in developed countries (Altonji and Blank, 1999). Employers are less likely to invest in female employees if the latter are more likely than males to leave the job or interrupt work following marriage or childbirth. This may be very relevant for Egypt, where we have seen that women in the private sector often leave their jobs after marriage.

4.53 Finally, we must also consider that gender roles, particularly as they relate to women's marital responsibilities, in explaining the gender wage gap. Perhaps because of their greater need for flexibility in work schedules, women are heavily overrepresented in part-time jobs and temporary jobs. Data from 2009 SYPE show that more than 40 percent of female workers work less than 40 hours a week, and that compared to men, they overwhelmingly do so not because of not finding enough work, but because of the nature of their job. 34 percent of female workers hold a temporary job, which is twice the rate among males. Evidence from developing countries indicates that part-time and temporary jobs pay less. [70] When considering this issue form the policy perspective, we must recognize that to some extent part time and flexible work is a matter of preference. It could be that the lower pay for such work reflects some technological or managerial constraints that truly make such work less productive, in which case policy must think of ways to improve the productivity of part-time work.

[70] See Pissaredes et al. (2005) and Altonji and Blank (1999).

5. POLICY DIRECTIONS

I. Identifying the Role for Policy in Women's Work

5.1 The analysis underpinning this report points to several important insights that can shape policy options for improving women's labor force participation. Chapter 2 highlights the observed relationship between growth during 1998-2006 and female employment intensity at the sectoral level. The discussion suggests that growth alone is not going to be the answer to Egypt's "Gender Paradox" of rising education and persistently low female workforce participation. The challenge then is to identify those constraints to women's work which are amenable to being redressed by policy. In Chapters 3 and 4, we analyzed micro-level data to identify, broadly speaking, two areas where policy can help. Firstly, women's participation in private sector is constrained by an incompatibility between such employment and marital roles, with government jobs being markedly more successful in drawing women back after marriage. Secondly, persistent gender wage gaps in the private sector point to the existence of significant limits to the labor market mobility of women. Women cannot take advantage of the economy's dynamism to the same extent as men because they are constrained in where and how they can look for jobs, and in what fields they specialize in when in school. We will now discuss how policy can help with these market failures in the least distortionary way possible.

5.2 In seeking to make employment compatible with marriage and childcare, most countries around the world have instituted some form of **maternity leave** and **childcare subsidy** policy. Egypt is no exception, having mandated paid maternity of up to three months and also requiring large employers to provide a nursery for childcare. But while maternity leave and childcare policies are universally accepted as being essential to the well-being of working women, their impact on women's wages and employment is a subject of controversy. The reason for this is that although such policies make it easier for women with children to work, they also force employers to share in the cost of their female employees' childcare, thereby reducing their incentives to hire women. Hence, there is a need for careful thought on the design and scope of such policies. We will discuss these policies in more detail in Section II of this chapter, focusing in particular on describing the experience of the United States and of European countries in this regard. We will also consider the incentive-based approach to this problem, wherein employees (or employers) are given **tax incentives** to offset the burden of combining work with childcare.

5.3 Section II also discusses another approach to making it easier for women to maintain the balance between work and family life, namely allowing for **part time** and **flexible work**. The US in particular excels in this respect, with about 27 percent of the workforce having access to flexible work hours in 1997 (Golden, 2001). Although flexibility appears to be a win-win proposition, there might be technological limits to the feasibility of flexible scheduling in many industries. Yet another concern is that part-time or flexibly scheduled jobs might be low-quality jobs. The challenge therefore is to design an environment that supports firms and employees in reaching mutually beneficial arrangements on hours and flexibility, while preventing flexibility from being made an excuse for low quality work.

5.4 Thinking about limited labor market mobility of females, we have already highlighted the importance of transport policy in addressing the spatial dimension of immobility. But beyond this there are a host of active labor market policies that can address other dimensions of this issue. A prominent example of such active labor market policies is **job search assistance**. To the extent that skills mismatch is another constraint on women's mobility across jobs, appropriately designed **skills training** can also help. Given the evidence pointing to such mobility constraints, it is clear to us that there is much potential in these policy areas. Further, this may be especially relevant if the education system is not providing market relevant skills, as suggested by the evidence in Chapter 4. As discussed in Section III of this chapter, the key question here is designing programs that are cost-effective. While recommending these policies in principle, we stress that there is limited gender specific evidence on their effectiveness. There is therefore role for an experimental approach to learning which of these policies make sense and how they should be structured.

5.5 Policies such as **wage subsidies** for hiring women are also worth considering. Such instruments are however quite controversial, and justifiably so. At first glance, they threaten to seriously distort the working of the labor market. Nevertheless, there are situations of market failure in which they might be an effective solution. We examine the pros and cons of these instruments in detail in Section III.

5.6 In Section III we also discuss a unique policy pilot in Egypt which seeks to aid firms in creating a gender friendly work environment, the Gender Equity Model Egypt (GEME). As discussed in Chapter 4, concerns about the lack of respect or decent treatment, the fear of sexual harassment and long working hours can restrict women to working in a small set of 'appropriate' or highly feminized firms. Hence, a demand-side intervention such as the GEME could be a useful instrument for increasing women's job mobility.

5.7 Finally, looking beyond wage employment, special attention must be given to improving women's opportunities for **self-employment** through improved **access to entrepreneurial training and finance**. This may be particularly relevant in rural areas, where most women work in household enterprises and there are few firms. Moreover, given that most firms in Egypt are really small, simply relying on policies that have historically been designed to raise employment in mid to large sized firms may not be adequate for Egypt. We discuss self-employment policies in Section IV.

II. Making Employment Compatible with Married Life

Maternal Leave Policies

5.8 Maternity leave policies—which generally involve employment protection during a specified period of absence from work and cash benefits (e.g., paid leave)—exist in most high income and developing countries, but vary significantly in the length of post-birth leave allowed, the level of pecuniary benefits, and the financing devices.

5.9 Most European countries have generous maternity leave policies. Although the key components of leave policies—the length of guaranteed job-protected leave and the extent of financial support during the leave—vary significantly (Box 1), the median leave length of 17

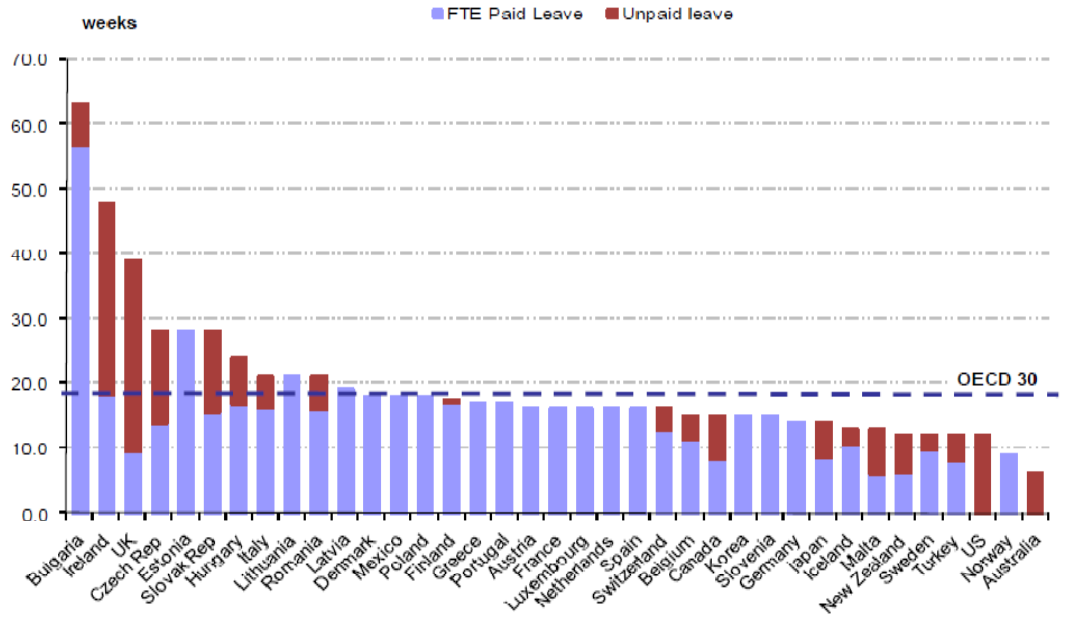
European countries from the Mediterranean and Western Europe as of 2008 was 52 weeks.[71] Even more impressive is the fact that nearly all European countries offer at least 10 weeks of fully *paid* maternity leave (measures in Full Time Equivalent length), as seen in Figure 5.1.

Box 5.1:Parental Benefits Vary Widely Across Countries in Europe

When comparing the range of protected job leave for working women across European counties, a wide range of generosity exists. While 162 weeks of leave are offered in France and Germany, only 14 weeks are guaranteed in Switzerland (Ray el al., 2009). Although rare, a few European countries guarantee working mothers a sizeable protected leave period of over three years; this includes France, Germany, and Spain. Austria guarantees a leave period between 2 and 3 years. More commonly however, several countries offer a leave period greater than one year and shorter than 2 years, including Norway, Sweden, the United Kingdom, Ireland and New Zealand. Countries offering the least generous leave length (i.e. less than one year) include Denmark, Italy, Greece, Finland, Portugal, the Netherlands, Belgium and Switzerland respectively. It is worth noting that the US falls just behind Switzerland with regards to its leave duration policy.

Another component of maternity leave systems is the financial support expressed in terms of FTE. There seems to be no major correspondence between the length of leave and the financial support awarded: Policies in each of Germany, Sweden, Norway, Greece and Finland provide at least six months of FTE, while most other European counties offer roughly less than six months. Virtually all maternity leave policies currently enforced in Western Europe and the Nordic offer some form of financial support for working mothers on maternity leave, in contrast to the US where there is no financial support.

Figure 5.1: Maternity Leave (in Weeks) Across Countries



Source: OECD Family Database

[71] Switzerland, Belgium, Netherlands, Portugal, Finland, Greece, Italy, Denmark, New Zealand, Ireland, UK, Sweden, Norway, Austria, Spain, France, and Germany.

5.10 Egypt's maternity leave policy compares favorably to international standards in its generosity to working mothers. Female employees in the government and public enterprises have the right to a three-month *paid* maternity leave that may be taken up to three times during their professional career.[72] They can also take unpaid leave of up to two years thrice during their career. Similarly, any female employee in the private sector who has spent 10 months in the service of an employer is entitled to 90 days of fully *paid* maternity leave, to be taken between the time directly before and after the delivery of the child. She is entitled to this leave only twice during her period of service to the employer.[73] In addition, a female employee in an establishment where fifty or more workers are employed is entitled to unpaid leave for a period of two years no more than twice throughout her service period.

5.11 Interestingly, not all major developed countries offer paid maternity leave. The US in particular is markedly less generous than Europe in this regard. The US Family and Medical Leave Act (FMLA) guarantees working parents an *unpaid* leave of 12 weeks with job-protection following the birth or adoption of a child.[74] Not only is the leave length smaller than that in most European countries, but also there is no financial support. Moreover, since FMLA applies to firms with at least 50 workers, only 46 percent of private sector employees in the US qualify for parental leave under FMLA (Espinola-Arredondo and Mondal, 2008).

5.12 The difference in the European and US approach to maternity benefits might be due to the potential of these policies to do more harm than good. Maternity leave is expected to have a positive supply side effect on women's workforce participation. Moreover, to the extent that it causes women to become more durably attached to the labor force and hence increase their investment in firm-specific human capital, it could raise female productivity and wages. But the demand side impact of mandated maternity leave is more complex because they impose two types of costs on employers. The first is caused by the interruption of women's employment during leave, when employers have to temporarily adjust to the loss of a worker. The second is the monetary benefits the employer has to pay workers away on paid leave. To offset these costs, employers might reduce the wages they offer to eligible women by the expected cost of the mandate (Summers, 1989). In situations where employers are unable to adjust wages (for example, due to equal pay legislation), they may instead substitute male workers for female workers (Gruber 1994). Another counterproductive effect of maternity leave, it has been argued, is that when it is difficult for firms to directly monitor the productivity of workers, taking maternity leave can be read by the employer as a signal of low commitment by the female worker (Manchester et al., 2008).

5.13 It is difficult to empirically measure the impact of maternity leave legislation on women's labor force participation rate: since such legislation typically affects every potential participant at the same time, there is no appropriate 'control' group to facilitate a comparison of those with and without such benefits. Nevertheless some studies have tried to measure the impact of maternity

[72] Law 47 (for Government Employees) and Law 48 (for Public Sector Employees) of 1978.
[73] Articles 91 and 92 of Law 12 for 2003. Prior to this law, Law 137 of 1981 guaranteed 50 days of paid maternity leave.
[74] In fact, prior to the establishment of the FMLA in 1993, maternity leave was not even a federally mandated right, and was left to the states. Unsurprisingly, the FMLA substantially increased maternity leave coverage in the US (Waldfogel, 1999).

benefits on the employment rate and wages, and their evidence is mixed. Zveglich and Rodgers (2003) estimate a 2.5 percentage point increase in women's employment rate from the introduction of maternity leave provisions in Taiwan. Ruhm (1998) estimates that maternity leave increased women's employment rates in nine Western European countries by about 4 percent. On the other hand, Gruber (1994) finds that the introduction of mandated medical benefits covering pregnancy and childbirth did not have a significant impact on female employment rates in the United States.

5.14 In thinking about the design of maternity benefits, one must also consider the evidence that the degree of cost sharing between employers, employees, and government is a critical determinant of their impact on wages. Gruber (1994) estimates that mandated medical benefits covering pregnancy and childbirth in the US caused young women's wages to fall by 5 percent. In contrast, Waldfogel (1999) finds that the FMLA had no negative wage effect, attributing this to the fact that FMLA leave is unpaid. In Europe, where maternity leave is longer and is compensated almost fully, extended parental leaves lasting nine months are estimated to lower women's relative wages by about 3 percent (Ruhm, 1998). But shorter leaves of three months which are financed by payroll taxes and general revenues appear to have little effect of wages.

5.15 Enforcement and coverage of maternity benefits legislation is another major issue for developing countries. Gindling and Crummett (1997) report that changes in Costa Rican legislation that lengthened maternity leave duration had no impact until a new enforcement mechanism was created. This issue is especially relevant to Egypt, given the preponderance of micro and small firms. In fact, ELMPS data indicate that only 47 percent of formal private sector workers and 12 percent of informal workers who had a baby while working were given paid maternity leave of six weeks or more.

5.16 At the same time, it is not clear that simply extending the mandate on paid maternity leave to all firms is advisable in the case of Egypt. The issue here is that micro and small enterprises account for 99 percent of all Egyptian enterprises and at least 40 percent of employment. Firms with very few employees can ill afford to give lengthy leaves. Therefore, it is possible that in the balance mandated maternity leave will hurt female employment in small firms.

5.17 Although Egypt has had a fairly liberal paid maternity leave policy in place for a while in the private sector, there is little direct evidence that it works to attract women into the workforce, or retain them post-marriage. As described above, the international evidence suggests that the employment effects of maternity leave are small. Further, mandating paid maternity leave on firms can have the effect of lowering women's wages to the extent that post-maternity return to the workforce is not an attractive option. Enforcement of paid leave could also be major issue given the small size of most Egyptian firms. Any revisions to Egypt's maternal leave policy will therefore benefit from a better understanding of its effects on female employment and wages, and of why so many working women report not having access to it. It is likely that maternity leave policy on its own will not be enough in Egypt unless complemented by other measures such as scheduling flexibility, childcare support and tax incentives. The historical experience of the United States certainly suggests that paid maternity leave is not a precondition for high female labor participation rates.

5.18 It is also worth mentioning here that *Paternity leave* can be a part-solution to the dilemma of maternity leave. To the extent that both parents take turns in parental leave, the cost which mandated parental leave imposes on employers becomes less female-specific. Many European countries have legislated paternity leave for new fathers. The main limitation of this approach-which is going to be very relevant in Egypt is that social norms strongly predispose fathers against taking leave for childcare. Even in the previously mentioned Europeans countries where the median maternity leave is 52 weeks, the median paternity leave is only 14 weeks (Ray el al., 2009). Interestingly, to provide incentives for fathers to take leave, paternal leave in Europe is often of the 'take it or lose it' type.

Childcare Subsidies and (Tax-based) Incentives

5.19 The cost of hiring child care for the time spent at work can be a substantial barrier for young mothers entering the labor force (Blau and Robins 1988, Kimmel 1998, Averett et al. 1997). Consequently, in recent years policy initiatives focused on improving the access and affordability of child care have been undertaken by most developed countries. There is however a significant difference between the US and European approaches to this problem.

5.20 The European approach is centered on providing access to subsidized daycare, through publicly run or publicly subsidized daycare centers, and child-minders whose provision is subsidized through public funds.[75] Sweden is an example of such policies, where daycare services are provided by local municipal governments with extensive government subsidies, leaving only 10 percent of the operating costs to be financed by parents. It should be noted that Egyptian mothers are required to bear only 5 and 4 percent of the costs for the first and second child respectively (Article no. 5 from Resolution no. 121/2003 issued by Ministry of Manpower and Emigration). However, unlike in Sweden, employers bear the remainder of the costs[76]. Recently, the Netherlands has tried a new approach to the financing of formalized daycare (the '*Wet Kinderopvang'* program) by encouraging the equal sharing of costs between the parents, the government, and the employer.

5.21 Recognizing the importance of subsidizing childcare, Egyptian law mandates that firms with more than 100 female workers must establish or charge a baby nursery for children of female employees.[77] To what degree should an expansion of this approach to other firms be a policy priority? Although there is some evidence that subsidized child care provision can enable women to continue their employment after childbirth (Lefebvre and Merrigan, 2008; Blau and Currie, 2006), there are also examples suggesting that affordable child care by itself may not translate into higher female labor force participation. For example, Nicodemo and Waldmann (2009) argues that in Southern European countries such as Greece, Italy and Spain unpaid non-parental child-care (e.g., care by grandparents) is already prevalent, and yet female labor force participation rates are low.

5.22 Child care subsidy programs have also existed in the US, where childcare providers are overwhelmingly in the private sector, and there is evidence that these child care subsidies

[75] Joshi and Davies (1992), Sundstrom and Stafford (1992) and Verwaal and Berden (2009) describe European daycare polices and program.
[76] See Annex 5 for details.
[77] Law 12 of 2003, Article 96.

encouraged female labor supply (Blau and Currie, 2006). But in contrast to Europe, the US approach has not just relied on child-care subsidies, but also on tax incentives to make work more attractive for parents, particularly mothers.

5.23 One such example is the Child Care Tax Credit (introduced in 1976) under which parents can receive a substantial tax credit for households with two or more children, provided that both parents are employed (Anderson and Levine, 1999). Another is the Earned Income Tax Credit (EITC), which is now the largest anti-poverty program for the non-aged in the United States. The EITC sharply changes work incentives by increasing the after-tax wage by up to forty percent for those with low earnings (See Box 2). Further, since a family has to have resident children to receive a significant EITC, the EITC encourages work by making it more attractive to parents. The schedule of the EITC is designed in such a way that its maximum impact on work incentives is for single mothers: If a single mother is thinking about whether or not to participate in the labor market at all over a year, the EITC unequivocally makes work more attractive. Several rigorous studies have found the EITC to have had a large positive effect on the labor supply of women. For example, Meyer and Rosenbaum (2001) find that the employment of single mothers in 1996 was 7 percentage points higher because of the EITC.

Box 5.2: The U.S. Earned Income Tax Credit (EITC)

The EITC is a refundable tax credit for low-income working individuals and families. Since its establishment in 1975, the EITC, which is a means tested program, has grown into the largest federally funded cash assistance program in the U.S.; in 2004 about 21 million families had received refunds for taxes they had already paid to the federal government (Meyer, 2007).

The EITC is designed to offset the burden of social security taxes to low-income households and **encourage their labor force participation, particularly among households with children.** The EITC provides an earnings subsidy to households fulfilling three criteria. First, a family must have a working member, since the credit is only for those with earned income. Second, the family must have a low income. Third, while individuals without children are eligible for relatively small amounts of EITC (up to $457 in 2009), a family has to have residing children to receive a substantial EITC. In 2009, families with one child could receive a maximum tax credit of $3043, those with two children a maximum credit of $5,028, and those with three children or more a maximum credit of $5657.

The EITC also varies with household income levels, initially rising with income, and eventually being phased out beyond a certain income threshold. For example in the tax year 2009, for a person with two qualifying children, the credit was equal to 40 percent of the first $12,570 of earned income, leveling at $5,028 and staying there until earnings increased beyond $16,420. At that point the credit began to phase out at 21.06 percent, reaching zero as earnings passed $40,295.

Though EITC does not explicitly target single mothers, since poor families with children are disproportionately headed by single mothers, such families receive a large share of EITC payments. In 2004, single mothers received as much as 40 percent of all EITC dollars. When single fathers are added, about half (49 percent) of all EITC amounts go to single parents. At the same time, married couples with children received 46 percent of the EITC dollars. While childless couples and individuals make up a large portion of EITC recipients (24 percent), they only receive 5 percent of the subsidies. This fact that about 95 percent of EITC dollars go to families with children is a reflection of the program's design to reach these families.

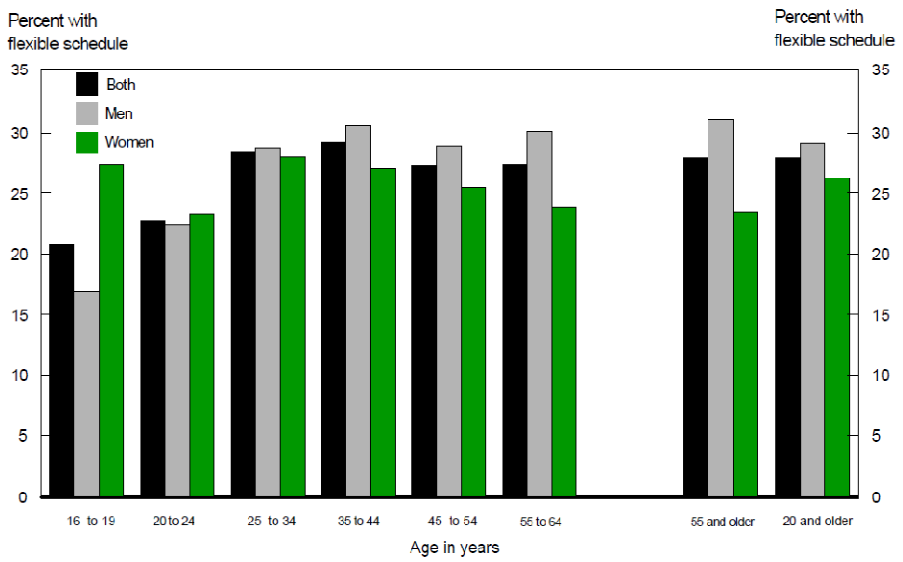
5.24 Thus, the US experience recommends incentives based schemes for promoting work among women with children[78]. Incentives-based schemes have the advantage of being self-targeting, and of avoiding mandates that could be counterproductive. Nonetheless, it is possible that their effect on behavior is unexpected and undesirable, especially when the capacity to ensure correct targeting and usage is limited. Moreover, tax based incentive schemes need a large tax base to be effective. In Egypt, where so much employment is informal and in micro firms, it is not clear how such incentive scheme can be widely implemented. Therefore, further study on the feasibility and appropriateness of such incentive schemes in the case of Egypt is much needed.

Flexibility at Work

5.25 Flexible work hours are often viewed as a means to facilitate integration of non-working women into the labor market by making it less costly for them to combine work with family responsibilities (Jaumotte, 2003). It is said that the prevalence of flexible work is a major reason for the US having high female labor force participation despite relatively few policies explicitly designed to promote female participation. This is enabled by a flexible contracting environment where it is possible for the employer and the employee to reach mutually convenient work arrangements.

5.26 The beginning of flexible and part time work arrangements in the 1940s allowed a sizeable portion of female workers to remain economically active past marriage (Goldin, 2006). In sectors where flexible work arrangement was feasible, such as sales, female part time workers in the US increased from 14 percent in 1940 to 40 percent in 1960. Fifty years later, demand for flexible work arrangement continues to remain on the rise. In 1997, 27 percent of the labor force in the U.S. had access to flexible work arrangements, more than doubling since 1985. Married workers, both males and females, tend to have greater access to flexible working hours, thus enabling them to remain employed in the early years of marriage (Golden, 2001).

Figure 5.2: Flexible Work Schedule in the U.S. (by age bracket)



Source: Golden (2001)

[78] In fact, even some European countries have programs similar to EITC, such as Belgium, Denmark, Finland, Sweden, France and the Netherlands.

5.27 Occupational and industry characteristics play a major role in determining the likelihood of having flexible schedules. Generally speaking, managerial, professional, and technical services all enjoy a greater level of flexibility than, say, machine or vehicle operators have. Having a secretarial occupation tends to greatly raise access to flexible hours, regardless of industry (Golden, 2001). Some industries like health, law and food services display a less flexible working schedule. Finally, being self-employed more than doubles the probability of having a flexible starting time or ending time to the working day. Thus, it seems that there are natural limits (perhaps technological or managerial) to the feasibility of flexible work. This should be an important consideration when deciding on strategies to promote flexible work.

5.28 Although part-time work is not the same as flexible work, the former can be a means to attain flexibility in work schedules. Part-time work can be an intermediate step between no labor activity and full participation, and there is evidence that policies that allow women to work shorter hours positively affect women's decisions about returning to work after childbirth (Eliason and Glass, 1996).

5.29 A downside of flexible or part time work is that it could be an excuse for low quality jobs, with lower pay and worse prospects for career developments. In fact, evidence shows that workers with flexible hours usually end up working longer hours than the typical 8-hour day (Golden, 2001). Another negative aspect of working part-time is that it could be sending a bad signal; if some part-time workers are those unwilling or unable to find full-time jobs, then part-time workers might be viewed as an indicator of low skill or productivity (Blank, 1990). Thus, the main challenge in this area is to facilitate flexible work while avoiding a situation where it is automatically equated with lower work quality.

III. Active Labor Market Policies

5.30 Active Labor Market Policies (ALMPs) such as publicly sponsored skills training, job search assistance and wage subsidies are increasingly used to improve labor market outcomes in developed countries. EU member states in particular are spending large amounts on active measures; for instance, total spending on ALMPs was 66.6 billion Euros for the EU15 in 2003 (Eurostat, 2005). Many EU countries are spending more than 1 percent of GDP on ALMPs, including Belgium, Denmark, Finland, France, Germany, Sweden and especially the Netherlands. In comparison, active measures receive less attention in the United States; their spending of 0.13% of GDP is lower than for any European country.

5.31 In the context of improving women's employment prospects in Egypt, of the ALMPs commonly used in developed countries the most relevant are:

- **Skills Training:** Labor market training programs encompass measures like classroom training, on-the-job training and work experience. The measures can either provide a more general education (such as language courses, basic computer courses or other basic courses) or specific vocational skills (such as advanced computer courses or courses providing technical and manufactured skills).

- **Job Search/Employment Services:** Generally the least expensive of ALMPs, such services include a variety of programs aimed at improving the speed of finding a

suitable job, including an assessment of the individual's skills, training to improve the job search abilities of individuals, as well as directly referring the unemployed to job openings. Job search assistance may also involve short training courses to upgrade certain skills.

- **Private sector Wage Subsidy Programs:** These policy tools provide subsidies to private firms for hiring particular categories of workers. Wage subsidies can be a fixed amount for each new employee hired, or some portion of a new employee's wage for a fixed period of time. These interventions have typically been targeted at the long-term unemployed (such as individuals in sectors with high unemployment) or vulnerable groups such as the youth.

5.32 In Chapter 1, we described how unemployment has been persistently high among Egyptian youth, especially young women. In fact, the data suggest that unemployment is on the rise among the well-educated. Besides gender wage gaps, such widespread unemployment also points to labor market inefficiencies such as mobility constraints and skills mismatch. Therefore by targeting labor market mobility constraints which make it difficult for women to find jobs, ALMPs can be useful not just in raising labor force participation but also in reducing unemployment among women. Notably, high and rising unemployment among well-educated young women suggests that skills training and job search assistance could have large pay-offs. Moreover, though queuing for government jobs is also a very likely reason for high unemployment, any improvement in the chances of finding good private sector alternatives to government jobs might make such queuing less attractive.

5.33 The effectiveness of active labor market policies has been a matter of vigorous debate over the past half century, and there have been numerous impact evaluation studies of individual ALMPs. Seeking to synthesize the knowledge generated in these studies, there are now a number of careful and comprehensive literature reviews (and 'meta-analyses') of ALMPs studies (Heckman, Lalonde and Smith, 1999; Kluve and Schmidt, 2002; Kluve, 2006; Card, Kluve and Weber, 2009).

5.34 Heckman, Lalonde and Smith (1999) conclude that in general, ALMPs in the US have at best had small positive impacts. Later review studies give a more positive overall picture, but their message on the relative effectiveness of different types of ALMPs is still mixed. Job search assistance (JSA) programs have generally favorable impacts, especially in the short run (Card, Kluve and Weber, 2009; Heckman et al., 1999). This is significant given that they are also the least expensive of ALMPs. Training programs—the most widely used active labor market measure in Europe—can show mixed results: treatment effect estimates are negative in a few cases, and often insignificant or modestly positive (Kluve, 2006). But in sum, traditional training programs are found to have a modest likelihood of recording a positive impact on post-program employment rates. Card, Kluve and Weber (2009) report that although classroom and on-the-job training programs are not especially favorable in the short-run, they appear to have more positive relative impacts after two years. Indeed, they find that many ALMPs that exhibit insignificant or even negative impacts after only a year have significantly positive impact estimates after 2 or 3 years, classroom and on-the-job training programs being a particularly prominent case.

5.35 Evidence on the effectiveness of wage subsidies in raising the employment of the subsidized groups is generally positive, although not uniformly so. A review of 22 wage subsidy evaluations by Becherman (1999) concludes that they are largely ineffective. In contrast, a more recent review by Betcherman et al. (2007) finds that wage subsidies programs helped youth in transition and developed countries. Of the five programs evaluated, four reported having significant positive impacts on the employability/earnings of youth. The review study by Kluve (2006) as well is upbeat on wage subsidies, with virtually all included studies of private sector wage subsidy programs asserting beneficial impacts. This review concludes that private sector wage subsidy programs are 40-50 percent more likely to report a positive impact than traditional training programs.[79]

5.36 The evaluation literature on wage subsidies suggests, however, that their *net impact* and cost effectiveness may be questionable. Such programs can have undesirable effects that may sometimes be unaccounted for in an impact study. If labor markets are already working well, then subsidies are going to distort labor allocation. Furthermore, wage subsidies can have displacement effects (jobs created by one program are at the expense of other jobs), deadweight effects (subsidizing hiring that would have occurred in the absence of the program), and substitution effects (jobs created for a certain category of workers replace jobs for other categories) (Calmfors, 1994). Firms might also view subsidized workers as cheap labor and lay them off once the subsidy ends.[80] These mechanisms can in principle counteract the positive effects of wage subsidies on the subsidized.

5.37 Despite the surfeit of ALMP evaluation studies, we are in largely unknown territory when it comes to speculating on their effectiveness for women in a developing country like Egypt. To begin with, almost all ALMP studies are on developed countries. Fortunately, meta-analysis of such policies suggests that there is little systematic relationship between program effectiveness and a host of contextual factors, including the country, time period, the macroeconomic environment, and institutional features of the labor market (Kluve, 2006). So, although lessons from Europe and the US might not be wholly irrelevant to Egypt, the bigger problem is that very few of the programs studied were targeted by gender. In cases where gender-specific estimates are available it is because the authors have attempted to estimate separate impacts for the same programs on men and women.

5.38 Based on this limited evidence, there is little indication that the impacts of ALMPs differ significantly by gender. Bergemann and Van den Berg (2006) summarize findings from 15 studies of training programs in European countries that distinguish affects by gender. The majority of these studies found positive effects of training on labor market outcomes for women. In fact, in many cases- and especially in countries with low female employment levels- the effects on women exceeded those on men. Similarly, Card et al. (2009) find no large or systematic differences by gender. For the 28 studies from which the authors could extract both a short term estimate for women and a short term estimate for men, the estimates were the same

[79] In comparison, *public sector* employment programs are generally found to be ineffective (Kluve, 2006; Card, Kluve and Weber, 2009)

[80] Interestingly, a panel study of the Targeted Job Tax Credit program in the U.S. found that although the first year earnings of participants were significantly higher than those of control group non-participants, the effect disappeared by the third year (Betcherman et al., 1999).

for men and women in 14 cases (50%); the women had a more positive outcome in 8 cases (29%); and the women had a less positive outcome in 6 cases (21%).

Scope for ALMPs Type Experiments in Egypt

5.39 In the case of Egypt, we have described how survey-based qualitative evidence suggests that women may be markedly more disadvantaged in job search. Therefore, job search assistance programs targeted at women are definitely worth considering, especially in light of the above mentioned evidence that such programs might be the most effective ALMP relative to their cost.

5.40 Given their modest estimated impacts in developed countries, skills training programs need more thought. An additional reason for caution regarding training programs is that since female labor force participation rates are low regardless of education levels, skills cannot be the overarching constraint on female workforce participation in Egypt. Another factor to consider is that the nature of skill deficits or mismatch might differ by gender. As mentioned in Chapter 4, survey data from Egypt suggest that it is in acquiring skills outside of the formal education system that women are particularly disadvantaged. This ought to be factored in designing the content of training programs targeted at women.

5.41 Finally, we consider in the context of Egypt the tradeoffs associated with wage subsidies, admittedly the most controversial of ALMPs. The evidence described above suggests that wage subsidies generally succeed in improving the private sector employment outcomes of the subsidized groups. But it is important to recognize that the increase in the employment of the subsidized group might be at the expense of other workers. Thus, if firms in Egypt are in fact biased against women (as is often suggested), then they might respond to a wage subsidy by substituting subsidized female workers for other potential female employees. Another concern is sustainability: that women hired on a subsidy might be let go once the subsidy stops, as is inevitable.

5.42 Nevertheless, wage subsidies are worth serious consideration. A key argument in their favor is that they could generate huge informational externalities above and beyond just providing employment to the subsidized workers. Suppose that private firms in Egypt hesitate to hire women due to incorrect stereotypes about low productivity of women, or that women avoid working in private firms because of misconceptions about working conditions in such firms. By encouraging interaction between previously unfamiliar private firms and women workers, a wage subsidy can help set in motion a process that eventually corrects such misperceptions. Interestingly, as mentioned in Chapter 1, there is evidence from India that political gender quotas in India have improved perceptions of female leaders by enabling greater exposure to them. Wage subsidies in the private sector could work similarly to raise exposure to female employees.

5.43 Thus, the relevance of wage subsidy (and similar ALMPs) might depend critically on the extent of such informational failures in the Egyptian labor market. But although there is much anecdotal evidence to this effect, we have no direct and quantitative confirmation of the existence of such stereotypes. In this context, the World Bank's proposed Pilot Initiative to improve the employment prospects of recent graduates in Jordan will be of great relevance to

policy makers in Egypt.[81] This pilot will experimentally test the effectiveness of ALMPs targeted at both young graduates (particularly females) and at the firms which may hire them. One of the three programs to be piloted is job vouchers given to selected students. These vouchers provide a short-term subsidy to firms to take a chance on hiring these new graduates who do not have work experience. Critically, they provide firms with an opportunity to overcome stereotypes through directly observing young women working for them. Participating firms and graduates will be selected randomly, thereby generating comparable treatment and control groups. Thus, this pilot initiative will provide the first rigorous, experimental estimate of the effect of wage subsidies on female employment in a MENA country. Recognizing the possibility of substitution and displacement effects in wage subsides, an attempt will be made to measure the *net effects* of wage subsidies by comparing control and treatment firms. Moreover, follow up surveys will attempt to measure the long-term effects of such subsidies.

5.44 The World Bank's Jordan Pilot Initiative will also generate rigorous evidence on two other types of ALMPs. One of the programs piloted will be employability skills training, which will provide youth with the interpersonal and other basic job skills that employers identify as constraints which make them reluctant to hire these workers. Another pilot will be a gender-friendly work environment training program targeted at firms to provide them with the knowledge and experience of other firms which have successfully hired women. This pilot too is designed to overcome stereotypes and lack of knowledge which inhibit firms from hiring female workers. In addition, the initiative is designed in such a way that it will be possible to measure the effects of the three programs individually and in combination. For example, it will be possible to compare the effects of vouchers with and without employability skills training. Thus, lessons from the pilot can have large policy impact throughout the MENA region.

The Gender Equity Model Egypt (GEME), a Unique Policy Pilot

5.45 There is evidence that working conditions which are not 'gender friendly' are an implicit mobility barrier for working women in Egypt. Hence, encouraging firms to make their work environment more gender friendly is another potentially useful labor market program. In this context a small pilot project, the GEME, has been initiated under the World Bank's Gender Action Plan to promote gender equity in private firms through engendering policies which facilitate equal access to jobs and opportunities for training and professional development within private firms. Participating firms undergo a certification program that audits their existing policies towards female employment, and draws up an action plan identifying areas to target. A training program for each firm based on the action plan is then carried out, including modules that focus on the practical importance of equity in general and gender equity in particular; good practice tools to promote gender equity; staff recruitment, training, and career development; and prevention of sexual harassment. At the end of this program, firms passing an audit receive a Gender Equity Seal.

5.46 Given the lack of evidence on such demand-side interventions, the evaluation of the GEME pilot will be of vital importance to scale-up of such programs. Another concern is that since GEME is very much an incipient project that has been targeted at large firms which have

[81] World Bank (2010).

adequate human resource systems, it might need serious modification before it could be used for small and medium enterprises.

IV. Encouraging Self- Employment

5.47 Encouraging women to start their businesses and become employers rather job seekers has been recognized as a crucial strategy for improving women's economic participation in Egypt.[82] Running one's own business can make it far easier for women to achieve compatibility between work and marital life. But worryingly, entrepreneurship among Egyptian women is overwhelmingly limited to self-employment, and even that is mostly rural. Only about 3 percent of Egyptian women working in the non-farm sector report being an 'employer'. For men, the corresponding figure is about 10 percent.[83] Moreover, female-owned firms tend to be smaller.[84] Although rates of self-employment in the non-farm sector are comparable across males and females (about 10-11 percent), unlike males most self-employed women are in rural areas, with the rate of self-employment among working urban women being only 6 percent. Another disturbing fact is that 80 percent of the Egyptian women who are self-employed (in the non-farm sector) do not posses even high school education.[85]

5.48 Attempts at encouraging women's entrepreneurship through improving **access to entrepreneurial training and finance** are being made the world over. Given the strong correlation between low education and self-employment among Egyptian women, similar programs to improve women's access to training and finance are worth serious consideration in Egypt.

5.49 While access to finance is reported as a major constraint by both male and female entrepreneurs in Egypt, evidence from firm surveys does suggest that women face more hurdles than men in this area. Women running firms are twice as likely as men to complain about stringent collateral requirements. Given the evidence that most business loan application rejections in Egypt are based on lack of acceptable collateral, this could be a major constraint for female entrepreneurs. Female-owned businesses are more likely than male-owned ones to find loan procedures cumbersome. They are also less likely to approach formal banks for credit, and face higher rejection rates (World Bank, 2009).

5.50 All the same, we recommend realistic expectations and cautious implementation in this area. Labor force survey data are generally not very useful in identifying constraints to entrepreneurship, and as a result much of our evidence on these issues in Egypt is based on perceptions data from firms which are often difficult to interpret in quantitative terms. In principle, the best evidence on such constraints comes from directly measuring the impact of actual training or access to finance programs. Such rigorous and gender specific evidence on the efficacy of these approaches in developing countries is just beginning to be generated, and not all of it is sanguine. Banerjee et al. (2009) study the impact of expanding group lending to women in slum areas in India, finding modest effects on profits. Karlan and Zinman (2010) work with

[82] World Bank (2009).
[83] Source: ELMPS 2006
[84] Source: Egypt ICA 2007
[85] Source: ELMPS 2006

lenders in the Philippines to randomize the provision of loans to marginal applicants. They find some evidence that profits increase, but their results also suggest the impacts are stronger for males. Similarly, an experiment which gave grants to microenterprises in Sri Lanka found much higher returns to capital for males than females (de Mel et al. 2009).

5.51 The World Bank's impact evaluation of the Micro and Small Enterprise (MSE) lending project in Egypt is an important new initiative in this area. The World Bank is providing a financial intermediary loan to the Government of Egypt which is to be passed through to the Social Fund for Development to foster MSE growth. One important component of this program will be to use post office branches as loan outlets. Besides offering a standard microfinance loan product, which all microenterprise owners in the village will be eligible to apply for, it is proposed that the post office branches will have a product targeted at female household heads with the aim of providing them with productive employment opportunities. The impact evaluation project seeks to measure the impact of access to this finance on entrepreneurship – particularly among women- using a rigorous experimental methodology. It will be the first such experiment to measure the impact of microfinance in the Middle East and North Africa, an area of the world where business ownership and labor force participation among women is particularly low, and will also be first randomized evaluation of a large government microfinance program. The findings of this program will be of great relevance to the design of policies promoting women's entrepreneurship.

ANNEXES

ANNEX 1.1: PROFILES OF EMPLOYED INDIVIDUALS

Table A 1.1.1: Profile of the Employed (Ages 15-64)

	URBAN		RURAL	
	Male	**Female**	**Male**	**Female**
Agriculture & Fishing	4.2	6.1	35.7	***58.1***
Mining, Manufacturing & Electric	21.6	11.3	12.6	6.4
Construction	9.8	0.8	10.4	0.1
Wholesale, Hotels & Restaurants	25.5	14.4	13.4	12.7
Transportation, storage & communication	10.8	3.2	7.5	0.5
Financial & business activities	4.8	4.7	1.3	1.2
Public Service (Government)	19.1	***56.0***	16.2	***20.1***
Other Economic Activities	4.3	3.5	2.9	0.9
Total	100.0	100.0	100.0	100.0
Other characteristics				
Hours worked per week	52.5	41.5	49.7	24.3
	[15.1]	*[16.0]*	*[16.4]*	*[17.5]*

Source: ELMPS 2006

Table A 1.1.2: Changes in the Profile of Female Employment (Ages 15-64)

	URBAN		RURAL	
	1998	2006	1998	2006
Sector-wise in Employment				
Government Employee	***63.5***	***54.5***	37.1	20.8
Public Enterprise	6.7	4.6	1.3	0.5
Formal Private Sector (Regular Wage)	7.6	10.2	***1.8***	***1.8***
Informal Private Sector (Regular Wage)	***9.7***	***12.4***	5.6	5.7
Irregular Wage	1.1	1.1	8.2	3.2
Household Enterprise Worker	***6.3***	***10.3***	***32.9***	***53.3***
Self-Employed With No Household member	5.2	7.0	***13.1***	***14.6***
Total	100.0	100.0	100.0	100.0
Industry-wise Shares in Employment				
Agriculture & Fishing	1.9	6.1	***28.9***	***58.1***
Mining, Manufacturing & Electric	11.7	11.3	8.2	6.4
Construction	0.8	0.8	0.9	0.1
Wholes., Hotels & Restaurants	13.3	14.4	22.2	12.7
Transportation, storage & communication	2.5	3.2	0.6	0.5
Financial & business activities	4.9	4.7	0.4	1.2
Public Service	61.4	56.0	36.6	20.1
Other Economic Activities	3.6	3.5	2.1	0.9
Total	100.0	100.0	100.0	100.0

Source: ELMPS 2006 and ELMS 1998

ANNEX 1.2: DETERMINANTS OF LABOR FORCE PARTICIPATION: PROBIT ESTIMATION

Table A 1.2.1: Probit Estimation of Labor Force Participation in 2006 (individuals aged 16-49)

Outcome:	**In Labor Force (Yes=1)**					
Location:	Rural + Urban		Rural		Urban	
Gender:	Male	Female	Male	Female	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
Elementary and Middle school	-0.0743***	-0.0562***	-0.0926***	-0.0556**	-0.0552***	-0.0359
(Yes = 1)	[0.0143]	[0.0161]	[0.0201]	[0.0218]	[0.0200]	[0.0255]
General High School	-0.618***	-0.219***	-0.596***	-0.194***	-0.617***	-0.217***
(Yes = 1)	[0.034]	[0.015]	[0.054]	[0.028]	[0.048]	[0.021]
Vocational High School	-0.014	0.253***	-0.020	0.202***	-0.004	0.333***
(Yes = 1)	[0.010]	[0.015]	[0.014]	[0.020]	[0.014]	[0.023]
Post secondary Institute	-0.030	0.372***	-0.044	0.395***	-0.018	0.405***
(Yes = 1)	[0.022]	[0.029]	[0.041]	[0.051]	[0.026]	[0.036]
University & above	0.001	0.515***	-0.003	0.491***	0.001	0.563***
(Yes = 1)	[0.014]	[0.018]	[0.023]	[0.035]	[0.017]	[0.023]
Age (years)	0.069***	0.045***	0.062***	0.038***	0.073***	0.052***
	[0.004]	[0.005]	[0.005]	[0.007]	[0.005]	[0.007]
Age-squared	-0.0009***	-0.0005***	-0.0008***	-0.0004***	-0.0010***	-0.0006***
	[0.0001]	[0.0001]	[0.0001]	[0.0001]	[0.0001]	[0.0001]
Married	0.099***	-0.289***	0.101***	-0.219***	0.107***	-0.354***
(Yes = 1)	[0.017]	[0.019]	[0.024]	[0.028]	[0.024]	[0.025]
Divorced	0.027	-0.054		-0.059	-0.020	-0.056
(Yes = 1)	[0.045]	[0.034]		[0.051]	[0.072]	[0.047]
Widowed	-0.091	-0.143***	0.019	-0.094***	-0.174	-0.175***
(Yes = 1)	[0.134]	[0.019]	[0.114]	[0.036]	[0.218]	[0.022]
Any Children aged 0-6	-0.004	-0.014	0.004	0.027	-0.009	-0.051***
(Yes = 1)	[0.016]	[0.014]	[0.022]	[0.020]	[0.023]	[0.019]
Any Children aged 7-18	-0.017	0.051***	-0.012	0.060***	-0.010	0.036*
(Yes = 1)	[0.020]	[0.014]	[0.029]	[0.021]	[0.027]	[0.019]
Any Children aged 19 & above	-0.010	-0.012	0.015	-0.018	-0.030	0.001
(Yes = 1)	[0.024]	[0.020]	[0.032]	[0.029]	[0.035]	[0.028]
Rural	0.005	0.071***				
(Yes = 1)	[0.007]	[0.012]				
Governorate Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9565	9530	4390	4379	5162	5151

Note: Probit estimations. Marginal effects, evaluated at sample means for continuous variables, are shown. Standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Location (governorate) dummies included in all specifications; the marginal effects of several locations are significant, especially in the estimations for females. The reference group: Individuals with no schooling, unmarried, no children and (in columns 1 and 2) located in urban area. Source: ELMPS 2006.

Table A 1.2.2: Probit Estimation of Labor Force Participation in 2006 (married females aged 16-49)

Outcome:	**In Labor Force (Yes=1)**				
	(1)	(2)	(3)	(4)	(5)
Own Education:					
Elementary and Middle school	-0.0581***	-0.0580***	-0.0578***	-0.0586***	-0.0404*
(Yes = 1)	[0.0220]	[0.0213]	[0.0220]	[0.0220]	[0.0232]
General High School	-0.058	-0.057	-0.057	-0.055	-0.024
(Yes = 1)	[0.066]	[0.065]	[0.066]	[0.067]	[0.073]
Vocational High School	0.245***	0.252***	0.246***	0.244***	0.273***
(Yes = 1)	[0.022]	[0.018]	[0.022]	[0.022]	[0.023]
Post secondary Institute	0.379***	0.385***	0.380***	0.379***	0.414***
(Yes = 1)	[0.041]	[0.036]	[0.041]	[0.041]	[0.041]
University and above	0.551***	0.539***	0.552***	0.551***	0.582***
(Yes = 1)	[0.030]	[0.023]	[0.030]	[0.030]	[0.029]
Spouse Education:					
Elementary and Middle school	-0.025		-0.024	-0.029	-0.019
(Yes = 1)	[0.019]		[0.019]	[0.019]	[0.020]
General High School	0.0364		0.0364	0.0332	0.0589
(Yes = 1)	[0.0675]		[0.0675]	[0.0670]	[0.0698]
Vocational High School	0.011		0.012	0.001	0.014
(Yes = 1)	[0.020]		[0.020]	[0.020]	[0.021]
Post secondary Institute	0.015		0.017	0.001	0.016
(Yes = 1)	[0.032]		[0.032]	[0.031]	[0.033]
University and above	-0.027		-0.026	-0.044*	-0.027
(Yes = 1)	[0.024]		[0.024]	[0.024]	[0.026]
log(Spouse Income)		-0.002	-0.001	-0.003	
		[0.003]	[0.003]	[0.003]	
Spouse in Govt. job				0.047***	0.048***
(Yes = 1)				[0.016]	[0.015]
Household Wealth:					
2nd Quintile					-0.093***
(Yes = 1)					[0.017]
3rd Quintile					-0.121***
(Yes = 1)					[0.018]
4th Quintile					-0.097***
(Yes = 1)					[0.020]
5th Quintile					-0.124***
(Yes = 1)					[0.020]
Age & Children's Age Controls	Yes	Yes	Yes	Yes	Yes
Governorate Dummies	Yes	Yes	Yes	Yes	Yes
Observations	5851	5851	5851	5851	5851

Note: Probit estimations, with sample restricted to married women. Marginal effects, evaluated at sample means for continuous variables, are shown. Standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Age and children controls are age, age squared, and dummies for whether any children in 0-6, 7-18 and 19 & above age groups. The reference group: Married women in an urban area, with no schooling, no children, husband with no schooling, and (in column (5)) household income in the bottom quintile. Source: ELMPS 2006.

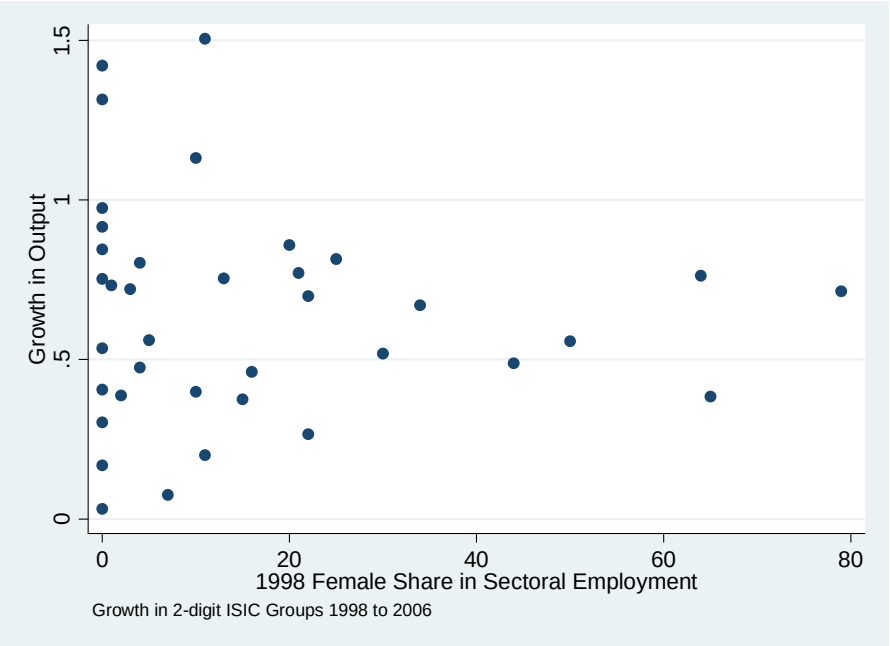
Table A 1.2.3: Probit Estimation of Unemployment in 2006 (individuals aged 15-64)

Outcome:	**Unemployed (Yes = 1)**		
Location:	Rural +Urban	Rural	Urban
	(1)	(2)	(3)
Female (Yes = 1)	0.1100***	0.1039***	0.1159***
	[0.0068]	[0.0105]	[0.0094]
Age 15-29 (Yes = 1)	0.073***	0.035***	0.099***
	[0.006]	[0.005]	[0.009]
Elementary and Middle school (Yes = 1)	0.010	0.002	0.001
	[0.009]	[0.007]	[0.013]
General High School (Yes = 1)	0.052	0.054	0.023
	[0.037]	[0.053]	[0.042]
Vocational High School (Yes = 1)	0.089***	0.088***	0.065***
	[0.009]	[0.011]	[0.014]
Post secondary Institute (Yes = 1)	0.125***	0.104***	0.097***
	[0.022]	[0.033]	[0.027]
University and above (Yes = 1)	0.1203***	0.1827***	0.0803***
	[0.0133]	[0.0269]	[0.0159]
Married (Yes = 1)	-0.057***	-0.024***	-0.091***
	[0.006]	[0.005]	[0.009]
Divorced (Yes = 1)	-0.024***	-0.013***	-0.034***
	[0.006]	[0.005]	[0.011]
Widowed (Yes = 1)	-0.032***	-0.016***	-0.048***
	[0.004]	[0.003]	[0.006]
Rural (Yes = 1)	-0.011***		
	[0.004]		
Observations	12554	5674	6845

Note: Probit estimations, sample of male and females aged 15-64. Marginal effects, evaluated at sample means for continuous variables, are shown. Standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Location (governorate) dummies included in all specifications. The reference group: Males with no schooling, unmarried, and (in Column (1)) located in urban area. Source: ELMPS 2006.

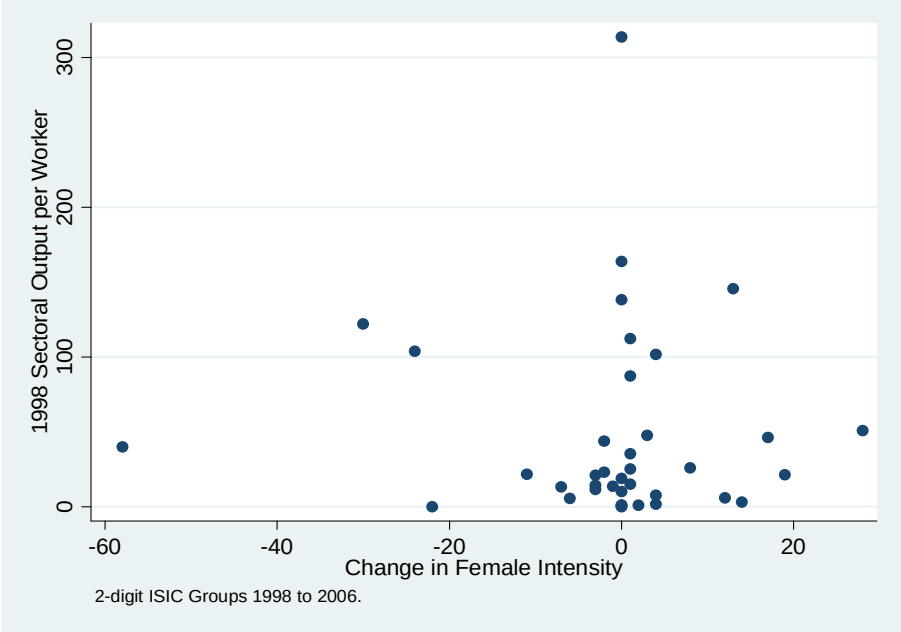
ANNEX 2.1: SECTOR-WISE FEMALE EMPLOYMENT INTENSITY

Figure A 2.1.1: Sector-wise GDP growth versus Female Intensity



Source: ELMPS and CAPMAS

Figure A 2.1.2: Is Female Intensity Rising in Low Productivity Sectors?



Source: ELMPS and CAPMAS

ANNEX 3.1: TRANSITIONS IN WORKS STATUS ACROSS 1998 AND 2006

Table A 3.1.1: Work Status across 1998 and 2006 (Ages 15-64 in 1998)

	Males				
	Work Status 2006				
Work Status 1998	N	Employed	Unemployed	Out of Labor Force	Total
Employed	3,394	91.7	1.2	7.2	100.0
Unemployed	322	84.8	9.0	***6.2***	100.0
Out of Labor Force	1,262	69.7	13.1	***17.3***	100.0
	Females				
	Work Status 2006				
Work Status 1998	N	Employed	Unemployed	Out of Labor Force	Total
Employed	934	74.1	2.1	***23.8***	100.0
Unemployed	366	17.5	15.3	***67.2***	100.0
Out of Labor Force	3,670	16.1	5.4	***78.6***	100.0

Source: ELMPS 2006 and ELMS 1998.

Table A 3.1.2: Work Status across 1998 and 2006: Male and Female (aged 15-64 in 1998)

Males

Work Status 1998	N	Work Status 2006: Government job	Formal private sector wage	Informal private sector wage	Self-employed / Household Enterprise	Unemployed	Out of Labor Force	Total
Government job	1,379	***76.2***	2.6	1.9	3.6	0.4	15.3	100.0
Formal private sector wage	292	***11.0***	53.8	13.0	14.4	1.4	6.5	100.0
Informal private sector wage	888	***8.3***	***11.9***	43.4	27.1	1.8	7.4	100.0
Self-employed / Household Enterprise	959	***6.2***	***3.4***	8.9	72.6	1.0	7.9	100.0
Unemployed	260	12.3	13.5	31.5	25.8	7.7	9.2	100.0
Out of Labor Force	1,498	13.0	9.7	23.0	18.0	10.6	25.7	100.0
Total	5,276	27.4	9.7	18.2	25.9	4.1	14.8	100.0

Females

Work Status 1998	N	Work Status 2006: Government job	Formal private sector wage	Informal private sector wage	Self-employed / Household Enterprise	Unemployed	Out of Labor Force	Total
Government job	624	***81.6***	2.1	0.2	0.6	1.0	14.6	100.0
Formal private sector wage	44	***18.2***	50.0	0.0	0.0	6.8	25.0	100.0
Informal private sector wage	95	***3.2***	***6.3***	16.8	9.5	8.4	***55.8***	100.0
Self-employed / Household Enterprise	202	***1.0***	***0.0***	2.5	46.5	1.5	***48.5***	100.0
Unemployed	314	8.6	1.3	3.8	3.8	14.7	67.8	100.0
Out of Labor Force	4,013	3.9	1.1	1.8	8.2	4.6	80.5	100.0
Total	5,292	13.3	1.7	2.0	8.5	4.7	69.8	100.0

Source: ELMPS 2006 and ELMS 1998

ANNEX 3.2: LABOR MARKET RETENTION BY SECTOR AND MARRIAGE – EMPIRICAL STRATEGY AND RESULTS

I. Empirical Specification

Using ELMPS panel data for 1998 and 2006, we first estimate the following equation to look at women's labor force transitions between 1998 and 2006, and the variation therein by labor force status in 1998.

$$LFS_{it} = \delta_i + \eta Post_t + \sum \beta_s \, Post_t * Sector98_s + e_{it} \qquad (1)$$

LFS_{it} is a dummy which equals one if individual i was in the labor force in period t, and zero otherwise. The regression is estimated on two years of panel data, 1998 and 2006, with individual fixed effects δ_i. The sample is restricted to females who were between 15 to 64 years of age in 1998. The dummy $Post_t$, which equals one in 2006 and zero in 1998, would by itself reflect the average increase in labor force participation between 1998 and 2006, among women aged 15-64 in 1998 and surveyed in both rounds. But in order to measure how this increase *varied* across individuals who were in different 'sectors' or 'states' in 1998, we interact $Post_t$ with a set of dummies indicating the 1998 labor force status s of individual i. Denoted by $Sector98_s$, these status dummies indicate, respectively, whether the individual was in school, out of school but not in the labor force, unemployed, employed in the public sector, employed in a (formal) private firm, employed in an informal firm, employed in a household establishment or self-employed in 1998. This being an exhaustive list of 1998 labor force states, the dummies sum up to one. In the estimations, the '*in school*' dummy is omitted, implying that the coefficient on $Post_t * Sector98_s$ reflects the increase in the labor force participation among those who were in a sector s in 1998, relative to those in school in 1998. For example, the coefficient on $Post_t$ *$PublicSector98$ measures the change in the participation rate among those employed in the government sector in 1998, relative to those in school in 1998.

Ultimately, we are interested in examining how getting married relates to changes in the labor force participation of women, and how this association varies by the labor force status prior to marriage. In particular, we want to examine if the association between marriage and exit from the labor force is weaker among women who are employed in the public sector, compared to those employed elsewhere. For this purpose, we exploit the fact that about 17% of women aged 15-64 in our panel got married between 1998 and 2006. The regression specified below allows the association between marriage and labor force status to vary by the 1998 status of an individual:

$$LFS_{it} = \delta_i + \gamma Married_{it} + \sum \alpha_s \, Married_{it} * Sector98_s + \eta Post_t + \sum \beta_s \, Post_t * Sector98_s + e_{it} \qquad (2)$$

$Married_{it}$ is a dummy which equals one if an individual was married as of period t. Given individual fixed effects δ_i, the coefficient on Married_{it} is identified using women whose marital status *changed* between 1998 and 2006. Thus, it measures the change in the labor force status among those who got married between 1998 and 2006, relative to those whose marital status was

unchanged.[86] The interactions of $Married_{it}$ with the set of dummies indicating the 1998 labor force sector/status reflect how this association between marriage and labor force status varied by the sector of employment in 1998. For illustration, a negative coefficient on $Married_{it}$ and a positive coefficient on $Married_{it}$ *PublicSector98 would indicate that relative to those whose marital status was unchanged between 1998 and 2006, women who got married were on average more likely to be out of the labor force in 1998 (negative γ), and that this negative association with marriage was weaker among those who were employed in the public sector in 1998 (positive α_s for those in public sector in 1998).

One concern with this estimation is that women who got married between 1998 and 2006 are likely to have been younger on average than those who were married before 1998, and older than those who remained unmarried in both 1998 and 2006. The coefficient on $Married_{it}$ and its interactions might therefore pick up life cycle effects. Hence, we control for differential change in labor force status by age in 1998 and its squared values, interacting these with $Post_t$. In an alternative specification, we include interactions of $Post_t$ with a full set of age dummies. Our key results are unaffected by these age controls.

2. Estimation Results

Table A3.2.1 presents results from estimating Equation (1) by OLS, examining women's labor force transitions between 1998 and 2006, and their variation by labor force status in 1998. In Column (1), which is for urban and rural areas combined, the coefficient on $Post_t$ is estimated to be 0.251 and is significant at the 1 percent level. Since the omitted 1998 labor force status dummy corresponds to those in school in 1998, this estimate indicates that about 25 percent of women aged 15-64 and still in school in 1998 were in the labor force in 2006. Next, the coefficients on the interactions of $Post_t$ with $Sector98_s$ are all negative and statistically significant, implying that relative to those in school in 1998, labor force participation declined among those not in school in 1998, irrespective of whether they were unemployed or employed in 1998.

Interestingly, the coefficient on $Post_t$ *PublicSector98 is less negative than that on $Post_t$ *PrivateFirm98, $Post_t$ *InformalSector98, $Post_t$ *HousholdFirm98, $Post_t$ *Self-employed98, and $Post_t$ *Unemployed98. This means that relative to all other sectors of employment (and to unemployment), the rate of exit was lowest among women who were in the public sector in 1998.[87] For instance, the coefficients on $Post_t$ *PublicSector98, $Post_t$ *PrivateFirm98 and $Post_t$ together imply that the labor force exit rate was about 13 percentage points lower among women employed in the public sector in 1998, compared to those working in formal private firms in 1998.[88]

[86] Strictly speaking, the coefficient on $Married_{it}$ is identified off females who got married, divorced or whose husband died between 1998 and 2006, and the assumption is that the differential effects of a change in marital status are similar in both directions of change. While 17% of panel women aged 15-64 in 1998 got married between 1998 and 2006, 6% got divorced or lost their husband.

[87] Tests of equality between the interaction coefficients show that these differences are statistically significant.

[88] Curiously, the results suggest that women out of the labor force in 1998 were more likely than those employed in 1998to be in the labor force by 2006. We believe that this is reflects measurement error or definitional change in the out of labor force status. Specifically, the definition of being in the labor force became more inclusive in 2006 round

Columns (2) and (3) in Table A3.2.1 look at urban and rural areas separately. The broad pattern is similar in both areas: compared to women not employed in the public sector in 1998, those working in the public sector in 1998 were less likely to have left the labor force in 2006.[89]

Tables A3.2.2 and A3.2.3 present estimations of our main specification (Equation (2)), describing how changes in marital status relate to changes in labor force participation among women, and how this relationship varies by prior labor market status. First, Table A3.2.2 presents the simpler specification where $Married_{it}$ is not interacted with the 1998 labor force status dummies. The coefficient on $Married_{it}$ is estimated to be negative in both urban and rural areas. Since these regression control for individual fixed effects and $Post_t$, this result indicates that on average, relative to women whose marital status was unchanged, those who got married between 1998 and 2006 were more likely to have left the labor force by 2006. This is direct evidence of significant post-marriage exit from the labor force among women in Egypt.

In Table A3.2.3 $Married_{it}$ is interacted with the 1998 labor force status dummies. Columns 1-3 correspond to all (urban plus rural) women aged 15-64 in 1998. Looking first at Column (1), which presents estimates of Equation (2) without any additional controls, the coefficient on $Married_{it}$ is negative, while that on $Married_{it}$ **PublicSector98* is positive and significant at the 1 percent level. Thus, compared to women who were students in 1998, post-marriage labor force retention was higher among women who were in the public sector in 1998. The estimates imply that relative to those whose marital status remained the same in 1998 and 2006, marriage reduced labor force participation by 29 percent among students, but only 5 percent among women employed in the public sector in 1998. The coefficients on $Married_t$ **PrivateFirm98*, $Married_t$ **InformalSector98, $Married_t$ *HousholdFirm98, $Married_t$ *Self-employed98* are statistically not significant, implying that in these sectors of employment, the association between getting married and labor force participation is similar to that among students (-29 percent), and therefore more negative than that among public sector employees.

Column (2) presents a regression similar to that shown in Column (1), except than it allows for fully flexible age effects on exit by interacting *Post* with a full set of age dummies. The key estimates (those of $Married_{it}$, $Married_{it}$ **PublicSector98* and $Married_t$ **PrivateFirm98*) are very close to those in Column (1).

The results suggest that work in the public sector is more compatible with marriage. But another possibility is that women who work in the public sector before marriage are systematically different from those who work in the private sector before marriage. If so, differences in the coefficients on $Married_t$ **PublicSector98* and $Married_t$ **PrivateFirm98* might reflect something other than differences in the work environment between the public and the private sector. For instance, women working in government jobs might have higher retention rates post-marriage because they are more educated than those working in other sectors, and stand to lose more in monetary terms by leaving their jobs altogether. Or, social norms among the more educated could be more permissive of work after marriage.

(Assaad and El-Hamidi, 2009). Since this bias affects those out of the labor force in 1998, it is not relevant to our main result which makes comparisons within the set of those employed in 1998.

[89] In rural areas, the coefficient on $Post_t$ **PrivateFirm98* is imprecisely estimated. This is because of the small sample size of rural women employed in the formal private sector.

To test against this possibility, we control for sectoral differences in women's characteristics using the following observable measures: own education, and that of parents. Column (3) adds interactions of $Married_t$ with dummies for the educational level of individual *i* in 1998, thereby allowing the 'impact' of marriage to vary by education. The coefficient on $Married_t$ **PublicSector98* remains positive and statistically significant. Critically, tests of equality of coefficients reject the equality of $Married_t$ **PublicSector98* with $Married_t$ **PrivateFirm98* or $Married_t$ **InformalSector98.* This is robust to including interactions of $Married_t$ with dummies for the educational level of mother and father (Column 4). Thus, the observed higher post-marriage retention rate among public sector employees is robust to allowing the post-marriage retention rate to vary by educational background.

Finally, Columns 5 and 6 examine these marriage and labor force transition patterns in urban and rural areas, respectively. These results suggest that higher post-marriage retention rate among public sector employees is largely an urban phenomena, since the coefficient on $Married_t$ does not vary significantly by 1998 labor force status among rural women.

Table A 3.2.1: How Exit from Labor Force between 1998 and 2006 Varied Differentially by Sector of Employment in 1998 (Females Aged 15-64 in 1998)

Outcome:	**In Labor Force (Yes=1)**		
Sample	**All**	**Urban**	**Rural**
	(1)	(2)	(3)
Post	0.251***	0.200***	0.399***
	(0.0474)	(0.0611)	(0.0812)
Post interacted with:			
In Public Sector in 1998	-0.558***	-0.589***	-0.488***
	(0.0276)	(0.0329)	(0.0613)
In Private Firm in 1998	-0.681***	-0.707***	-0.401
	(0.0632)	(0.0644)	(0.298)
In Informal Sector in 1998	-0.994***	-0.979***	-1.024***
	(0.0445)	(0.0558)	(0.0815)
In Household Firm in 1998	-0.911***	-0.753***	-0.944***
	(0.0414)	(0.0675)	(0.0602)
Self-employed in 1998	-0.895***	-0.872***	-0.909***
	(0.0506)	(0.0632)	(0.0862)
Unemployed in 1998	-1.141***	-1.156***	-1.107***
	(0.0284)	(0.0340)	(0.0557)
Out of Labor Force in 1998	-0.279***	-0.332***	-0.196***
	(0.0218)	(0.0275)	(0.0406)
Post * Age in 1998	Yes	Yes	Yes
Post * Age in 1998 Squared	Yes	Yes	Yes
Individual Fixed Effects	Yes	Yes	Yes
F-test (P-values):			
Post* Public Sector = Post*Private Firm	(0.04)**	(0.06)*	(0.76)
Post* Public Sector = Post*Informal	(0.00)***	(0.00)***	(0.00)***
Observations	10237	6554	3683

Note: SE in parenthesis. *** indicates significant at 1%. These are panel OLS regressions with individual fixed effects, and using two years of data, ELMS 1998 and 2006. The sample is restricted to females aged 15-64 in 1998. The outcome = 1 if individual is currently in the labor force. *In Public Sector*, *In Private Firm*, *In Informal Sector*, *In Household Firm*, *Self-employed*, *Unemployed*, *Out of Labor Force* and *In School* (omitted) are dummies indicating an individual's labor force status in 1998. *Post* = 1 in 2006.

Table A 3.2.2: How Exit from Labor Force is Related to Marriage

Outcome:	**In Labor Force (Yes=1)**		
Sample	**All**	**Urban**	**Rural**
	(1)	(2)	(3)
Married	-0.140***	-0.134***	-0.142***
	(0.0140)	(0.0171)	(0.0258)
Post* 1998 labor force status dummies	Yes	Yes	Yes
Post * Age in 1998	Yes	Yes	Yes
Post * Age in 1998 Squared	Yes	Yes	Yes
Individual Fixed Effects	Yes	Yes	Yes
Observations	10237	10237	10237

Note: SE in parenthesis. *** indicates significant at 1%. These are panel OLS regressions with individual fixed effects, and using two years of data, ELMS 1998 and 2006. The sample is restricted to females aged 15-64 in 1998. The outcome = 1 if individual is currently in the labor force. *Post* = 1 in 2006. Married = 1 if currently married.

Table A 3.2.3: How Exit from Labor Force Varied Differentially by Marriage and 1998 Sector of Employment

Outcome:			**In Labor Force**			
Sample:	**All**	**All**	**All**	**All**	**Urban**	**Rural**
	(1)	(2)	(3)	(4)	(5)	(6)
Married	-0.294***	-0.306***	-1.045***	-0.292	-0.444	-0.269
	(0.0296)	(0.0298)	(0.334)	(0.581)	(0.585)	(0.515)
Married interacted with:						
In Public Sector in 1998	0.247***	0.250***	0.165**	0.107	0.282***	0.0704
	(0.051)	(0.051)	(0.077)	(0.082)	(0.056)	(0.161)
In Private Firm in 1998	0.0119	0.016	-0.0653	-0.117	0.0898	.
	(0.120)	(0.119)	(0.132)	(0.134)	(0.120)	.
In Informal Sector in 1998	-0.0007	0.015	-0.0272	-0.0521	0.0397	-0.114
	(0.078)	(0.078)	(0.090)	(0.091)	(0.101)	(0.135)
In Household Firm in 1998	0.0403	0.056	0.0275	-0.0180	0.693***	-0.144
	(0.079)	(0.079)	(0.093)	(0.095)	(0.224)	(0.106)
Self-employed in 1998	-0.00612	0.011	0.0226	-0.0361	-0.0409	0.142
	(0.135)	(0.134)	(0.141)	(0.144)	(0.145)	(0.309)
Unemployed in 1998	0.119**	0.114**	0.0592	0.0232	0.103*	0.139
	(0.051)	(0.051)	(0.074)	(0.076)	(0.060)	(0.105)
Out of Labor Force in 1998	0.238***	0.247***	0.224***	0.176**	0.310***	0.0576
	(0.035)	(0.036)	(0.058)	(0.062)	(0.042)	(0.069)
Post* 1998 labor force status dummies	Yes	Yes	Yes	Yes	Yes	Yes
Post * Age in 1998	Yes		Yes	Yes	Yes	Yes
Post * Age in 1998 Squared	Yes		Yes	Yes	Yes	Yes
Post* Age Dummies		Yes				
Married* Education Dummies			Yes	Yes	No	No
Married* Parents' Education Dummies				Yes	No	No
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
F-test (P-values):						
Married*Public Sector = Married*Private Firm	(0.05)**	(0.05)**	(0.06)*	(0.06)*	(0.11)	.
Married*Public Sector = Married*Informal	(0.003)***	(0.003)***	(0.03)**	(0.07)*	(0.02)**	(0.33)
Observations	10237	10237	10237	10237	6554	3683

Note: SE in parenthesis. *** indicates significant at 1%. These are panel OLS regressions with individual fixed effects, and using two years of data, ELMS 1998 and 2006. The sample is restricted to females aged 15-64 in 1998. The outcome = 1 if individual is currently in the labor force. *In Public Sector*, *In Private Firm*, *In Informal Sector*, *In Household Firm*, *Self-employed*, *Unemployed*, *Out of Labor Force* and *In School* (omitted) are dummies indicating an individual's labor force status in 1998. *Post* = 1 in 2006. Married = 1 if currently married.

ANNEX 4.1: WAGE REGRESSIONS

In order to measure differences in the wages earned by women and men with similar characteristics, we estimated multivariate wage regressions separately for women and men. Suppose that the wage for males ('*m*') can be written as

$$wage_m = \beta_m X_m + u_m$$

Here, X_m denotes a set of characteristics like education and experience. The coefficients on the characteristics- the β_m - measure the rewards (or 'returns') to the attributes among males. For example, the β_m corresponding to experience measures the effect of an increase in years of experience on the wage of males. As with males, we estimate the wage for females ('*f*'), with β_f measuring the returns to attributes among females

$$wage_f = \beta_f X_f + u_f$$

We estimated the above equations by Ordinary Least Squares, on the sample of wage earners in ELMPS 2006 (and ELMS 1998). Tables A 4.1.1 – A 4.1.4 present the results of these wage estimations.

Checking For Selection Bias

A common econometric concern with wage regressions of this type is that we only observe the wages of those who work. The fundamental problem here is that the decision to work is determined in part by wage offers received (or expected). Thus, people who work are potentially being selected non-randomly from the population. Estimating the determinants of wages from the subpopulation who work may therefore introduce bias. For example, suppose that wage offers for college graduates depend in part on 'ability', which the researcher does not observe but the prospective employer does. Given other characteristics, a high ability college graduate is more likely than a low ability graduate to be receiving a wage she finds acceptable. Thus, among college graduates, those who work will on average be high ability individuals, and OLS would overestimate their wages.

The Heckman selection correction (or the 'Heckman Two-Step') is the most common method to deal with this issue (Puhani, 2000). The Heckman correction takes place in two stages. First, the researcher formulates a model, based on economic theory, for the probability of working. The usual specification for this relationship is a probit regression of the form

$$\text{Prob}\ (D = 1|Z) = \Phi(Z\gamma)$$

where D indicates employment ($D = 1$ if the respondent is employed and $D = 0$ otherwise), Z is a vector of explanatory variables, γ is a vector of unknown parameters, and Φ is the cumulative distribution function of the standard normal distribution. Estimation of the model yields results that can be used to predict this probability for each individual. In the second stage, the researcher corrects for self-selection by incorporating a transformation of these predicted individual probabilities as an additional explanatory variable. The wage equation may be specified,

$$w * = X\beta + u$$
$$wage = w^* \; if \; D = 1$$
$$wage \; not \; observed \; if \; D = 0$$

where w * denotes an underlying wage offer, which is not observed if the respondent does not work. The conditional expectation of wages given the person works is then

$$E\,[w|X, D = 1] = X\beta + E\,[u|X, D = 1]$$

Under the assumption that the errors terms are jointly normal, we have

$$E\,[w|X, D = 1] = X\beta + p\,\sigma u\,\lambda(Z\gamma)$$

where ρ is the correlation between unobserved determinants of propensity to work and unobserved determinants of wage offers u, σ_u is the standard deviation of u, and λ is the inverse Mills ratio evaluated at Zγ. This equation demonstrates Heckman's insight that sample selection can be viewed as a form of omitted-variables bias, as conditional on both X and on λ it is as if the sample is randomly selected. The wage equation can be estimated by replacing γ with Probit estimates from the first stage, constructing the λ term, and including it as an additional explanatory variable in linear regression estimation of the wage equation.

In order to check that our OLS estimates of wages were not suffering from selection bias, we estimated the wage equations using the Heckman Two-step method. The variable included in the selection equation included age, marital status, household wealth, household size and share of males in the households. These estimations results are shown in columns 2 and 4 of Table A 4.1.1.

Since the Heckman correction did not change the estimates in a significant way, we stayed with the OLS specification in the rest of our estimations. Another reason for relying more on OLS estimates is that the Heckman technique is less robust, in the sense that it is based on more assumptions. Heckman selection correction works if the researcher has access to variables that predict labor force participation but are exogenous to the wages he/she is offered. The 'selection-corrected' estimates are as good as the quality of these instrumental variables, which is ultimately a question of judgment. We found that although the magnitude of the Heckman selection-corrected wage gap was insensitive to the exact choice of these instruments, the underlying selection equation was sensitive to this choice. Hence, we were unsure if the Heckman approach was working well to correct for selection across the range of education and experience.

Table A 4.1.1: Wage Regressions by Sex (ELMPS 2006)

	Male		Female		Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
Experience (Years)	0.0436***	0.0519***	0.0831***	0.0888***	0.0392***	0.0681***
	[0.00253]	[0.00305]	[0.00742]	[0.00818]	[0.00255]	[0.00796]
Experience Squared	-0.001***	-0.0008***	-0.0012***	-0.0014***	-0.0005***	-0.0009***
	[5.60e-05]	[6.90e-05]	[0.000212]	[0.000244]	[5.47e-05]	[0.000218]
Literate or Elementary School (Yes=1)	0.0896***	0.121***	-0.0174	0.109	0.0627**	-0.162
	[0.0312]	[0.0326]	[0.146]	[0.163]	[0.0302]	[0.158]
Middle or High School (Yes=1)	0.207***	0.218***	0.500***	0.673***	0.176***	0.309
	[0.0429]	[0.0443]	[0.174]	[0.201]	[0.0420]	[0.191]
Vocational School (Yes=1)	0.286***	0.338***	0.602***	0.895***	0.243***	0.410***
	[0.0295]	[0.0319]	[0.101]	[0.199]	[0.0307]	[0.126]
Post secondary or University (Yes=1)	0.690***	0.794***	0.871***	1.203***	0.626***	0.575***
	[0.0311]	[0.0375]	[0.102]	[0.219]	[0.0354]	[0.131]
Alexandria / Suez (Yes=1)	0.00751	0.00141	-0.161**	-0.160**	-0.0320	-0.0985
	[0.0329]	[0.0343]	[0.0728]	[0.0734]	[0.0329]	[0.0754]
Urban Lower Egypt (Yes=1)	-0.133***	-0.183***	-0.190***	-0.147*	-0.111***	-0.118
	[0.0327]	[0.0353]	[0.0709]	[0.0760]	[0.0322]	[0.0735]
Urban Upper Egypt (Yes=1)	-0.143***	-0.171***	-0.0279	-0.0312	-0.131***	-0.0273
	[0.0309]	[0.0326]	[0.0677]	[0.0683]	[0.0307]	[0.0710]
Rural Lower Egypt (Yes=1)	-0.205***	-0.230***	0.169**	0.194***	-0.156***	0.219***
	[0.0278]	[0.0294]	[0.0699]	[0.0720]	[0.0283]	[0.0751]
Urban Upper Egypt (Yes=1)	-0.191***	-0.242***	0.00183	-0.123	-0.155***	-0.0265
	[0.0299]	[0.0326]	[0.105]	[0.128]	[0.0307]	[0.108]
Mills (lambda)		0.378***		0.273*		
		[0.0704]		[0.160]		
State owned enterprise (Yes=1)					0.0603	-0.108
					[0.0467]	[0.146]
Formal sector private firm (Yes=1)					0.0256	-0.146
					[0.0430]	[0.0965]
Informal sector firm (Yes=1)					-0.153***	-0.495***
					[0.0439]	[0.108]
Industry Fixed Effects	No	No	No	No	Yes	Yes
Constant	4.745***	4.519***	4.000***	3.558***	4.857***	4.442***
	[0.0404]	[0.0597]	[0.116]	[0.284]	[0.0544]	[0.158]
Observations	5,833	7,859	1,536	3,159	5,829	1,534
R-squared	0.183		0.279		0.300	0.381

The dependent variable is log of wages
Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table A 4.1.2: Wage Regressions by Sex, Separately for Occupations (ELMPS 2006)

	Workers		Clerical		Professional	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
	(1)	(2)	(3)	(4)	(5)	(6)
Experience (Years)	0.0274***	0.0673***	0.0367***	0.0648***	0.0335***	0.0723***
	[0.00441]	[0.0214]	[0.00827]	[0.0150]	[0.00812]	[0.0112]
Experience Squared	-0.00036***	-0.001*	-0.00027	-0.00074*	-0.0003	-0.001***
	[8.65e-05]	[0.000529]	[0.000195]	[0.000413]	[0.000202]	[0.000308]
Literate or Elementary School (Yes=1)	0.0354	-0.164	0.454**	0.523		
	[0.0443]	[0.212]	[0.219]	[0.495]		
Middle or High School (Yes=1)	0.239***	0.583	0.307	0.178	0.929**	0.0590
	[0.0697]	[0.384]	[0.205]	[0.465]	[0.424]	[0.331]
Vocational School (Yes=1)	0.168***	0.166	0.477**	0.686*	1.021***	
	[0.0513]	[0.231]	[0.190]	[0.387]	[0.379]	
Post secondary or University (Yes=1)	0.457***	0.273	0.826***	0.646	1.182***	0.0138
	[0.0697]	[0.266]	[0.193]	[0.395]	[0.379]	[0.0971]
Alexandria / Suez (Yes=1)	-0.0415	-0.0982	0.120	-0.200	-0.110	-0.0426
	[0.0692]	[0.237]	[0.0838]	[0.141]	[0.0824]	[0.110]
Urban Lower Egypt (Yes=1)	-0.0419	-0.304	-0.114	-0.141	-0.156**	-0.145
	[0.0726]	[0.210]	[0.0846]	[0.132]	[0.0738]	[0.106]
Urban Upper Egypt (Yes=1)	-0.0991	-0.415	-0.113	0.0299	-0.0731	0.00688
	[0.0629]	[0.262]	[0.0781]	[0.131]	[0.0684]	[0.0951]
Rural Lower Egypt (Yes=1)	-0.0836	-0.358*	-0.180**	0.380***	-0.133*	0.244**
	[0.0564]	[0.206]	[0.0737]	[0.131]	[0.0734]	[0.117]
Urban Upper Egypt (Yes=1)	-0.0908	-0.171	-0.190**	-0.0589	-0.166**	0.0741
	[0.0580]	[0.248]	[0.0867]	[0.198]	[0.0837]	[0.166]
State owned enterprise (Yes=1)	-0.109	0.413	0.0700	-0.299	0.164	-0.164
	[0.118]	[0.709]	[0.0926]	[0.252]	[0.111]	[0.259]
Formal sector private firm (Yes=1)	-0.0998	-0.463	-0.0432	0.00704	0.214**	-0.110
	[0.101]	[0.316]	[0.0994]	[0.198]	[0.0960]	[0.131]
Informal sector firm (Yes=1)	-0.300***	-0.106	-0.402***	-0.466**	-0.210	-0.563***
	[0.0973]	[0.297]	[0.126]	[0.208]	[0.146]	[0.214]
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Constant	4.914***	4.342***	4.516***	4.181***	4.339***	5.007***
	[0.110]	[0.390]	[0.210]	[0.415]	[0.383]	[0.163]
Observations	1,719	181	917	574	1,244	674
R-squared	0.209	0.490	0.339	0.336	0.287	0.313

The dependent variable is log of wages
Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table A 4.1.3: Wage Regressions by Sex Adding Control for Legal Work Contract (ELMPS 2006)

	Male	Female
	(1)	(2)
Experience (Years)	0.0346***	0.0640***
	[0.00255]	[0.00794]
Experience Squared	-0.000435***	-0.000836***
	[5.47e-05]	[0.000217]
Literate or Elementary School (Yes=1)	0.0542*	-0.196
	[0.0298]	[0.157]
Middle or High School (Yes=1)	0.144***	0.0909
	[0.0414]	[0.195]
Vocational School (Yes=1)	0.173***	0.186
	[0.0312]	[0.136]
Post secondary or University (Yes=1)	0.414***	0.200
	[0.0399]	[0.148]
Alexandria / Suez (Yes=1)	-0.0268	-0.0937
	[0.0324]	[0.0747]
Urban Lower Egypt (Yes=1)	-0.107***	-0.116
	[0.0318]	[0.0728]
Urban Upper Egypt (Yes=1)	-0.118***	-0.0312
	[0.0302]	[0.0704]
Rural Lower Egypt (Yes=1)	-0.130***	0.227***
	[0.0279]	[0.0744]
Urban Upper Egypt (Yes=1)	-0.127***	-0.0333
	[0.0304]	[0.107]
State owned enterprise (Yes=1)	0.0454	-0.0851
	[0.0460]	[0.146]
Formal sector private firm (Yes=1)	0.0445	-0.122
	[0.0428]	[0.0955]
Informal sector firm (Yes=1)	0.0147	-0.118
	[0.0568]	[0.171]
Professional (Yes=1)	0.489***	0.679***
	[0.0397]	[0.134]
Clerical (Yes=1)	0.216***	0.445***
	[0.0358]	[0.126]
Skilled (Yes=1)	0.240***	0.290
	[0.0335]	[0.186]
Legal Work Contract (Yes=1)	0.186***	0.348**
	[0.0449]	[0.145]
Industry Fixed Effects	Yes	Yes
Constant	4.580***	3.925***
	[0.0685]	[0.210]
Observations	5,827	1,534
R-squared	0.322	0.396

The dependent variable is log of wages
Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table A 4.1.4: Wage Regressions by Sex (ELMS 1998)

	Male	Female	Male	Female
	(1)	(2)	(3)	(4)
Experience (Years)	0.0424***	0.0587***	0.0444***	0.0502***
	[0.00264]	[0.00511]	[0.00266]	[0.00529]
Experience Squared	-0.00056***	-0.00063***	-0.00057***	-0.00044***
	[5.82e-05]	[0.000144]	[5.70e-05]	[0.000144]
Literate or Elementary School (Yes=1)	0.186***	0.347***	0.153***	0.245**
	[0.0316]	[0.112]	[0.0318]	[0.116]
Middle or High School (Yes=1)	0.313***	0.636***	0.299***	0.608***
	[0.0432]	[0.118]	[0.0433]	[0.130]
Vocational School (Yes=1)	0.394***	0.546***	0.394***	0.456***
	[0.0332]	[0.0750]	[0.0355]	[0.0919]
Post secondary or University (Yes=1)	0.759***	0.945***	0.796***	0.787***
	[0.0330]	[0.0738]	[0.0382]	[0.0945]
Alexandria / Suez (Yes=1)	-0.0165	-0.184***	-0.0232	-0.147***
	[0.0347]	[0.0553]	[0.0347]	[0.0561]
Urban Lower Egypt (Yes=1)	-0.145***	-0.171***	-0.0574*	-0.119**
	[0.0329]	[0.0504]	[0.0328]	[0.0508]
Urban Upper Egypt (Yes=1)	-0.183***	-0.205***	-0.0853***	-0.159***
	[0.0317]	[0.0481]	[0.0320]	[0.0492]
Rural Lower Egypt (Yes=1)	-0.167***	-0.304***	-0.0728**	-0.233***
	[0.0313]	[0.0594]	[0.0320]	[0.0606]
Urban Upper Egypt (Yes=1)	-0.271***	-0.264***	-0.164***	-0.212**
	[0.0355]	[0.0909]	[0.0361]	[0.0893]
State owned enterprise (Yes=1)			0.211***	-0.116
			[0.0467]	[0.104]
Formal sector private firm (Yes=1)			0.218***	0.0953
			[0.0447]	[0.0822]
Informal sector firm (Yes=1)			0.0846*	-0.154*
			[0.0443]	[0.0921]
Industry Fixed Effects	No	No	Yes	Yes
Constant	4.422***	4.016***	4.244***	4.180***
	[0.0424]	[0.0823]	[0.0560]	[0.110]
Observations	3,554	998	3,554	998
R-squared	0.263	0.474	0.331	0.546

The dependent variable is log of wages
Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table A 4.1.5: Panel Wage Regressions by Sex (ELMPS 2006 and ELMS 1998)

	Male	Female	Male	Female
	(1)	(2)	(3)	(4)
Experience (Years)	-0.0086***	-0.0049	-0.0123***	-0.0056
	[0.00184]	[0.00447]	[0.00208]	[0.00487]
Literate or Elementary School (Yes=1)	0.0173	-0.180	0.00670	-0.341
	[0.0646]	[0.362]	[0.0669]	[0.420]
Middle or High School (Yes=1)	0.0816	0.452	0.00517	0.498
	[0.0880]	[0.363]	[0.0910]	[0.384]
Vocational School (Yes=1)	0.0679	0.230	-0.0382	0.144
	[0.0646]	[0.263]	[0.0711]	[0.274]
Post secondary or University (Yes=1)	0.0559	0.120	-0.101	0.0259
	[0.0650]	[0.262]	[0.0774]	[0.276]
Alexandria / Suez (Yes=1)	0.00919	0.201*	0.0103	0.120
	[0.0679]	[0.118]	[0.0707]	[0.129]
Urban Lower Egypt (Yes=1)	0.0861	0.0860	0.0511	-0.00491
	[0.0659]	[0.110]	[0.0687]	[0.120]
Urban Upper Egypt (Yes=1)	0.0331	0.343***	-0.0233	0.263**
	[0.0607]	[0.103]	[0.0636]	[0.112]
Rural Lower Egypt (Yes=1)	0.0276	0.737***	-0.0217	0.618***
	[0.0618]	[0.128]	[0.0655]	[0.138]
Urban Upper Egypt (Yes=1)	0.113	0.511**	0.0319	0.432*
	[0.0692]	[0.216]	[0.0735]	[0.223]
State owned enterprise (Yes=1)			-0.0524	0.234
			[0.0942]	[0.288]
Formal sector private firm (Yes=1)			-0.152*	-0.172
			[0.0889]	[0.201]
Informal sector firm (Yes=1)			-0.0770	-0.229
			[0.0880]	[0.286]
Constant	0.553***	0.304	0.784***	0.480*
	[0.0813]	[0.270]	[0.107]	[0.291]
Observations	1,897	571	1,897	571
R-squared	0.019	0.083	0.066	0.130

The dependent variable is log of wages
Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

ANNEX 5: SELECTED LEGAL PROVISIONS GOVERNING WOMEN IN THE WORKPLACE (SOURCE: MINISTRY OF MANPOWER AND EMIGRATION)

- Article 11 of the Constitution of Arabic Republic of Egypt: "The State shall guarantee coordination between woman's duties towards her family and her work in the society, considering her equal to man in the political, social, cultural and economic spheres without detriment to the rules of Islamic jurisprudence (Sharia)."

- Article 80 of Labor Law no. 12 of 2003 states "Subject to the provisions of Law No. 133 of the year 1961 regulating the employment of (male/female) workers at industrial establishments, the worker shall not be employed in actual Labor for more than eight hours a day, or forty eight hours a week, not including the appropriated meal and rest hours. The maximum working hours may be reduced by decree of the concerned minister for certain Labor categories, or in certain industries or works to be determined by him/her."
- Article 81 of the same Law provides "the working hours shall include one or more break periods, totaling not less than one hour, for meals and rest. In determining this period, care shall be observed that the worker shall not be made to stay at work more than five continuous hours."
- Article 81 of the same Law also provides "the work shall be organized at the establishment so that each worker shall have a weekly period of rest not less than twenty four complete hours after at most six continuous working days. In all cases, the weekly period of rest shall be reckoned as a paid time."

- Article 3 of the Ministry of Manpower & Emigration decree no. 183 of 2003, in relation to the regulation of female work overnight, provides "in cases where women work overnight, the employer shall provide all protection guarantees, care, transport, safety for female workers and a license authorizing the overnight work shall be issued by relevant manpower and emigration administration after verifying the availability of all aforementioned guarantees and conditions".

- Chapter 2 of Book 5 of the Child Law no. 126 of 2008 includes specific regulations regarding maternity leave, breastfeeding periods, unpaid leave and employer's commitment to establish a nursery as follows:

Maternity leave:

The Article 70 provides "whether working permanently or temporarily at public or private sectors, the female worker shall be entitled to fully-paid maternity leave for three months after parturition. In all cases, she isn't entitled to that leave more than three times during her service. The working hour for a pregnant female worker shall be reduced by one hour at least from the six month of pregnancy. She may not be worked additional hours during the pregnancy till six months after parturition".

Breastfeeding periods

The Article 71 provides "until two year from parturition, the nursing worker shall be entitled to – besides the decided rest period- other two periods each of which shall not be less than half-hour for that purpose. The worker shall be entitled to join these two

periods. These two periods shall be calculated from the working hours and the salary shall not be reduced therefore".

Unpaid leave for childcare

The Article 73 provides "the female worker, at public or private sectors, shall be entitled to two-year unpaid leave for childcare for three times during her service. With exclusion to the Social Law, the women's affiliate body shall pay her due insurance contributions or give her a compensation for her wage, about 25% of her due salary on the time of that leave period in accordance with her discretion pursuant to the provisions of that Law. At the private sector, the female worker, at a facility employing 50 female workers or more, shall be entitled to unpaid leave for childcare for a period not exceeding two years and three times during her service."

Nursery

The Article 73 also provides "employer, hiring 100 female workers or more at one place, shall set up a nursery or commission a nursery to take care of the female worker's children in accordance with terms and conditions set out in the Executive Provisions. The facilities, hiring less than 100 female workers and are located at the same zone, shall work together to fulfill the abovementioned obligation in accordance with terms and conditions set out in the Executive Provisions."

- Labor Law no. 12/2003; book no.2 has designated ten articles concerning women employment. Article (88) has stated that all provisions regulating the employment of workers shall be applied to the working women, without discrimination between them, once their work conditions are analogous.

- Egypt also concluded an agreement no. 100/ 1951 concerning the equality in wages. And the agreement no. 111/1958 concerning elimination of discrimination in employment and occupations.

- Resolution no. 155/2003 issued by minister of Manpower & Emigration identifies 30 work fields where women are not allowed to work, including bars and gambling clubs, alcohol and spirits industry, working in blast furnaces, and industry of fertilizers and hormones and others.

- Egypt also concluded agreement no. 41/ 1934 concerning the women employment at night, and it is amended by agreement no.89/1948 concerning women working at night.

- Egypt also concluded agreement no. 45/ 1935 concerning women employment for working under ground.

- Article no. 5 from the resolution no. 121/2003 issued by the Ministry of Manpower and Emigration indicates that every female worker who want to benefit from the services of nursery school belonging to the workplace shall pay a monthly contribution which costs about 5% from the total cost of the wage for the first child with minimum of EGP 2, and

about 4% for the second one if the both children are together at the same time with minimum of EGP 3.5 monthly for the two children. The employer shall pay the rest of expenses, and in case of more than two children, the female worker shall pay for the real costs for the excess number.

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