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THE DETERMINANTS OF EMPLOYMENT STATUS IN EGYPT

Ragui Assaad, Fatma El-Hamidi, and Akhter U. Ahmed

Food Consumption and Nutrition Division

International Food Policy Research Institute
2033 K Street, N.W.
Washington, D.C. 20006 U.S.A.
(202) 862–5600
Fax: (202) 467–4439

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ABSTRACT

Egyptian labor market is moving from a period of high overall unemployment to one where unemployment is increasingly concentrated among specific groups whose access to the private-sector labor market is limited. Educated young women are more adversely affected than their male counterparts by the transition to a private-sector-led economy. There is no systematic link between youth unemployment among new entrants and poverty unless it is the head of the household who is unemployed. An economic policy environment that is favorable for labor-intensive, export-oriented industries would help absorb the new entrants into the labor market, and the prospect is particularly good for young female workers. Policymakers should consider a reduction in the female-specific employer mandates (such as the existing provision for a generous maternity leave) that raise the cost of hiring women.

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Ragui Assaad
Humphrey Institute of Public Affairs
University of Minnesota, Minneapolis

Fatma El-Hamidi
Graduate School of Public and International Affairs
University of Pittsburgh, Pennsylvania

Akhter U. Ahmed
International Food Policy Research Institute

EXECUTIVE SUMMARY

The creation of productive employment for youth has climbed to the top of policy concerns in Egypt in recent years. Past demographic growth is now translating into increasing numbers of young job seekers, which is in turn sorely testing the absorptive capacities of labor markets. This generation of new entrants is more educated than previous generations, but they are finding it hard to capitalize on their education in an increasingly privatized job market. Not too long ago, a secondary education was an assured way to obtain a stable, lifetime job in government or in state-owned enterprises. This is no longer the case. With the gradual suspension of the public employment guarantee to graduates in the 1980s, the ranks of the educated unemployed have swelled.

There is a strong gender dimension to these labor market trends. The evidence that is currently available shows that educated young women are more adversely affected than their male counterparts by the transition to a private sector-led economy. The previous availability of public-sector employment to educated youth has led to high participation rates among educated females. These women are now still seeking employment at high rates, but most of them are not finding suitable employment in the private sector. Unemployment rates among females have therefore increased significantly in the 1990s at a time when they remained fairly stable for males. Although the rising unemployment trends are worrisome in their own right, they do not imply much about poverty trends. Recent studies on poverty in Egypt have shown that there is no systematic link between youth unemployment among new entrants and poverty, unless it is the head of the household who is unemployed, and this is quite rare. The absence of linkage between poverty and unemployment is attributable to the fact that the poor can generally not afford to be unemployed. The form of employment inadequacy they usually experience is underemployment, either of the visible or invisible kind. Visible underemployment usually affects casual wageworkers, who only work intermittently in sectors such as construction and agriculture. Invisible underemployment is likely to affect

self-employed workers, small farmers, and workers working for family enterprises at no wage. These are the groups who are more likely to be found among the poor.

The objective of this study is to understand the factors that sort individuals into various employment states. It seeks to elucidate what factors affect who is economically active and who is not, who is working and who is seeking work (unemployed), and, among those working, who is a salaried employee versus a casual wageworker versus a self-employed or family worker. A combination of past policies in education and public-sector hiring and powerful social norms has resulted in a labor market that is strongly segmented along gender and educational lines. It is not surprising therefore that these two factors loom large in analyses of employment status in Egypt. The dominance of agriculture in rural labor markets and the special nature of the agricultural labor market also require disaggregation by urban and rural location. Other factors we consider are age, marital and headship status, region, and, in rural areas, the size of landholdings and ownership of livestock. For rural areas, we extend the analysis by examining the effects of community-level factors, such as the average size of landholdings, the proportion of landless agriculture workers, the average agricultural wage in the village, and the presence of public facilities, such as a village bank, a police station, a high school, or a hospital. For women, we also estimate a “household” model that includes the spouse’s employment and educational characteristics, and the presence of children of various age groups.

Reliable long-term trends of labor force participation by sex are hard to obtain in Egypt because of frequent methodological changes in the Labor Force Sample Survey (LFSS), the main source of data on the subject. The changes relate primarily to the measurement of female participation in agriculture and informal home-based activities. Since 1984, an effort has been made to improve the enumeration of women engaged in these activities, but these efforts have been inconsistent over time, leading to sharp fluctuations in the female labor force participation rate over the years. Adjusting for these changes results in a rising trend in female participation rates in both urban and rural areas and a declining trend for male participation. This declining trend is mostly due to

increased school enrollment among young males and to a lesser extent to earlier withdrawal for the labor force among older males. The opposing trends in male and female participation rates result in a slight decline of the overall participation rate. The overall labor force growth rate was 3 percent, just under that of the working age population, which was 3.2 percent per year from 1990 to 1995.

Unemployment rates for males were fairly stable in the first half of the 1990s. The male unemployment rate in urban areas peaked in 1993 at 8.4 percent and may now be declining. However, the male unemployment rate continues to rise in rural areas. Rural male unemployment rates start out about a third lower than those of urban males in 1990, but catch up with them by 1995. Because of the measurement problem relating to the female labor force—the denominator of the unemployment rate, female unemployment trends are less reliable. However, the LFSS reports female unemployment rates that are about three times higher than those of males, with the gap increasing over time. Unemployment rates for urban females, which start out very high in 1990 at 25 percent, rise to 28 percent by 1995. Rural female unemployment rates start out lower at 9 percent, but rise faster, reaching 21 percent by the end of the five-year period. We find that there are no significant differences in overall unemployment rates between urban and rural areas in Egypt, but educated workers, and especially educated females, fare worse in rural areas.

When the search criterion is dropped, unemployment rates change little for males but increase sharply for females, especially for females with less than secondary education. This is an indication of the presence of a significant number of discouraged unemployed among females. Educated females face very high unemployment rates, so it is not surprising that many quit searching for work. The lack of search among uneducated females who are available for work is not surprising either, given their very low probability of being employed for wages. For them, wage employment is basically a very long shot for which it does not pay to search. These results indicate that to get full information on labor availability, it is necessary to present results using both definitions of unemployment.

An analysis of how the share of employment in the public sector has changed over time by sex and educational status confirms the hypothesis that educated females are finding it difficult to find suitable work in the private sector. Older workers (35–64) with secondary education and above are highly concentrated in the public sector, with the concentration among females exceeding 90 percent in both years. The concentration of younger educated males (aged 15-34) in the public sector has dropped significantly from close to 50 percent in 1988 to about 36 percent in 1997, meaning that there was a commensurate increase in private-sector employment. In contrast, the proportion of employed younger females with secondary school degrees or higher in the public sector changed very little if at all in the same period. These patterns indicate that, unlike their male brethren, young educated females, who are no longer being absorbed by the public sector, are joining the ranks of the unemployed rather than being absorbed in the private sector.

Less educated workers who are primarily employed as casual and self-employed workers experience employment inadequacy primarily in the form of underemployment rather than unemployment. Although we cannot offer evidence about invisible underemployment, or low-productivity work, we offer evidence regarding visible underemployment, defined as working fewer hours than a certain norm and being available for more work. About 85 percent of urban males and females are employed in excess of 40 hours per week, compared to only 62 percent for rural males and 42 percent of rural females. Thus, visible underemployment is ostensibly a rural phenomenon in Egypt, even though significant subgroups of urban workers may experience it as well. The number of hours worked per week is strongly associated with the form of employment one engages in. Salaried workers of both sexes work more than 40 hours per week for the most part, and, those who do not, work at least 30 hours. Casual workers and farmers in rural areas have the highest likelihood of being employed less than 30 hours. The significant levels of rural underemployment indicate that even in times of relatively high demand for agricultural labor, there are significant rates of underemployment among hired agricultural workers as well as farmers. The agricultural

labor shortages of the 1970s and early 1980s have clearly disappeared and underemployment is again a problem for low-skilled rural workers, which make up the bulk of the rural poor.

The variable that has by far the largest impact on female labor force participation is educational attainment. Although female participation nearly doubles in urban areas for those with basic education, the big effect occurs at the secondary level. Participation increases by as much as 63 percentage points, or by as much as sevenfold, when the secondary education level is reached. The increase in rural areas at that level is also substantial at nearly 50 percentage points. At those levels of education, female activity rates approach those of males.

A majority of private-sector jobs are in the form of casual wage employment, which appears to be socially unacceptable for educated females in Egypt. With the exception of female secondary school graduates in rural areas, whose employment prospects are very poor, educated males and females have nearly equal probabilities of engaging in salaried work. However, educated males are much more likely than their female counterparts to work as casual wageworkers, self-employed workers, or farmers. A combination of strong social norms and expectations formed over many years of growing public employment mitigate against the participation of educated females in these forms of employment. Our analysis shows, in fact, that the probability of participating in any employment state other than salaried employment for educated females is virtually zero. Since most of the jobs that are now available in the private sector are not salaried, the contraction of public-sector employment has basically translated into the much higher female unemployment rates we have observed over the past few years.

Females with less than a secondary education are essentially marginalized in the labor market. While the vast majority of uneducated females do not participate in any market activity, those who do are confined to the employment states that their educated sisters find unacceptable, namely casual wage work, self-employment, and farming. Younger uneducated females, who are employed, tend to be casual workers and farmers,

and older ones are more likely to be self-employed outside agriculture. A clear exception to the low labor force engagement of uneducated females is female heads of households. They are two and the half times as likely as nonheads to be active in rural areas and nearly twice as likely to be active in urban areas. Since female household heads tend to be older and less educated, their labor market involvement consists primarily of self-employment.

In rural areas, farming seems to serve as a complement to salaried employment for males. Males seem to engage in it relatively early in their life cycle and again after retirement, irrespective of education level. Conversely, salaried employment peaks in the prime working years. Self-employment outside agriculture does not have a strong age pattern for males, but increases significantly with age for females, who continue to be economically active. Self-employment declines sharply, on the other hand, as education levels rise.

Because the patterns described above are due to a complex interaction of past and present policies, social norms, and complex economic trends, they do not lend themselves to simple policy prescriptions. They can, however, inform policymaking by pointing to where the bottlenecks in the labor market are and what groups are most likely to be affected by overall economic policies. For instance, the poor employment prospects faced by females in the private sector can be attributed to a variety of factors, including the limited success in Egypt of labor-intensive export industries that have traditionally hired young female workers in other countries, and the perception by private employers that females have a low attachment to the labor force. Such a low attachment results in high turnover and absenteeism rates and a lack of willingness to work long hours, all of which are deemed undesirable attributes by employers. Furthermore, labor laws impose a number of female-specific mandates on employers, such as generous paid and unpaid maternity leaves, child care provisions, and restrictions on working hours, which increase the cost of hiring women. Combined with social norms that make it difficult for educated young women to engage in casual wage labor or in self-employment, these barriers effectively translate into high and rising female unemployment rates. What to do about

these problems is far from clear. Clearly an economic policy environment that is favorable for export-oriented industries would help. Policymakers should also consider a reduction in the female-specific employer mandates that raise the cost of hiring women. Finally, an argument could be made for programs that support the insertion of young educated females in the labor market by means of temporary training or wage subsidies. These subsidies would be justified as an offset to the additional cost of hiring female labor that is associated with reproduction and child bearing.

The findings of the study also have important implications for the multitude of small and microenterprise finance programs that are currently quite popular in Egypt as a means to alleviate poverty and youth unemployment. We have shown that educated workers currently shun self-employment. Self-employment is either pursued as an entrepreneurial strategy by people who either have access to productive assets or considerable prior experience through a family enterprise or an apprenticeship, or as a survival strategy for people whose personal situation prevents them from engaging in wage employment. In either case, it is not an important source of employment for educated workers seeking employment for the first time. Policies that attempt to create opportunities for self-employment among unemployed graduates through low-cost credit are therefore going against the grain and may be setting up these young people for failure. It may be preferable to provide the available credit to existing established entrepreneurs in the hope of creating employment opportunities for new entrants. On the other hand, microcredit is an appropriate intervention for mature women who for a variety of reasons are constrained from entering the paid labor market but are in need of a source of livelihood. Our analysis has shown that female heads of households have a strong incentive to participate in the labor force, but that they are often confined to self-employment. Supporting the women, who are often poor, with microcredit programs and other sorts of assistance seems highly justified.

Finally, the results of this analysis provide an essential foundation for any attempt to forecast labor force growth and composition in Egypt. When combined with population forecasts by age and sex and school enrollment information, the parameter

estimates we obtained can be used to obtain accurate forecasts of the labor force by age, sex, and educational attainment. These forecasts are an essential component of any human resource development policy.

1. INTRODUCTION

The creation of productive employment for youth has climbed to the top of policy concerns in Egypt in recent years. Past demographic growth is now translating into increasing numbers of young job seekers, which is in turn sorely testing the absorptive capacities of labor markets. This generation of new entrants is more educated than previous generations, but they are finding it hard to capitalize on their education in an increasingly privatized job market. Not too long ago, a secondary education was an assured way to obtain a stable, lifetime job in government or in state-owned enterprises. This is no longer the case. With the gradual suspension of the public employment guarantee to graduates in the 1980s, the ranks of the educated unemployed have swelled.

There is a strong gender dimension to these labor market trends. The evidence that is currently available shows that educated young women are more adversely affected by the transition to a private-sector-led economy. The previous availability of public-sector employment to educated youth has led to high participation rates among educated women. These women are now still seeking employment at high rates, but most of them are not finding suitable employment in the private sector. Unemployment rates among females have therefore increased significantly in the 1990s, at a time when they remained fairly stable for males.

Although the rising unemployment trends are worrisome in their own right, they do not imply much about poverty trends. Recent studies on poverty in Egypt have shown that there is no systematic link between youth unemployment among new entrants and poverty, unless it is the head of the household who is unemployed, and this is quite rare. The absence of linkage between poverty and unemployment is attributable to the fact that

the poor can generally not afford to be unemployed.[1] The form of employment inadequacy they usually experience is underemployment, either of the visible or invisible kind. Visible underemployment usually affects casual wageworkers, who only work intermittently in sectors such as construction and agriculture. Invisible underemployment is likely to affect self-employed workers, small farmers, and workers working for family enterprises at no wage. These are the groups who are more likely to be found among the poor.

The objective of this study is to understand the factors that sort individuals into various employment states. It seeks to elucidate what factors affect who is economically active and who is not, who is working and who is seeking work (unemployed), and, among those working, who is a salaried employee versus a casual wageworker versus a self-employed or family worker. A combination of past policies in education and public-sector hiring and powerful social norms has resulted in a labor market that is strongly segmented along gender and educational lines. It is not surprising therefore that these two factors loom large in analyses of employment status in Egypt. The dominance of agriculture in rural labor markets and the special nature of the agricultural labor market also require disaggregation by urban and rural location. Other factors we consider are age, marital and headship status, region, and, in rural areas, the size of landholdings and ownership of livestock. For rural areas, we extend the analysis by examining the effects of community-level factors, such as the average size of landholdings, the proportion of landless agriculture workers, the average agricultural wage in the village, and the presence of public facilities, such as a village bank, a police station, a high school, or a hospital. For women, we also estimate a "household" model that includes the spouse's employment and educational characteristics, and the presence of children of various age groups.

[1] Egypt uses the currently accepted international definition of unemployment, which stipulates that an individual is unemployed if he or she did not work at all during a one-week reference period, is desiring to work, is available for work, and is actively searching for work. Occasionally, the "search for work" criterion is dropped in instances where there is a great deal of labor surplus. We investigate the effect of dropping the "search" criterion on measured unemployment rates in the sequel.

An examination of the determinants of employment status is relevant for a number of important policy issues. For example, it can suggest whether it makes more sense to provide subsidized loans to unemployed graduates to help them start their own businesses or to direct these subsidies to experienced entrepreneurs who commit to hire more graduates. It can identify specific groups that are disproportionately affected by the transition to a private-sector-led economy, such as educated rural women, who may have few opportunities for private-sector employment. It can also identify the groups whose labor market prospects make them especially vulnerable to poverty, such as casual workers. Finally, by examining the labor market behavior of groups that are highly represented among the poor, such as illiterate workers or female-headed households, the analysis could point to ways to assist these groups in improving their livelihood.

2. REVIEW OF LITERATURE

The two topics that have received the most attention in the literature on employment and labor markets in Egypt are open unemployment and agricultural labor markets. There was also a wave of interest in international labor migration, but interest in that phenomenon has waned as migration flows ebbed. Studies on poverty have also addressed the link between poverty and employment, but their treatment of employment has tended to be cursory.

In one of the earliest studies on open unemployment in Egypt, Mohie-El Din (1977) shows that open unemployment rates were low and declining from the late 1950s to the early 1970s, a period of rapidly expanding public-sector employment. Based on results from the Egyptian Labor Force Sample Survey (LFSS), he shows that unemployment rates decline fairly steadily from 5.7 percent in 1957 to 1.4 percent in 1972. More recent data based on the same source show that 1972 was a trough and the falling trend has reversed since then, as the country began gradually moving away from a

public-sector-led employment strategy. Fergany (1991) shows that unemployment rates have risen steadily through the 1970s and early 1980s to reach close to 6 percent in 1983, as measured by the LFSS. Although unemployment rates measured by the Population Census have generally been higher than those reported by the LFSS, they also show a significant increase from the 1976 to 1986 censuses. More recently, the comparability of times series trends in unemployment has been hampered by changes in the LFSS that attempt to do a better job in capturing female employment in agriculture. The changes made have instead resulted in highly unstable estimates of the female labor force and therefore of the female unemployment rate. After attempting to adjust for these changes, Assaad (1997a) estimates that open unemployment has continued to rise steadily from 6 percent in 1984 to 10 percent in 1995. Thus the period of economic liberalization, which started in 1974 with President Sadat's *infitah* or open-door policies, has been characterized by a secular increase in unemployment rates, despite widely different economic growth rates across its sub-periods.

The change in the character of unemployment in Egypt since 1972 was not limited to the trend reversal discussed above. The composition of the unemployed has also been dramatically altered. In the early years, unemployment rates were in inverse relation to education. For instance, the 1961 LFSS reports an unemployment rate of 7.4 percent for those with less than intermediate (secondary) education, 5.8 percent for those with intermediate education, and 3.2 percent for university education (Mohie-El Din 1977). By 1976, the current pattern had already emerged whereby the highest unemployment rates are recorded for those with intermediate education, followed by those with university education, and finally by those with less than intermediate education (Fergany 1991). The increasing share of the educated among the unemployed has been associated with a rising share of new entrants among the unemployed, which has risen from 78 percent in 1972 to over 90 percent in 1984 (Fergany 1991).

The existing literature thus shows that open unemployment in Egypt measures labor underutilization in a relatively narrow segment of the labor force, namely young

educated new entrants who are eligible for guaranteed public-sector employment. Unemployment started to rise appreciably with the slowdown in public-sector hiring, which began in the early 1980s by gradually extending the waiting period to obtain a public-sector job after graduation. Open unemployment is highest among vocational secondary school (intermediate) graduates, the lowest educational level at which eligibility for the public employment guarantee takes effect. Since one would expect an excessive number of students to try to achieve this threshold level to become eligible for the employment guarantee, it is not surprising that the greatest labor market distortion occurs there (see Assaad 1997b).

Radwan (1997) aptly characterizes the evolution of the Egyptian labor market from the 1960s to the 1990s as follows. The 1960s and 1970s saw a transition from a Lewis-type labor surplus economy, where labor surplus manifests itself primarily as underemployment of low-skill labor in agriculture, to a stage where job creation was led by the growth of the public sector and external migration. As these two sources of labor absorption lost steam in the 1980s with little to replace them, the labor market moved to a stage of high unemployment, compounded by demographic pressures from a rapidly growing working age population. We now seem to be on the verge on a new stage where the private formal and informal sectors are becoming the main engines of employment creation. However, because these two sectors appear to be virtually closed to women seeking paid employment, unemployment rates among young educated females are continuing to rise sharply at a time when unemployment rates among young educated males have stabilized and may even be falling slightly.

There is a long history of research on agricultural labor markets in Egypt. Much of the early literature was about wage formation and the relative merits of the surplus labor hypothesis and neoclassical views of the labor market (Hansen, 1969). Most of the studies undertaken in the late 1970s and early 1980s were concerned with the perceived shortage of agricultural labor and policy responses to these shortages (Richards and Nagaar 1983; Commander 1987). The main concern of these studies has been the pattern

of seasonal labor demand in agriculture and the relative role of adult male labor, female labor, and child labor in meeting these demands. Hansen (1985) argues that the agriculture sector has traditionally acted as a buffer for the Egyptian labor market, absorbing labor in times of slow growth and releasing it when demand conditions in the rest of the economy or in the regional labor market improve. The more recent literature focuses on the response of the agricultural labor market, and agricultural wages, in particular, to labor supply shocks caused by the reversal of international migration flows as oil prices collapsed after 1986 (Richards 1994; Datt and Olmsted 1998). With the exception of Radwan and Lee (1986) and Commander (1987), studies on agricultural labor markets in Egypt have relied on aggregate time series data on agricultural wages and employment. They have not, therefore, set agricultural employment in the context of individual and household decisionmaking or in the context of employment in other sectors of the economy.

Studies on poverty in Egypt have not established a strong link between poverty and either labor force participation or unemployment. However, they do find a strong link between poverty and the form that employment takes. According to Datt, Jolliffe, and Sharma (1998), participation rates among the poor and nonpoor are virtually the same. El-Laithy, El-Khawaga, and Riad (1998, 44) also find that heads of poor households are more likely to be working than those of nonpoor households. Even though lower activity rates in general are not systematically linked to poverty, low activity rates among household heads are. According to the *Egypt Human Development Report 1996*, households headed by someone who is "out of the labor force" had the highest incidences of poverty in 1995/96 (over 50 percent) and constituted half the people in poverty (INP 1996, 34).

El-Laithy, El-Khawaga, and Riad (1998) find that the incidence of poverty among unemployed new entrants, who form the vast majority of the unemployed, are below the national average incidence of poverty. The unemployed with previous job experience have much higher incidence of poverty, but they represent a tiny fraction of the

population in poverty. Households headed by an unemployed person also have a very high incidence of poverty, but they typically constituted a very small fraction of all households as well. The next highest incidence of poverty by employment status is among nonwage family workers. Their results indicate that although wage and salary earners have a relatively low incidence of poverty, they constitute over half of the economically active poor. El-Laithy, El-Khawaga, and Riad are unable to distinguish from their data the difference between regular and casual wageworkers. This distinction has proven crucial in identifying the poor in other studies. According to Datt, Jolliffe, and Sharma (1998), casual wage laborers are strongly concentrated among the poor in both male- and female-headed households. Regular salaried employment, on the other hand, has a strong negative association with poverty.

Open unemployment in Egypt is essentially a phenomenon that affects groups that have an expectation of finding regular salaried employment. The poor, if they are able to work, can typically not afford to search for such employment for extended periods of time and, in any case, have little expectations to obtain it. They typically engage in casual wage work or create their own source of livelihood through self-employment. Therefore, poverty is much more likely to be associated with underemployment rather than unemployment. If someone is unable to work because of illness, disability, or age, or, as in the case of many women, because of social barriers or heavy household responsibilities, they are generally classified as “out of the labor force” rather than as unemployed.

3. TRENDS IN PARTICIPATION, EMPLOYMENT, AND UNEMPLOYMENT IN THE 1990s

Reliable long-term trends of labor force participation by sex are hard to obtain in Egypt because of frequent methodological changes in the LFSS, the main source of data on the subject. The changes relate primarily to the measurement of female participation in

agriculture and informal home-based activities. Since 1984, an effort has been made to improve the enumeration of women engaged in these activities, but these efforts have been inconsistent over time, leading to sharp fluctuations in the female labor force participation rate over the years. Furthermore, no allowance was made to recover the previous narrower definition of the labor force to allow for comparisons over time. The problem was further compounded when it was decided, since 1988, to include in the definition of the labor force individuals (mostly women) who engage in subsistence agriculture and animal husbandry. International recommendations have been somewhat unclear as to whether to treat these persons as economically active.[2] Although the LFSS definition stipulates that these individuals be treated as part of the economically active population, this definition appears to be applied inconsistently over time.

Assaad (1997a) attempts to adjust for the inconsistency in measuring the female labor force in agriculture in the LFSS by fixing its proportion in the total female working age population to the 1990 level. This results in a rising trend in female participation rates in both urban and rural areas. Based on these estimates, participation rates for females 12-64 increased from 11 percent in 1977 to 18 percent in 1995 in urban areas and from 20 to 27 percent in rural areas. These estimates are likely to slightly overestimate the increase in female participation rates because female participation in agriculture is expected to decline as education levels rise. In the same period, male participation rates for the same age group exhibited a slow decline from 68 to 63 percent in urban areas and from 79 to 68 percent in rural areas. This declining trend is mostly due to increased school enrollment among young males and to a lesser extent to earlier withdrawal for the labor

[2] International recommendations suggest that these individuals be treated as economically active if their production constitutes an important share of the household's consumption (Anker 1990). This criterion has proven difficult to apply in Egyptian labor force surveys. The current definition of employment used in these surveys considers any individuals engaged in the production or processing of primary commodities (agriculture, fishing, hunting, and mining) for at least one hour a week to be economically active, regardless of whether the activity is for the purpose of own consumption or market exchange and irrespective of the activity's contribution to household consumption. The EIHS 1997 survey used for most of the subsequent analysis treats an individual as employed only if they are engaged in an activity for purposes of market exchange. As a result of these and other differences, the results of the EIHS 1997 on employment are generally not fully comparable to those of the LFSS.

force among older males. The opposing trends in male and female participation rates result in a slight decline of the overall participation rate. Assaad (1997a) concludes that the labor force growth rate at 3 percent is just under that of the working age population, which was 3.2 percent per year from 1990 to 1995.

Table 1 shows the trends in labor force participation, employment, and unemployment in the 1990s as reported by the LFSS for the working age population (15–64).[3] Activity rates for males appear to be stable in urban areas, at about 70 percent, and falling slightly in rural areas from 78 to 76 percent. Activity rates among urban females are much lower, but also stable, at about 20 percent over the five-year period. Although activity rates among rural females seem to be falling sharply, this trend must be considered doubtful because of the inconsistent measurement of females engaged in subsistence agriculture and animal husbandry discussed above.

Unemployment rates for males were fairly stable in the first half of the 1990s. The estimates presented in Table 1 indicate that the male unemployment rate in urban areas peaked in 1993 at 8.4 percent and may now be declining. However, the male unemployment rate continues to rise in rural areas. Rural male unemployment rates start out about a third lower than those of urban males in 1990, but catch up with them by 1995. Because of the measurement problem relating to the female labor force—the denominator of the unemployment rate, female unemployment trends are less reliable. However, the LFSS reports female unemployment rates that are about three times higher than those of males, with the gap increasing over time. Unemployment rates for urban females, which start out very high in 1990 at 25 percent, rise to 28 percent by 1995. Rural female unemployment rates start out lower at 9 percent, but rise faster, reaching 21 percent by the end of the five-year period.[4]

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[3] 1995 is the last year for which Labor Force Sample Survey (LFSS) results are currently available.

[4] Although the end-of-period unemployment rates may be somewhat inflated by the seemingly growing undercounting of rural females engaged in subsistence activities, a strong upward trend in unemployment is clearly present.

Because LFSS results are not available after 1995, there are no comparable estimates after that date. However, it may still be useful to compare the LFSS 1995 results with those of the Egypt Integrated Household Survey (EIHS) 1997, which is the main source of data for this paper. It should be kept in mind however that the two data sources were conducted using different methodologies and are, therefore, not strictly comparable. Table 2 presents labor force participation rates as measured in a special round of the LFSS conducted in October 1988, the 1995 round of the LFSS, and the EIHS 1997. The October 1988 LFSS used a definition of participation that encompassed all subsistence activities and applied this definition rigorously. LFSS 1995 uses a similar definition, but the definition was not applied with the same rigor. EIHS 1997 uses a definition that encompasses only production for the purpose of market exchange. The difference in male labor force participation across the three instruments is not very large. They all find that rural participation rates are higher than urban rates, but the difference is smallest in the EIHS 1997. When it comes to female participation rates, however, the differences are dramatic, especially in rural areas. While both LFSS rounds find that rural female participation rates are higher than urban rates, the EIHS 1997 finds the opposite. Depending on the definitions used and the extent to which they are applied, rural female participation rates can vary from 17 percent to 54 percent. These differences lead to huge variations in the estimated size of the female labor force. This, in turn, affects all the estimates that are computed as proportions of the labor force or of employment, from the unemployment rate, to the relative distribution of employment across employment states, to the distribution of employment across sectors of economic activity and sectors of ownership. Extreme care should therefore be used in comparing any of these aggregated ratios across the different instruments.

Table 3 presents estimates of the unemployment rate by sex, education, and urban rural status according to the 1995 LFSS and EIHS 1997. To show the sensitivity of unemployment estimates to the definition of unemployment used, we present two different estimates for 1997. The first uses the same definition of unemployment as the

LFSS, namely no work at all in the reference week, desire for and readiness to work, and active search for work. The second maintains the first two criteria but drops the active search criterion.[5] Besides the usual disaggregation by sex and urban/rural status, we also disaggregate by educational attainment. Because of the long-term effects of the public employment guarantee for graduates, which comes into effect at the secondary level of education, the main dividing line along the educational axis is the attainment of a secondary degree, hence our stress on the distinction between below secondary and secondary and above.[6]

We note from Table 3 that, for those with less than secondary education, unemployment rates are much higher in the EIHS than in the LFSS, even when the same definition of unemployment is used. These discrepancies are due to at least two differences in data collection methodology. The first is the strict adherence of LFSS to the criterion of not a single hour of work during the reference week for a person to be counted as unemployed. With no access to unemployment insurance, this is a tough criterion to meet for people with less than secondary education, who often work intermittently rather than not at all. Although the EIHS ostensibly uses the same definition, it may not have been emphasized as much during the training of surveyors, thus the higher reported unemployment rates for that group. The second difference is the different ways of measuring the labor force alluded to above, which affects the denominator of the unemployment rate. The differences in the measurement of the labor force involve primarily women who are engaged in subsistence agriculture and home-based activities. Since these women are likely to have lower educational levels, the

[5] An estimate of unemployment without the search criterion is not obtainable from the basic tabulations provided by the Central Agency for Public Mobilization and Statistics (CAPMAS) for LFSS 1995 and cannot be computed since the micro data are not made available to researchers.

[6] Among secondary school graduates, the employment guarantee covers only those who obtain a vocational secondary degree, which is considered a terminal degree in Egypt. Those who obtain general secondary degrees tend to go on toward higher education and therefore constitute a very small fraction of secondary school graduates who are economically active.

discrepancies will, therefore, emerge mainly at these levels, and more so for rural areas than in urban areas. This is, in fact, what we observe.

Unemployment rates for those with secondary education are significantly higher than for those with less than secondary education in both surveys, but in this case, they tend to be lower in the EIHS than in the LFSS, when the same definition of unemployment is used. Again the differences are likely to be due to measurement rather than changes in the underlying phenomenon. Both surveys report alarmingly high unemployment rates for educated females, especially those residing in rural areas.

The two surveys provide somewhat contradictory evidence about the urban/rural pattern of unemployment. LFSS 1995 reports similar unemployment rates for men in urban and rural areas, but higher urban unemployment rates for females. The EIHS 1997, on the other hand, reports similar urban-rural unemployment rates for females and higher urban unemployment rates for males. We can thus conclude that there are no significant differences in overall unemployment rates between urban and rural areas in Egypt, but educated workers, and especially educated females, fare worse in rural areas.

When the search criterion is dropped, unemployment rates change little for males but increase sharply for females, especially for females with less than a secondary education. This is an indication of the presence of a significant number of discouraged unemployed among females. Educated females face very high unemployment rates, so it is not surprising that many quit searching for work. The lack of search among uneducated females who are available for work is not surprising either, given their very low probability of being employed for wages. For them, wage employment is basically a very long shot for which it does not pay to search. These results indicate that to get full information on labor availability, it is necessary to present results using both definitions of unemployment.

The pattern of open unemployment discussed above indicates that educated females in general, and rural educated females in particular, are facing increasing difficulty in finding acceptable work. The effective suspension of the public-sector

employment guarantee for graduates in the mid-to-late 1980s seems to have disproportionately affected educated female new entrants seeking wage employment. There are strong indications that although the private economy is increasingly able to absorb young educated male new entrants, most of whom would have joined the public sector in the past, young women are still unable to find suitable jobs in the private sector.

The results shown in Table 4 provide strong evidence to support this contention. The table shows the share of the public sector in employment according to LFSS 1988 and EIHS 1997, disaggregated by sex, age, educational attainment, and urban/rural location. Although there are measurement differences across the two instruments, these differences involve primarily female workers with low levels of education. Employment data for educated workers across the two surveys should therefore be fairly comparable. As shown in the table, older workers (35–64) with secondary education and above are highly concentrated in the public sector, with the concentration among females exceeding 90 percent in both years. The concentration of younger educated males (aged 15–34) in the public sector has dropped significantly from close to 50 percent in 1988 to about 36 percent in 1997, meaning that there was a commensurate increase in private sector employment. In contrast, the proportion of employed younger females with secondary school degrees or higher in the public sector changed very little, if at all, in the same period. These figures indicate that, unlike their male brethren, young educated females, who are no longer being absorbed by the public sector, are joining the ranks of the unemployed rather than being absorbed in the private sector.

4. PATTERNS OF PARTICIPATION, EMPLOYMENT, AND UNEMPLOYMENT IN 1997

We now move to the analysis of the patterns of participation, employment, and unemployment in Egypt as captured by the EIHS 1997. The EIHS 1997 was carried out in the period from March to May 1997 on a sample of 2,500 households in 125 clusters.

The sample includes 69 rural clusters and 56 urban clusters, each containing 20 households.[7] In this section, we rely primarily on a graphical presentation of results with occasional use of cross-tabulations to present the patterns of participation and employment along the major dimensions of age and educational attainment, with disaggregation by sex and urban/rural status. In the following section, we present the full multivariate analysis that examines a number of other determinants as well.

Figures 1 to 12 show labor force participation rates, unemployment rates, and probability of employment in various employment states plotted against age and educational attainment by sex and urban/rural status.[8] In all the figures, the dashed line connects the proportion of individuals who are participating at each age or educational level, which we refer to in the figure as "actual." The dots represent the probability of participation for each individual in the relevant subsample, as predicted by the baseline econometric models discussed in the sequel. The solid line, which we refer to as "predicted," connects the median values of these predictions at each age and educational level.[9] In general the "actual" and "predicted" estimates are similar, except in cells where there are few observations. The male models generally do a better job of predicting, because of the larger number of active males in the sample.

Figure 1 shows that male participation in the labor force exhibits the typical age pattern for males. There is a sharp increase in participation after age 20, reflecting the completion of education, a stabilization of participation at close to 100 percent for the prime working ages, and a decline in participation at about age 50. The lower urban participation rates noted above can be seen to be primarily due to a slower increase in participation before age 20 in urban areas and a much more rapid decline in participation after age 50. The latter trend is probably due to the larger fraction of urban jobs covered

[7] The survey and sample design are discussed in more detail in Datt, Jolliffe, and Sharma (1998).

[8] In this all subsequent analysis, the definition of unemployment, which does not require an active search, is used.

[9] Because age is plotted as a continuous variable, we chose to connect the age-specific rates and the median predicted values with cubic splines rather than straight lines.

by retirement pensions that allow males to withdraw from the labor force at a younger age. Urban female participation rates also exhibit a strong age pattern, with participation peaking at about age 25 and declining thereafter. As noted below, a large fraction of these young active females are actually seeking work rather than working. The pattern of dots shows that some urban females continue to have very high predicted participation rates, well into their fifties, but the majority drop out of the labor force when they reach the age of marriage. Rural female participation rates vary less by age and are generally much lower than those of urban females.

Figure 2 shows the pattern of participation by educational attainment. Male participation rates are high at both ends of the educational distribution in both urban and rural areas. They drop only at levels of education, such as primary, preparatory, and general secondary (marked "high") in the figure, where continuing education is possible, indicating that the drop is due to school enrollment. In fact, if participation rates are calculated for the out-of-school male population only, participation rates are above 80 percent for all levels of schooling and increase slightly with schooling. For females, participation rates exhibit a highly dichotomous structure. Participation rates among females with less than secondary schooling or with general secondary schooling are well below 15 percent.[10] With the completion of technical secondary schooling ("tech" in the figure), however, they jump to over 60 percent and continue rising with higher educational levels. Again as with young women, a large fraction of the educated women who participate are actually seeking work rather than working.

Figure 3 confirms that young males have a much easier time finding work than young females. The latter have unemployment rates that are well above 50 percent until age 25 or so. For both males and females, unemployment rates drop significantly after that age and remain low thereafter, but the drop is slower in rural areas. The pattern of unemployment by educational attainment shown in Figure 4 shows that unemployment

[10] The multivariate model predicts high participation for general secondary schooling because we had to lump those with general secondary with the much larger vocational secondary schooling category to avoid predicting nonparticipation perfectly.

rates are highest at intermediate levels of education. Unemployment rates are highest for those with technical secondary education and non-university higher education ("higher" in the figure). This pattern is especially pronounced for females where unemployment rates at these levels exceed 50 percent in rural areas. The suspension of government hiring under the employment guarantee scheme has hit this group of female secondary and postsecondary graduates particularly hard. The possibility of public-sector employment in the past has raised the expectation of regular salaried employment among this group, so that they are now participating at rates comparable to those of their male counterparts. These expectations of employment remain essentially unfulfilled, however, with a large fraction of those seeking work unable to find suitable employment.[11] Unemployment rates are also high for females with low levels of education, especially in rural areas, but as we have seen earlier, the women tend not to be actively seeking for work, and hence do not show up in official unemployment statistics.

The pattern of unemployment shown in Figures 3 and 4 confirms that open unemployment in Egypt is essentially a phenomenon that affects educated new entrants to the labor market, and, increasingly, female rather than male new entrants. Educated workers expect to get regular full-time salaried work and are therefore willing to wait for it. Less educated workers are much less likely to ever find such work. They either do not search for such work and are only detected as unemployment when the search criterion is dropped or end up in casual wage work or self-employment, where they are much more likely to experience underemployment rather than unemployment.

In the subsequent analysis of the determinants of employment status for those who are employed, we distinguish between salaried workers, casual wageworkers, farmers, and self-employed workers. The latter two groups include those who work for family enterprises at no wage. Salaried workers can be further subdivided into those who work for the public and private sectors. As shown in Table 5, public salaried workers

[11] See Assaad (1997b) for a discussion of why technical secondary school graduates are more adversely affected by the suspension of the employment guarantee than are other graduates.

constitute the largest class of workers in urban areas, making up 43 percent of male employment and up to 70 percent of female employment there. Although public employment makes up a smaller share of total employment in rural areas, it constitutes a larger share of salaried employment there.

Private salaried work, which is presumably the only kind of work that would constitute an acceptable alternative to public salaried work from the point of view of graduates, is still very limited in Egypt. It constitutes about 10 percent of employment in urban areas and less than 6 percent of employment in rural areas. It makes up less than a quarter of salaried employment for males and 11 percent of salaried employment for females. With such small proportions of private salaried employment, it was not possible due to sample size considerations to separate public and private salaried employment in the models we ran. Private wage employment consists primarily of casual employment. Such employment makes up nearly a quarter of all employment for males in either urban or rural areas and a fifth of female employment in rural areas.

As shown in Figure 5, the probability of salaried employment increases with age for both males and females up to age 35. From 35 to 55, it continues increasing for urban males, stabilizes for urban females, and declines slowly for rural males.[12] In all cases, it declines significantly after age 55, possibly somewhat earlier for rural females.[13] There is also an increasing likelihood of salaried work with higher educational attainment (Figure 6).[14] Rural women with less than a primary education, who constitute 68 percent of rural women, have virtually no prospects for salaried work. Rural men with less than a preparatory education also have limited chances for salaried work. It is noteworthy,

[12] There appears to be no age pattern in the predicted probabilities for rural females, but the sample of salaried female workers in rural areas is so small as not to allow reliable predictions.

[13] The decline at that age is not noticeable in the predictions for females because again, due to scarce cells, we had to lump females over 55 with those 45 to 54.

[14] The model predicts somewhat lower rates of salaried employment at intermediate levels of education than the rates derived directly from the sample. These are not likely to be meaningful because, due to sample size considerations, primary and preparatory schooling and general secondary and technical secondary schooling are lumped together in the model.

however, that rates of salaried employment are nearly equal for urban males and females. This does not mean, of course, that there are equal numbers of male and female salaried employees in urban areas, but that once the decision to be active has been made, the probability of obtaining salaried employment is about the same. This is probably due to the continuing dominance of the public-sector's role in providing salaried work and the fact that the public sector does not discriminate in its hiring along gender lines. However, as that dominance starts to erode, we would expect to see rates of salaried employment among women decline.

As shown in Figure 7, casual employment declines steadily with age for males, but remains significant even at older ages in both urban and rural areas. This means that a significant proportion of mature male heads of households remain casual workers throughout their working lives. The households of these mature casual workers have been shown in other studies to be the most vulnerable to poverty. Rates of casual employment among females are generally low and exhibit no conclusive pattern with age. The pattern of casual employment with education is just the reverse of that of salaried employment (Figure 8). The probability of casual employment is invariant to education up to the preparatory level and declines precipitously after that, to the point of being virtually absent at the secondary level and higher for females and at the university level for males. Rates of casual employment are fairly similar for males in urban and rural areas, but are significantly higher for rural than for urban females. The pattern of casual employment with education are in line with the results of other studies that show a strong connection between poverty and educational attainment on one side and between poverty and casual employment on the other. Failing to distinguish between salaried workers and casual workers among wageworkers, as is common in many studies, ends up obscuring one of the most important labor market determinants of poverty for employed individuals.

The third form of employment we consider is self-employment outside agriculture.[15] As shown in Figure 9, such employment has a weak age pattern for males, but a strong one for females. In fact, self-employment is the dominant form of employment for older females in both urban and rural areas and is practically nonexistent for young females. Among males, it increases slightly with age, but remains generally quite low overall, especially in rural areas.[16] As shown in Figure 10, self-employment outside agriculture declines significantly with education for both males and females in urban areas and for females in rural areas. Among rural males, it is low across the span of educational attainment, with a slight declining trend. Self-employment outside agriculture is virtually nonexistent among females with a vocational secondary education or higher.[17] We conclude that educated workers of either sex have a very low likelihood of establishing their own businesses as independent workers or even working as unpaid workers in their own families' enterprises.

Finally, we consider how employment in farming in rural areas varies with age and education. Figure 11 suggests a U-shaped relationship with age. Young men and women and workers older than 50 are more likely to be farmers than prime age workers. Like casual wage work, the probability of engaging in farming is also inversely related to education for both males and females (Figure 12). Again, by the time a woman has achieved secondary education, her chance of being engaged in farming declines to close to zero. Outside salaried work, which is becoming more difficult to obtain with the contraction of public-sector employment, there is little that educated rural females can do in terms of employment. A combination of social norms and expectations driven by past

[15] Actually in urban areas, self-employment in agriculture is included but is an insignificant proportion of urban self-employment.

[16] It should be kept in mind that self-employment as defined here includes working for the family at no wage. If only independent self-employment were considered, the rate of self-employment among younger workers would be even lower.

[17] The relatively high self-employment rate among women with generally secondary education must be discounted somewhat due to small sample sizes, but it may indicate participation in family businesses by women who would normally be college-bound.

government hiring practices seems to preclude them from participating in either casual work, self-employment, or farming. It is no wonder therefore that their unemployment rates have been rising sharply in recent years.

Table 6 shows how the different forms of employment map into the industry of employment. About 40 percent of public salaried male workers are in the service industry, which is how government services are classified. The dominant industry for private salaried male workers, on the other hand, is manufacturing. Casual workers are more equally distributed across industries, but the bulk of them are in agriculture, construction, and manufacturing. The concentration of casual workers in construction and agriculture explains the high incidence of poverty found among workers in these two sectors in other studies (El-Laithy and Osman 1996; Datt, Jolliffe, and Sharma 1998). Excluding farming, about two-thirds of self-employed males are in the manufacturing, trade, or transport industries.

Despite the presence of many scarce cells in the table, a similar pattern on the whole can be discerned for females. The majority of public salaried females are government employees and therefore engaged in the services sector. Private-salaried females are concentrated in the services sector rather than in manufacturing. Casual female workers are concentrated primarily in agriculture, but also in manufacturing and trade. Self-employed females are found primarily in trade. All in all, agriculture and (government) services are the two most important employers of female labor, followed by trade and manufacturing, which employ about 10 percent of females each. There is minimal female presence in construction, which is a predominantly male industry in Egypt.

We suggested earlier that less educated workers who are primarily employed as casual and self-employed workers experience employment inadequacy primarily in the form of underemployment rather than unemployment. Although we cannot offer evidence about invisible underemployment, or low-productivity work, we can offer some evidence regarding visible underemployment, defined as working fewer hours than a certain norm

and being available for more work. As shown in Table 7, about 85 percent of urban males and females are employed in excess of 40 hours per week, compared to only 62 percent for rural males and 42 percent of rural females. Thus, visible underemployment is ostensibly a rural phenomenon in Egypt, even though significant subgroups of urban workers may experience it as well. The number of hours worked per week is strongly associated with the form of employment one engages in. Salaried workers of both sexes work more than 40 hours per week for the most part, and, those who do not, work at least 30 hours. Casual workers and farmers in rural areas have the highest likelihood of being employed less than 30 hours. These results suggest that because of lower fixed costs of employment in rural areas, there is more possibility to vary the intensive margin of labor supply (the number of hours of work) as compared to urban areas, where hours of labor supply may be more fixed. However, it may also mean that rural workers simply do not find enough work to keep them fully occupied. From this evidence, all we can conclude is that the potential for visible underemployment is higher in rural areas, but we cannot determine whether it is, in fact, underemployment.

We investigate the underemployment hypothesis further by combining the hours of work information with information on whether the worker is available for more work. Table 8 classifies workers into part-time not available, part-time available, and full-time workers. Part-time workers are defined as those who work less than 30 hours per week. Salaried workers, either in the public or private sectors, are nearly always employed full-time. Eight percent of male casual workers and 5 percent of self-employed workers in urban areas are underemployed, in the sense that they are not getting as much work as they wish. In rural areas, 20 percent of male casual workers and 27 percent of female casual workers are underemployed.[18] Among farmers, the proportion of underemployed workers is lower, at about 11-12 percent, but nonetheless significant. These significant

[18] We should note that the EIHS was carried out from March to May. This period relatively high demand for agricultural labor because of the *shitwi* (winter) harvest season (April and May), which is associated with enhanced demand for male labor. The *sifi* (summer) harvest season (September, October, November) is associated with enhanced demand for female and child labor (Commander, 1987: 66-67).

levels of rural underemployment indicate that even in times of relatively high demand for agricultural labor, there are significant rates of underemployment among hired agricultural workers as well as farmers. The agricultural labor shortages of the 1970s and early 1980s have clearly disappeared and underemployment is again a problem for low-skilled rural workers, which make up the bulk of the rural poor.

5. MULTIVARIATE ANALYSIS OF THE DETERMINANTS OF PARTICIPATION AND EMPLOYMENT STATUS

In the preceding analysis we explored how participation and employment status vary with age, education, urban/rural location, and sex by relying primarily on descriptive techniques. We now moved to a multivariate analysis of the determinants of these labor market states, bringing additional explanatory variables into the analysis. All the analyses in this section are disaggregated by sex and urban/rural location, as was the case in the preceding section. The EIHS, being a multipurpose household survey, includes a wide variety of modules on various aspects of household life. In this analysis we relied primarily on the household roster that contains basic demographic information, and the employment, education, and farming modules. For rural communities, we also make use of community-level information gathered by means of a concurrent community survey.

We rely essentially on two econometric models to predict the probability of participation in various employment states. The first is a binomial logit model that explains participation in the labor force by explaining the allocation of individuals to an active and inactive state. The second is a multinomial logit model that explains the allocation of labor force participants into unemployment, salaried work, casual wage work, and self-employment.[19] We conduct separate regressions for the urban and rural male subsamples and for the urban and rural female subsamples. Self-employed workers

[19] Hausmann tests confirmed that the assumption of the independence of irrelevant alternatives, implied by the multinomial logit model, was satisfied for these outcomes.

in the rural sample are further subdivided into farmers and those who are self-employed outside agriculture. Salaried work is the base outcome in the multinomial logit models. The standard errors for all the regressions are corrected to account for the cluster design of the EIHS.[20]

There are three variants of each of the two models discussed above, depending on the explanatory variables that are included in them. The baseline model, the household model (for females), and the community model (for rural areas). The baseline model includes region dummies, several age category dummies, marital and headship status dummies, and educational attainment dummies. In urban areas the region dummies are for Metropolitan governorates (Cairo, Alexandria, and Suez) and urban Upper Egypt. In rural areas, the only regional dummy is rural Upper Egypt. The baseline model for rural areas also includes a dummy indicating whether the household owns livestock and a variable indicating the amount of land held by the household in *qirats*.[21] In addition to the variables in the baseline model, the household model, which only applies to the female subsample, includes dummies indicating whether the woman has children in three age groups (under two, from 3 to 6, and from 7 to 11), and dummies indicating the employment and educational status of her husband, if she is married. Finally, the community model, which applies to the rural subsample, augments the baseline model with the log average agricultural wage in the village, the proportion of households who are landless, and the average size of landholdings for households with land in the village. All three of these community-level variables are calculated as cluster averages from the EIHS household-level sample. Two additional variables are obtained from the rural community survey data. The first, which we call the social capital index, marks the presence of on or more of the following public services: a police station, a secondary school, and a public hospital. The second, which we call the economic capital index,

[20] We used the *svy* routines of STATA 6.0 to obtain the correct standard errors.

[21] One *qirat* is equal to 175.03 meters^2. There are 24 *qirats* in one *feddan*. One *feddan* is equal to 1.038 acres or 0.42 hectares.

indicates the presence of one or more of the following: a market center, an agricultural extension office, a village bank, and a veterinary clinic. In each case a value of one indicates the presence of all the services, a value of zero indicates the presence of none of the services, and intermediate values indicate the presence of one or more of the services.[22]

In the baseline urban model, the reference individual is either a male or female who lives in Lower Egypt, has no formal schooling, is 35 to 44 years old, is married and is not a household head. In the baseline rural model, the reference individual has the same characteristics but also lives in a household that owns no livestock and that has the average amount of land. In the household model, the reference female has the same characteristics but in addition has no children, her husband is a not a salaried worker and has less than a primary schooling certificate. Finally in the community model, the same definition of reference individual applies as in the rural baseline model with the community-level variables set at their sample means.

Table 9 presents the means of the variables used in the regressions distributed by gender, urban/rural status and employment status. Rather than discuss these statistics in details, we simply highlight the most important features. The vast majority of males who are outside the labor force are under 25 years of age, unmarried, and have completed basic education.[23] These are basically males who are still enrolled in school. In contrast, the majority of females who are out of the labor force are spread across the entire age distribution and are more likely to be married and to have had no formal schooling.

Unemployed females, on the other hand, look much like unemployed males. The majority is under 25, unmarried, with more than secondary education. In terms of their educational profile, they look most like salaried workers rather than self-employed or casual workers. This confirms once more that unemployment in Egypt consists, for the

[22] We owe these indices to Datt and Jolliffe (1999).

[23] Completion of basic education means completion of either primary (6 years) or preparatory (9 years) education.

most part, of educated youth searching for regular salaried employment. However, there are important exceptions to this rule. About 17 percent of rural and 14 percent of urban unemployed males are heads of households. Moreover, a significant proportion of unemployed males (21-22 percent) has not achieved basic education. Among females, 4 to 5 percent of the unemployed are household heads and a significant proportion of rural unemployed females (23 percent) have less than a basic education. Past studies have shown that the combination of unemployment and household headship, on the one hand, and low educational achievement, on the other, is a strong indicator of poverty (El-Laithy and Osman 1996).

The summary statistics also show that salaried workers are the most educated of all. This is true for males and females, rural and urban areas alike. As indicated above, the majority of salaried jobs are in the public sector and education has been the main form of access to that sector. Among employed females, educational attainment determines allocation into salaried work, on the one hand, and self-employment and farming, on the other, with close to perfect certainty. Eighty-six percent of salaried females have secondary education or above. Conversely, 61 percent of urban and 84 percent of rural self-employed females have not achieved basic education. The same is true for 87 percent of female farmers in rural areas.

As mentioned earlier, the presence of livestock or the amount of land held by the household is often a significant factor in determining employment status. Table 9 shows that male farmers are twice as likely as casual workers and salaried workers to own livestock. Female farmers are three times as likely as salaried females and more than seven times as likely as self-employed females to belong to households that own livestock. As expected, farmers of both sexes also belong to households that cultivate significantly more land than other groups.

A few variables are so strongly determinant of employment status that there were no observations for them in some employment states, especially in the female sample of active individuals, which is relatively small. For example, there were no rural female

casual workers with husbands with a secondary education or above, no rural self-employed females who are members of households that own livestock or land, and no urban female casual workers with children under two. Because the dummy variables representing these characteristics predict these employment states perfectly in the sample, we had to either drop the variable or merge it with other states of the same variable in some of the regression models.

THE DETERMINANTS OF LABOR FORCE PARTICIPATION AND EMPLOYMENT STATUS FOR MALES

We begin by examining the factors that affect male labor force participation. The marginal effects from the binomial logit participation equation for males are shown in Table 10. The marginal effects are computed for a reference individual who is a male 35 to 44 years old, unmarried, not a household head, has never gone to school, and lives in Lower Egypt.[24] The baseline model indicates that the reference individual has a probability of 96 percent in urban areas and 89 percent in rural areas of being economically active. Males with the reference characteristics residing in urban Lower Egypt (the reference category) have an activity rate that is 2.5 percentage points higher than those residing in urban Upper Egypt. In both urban and rural areas, the probability of participation is lower by 16 percentage points for the 15 to 24 age group. It also falls by 20 percentage points in urban areas and 31 percentage points in rural areas once the individual exceeds age 55. This result is somewhat different from the descriptive results discussed above, which showed that without controlling for other covariates, male participation fell faster in urban areas than in rural areas at older ages.

Unmarried males are significantly less likely to participate and heads of households are more likely to participate in rural areas. The direction of causation in this

[24] In this and all subsquent tables, the marginal effects shown are for a change of 0 to 1 for dummy variables and for variables measured as proportions. They are for infinitessimal changes for continuous unbounded variables.

case may flow from participation to marriage and headship as it is most likely that males strive to complete their education and start working before they get marry and start their own households. The fact that headship has no effect in urban areas may be due to the fact that most married males are also heads in urban areas, whereas that may not be the fact in rural areas that have a higher incidence of extended households.

The only discernible effects of education on participation in urban areas is a negative effect at the basic education level, indicating continuing schooling, and a positive effect at the university level. In rural areas we observe an increase in participation for males with some formal schooling compared to those without any. As in urban areas, there is also a decline at the basic education level, but, for some reason, the decline is much larger in rural areas. The presence of livestock in the household and the amount of land the household cultivates have no significant effect on male participation in rural areas. The addition of community-level variables, as in the community model, does not change any of the previous results and none of the community-level variables seems to have a significant impact on participation.

We now move to an examination of the determinants of employment status. Conditional on being economically active, we consider four possible states, namely unemployment, salaried work, casual work, and self-employment. In rural areas, self-employment is further subdivided into farming and self-employment outside agriculture. The determinants of participation in these various states are investigated using a single multinomial logit model. For ease of exposition, however, we present the marginal effects for each state in a separate table.[25]

Table 11 presents the marginal effects for the probability of being unemployed for urban and rural males. According to the baseline model, the probability of unemployment

[25] The t-statistics presented in the tables are those of the underlying multinomial logit coefficients, not the marginal effects. Because the underlying coefficients are derived from a model where salaried employment is the base outcome, the t-statistics measure the extent to which the effect of any given variable on the relevant outcome is different from its effect on the probability of being salaried, not that it is different from zero. This also means that we do not have t-statistics to report for the marginal effects of each explanatory variable on the probability of salaried employment, the base outcome.

for the reference individual is 2.6 percent in urban areas and 3.5 percent in rural areas. In urban areas, the probability of unemployment increases by 7.1 percentage points (more than a three-fold increase) for those who are 15 to 24, but only by 2.6 percentage points in rural areas. It is also significantly higher for the 25-34 age group than the reference age group of 35 to 44. Unmarried males have nearly double the unemployment rate of the reference male. The statistical insignificance of the effect in urban areas simply means that it is not statistically different from the effect of being unmarried on the probability of salaried employment. Male heads of household have lower unemployment rates than the reference males in rural areas. These results confirm that male unemployment is most serious among youth who have not yet started their own households and may therefore be somewhat voluntary.

Secondary and postsecondary education do in fact have a positive effect on unemployment in both urban and rural areas, but the effect of university education in rural areas is much smaller, meaning that urban university graduates find it easier to find work than secondary and postsecondary graduates. The fact the t-statistic is negative and significant for university education means that education has a bigger positive effect on the probability of salaried employment than on the probability of unemployment. The insignificance of the other education coefficients simply indicates that other levels of education affect both probabilities in similar ways.

The presence of household assets such as livestock and land seems to have no appreciable effect on unemployment. The significant coefficient on the proportion of landless households indicates the effect of that variable on unemployment is different from its effect on salaried employment. It appears that villages with a higher social capital index have a higher unemployment rate. Villages with high social capital have more government services and therefore more opportunities for salaried employment that are worth waiting for. Villages with a higher economic capital index have lower unemployment rates, but the effect of economic capital is not significantly different from its effect on the probability of salaried employment.

We now consider the determinants of each of the employment states, starting with salaried work. As shown in Table 12, the predicted probability of being a salaried worker for the reference male is about 20 percent in both urban and rural areas. Relative to urban Lower Egypt, it increases by 6 percentage points in Metropolitan governorates and urban Upper Egypt. But in rural Upper Egypt, it is nearly 10 percentage points lower than in rural Lower Egypt. As indicated earlier, salaried employment rises significantly with age until the reference age is reached. It also increases at marriage and increases further for male heads of household.

The presence of livestock in the household appears to significantly reduce the probability of salaried employment. Again the direction of causality may be reversed here. Salaried workers may simply prefer not to own livestock. According to the community model, an increase in the proportion of landless workers substantially increases the probability of salaried work. An increase of 10 percent in the proportion of landless workers increases the probability of salaried work by 1.6 percentage points. A higher economic capital index for the village seems to reduce the probability of salaried work because it increases the probability of being either self-employed or a farmer.

By far the dominant determinant of salaried employment, however, is education. The probability of salaried employment more than doubles with the achievement of even a basic educational certificate. By the time a person has university education, the probability of salaried employment reaches 75 percent in urban areas and 86 percent in rural areas. The strong negative correlation between education and poverty found in previous studies (Datt, Jolliffe, and Sharma 1998, Datt and Jolliffe 1999, El-Laithy, El-Khawaga, and Riad 1998) can best be explained by the ability of educated individuals to obtain salaried employment, which can assure a stable source of income. However, as shown in Table 5, for each salaried worker in the private sector, there are nearly 5 in the public sector. Interestingly, the ability to obtain salaried employment is enhanced more by education in rural areas than in urban areas. This is probably due to the even more

dominant effect of the public sector as a provider of salaried work in rural areas than in urban areas.

For the most part, wage labor in the private sector takes the form of casual employment.[26] According to the baseline model shown in Table 13, the reference individual has a 28 percent probability in urban areas and a 35 percent probability in rural areas of being a casual wageworker. The urban probability rises by 10 percentage points in Metropolitan governorates and the rural probability is 9 percentage points higher in Upper Egypt. In both urban and rural areas, younger male workers are more likely to engage in casual work, and the probability keeps declining steadily with age. Unmarried males also have a higher probability of engaging in casual. Education steadily reduces the probability of casual work for males in both urban and rural areas. By the time university education is reached, the predicted probability of casual work is reduced to less than 3 percent in both urban and rural areas. We conclude from this that casual work is basically the alternative to unemployment for uneducated males. While young educated males tend to remain unemployed until they find stable salaried work, their uneducated counterparts are forced to engage in casual wage work to survive. As they get older, some of these uneducated males manage to get salaried employment or become self-employed, others must continue being casual workers.

As expected, the presence of livestock and the size of household landholdings are negatively associated with casual wage work in rural areas. The presence of livestock reduces the probability of casual work by about 9 percentage points and each *qirat* of land reduces it by 1.5 percentage points, according to the community model. An increase in the average plot size in the village by 10 *qirats* increases the probability of casual work by 2 percentage points, because larger average landholdings provide opportunities for hired agricultural laborers.

[26] Three in four wageworkers in the private sector are casual workers (see Table 5).

As shown in Table 14, the reference individual has a 48 percent probability of being self-employed in urban areas.[27] This proportion drops by 16 percentage points in Metropolitan governorates relative to urban Lower Egypt. The probability of self-employment is strongly and negatively correlated with education. The probability of self-employment drops by 14, 21, and 30 percentage points, respectively, upon reaching the basic, secondary, and university levels. On the other hand, as discussed earlier, the probability of male self-employment in urban areas depends only weakly on age. Unmarried males are less likely to be self-employed than their married counterparts. Interestingly, however, heads of households are less likely than nonheads to be self-employed. This may be due to the riskiness of self-employment and the greater risk averseness of household heads.

In rural areas, the probability of self-employment outside agriculture is much lower for the reference individual (11 percent) and also drops significantly with education, to the point of being below 2 percent for those with higher education. Possibly because of the scarcity of land in rural Upper Egypt relative to Lower Egypt, the probability of nonagricultural self-employment there is higher. As expected, larger amounts of land held by the household and the presence of livestock reduces the probability of nonagricultural self-employment. An increase of 10 percent in the proportion of landless households in the village raises the probability of self-employment by 1.5 percentage points. An increase in the economic capital index significantly raises the probability of self-employment. Since economic capital includes the presence of a market center, this is likely to increase opportunities to work as a trader.

The difference in the probability of self-employment between urban and rural areas observed in the previous table is clearly due to the probability of self-employment in agriculture, or farming. As shown in Table 15, the reference individual in rural areas has a probability of 20 to 33 percent of being a farmer (or an unpaid family worker on a

[27] Self-employment includes farming in urban areas but not in rural areas. In either case it includes unpaid family labor.

farm). This probability starts out by being even higher at low ages, dips at the age of 35 to 54, and then increases again after that age. As suggested by Hansen (1985), farming in Egypt seems to play a buffer function, absorbing the labor of younger and older male workers whose attachment to the work force is somewhat weaker than that of prime age workers. The large drop in the probability of being a farmer for household heads confirms that farming provides employment for male workers at the margin of the work force. The probability of farming falls off sharply with education. By the time a rural male has a university education, the probability of farming falls to less than 3 percent, or one-tenth of its original size. As expected, the presence of livestock in the household or the size of household landholdings significantly increases the probability of farming. At the community level, the proportion of landless households is negatively and strongly associated with the individual being a farmer. A 10 percent increase in that proportion is associated with a 2.5 percent reduction in the probability of farming. Finally, a higher economic capital index is associated with a higher probability of farming. Since a number of the services included in that index are associated with agriculture, this positive association is not surprising.

THE DETERMINANTS OF LABOR FORCE PARTICIPATION AND EMPLOYMENT STATUS FOR FEMALES

For females, in addition to the baseline and community models, we estimate a household model that augments the baseline model with variables relating to the presence of children as well as the husband's characteristics, if the woman is married. The results for the binomial logit participation equation are shown in Table 16. The reference female has a 11 to 12 percent probability of participating in the labor force, whether in urban or rural areas. In urban areas, there is no significant difference in female participation across regions, but in rural Upper Egypt, female participation is nearly half what it is in rural Lower Egypt. The observed difference in average participation rates between urban and rural areas, shown in Table 2, can then be attributed to differences in participation in

Upper Egypt as well as to urban-rural differences in the characteristics of the female population that affect participation.

The much stronger age pattern of female participation in urban areas discussed earlier is confirmed in the results shown in Table 16. In urban areas participation clearly peaks at the reference age group 35-44, but, in rural areas, there is no significant difference in participation across the various age groups, with the possible exception of the youngest. The negative effect of marriage on participation is also significantly larger in urban areas. This is probably because participation in urban areas is more likely to mean work outside the home, which may be less compatible with marital responsibilities than work at home. The effect of marriage in urban areas is substantial. An unmarried female is more than twice as likely to participate than a married female, compared to only a third more likely in rural areas. With such a large marriage effect, it is not surprising that the effect of children (shown in the household model) is insignificant. If it happens at all, the withdrawal from the labor market basically happens at marriage rather than at child bearing. Few of the women who stop working at marriage appear to be returning to work when their children enter school.

In contrast to marriage, household headship has a strong positive effect on labor force participation for women. Female heads of households with the reference characteristics are 80 percent more likely than nonheads to participate in urban areas and three times as likely to participate in rural areas. The need for cash income in households with no male breadwinner clearly outweighs social stigmas that mitigate against female participation.

The variable that has by far the largest impact on female labor force participation is educational attainment. Although female participation nearly doubles in urban areas for those with basic education, the big effect occurs at the secondary level. Participation increases by as much as 63 percentage points, or by as much as sevenfold, when the secondary education level is reached. The increase in rural areas at that level is also

substantial at nearly 50 percentage points. At those levels of education, female activity rates approach those of males.

With her own educational level controlled for, a woman married to a husband with primary or preparatory education is less likely to participate than one with less than primary education. However, a husband with secondary education has no such negative effect. The first result can be interpreted as an income effect. The higher the husband's income, the less likely a woman is to participate, everything else being equal. The second effect must therefore be interpreted as a change in norms that cancels out the negative income effect. Having a salaried husband also has a positive impact on participation despite the income effect that this salary can bring. This finding suggests that the normative dimension may be more important in this case. Having their wives participate in salaried work is more acceptable to husbands that are themselves salaried than to ones who are not. Furthermore, salaried husbands do not have household enterprises that may increase the value of a woman's time at home.

Neither household assets nor community-level variables seem to have a significant effect on female participation.

We now consider the determinants of unemployment for females who are economically active, shown in Table 17. According to the baseline model, the unemployment rate for the reference female is 7 percent in urban areas and 19 percent in rural areas. In urban areas, unemployment rates are significantly lower in the Metropolitan governorates and in urban Upper Egypt. In rural areas, female unemployment is also lower in Upper Egypt. The result for Metropolitan governments is expected, since they presumably have more job opportunities for young women, but the result for Upper Egypt is surprising.[28] It may simply indicate that in Upper Egypt, women who are not working are more likely to declare themselves as not desiring to work rather than unemployed, because of the greater social stigma associated with female

[28] The fact that urban Upper Egypt, as defined here, includes the city of Giza, which is part of the Greater Cairo region, may account for this unexpected result.

employment in that more socially conservative region. The cofficients of age have the expected signs but those of education do not. Younger women have significantly higher unemployment rates than older women in both urban and rural areas. Education has a *negative* effect on unemployment, albeit insignificant in urban areas, instead of the expected strong positive effect. The predictions obtained from this model, however, give the expected age and education profiles shown in Figure 4. This apparent discrepancy is probably due to the strong association between age and education for females.

The presence of livestock in the household significantly reduces female unemployment, indicating the major role women have in caring for such livestock.

As in the case of men, unmarried women are more likely to be unemployed than married women, especially in urban areas. A salaried husband is associated with lower unemployment for the wife. This is likely to be the effect of labor market information and contacts that a salaried husband can make available to his spouse. A more unexpected result is that rural women with educated husbands are likely to have higher unemployment rates. Women with lesser educated husbands are probably less likely to be looking for salaried work and therefore less likely to be unemployed. Finally, none of the community-level variables seem to affect female unemployment.

The determinants of salaried employment for economically active females are shown in Table 18. First, we note the vast difference in the probability of salaried employment for the reference female in urban and rural areas. While uneducated females have some chance for salaried work in urban areas, such employment is virtually nonexistent in rural areas. The main variable that seems to significantly affect the probability of salaried employment in rural areas is the achievement of some formal education. By the time secondary education is reached, there is over an 85 percent probability of salaried employment for economically active females. In urban areas as well, education has a powerful effect on the probability of salaried employment. In effect, it is the only kind of employment females with more than secondary education seem to engage in. The balance of economically active females are unemployed.

As expected, salaried employment peaks at the prime working age of 35 to 44, which we use as a reference. It also appears to be significantly higher for female heads of households in urban areas. Because salaried work is hard to reconcile with child care, the presence of children 0 to 2 and 3 to 6 years of age reduces the probability of salaried work, but the effect seems short-lived, since it is partially reversed for children 7 to 11. The presence of a salaried husband significantly raises the probability of salaried work for the wife, especially in urban areas. A husband with basic education seems to reduce it, however, compared to a husband with less than primary education. This result may be due to the income effect of the husband's work. The negative effect persists for more educated husbands, but it declines in magnitude, an indication that these husbands may be more tolerant of their wives' work.

The absence of salaried employment opportunities for uneducated females in rural areas is offset by a higher probability of casual wage employment. As shown in Table 19, the probability of casual work for the reference female is much higher in rural than in urban areas. Closer examination reveals that the difference is partly due to the different age pattern of casual wage work in urban and rural areas, rather than simply a difference in its overall incidence. While females 15-24 are more likely to engage in casual work than their older counterparts in urban areas, they are significantly less likely to do so in rural areas. In both urban and rural areas, education has a dampening effect on participation in casual work. By the secondary education level, participation in casual wage work has declined to nearly zero. The presence of livestock and/or land reduces participation in casual wage work as opportunities for employment at home increase, but the effects are not significantly different from the effect of these variables on salaried employment. The results of the household model indicate that females with children under 2 years of age much less likely to be casual workers, but that the negative effect disappears for older children. In rural areas, women with more educated husbands also appear to shun casual wage work. The fact that the wife's or the husband's education has the same negative effect on participation in casual work indicates that it is a question of

norms and preferences rather than opportunity structure. Casual work is simply not socially acceptable in households where the husband or the wife has reached a certain education level.

The determinants of female self-employment are shown in Table 20. We again note the large difference in the predicted probability of self-employment for the reference urban and rural females. As in the case of males, this is due to the fact that self-employment in rural areas is more likely to take the form of farming, which is considered separately in rural areas. Even though the coefficients are not significant at the 10 percent level, there seems to be more female self-employment in urban Lower Egypt than in other regions. However, as in the case of males, self-employment outside of agriculture is much more prevalent in rural Upper Egypt than in rural Lower Egypt, most probably because of the greater availability of land in Lower Egypt. The probability of self-employment appears to be increasing with age in both urban and rural areas, but here again the effects are not significantly different from those of salaried employment, which also increases with age. Being unmarried has a negative effect on participation in self-employment in rural areas. Since rural self-employment typically involves work at home and flexible hours, it is more compatible with marriage than other forms of employment.

As in the case of casual work, education has a strong negative and increasing effect on female self-employment. Having a salaried husband in urban areas has a strong deterrent to self-employment for the wife, but if the husband has basic education, the probability of self-employment rises. Finally, as in the case of males, a higher economic capital index for the village, most likely an indication of a market center, has a positive effect on female self-employment.

Table 21 shows the determinants of female participation in farming. As mentioned above, farming is significantly more prevalent among economically active females in rural Lower Egypt than in Upper Egypt. The difference in the probability of farming between the two regions is much larger than that for males, suggesting that it is not simply a question of land availability. It must also have to do with the social

acceptability of females working in the fields in the two contexts. In the more socially conservative Upper Egypt, female farmers are more likely to be caring for livestock at home than working in the fields and are therefore less likely to be captured as economically active in the survey. Unlike nonagricultural self-employment, which increases with age, farming is significantly more prevalent among younger women, but like nonagricultural self-employment, its prevalence increases with marriage and declines sharply with education. The probability of farming for females declines if their husband is salaried, but rises if the husband has basic education, only to decline again if the husband's education reaches the secondary level.

As expected, the probability of farming also increases with the presence of livestock in the household and with the size of the household's landholdings. Surprisingly, the household model reveals that the probability of farming increases with the presence of children under 2 years of age, but declines with the presence of children ages 3 to 6. It is not clear why children in these different age groups would have such contrasting effects.

There is weak evidence that female participation in farming increases as the mean agricultural wage in the village increases. If this is the case, it indicates that households may be substituting female household labor for hired male labor when the price of the latter rises. As expected, female participation in farming declines as the proportion of landless households in the village increases, but increases as the average plot size increases.

6. CONCLUSIONS

The evidence presented in this paper shows that the Egyptian labor market is moving from a period of high overall unemployment to one where unemployment is increasingly concentrated among specific groups whose access to the private-sector labor market is limited. The second half of the 1980s and the early 1990s were characterized by

the exhaustion of the main labor absorption mechanisms in the Egyptian economy, namely public-sector employment and international migration. The second half of the 1990s appears to be ushering in a growing role for the private sector in employment creation, but only for a limited segment of the population, namely urban males. Because of rising educational attainment, young women are entering the labor force in large numbers but are facing extreme difficulty, especially in rural areas, in finding suitable employment in the increasingly privatized economy. Unemployment rates among educated females in rural areas are therefore not only high but increasing sharply. If allowance is made for the discouraged unemployed, the educated female unemployment rate in rural areas rises to over 60 percent.

The evidence suggests that adjustment to a private-sector-led economy is gradually being made by male new entrants to the work force, but young female new entrants are finding it hard to adapt to the jobs available to them in the private sector. A majority of private sector jobs are in the form of casual wage employment, which appears to be socially unacceptable for educated females in Egypt. With the exception of female secondary school graduates in rural areas whose employment prospects are very poor, educated males and females have nearly equal probabilities of engaging in salaried work. However, educated males are much more likely than their female counterparts to work as casual wageworkers, self-employed workers, or farmers. A combination of strong social norms and expectations formed over many years of growing public employment mitigate against the participation of educated females in these forms of employment. Our analysis shows, in fact, that the probability of participating in any employment state other than salaried employment for educated females is virtually zero. Since most of the jobs that are now available in the private sector are not salaried, the contraction of public-sector employment has basically translated into the much higher female unemployment rates we have observed over the past few years.

Females with less than a secondary education are essentially marginalized in the labor market. While the vast majority does not participate in any market activity, those

who do are confined to the employment states that their educated sisters find unacceptable, namely casual wage work, self-employment, and farming. Younger uneducated females, who are employed, tend to be casual workers and farmers and older ones are more likely to be self-employed outside agriculture. A clear exception to the low labor force engagement of uneducated females is female heads of households. They are three times as likely as nonheads to be active in rural areas and nearly twice as likely to be active in urban areas. Since female household heads tend to be older and less educated, their labor market involvement consists primarily of self-employment.

Our analysis confirms that casual workers of both sexes are highly vulnerable to underemployment rather than to unemployment. Our results indicate that a significant proportion of casual workers work fewer hours per week than they would like. This is especially true in rural areas and even more so for rural females. Underemployment is therefore a serious source of income instability for casual workers, and is therefore an important source of vulnerability to poverty. An increase in the overall rate of economic activity and in particular in agricultural and construction activity, where they tend to be concentrated, can do a lot to relieve poverty among these workers.

In rural areas, farming seems to serve as a complement to salaried employment for males. Males seem to engage in it relatively early in their life cycle and again after retirement, irrespective of education level. Conversely, salaried employment peaks in the prime working years. Self-employment outside agriculture does not have a strong age pattern for males, but increases significantly with age for females, who continue to be economically active. Self-employment declines sharply, on the other hand, as education levels rise.

Because the patterns described above are due to a complex interaction of past and present policies, social norms, and complex economic trends, they do not lend themselves to simple policy prescriptions. They can, however, inform policymaking by pointing to where the bottlenecks in the labor market are and what groups are most likely to be affected by overall economic policies. For instance, the poor employment prospects faced

by females in the private sector can be attributed to a variety of factors, including the limited success in Egypt of labor-intensive export industries that have traditionally hired young female workers in other countries, and the perception by private employers that females have low attachment to the labor force. Such low attachment results in high turnover and absenteeism rates and a lack of willingness to work long hours, all of which are deemed undesirable attributes by employers. Furthermore, labor laws impose a number of female-specific mandates on employers, such as generous paid and unpaid maternity leaves, child care provisions, and restrictions on working hours, which increase the cost of hiring women. Combined with social norms that make it difficult for educated young women to engage in casual wage labor or in self-employment, these barriers effectively translate into high and rising female unemployment rates. What to do about these problems is far from clear. Clearly an economic policy environment that is favorable for export-oriented industries would help. Policymakers should also consider a reduction in the female-specific employer mandates that raise the cost of hiring women. Finally, an argument could be made for programs that support the insertion of young educated females in the labor market by means of temporary training or wage subsidies. These subsidies would be justified as an offset for the additional cost of hiring female labor that are associated with reproduction and childbearing.

The findings of the study also have important implications for the multitude of small and microenterprise finance programs that are currently quite popular in Egypt as a means to alleviate poverty and youth unemployment. We have shown that educated workers currently shun self-employment. Self-employment is either pursued as an entrepreneurial strategy by people who either have access to productive assets or considerable prior experience through a family enterprise or an apprenticeship, or as a survival strategy for people whose personal situation prevents them from engaging in wage employment. In either case, it is not an important source of employment for educated workers seeking employment for the first time. Policies that attempt to create opportunities for self-employment among unemployed graduates through low-cost credit

are therefore going against the grain and may be setting up these young people for failure. It may be preferable to provide the available credit to existing established entrepreneurs in the hope of creating employment opportunities for new entrants. On the other hand, microcredit is an appropriate intervention for mature women who for a variety of reasons are constrained from entering the paid labor market but are in need of a source of livelihood. Our analysis has shown that female heads of households have a strong incentive to participate in the labor force, but that they are often confined to self-employment. Supporting these women, who are often poor, with microcredit programs and other sorts of assistance, seems highly justified.

Finally, the results of this analysis provide an essential foundation for any attempt to forecast labor force growth and composition in Egypt. When combined with population forecasts by age and sex and school enrollment information, the parameter estimates we obtained can be used to obtain accurate forecasts of the labor force by age, sex, and educational attainment. These forecasts are an essential component of any human resource development policy.

TABLES

Table 1—Activity, employment, and unemployment rates for ages 15-64, by sex and urban/rural location, 1990–95

Rate		Years 1990	1991	1992	1993	1994	1995
Activity rate (15-64)**							
Urban	Male	72.0	70.8	69.8	70.8	70.5	69.9
	Female	22.4	20.3	19.1	20.3	20.2	19.5
	Total	47.3	45.7	44.4	45.7	45.4	44.8
Rural	Male	78.2	76.8	76.3	76.3	76.1	76.3
	Female	34.7	29.3	26.1	24.0	25.4	23.0
	Total	56.4	53.0	50.8	50.2	51.0	49.7
Total	Male	75.3	74.0	73.2	73.7	73.5	73.3
	Female	29.0	25.2	22.8	22.3	23.0	21.4
	Total	52.1	49.6	47.8	48.1	48.4	47.4
Employment rate (15-64)**							
Urban	Male	67.0	65.3	64.7	64.9	64.9	64.6
	Female	16.8	15.4	14.3	14.6	14.6	14.1
	Total	42.1	40.5	39.5	39.9	39.8	39.4
Rural	Male	74.5	72.4	71.8	70.9	70.7	70.6
	Female	31.6	26.2	22.8	19.5	20.4	18.1
	Total	53.0	49.3	46.9	45.3	45.8	44.3
Total	Male	71.0	69.1	68.5	68.1	68.0	67.8
	Female	24.7	21.1	18.9	17.2	17.7	16.2
	Total	47.9	45.2	43.4	42.8	43.0	42.0
Unemployment Rate (15-64)**							
Urban	Male	6.9	7.7	7.3	8.4	7.9	7.6
	Female	24.8	24.4	24.9	27.9	28.0	27.6
	Total	11.1	11.4	11.1	12.7	12.4	11.9
Rural	Male	4.7	5.7	5.9	7.0	7.1	7.5
	Female	9.0	10.8	12.5	18.7	19.6	21.4
	Total	6.0	7.1	7.6	9.8	10.1	10.7
Total	Male	5.7	6.6	6.5	7.6	7.5	7.5
	Female	14.7	15.9	17.3	22.7	23.1	24.1
	Total	8.2	8.9	9.1	11.1	11.1	11.3

Source: CAPMAS, LFSS.

Notes: Activity rate = labor force/population x 100 percent; employment rate = employment/population x 100 percent; unemployment rate = unemployment/labor force x 100 percent.

Table 2—Labor force participation rates compared, ages 15–64

		Source		
		LFSS 1988	**LFSS 1995**	**LFSS 1997**
Male	Urban	75.0	69.9	72.8
	Rural	79.2	76.3	75.4
Female	Urban	29.3	19.5	26.2
	Rural	53.9	23.0	17.3

Table 3—Unemployment rate, by sex, education, and region, economically-active population aged 15–64

	LFSS 1995			**EIHS 1997**					
	With search			**With search**			**Without search**		
	Urban	**Rural**	**Total**	**Urban**	**Rural**	**Total**	**Urban**	**Rural**	**Total**
Males									
Below secondary	1.3	0.4	0.7	5.4	2.0	3.3	7.1	3.3	4.7
Secondary and above	14.1	26.0	18.9	11.3	12.7	11.9	13.0	16.9	14.7
Total	7.6	7.5	7.5	8.4	5.4	6.8	10.1	7.7	8.8
Females									
Below secondary	4.1	0.3	0.7	9.1	6.5	7.5	17.3	21.8	20.2
Secondary and above	30.9	57.7	40.0	23.2	40.5	28.5	31.1	53.2	38.4
Total	27.6	21.4	24.0	20.1	23.0	21.3	28.1	37.5	32.2

Table 4—Proportion of employed working in the public sector, by education and age

Education	Age	LFSS 1988			EIHS 1997		
		Urban	Rural	Total	Urban	Rural	Total
Males							
Below secondary education	15-34	15.1	8.2	10.5	22.0	11.0	14.5
	35-64	42.2	22.8	30.4	38.1	27.8	32.1
	All	30.6	15.6	21.2	32.2	19.8	24.4
Secondary education and above	15-34	48.3	53.2	50.4	37.8	35.1	36.5
	35-64	71.5	86.4	75.0	75.7	84.7	79.0
	All	59.0	61.9	60.0	57.0	55.1	56.2
All	15-34	30.3	19.2	23.8	31.0	19.5	24.2
	35-64	52.4	29.0	40.1	54.9	41.8	48.2
	All	42.0	23.8	31.9	44.6	30.4	36.8
Number of observations		5,917	5,099	11,016	1,140	1,591	2,731
Females							
Below secondary education	15-34	11.3	0.7	2.1	23.1	5.0	10.7
	35-64	9.5	0.2	1.8	40.6	6.9	20.6
	All	10.3	0.5	2.0	34.7	6.1	16.6
Secondary education and above	15-34	76.0	71.2	74.6	69.8	78.4	72.6
	35-64	90.9	86.6	90.3	95.2	100.0	96.2
	All	81.5	73.7	79.6	84.0	86.5	84.7
All	15-34	53.8	8.7	21.6	60.5	39.0	50.9
	35-64	49.2	2.6	15.8	80.0	33.4	63.0
	All	51.7	6.9	19.0	71.9	36.3	57.5
Number of observations		2,128	3,702	5,830	325	247	572

Table 5—Employment status, by sex and region, ages 15–64

	Urban	Rural	Total
		(percent)	
Male			
Public salaried	42.6	28.9	35.1
Private salaried	11.3	6.1	8.4
Casual	22.2	26.4	24.5
Farming	1.9	27.1	15.7
Self-employed	22.0	11.5	16.3
Number of observations	1,140	1,591	2,731
Female			
Public salaried	70.1	34.9	55.9
Private salaried	8.7	…	6.2
Casual	9.0	18.9	13.0
Farming	…	30.2	13.0
Self-employed	11.0	13.4	12.0
Number of observations	325	247	572

Source: EIHS 1998.

... = Fewer than 10 observations.

Table 6—Type of employment, by sex and industry, employed population ages 15-64

	Public, salaried	Private, salaried	Casual	Farming	Self-employed	Total
				(percent)		
Males						
Agriculture	23.7	9.7	33.8	97.4	11.3	34.3
Mining	…	…	…	…	…	…
Manufacturing	17.0	44.6	20.9	…	27.6	19.4
Utilities	3.6	…	3.0	…	2.6	2.7
Construction	5.6	5.0	21.7	…	8.2	9.1
Trade	0.9	12.1	5.2	…	29.0	7.4
Transport	7.0	6.7	10.5	…	11.3	7.5
Finance	1.7	…	…	…	…	0.9
Services	39.7	16.5	4.5	…	9.6	18.3
Number of observations	919	212	641	440	426	2,638
Females						
Agriculture	26.8	…	40.0	100.0	…	34.7
Mining	…	…	…	…	…	…
Manufacturing	7.6	…	22.9	…	17.8	11.3
Utilities	…	…	…	…	…	1.0
Construction	…	…	…	…	…	2.0
Trade	…	…	19.0	…	61.4	10.6
Transport	…	…	…	…	…	0.9
Finance	2.9	…	…	…	…	1.9
Services	57.7	32.3	13.5	…	…	37.5
Number of observations	308	29	69	72	73	551

Source: EIHS 1997.
… = Fewer than 10 observations.

Table 7—Weekly hours, by sex and type of employment, employed population aged 15-64

	Urban					Rural					
	Private, salaried	Public, salaried	Casual	Self-Employed + Farming	Total	Private, salaried	Public, salaried	Casual	Farming	Self-employed	Total
						(percent)					
Males											
0-9 hours			…	…	…			2.8	4.7	…	2.5
10-19 hours	…		6.7	4.5	2.6	…		13.6	14.9	…	8.1
20-29 hours		…	8.4	6.3	3.5	…	…	15.4	19.4	12.0	11.3
30-39 hours	…	5.5	14.8	11.2	8.8	…	15.9	19.8	17.2	10.7	16.2
40+ hours	94.5	94.2	68.7	76.5	84.4	88.5	82.2	48.4	44.0	69.5	61.8
Number of observations	123	486	247	282	1,138	92	446	428	430	185	1,581
Females											
0-9 hours			…	…	…			…	13.8		5.0
10-19 hours				…	…		…	…	22.8	…	12.4
20-29 hours		…		…	…		…	30.5	31.9	…	19.2
30-39 hours	…	8.5	12.9	21.5	10.0		24.6	22.7	17.2	…	21.6
40+ hours	97.0	89.0	82.5	60.1	85.6	…	70.3	22.7	14.2	44.4	41.8
Number of observations	26	231	27	40	324	6	85	47	70	37	245

Source: EIHS 1997.

… = Fewer than 10 observations.

Table 8—Part-time employment, by sex and type of employment, employed population aged 15-64

	Urban					Rural					
	Private, salaried	**Public, salaried**	**Casual**	**Self + Farming**	**Total**	**Private, salaried**	**Public, salaried**	**Casual**	**Farming**	**Self-employment**	**Total**
Males											
Part-time, available			8.1	4.9	3.0		…	19.8	11.1	7.5	9.3
Part-time, not available	…	…	8.4	7.5	3.8	…	…	12.0	27.8	12.3	12.6
Full-time	99.4	99.7	83.5	87.7	93.2	97.1	98.0	68.2	61.1	80.1	78.0
Total	123	486	247	282	1,138	92	446	428	430	185	1,581
Females											
Part-time, available				…	…			26.8	12.1		8.7
Part-time, not available		…	…	16.3	4.1		…	27.8	56.5	29.8	28.0
Full-time	100.0	97.5	95.5	81.7	95.6	100.0	94.9	45.4	31.5	70.2	63.3
Total	26	231	27	40	324	6	85	47	70	37	245

Source: EIHS 1997.

Notes: Full-time means 30 or more hours per week; PT, available means working less than 30 hours and available for more work; PT, not available means working less than 30 hours and not desiring more work.

Table 9—Means of variables used in the regression models

	Rural								Urban						
Males Variable	**OLF+ Student**	**Active**	**Unem-ployed**	**Salaried**	**Casual**	**Farming**	**Self-em-ployed**	**All**	**OLF+ Student**	**Active**	**Unem-ployed**	**Salaried**	**Casual**	**Self-employed**	**All**
Metropolitan governorates									0.311	0.326	0.354	0.345	0.363	0.240	0.325
Upper Egypt	0.498	0.481	0.474	0.401	0.549	0.500	0.522	0.497	0.408	0.339	0.307	0.364	0.302	0.329	0.356
Age 15-24	0.723	0.241	0.519	0.064	0.374	0.263	0.199	0.366	0.734	0.214	0.606	0.099	0.343	0.173	0.362
Age 25-34	0.093	0.317	0.338	0.342	0.309	0.276	0.339	0.259	0.059	0.285	0.283	0.270	0.298	0.307	0.221
Age 35-44 (reference)	0.052	0.212	0.068	0.306	0.181	0.168	0.210	0.172	0.044	0.225	0.071	0.272	0.202	0.216	0.176
Age 45-54	0.046	0.145	0.038	0.223	0.086	0.138	0.140	0.120	0.053	0.191	0.024	0.250	0.109	0.208	0.151
Age 55+	0.086	0.086	0.038	0.064	0.049	0.154	0.113	0.083	0.110	0.085	0.016	0.109	0.048	0.095	0.090
Unmarried	0.757	0.326	0.699	0.165	0.451	0.316	0.269	0.436	0.791	0.389	0.827	0.273	0.524	0.325	0.501
Head of household	0.170	0.510	0.173	0.672	0.414	0.477	0.570	0.408	0.207	0.558	0.142	0.689	0.419	0.580	0.449
No schooling (reference)	0.171	0.316	0.128	0.170	0.381	0.475	0.360	0.308	0.093	0.159	0.063	0.106	0.230	0.254	0.161
Less than basic education	0.071	0.187	0.083	0.117	0.256	0.212	0.247	0.152	0.068	0.134	0.165	0.085	0.173	0.191	0.112
Basic education	0.513	0.169	0.083	0.181	0.179	0.164	0.183	0.243	0.455	0.220	0.134	0.208	0.290	0.223	0.279
Secondary and technical education	0.196	0.234	0.564	0.321	0.160	0.122	0.177	0.215	0.330	0.286	0.472	0.288	0.262	0.219	0.289
Higher education	0.049	0.094	0.143	0.211	0.023	0.028	0.032	0.083							
High institute									0.017	0.049	0.063	0.065	0.020	0.035	0.040
University									0.038	0.152	0.102	0.249	0.024	0.078	0.118
Livestock	0.470	0.481	0.451	0.347	0.405	0.772	0.389	0.474							
Size of land held by household (*qirats*)*	2.104	5.990	1.887	4.677	2.463	14.237	1.654	4.761							
Log agricultural wage in village*	1.985	1.955	1.944	1.922	1.927	2.000	2.001	1.966							
Percent of landless households in village*	0.591	0.598	0.579	0.642	0.624	0.497	0.660	0.593							
Average plot of agricultural land in village (*qirats*)*	28.9	25.7	29.0	27.6	26.1	22.7	23.9	26.1							
Social Capital Index*	0.282	0.282	0.306	0.287	0.246	0.304	0.279	0.279							
Economic Capital Index*	0.562	0.536	0.556	0.529	0.516	0.553	0.554	0.548							
Number of observations	560	1,727	133	545	430	434	185	2,433	473	1,273	127	615	248	283	1,806

(continued)

Table 9 (continued)

Females	Rural								Urban						
Variable	**OLF+ Student**	**Active**	**Unem-ployed**	**Salaried**	**Casual**	**Farming**	**Self-employed**	**All**	**OLF+ Student**	**Active**	**Unem-ployed**	**Salaried**	**Casual**	**Self +Farming**	**All**
Metropolitan Governorates									0.352	0.347	0.339	0.344	0.519	0.293	0.352
Upper Egypt	0.534	0.339	0.336	0.298	0.348	0.183	0.737	0.507	0.342	0.341	0.299	0.367	0.296	0.341	0.342
Age 15-24	0.356	0.407	0.685	0.160	0.370	0.310	0.158	0.365	0.335	0.305	0.654	0.139	0.481	0.146	0.330
Age 25-34	0.235	0.284	0.242	0.489	0.174	0.197	0.237	0.246	0.174	0.268	0.268	0.278	0.259	0.195	0.203
Age 35-44 (reference)	0.164	0.148	0.047	0.245	0.283	0.113	0.211	0.161	0.191	0.294	0.071	0.405	0.148	0.415	0.215
Age 45+	0.245	0.161	0.027	0.106	0.174	0.380	0.395	0.227	0.299	0.133	0.008	0.178	0.111	0.244	0.252
Unmarried	0.356	0.457	0.617	0.245	0.543	0.465	0.237	0.372	0.401	0.485	0.780	0.309	0.704	0.537	0.425
Head of household	0.059	0.131	0.040	0.106	0.239	0.268	0.158	0.069	0.070	0.091	0.047	0.093	0.074	0.244	0.075
No schooling (reference)	0.652	0.344	0.155	0.032	0.652	0.732	0.763	0.584	0.367	0.091	0.047	0.058	0.185	0.390	0.290
Less than basic education	0.107	0.085	0.081	0.032	0.130	0.141	0.079	0.100	0.139	0.058	0.039	0.031	0.185	0.220	0.115
Basic education	0.161	0.068	0.054	0.064	0.152	0.056	0.053	0.144	0.263	0.062	0.047	0.054	0.148	0.098	0.208
Secondary and above	0.079	0.503	0.711	0.872	0.065	0.070	0.105	0.171	0.231	0.790	0.866	0.857	0.481	0.293	0.387
Livestock	0.472	0.382	0.403	0.223	0.304	0.746	0.105	0.461							0.208
Size of land held by household (*qirats*)*	2.861	2.043	1.228	0.957	0.304	7.408	0.000	2.650							0.387
Child 0-2	0.110	0.091	0.087	0.032	0.109	0.113	0.184	0.104	0.079	0.051	0.071	0.042	0.000	0.088	0.073
Child 3-6	0.161	0.143	0.121	0.128	0.174	0.113	0.289	0.155	0.120	0.080	0.118	0.058	0.037	0.147	0.109
Child 7-11	0.191	0.141	0.121	0.127	0.239	0.169	0.079	0.180	0.152	0.095	0.071	0.093	0.111	0.205	0.137
Husband salaried	0.170	0.231	0.174	0.500	0.065	0.099	0.237	0.177	0.219	0.325	0.087	0.498	0.148	0.088	0.244
Husband has basic education	0.085	0.038	0.040	0.011	0.043	0.042	0.079	0.076	0.142	0.038	0.008	0.039	0.037	0.118	0.113
Husband secondary education or above	0.117	0.244	0.234	0.606	0.000	0.042	0.052	0.136	0.151	0.356	0.150	0.517	0.148	0.059	0.203
Log agricultural wage in village*	1.958	1.963	1.957	1.936	1.995	1.922	2.075	1.960							
Percent of landless households in village*	0.599	0.617	0.618	0.687	0.677	0.483	0.620	0.601							
Average plot of agricultural land in village (*qirats*)*	25.9	26.3	24.3	32.5	33.8	23.1	17.1	25.9							
Social Capital Index*	0.288	0.290	0.311	0.360	0.338	0.154	0.226	0.287							
Economic Capital Index*	0.544	0.580	0.604	0.574	0.522	0.585	0.559	0.552							
Number of observations	2,014	398	149	94	46	71	38	2,501	1,272	452	127	259	27	39	1,772

Source: EIHS 1997.

Note: All variables are dummy variables except for those marked by an asterisk (*).

Table 10—Marginal effects from binomial logit model—Probability of being active (males, 15–64)

	Baseline Model		Community Model
	Urban	**Rural**	**Rural**
Probability for Reference Individual§	0.960	0.881	0.888
Marginal effects of)			
Region (reference is Lower Egypt			
Metropolitan	-0.013		
	(-1.508)		
Upper Egypt	-0.025 **	-0.001	-0.007
	(-2.461)	(-0.042)	(-0.337)
Age group (Reference is 35-44)			
Age 15-24	-0.152 ***	-0.158 ***	-0.111 **
	(-4.907)	(-3.177)	(-2.255)
Age 25-34	0.016	0.046	0.043
	(1.468)	(1.581)	(1.388)
Age 45-54	-0.021	-0.059	-0.028
	(-1.404)	(-1.445)	(-0.640)
Age 55+	-0.195 ***	-0.315 ***	-0.292 ***
	(-6.181)	(-5.170)	(-4.909)
Marital and headship status			
Not married	-0.067 ***	-0.088 ***	-0.119 ***
	(-2.626)	(-3.361)	(-4.692)
Head of household	0.002	0.069 ***	0.064 ***
	(0.241)	(3.512)	(2.966)
Educational attainment (no schooling is reference)			
Less than basic	0.010	0.055 ***	0.050 ***
	(0.853)	(3.646)	(3.154)
Basic education	-0.050 ***	-0.160 ***	-0.164 ***
	(-2.960)	(-4.812)	(-4.674)
Secondary and technical	-0.011	0.005	-0.007
	(-0.837)	(0.527)	(0.048)
High institute	0.013		
	(0.949)		
University	0.021 ***		
	(2.703)		
Higher education		-0.016	-0.001
		(-0.295)	(0.220)
Household assets			
Presence of livestock		0.011	0.010
		(0.791)	(0.611)
Size of landholding (in *qirats*)		0.001	0.000
		(0.931)	(0.917)
Community-level variables			
Log mean agricultural wage			-0.015
			(-0.281)
Proportion of landless households			0.026
			(0.423)
Average agricultural plot size (in *qirats*)			0.000
			(-0.170)
Social Capital Index			0.005
			(0.186)
Economic Capital Index			-0.055
			(-1.590)
Log-likelihood function	-746.9	-964.4	-783.8
Number of observations	1,745	2,287	1,874

Notes: The t-statistic (in parentheses) is that of the associated binomial logit coefficient. The standard errors have been corrected for the cluster design of the survey. The marginal effects are calculated for changes from 0 to 1 for dummy variables and for variables measured as proportions and infinitesimal changes for continuous variables. § The reference individual is 35 to 44 years of age, married, not a household head, lives in Lower Egypt and has not gone to school. In rural area, he lives in a household with no livestock and that has the average amount of land. *** Significant at the 1 percent level; ** significant at the 5 percent level; * significant at the 10 percent level.

Table 11—Marginal effects from multinomial logit model—Probability of being unemployed (economically active males, 15–64)

	Baseline Model		Community Model
	Urban	**Rural**	**Rural**
Probability for Reference Individual§	0.026	0.035	0.038
Marginal effects of :			
Region (reference is Lower Egypt)			
Metropolitan	0.004		
	(-0.223)		
Upper Egypt	-0.004	-0.001	0.000
	(-0.975)	(1.230)	(1.283)
Age group (reference is 35-44)			
Age 15-24	0.071 ***	0.026 ***	0.028 ***
	(4.450)	(5.062)	(5.070)
Age 25-34	0.014 *	0.009 *	0.012 *
	(1.892)	(1.940)	(1.818)
Age 45-54	-0.012	0.006	0.002
	(-1.342)	(-0.229)	(-0.247)
Age 55+	-0.002	0.041 *	0.021
	(-0.398)	(1.713)	(1.366)
Marital and headship status			
Not Married	0.025	0.027 ***	0.026 ***
	(1.302)	(4.216)	(3.751)
Head of household	-0.008	-0.017 ***	-0.015 **
	(-1.439)	(-2.975)	(-2.482)
Educational attainment (no schooling is reference)			
Less than basic	0.038	-0.009	-0.011
	(1.194)	(-1.023)	(-1.336)
Basic education	-0.001	-0.017 ***	-0.018 ***
	(-1.490)	(-3.245)	(-2.906)
Secondary and technical	0.031	0.026	0.029
	(-0.578)	(-0.855)	(-1.427)
High institute	0.030		
	(-0.818)		
University	0.006 **		
	(-1.983)		
High institute or university		0.013	0.010 **
		(-1.574)	(-2.465)
Household assets			
Presence of livestock		-0.008	-0.014
		(1.282)	(0.485)
Size of landholding (in *qirats*)		0.000	0.001
		(-0.917)	(-0.832)
Community-level variables			
Log mean agricultural wage			-0.017
			(0.183)
Proportion of landless households			-0.022 *
			(-1.742)
Average agricultural plot size (in *qirats*)			0.000
			(0.665)
Social Capital Index			0.063 *
			(1.866)
Economic Capital Index			-0.036
			(0.260)
Log-likelihood function	-1,340.8	-2,066.3	-1,633.6
Number of observations	1,272	1,727	1,420

Notes: The t-statistic (in parenthesis) is that of the associated coefficient from the multinomial logit model, where salaried employment is the base outcome. The standard errors have been corrected for the cluster design of the survey. The marginal effects are calculated for changes from 0 to 1 for dummy variables and for variables measured as proportions and infinitesimal changes for continuous variables. § The reference individual is 35 to 44 years of age, married, not a household head, lives in Lower Egypt and has not gone to school. In rural area, he lives in a household with no livestock and has the average amount of land. *** Significant at the 1 percent level; ** significant at the 5 percent level; * significant at the 10 percent level.

Table 12—Marginal effects from multinomial logit model—Probability of being a salaried worker (economically active males, 15–64)

	Baseline Model		Community Model
	Urban	**Rural**	**Rural**
Probability for Reference Individual§	0.211	0.305	0.230
Marginal effects of :			
Region (reference is Lower Egypt)			
Metropolitan	0.059		
Upper Egypt	0.055	-0.096	-0.073
Age group (reference is 35-44)			
Age 15-24	-0.115	-0.247	-0.189
Age 25-34	-0.074	-0.125	-0.093
Age 45-54	0.043	0.080	0.048
Age 55+	0.063	-0.068	-0.077
Marital and headship status			
Not married	-0.005	-0.126	-0.102
Head of household	0.096	0.067	0.078
Educational attainment (no schooling is reference)			
Less than basic	0.034	0.093	0.146
Basic education	0.198	0.353	0.378
Secondary and technical	0.317	0.485	0.541
High institute	0.427		
University	0.545		
High institute or university		0.587	0.671
Household assets:			
Presence of livestock		-0.140	-0.105
Size of landholding (in Qirats)		0.002	0.006
Community-level variables:			
Log Mean Agric. Wage			-0.061
Proportion of Landless Households			0.156
Average Agric Plot Size (in Qirats)			-0.003
Social Capital Index			0.017
Economic Capital Index			-0.142
Log-likelihood function	-1,340.8	-2,066.3	-1,633.6
Number of Observations	1,272	1,727	1,420

Notes: t-statistics are not available for the marginal effects on the probability of being a salaried worker because this is the base outcome in the multinomial logit model. The marginal effects are calculated for changes of 0-1for dummy variables and for variables measured as proportions and infinitesimal changes for continuous variables. § The reference individual is 35 to 44 years of age, married, not a household head, lives in Lower Egypt and has not gone to school. In the rural area, he lives in a household with no livestock and that has the average amount of land.

Table 13—Marginal effects from multinomial logit model—Probability of being a casual worker (economically active males, 15–64)

	Baseline Model		Community Model
	Urban	Rural	Rural
Probability for Reference Individual§	0.280	0.347	0.305
Marginal effects of			
Region (reference is Lower Egypt)			
Metropolitan	0.097		
	(0.151)		
Upper Egypt	0.012	0.092 **	0.086 **
	(-0.619)	(2.451)	(2.324)
Age group (reference is 35-44)			
Age 15-24	0.095 **	0.172 ***	0.098 ***
	(2.293)	(6.031)	(4.832)
Age 25-34	-0.001	0.067 ***	0.005 **
	(1.012)	(3.223)	(1.979)
Age 45-54	-0.109 **	-0.113 ***	-0.102 **
	(-2.542)	(-2.893)	(-2.546)
Age 55+	-0.123 *	-0.162	-0.156
	(-1.925)	(-1.510)	(-1.038)
Marital and headship status			
Not married	0.099	0.113 ***	0.082 ***
	(0.945)	(3.009)	(2.631)
Head of household	0.001 *	0.000	0.067
	(-1.693)	(-0.707)	(-0.363)
Educational attainment (no schooling is reference)			
Less than basic	-0.047	-0.053	-0.070 **
	(-0.990)	(-1.498)	(-2.357)
Basic education	-0.057 **	-0.196 ***	-0.175 ***
	(-2.372)	(-6.531)	(-6.306)
Secondary and technical	-0.142 ***	-0.279 ***	-0.250 ***
	(-4.286)	(-9.328)	(-8.772)
High institute	-0.214 ***		
	(-5.068)		
University	-0.252 ***		
	(-7.537)		
High institute or university		-0.320 ***	-0.291 ***
		(-7.780)	(-6.382)
Household assets			
Presence of livestock		-0.137	-0.089
		(0.196)	(0.980)
Size of landholding (in *qirats*)		-0.002	-0.015 ***
		(-0.153)	(-4.066)
Community-level variables			
Log mean agricultureal wage			-0.086
			(0.067)
Proportion of landless households			-0.033
			(-1.357)
Average agricultural plot size (in *qirats*)			0.002 *
			(1.766)
Social Capital Index			-0.123
			(-1.106)
Economic Capital Index			-0.090
			(0.684)
Log-likelihood function	-1,340.8	-2,066.3	-1,633.6
Number of Observations	1,272	1,727	1,420

Notes: The t-statistic (in parenthesis) is that of the associated coefficient from the multinomial logit model, where salaried employment is the base outcome. The standard errors have been corrected for the cluster design of the survey. The marginal effects are calculated for changes from 0 to 1 for dummy variables and for variables measured as proportions and infinitesimal changes for continuous variables. § The reference individual is 35 to 44 years of age, married, not a household head, lives in Lower Egypt and has not gone to school. In rural area, he lives in a household with no livestock and that has the average amount of land. *** Significant at the 1 percent level; ** significant at the 5 percent level; * significant at the 10 percent level.

Table 14—Marginal effects from multinomial logit model—Probability of being a self-employed worker (economically active males, 15–64)

	Baseline Model		Community Model
	Urban	**Rural**	**Rural**
Probability for Reference Individual§	0.483	0.110	0.106
Marginal effects of			
Region (reference is Lower Egypt)			
Metropolitan	-0.161 *		
	(-1.880)		
Upper Egypt	-0.063	0.010 *	-0.003
	(-1.126)	(1.704)	(1.250)
Age group (reference is 35-44)			
Age 15-24	-0.051	-0.013 ***	-0.010 ***
	(1.282)	(3.517)	(3.196)
Age 25-34	0.061	0.011 **	0.028 *
	(1.374)	(2.045)	(1.858)
Age 45-54	0.078	0.001	0.038
	(-0.593)	(-0.808)	(0.140)
Age 55+	0.062	0.039	0.066 **
	(-0.899)	(1.521)	(2.211)
Marital and headship status			
Not married	-0.119	-0.022	-0.028
	(-1.102)	(1.355)	(1.047)
Head of household	-0.088 **	0.026	0.016
	(-2.419)	(0.247)	(-0.614)
Educational attainment			
Less than basic	-0.025	0.015	0.019
	(-0.501)	(-0.521)	(-1.147)
Basic education	-0.140 ***	-0.029 ***	-0.009 ***
	(-3.388)	(-3.261)	(-3.010)
Secondary and technical	-0.206 ***	-0.066 ***	-0.053 ***
	(-5.342)	(-6.755)	(-6.281)
High institute	-0.242 ***		
	(-4.428)		
University	-0.299 ***		
	(-5.982)		
High institute or university		-0.092 ***	-0.093 ***
		(-5.636)	(-5.225)
Household assets			
Presence of livestock		-0.031	-0.026
		(1.265)	(1.257)
Size of landholding (in *qirats*)		-0.007 ***	-0.006 ***
		(-3.143)	(-2.672)
Community-level variables			
Log mean agricultural wage			0.073
			(1.209)
Proportion of landless households			0.152
			(1.301)
Average agricultural plot size (in *qirats*)			-0.001
			(0.924)
Social Capital Index			0.020
			(0.292)
Economic Capital Index			0.172 ***
			(2.732)
Log-likelihood function	-1340.8	-2066.3	-1633.6
Number of observations	1,272	1,727	1,420

Notes: The t-statistic (in parenthesis) is that of the associated coefficient from the multinomial logit model, where salaried employment is the base outcome. The standard errors have been corrected for the cluster design of the survey. he marginal effects are calculated for changes from 0 to 1 for dummy variables and for variables measured as proportions and infinitesimal changes for continuous variables. § The reference individual is 35 to 44 years of age, married, not a household head, lives in Lower Egypt and has not gone to school. In rural area, he lives in a household with no livestock and that has the average amount of land. *** Significant at the 1 percent level; ** significant at the 5 percent level; * significant at the 10 percent level.

Table 15—Marginal effects from multinomial logit model—Probability of being a farmer (economically active males, 15-64)

	Baseline Model Rural	Community Model Rural
Probability for Reference Individual§	0.203	0.322
Marginal effects of		
Region (reference is Lower Egypt)		
Upper Egypt	-0.005	-0.010
	(1.317)	(1.288)
Age group (reference is 35-44)		
Age 15-24	0.063 ***	0.073 ***
	(5.055)	(4.753)
Age 25-34	0.039 ***	0.048 **
	(3.028)	(2.528)
Age 45-54	0.026	0.014
	(-0.631)	(-0.675)
Age 55+	0.151 **	0.145 **
	(2.408)	(2.415)
Marital and headship status		
Not married	0.008 ***	0.022 **
	(2.675)	(2.508)
Head of household	-0.076 **	-0.145 ***
	(-2.217)	(-3.837)
Educational attainment (no schooling is reference)		
Less than basic	-0.047 *	-0.084 **
	(-1.777)	(-2.456)
Basic education	-0.111 ***	-0.177 ***
	(-4.727)	(-5.269)
Secondary and technical	-0.166 ***	-0.266 ***
	(-8.073)	(-8.725)
High institute or university	-0.188 ***	-0.297 ***
	(-6.983)	(-7.607)
Household assets		
Presence of livestock	0.316 ***	0.234 ***
	(6.530)	(5.473)
Size of landholding (in *qirats*)	0.007	0.014 ***
	(1.461)	(4.017)
1 Community-level variables		
Log mean agricultural wage		0.091
		(1.378)
Proportion of landless households		-0.253 **
		(-2.012)
Average agricultural plot size (in *qirats*)		0.002
		(1.516)
Social Capital Index		0.024
		(0.234)
Economic Capital Index		0.097 *
		(1.791)
Log-likelihood function	-2066.3	-1633.6
Number of observations	1727	1420

Notes: The t-statistic (in parenthesis) is that of the associated coefficient from the multinomial logit model, where salaried employment is the base outcome. The standard errors have been corrected for the cluster design of the survey. The marginal effects are calculated for changes from 0 to 1 for dummy variables and for variables measured as proportions and infinitesimal changes for continuous variables. § The reference individual is 35 to 44 years of age, married, not a household head, lives in Lower Egypt and has not gone to school. In rural area, he lives in a household with no livestock and that has the average amount of land. *** Significant at the 1 percent level; ** significant at the 5 percent level; * significant at the 10 percent level.

Table 16—Marginal effects from binomial logit model—Probability of being economically active (females, 15-64)

	Baseline Model		Household Model		Community Model
	Urban	Rural	Urban	Rural	Rural
Probability for Reference Individual §	0.114	0.116	0.114	0.118	0.130
Marginal effects of					
Region (reference is Lower Egypt)					
Metropolitan	-0.024		-0.025		
	(-1.566)		(-1.371)		
Upper Egypt	-0.016	-0.053 ***	-0.020	-0.054 ***	-0.063
	(-1.075)	(-3.466)	(-1.202)	(-3.398)	(-3.733)
Age group (reference is 35-44)					
Age 15-24	-0.095 ***	-0.028	-0.195 ***	-0.028	-0.040
	(-6.917)	(-1.339)	(-6.666)	(-1.210)	(-1.828)
Age 25-34	-0.066 ***	-0.001	-0.091 ***	-0.003	-0.020
	(-5.057)	(0.274)	(-4.317)	(0.193)	(-0.764)
Age 45+	-0.077 ***	-0.026	-0.125 ***	-0.027	-0.043
	(-5.632)	(-0.976)	(-5.652)	(-0.965)	(-1.434)
Marital and headship status					
Not Married	0.141 ***	0.039 *	0.103 ***	0.039	0.044
	(5.326)	(1.694)	(4.211)	(1.446)	(1.699)
Head of household	0.094 **	0.207 ***	0.074 **	0.209 ***	0.275
	(1.973)	(4.385)	(2.053)	(4.358)	(4.300)
Educational attainment (reference is no schooling)					
Less than basic	0.079 **	0.030	0.064 **	0.030	0.011
	(2.482)	(1.513)	(2.420)	(1.479)	(0.630)
Basic education	0.047 *	-0.028	0.039 *	-0.028	-0.033
	(1.799)	(-1.035)	(1.806)	(-1.019)	(-1.014)
Secondary and above	0.634 ***	0.488 ***	0.342 ***	0.481 ***	0.500
	(13.863)	(10.061)	(12.738)	(8.890)	(8.540)
Household assets					
Presence of livestock		-0.003		-0.003	-0.009
		(-0.138)		(-0.164)	(-0.399)
Size of landholding (in *qirats*)		-0.001		-0.001	-0.001
		(-1.114)		(-1.158)	(-1.166)
Presence of children					
Child 0-2			-0.021	0.007	
			(-0.560)	(-0.009)	
Child 3-6			-0.009	0.015	
			(-0.508)	(0.560)	
Child 7-11			0.003	-0.016	
			(0.431)	(-0.679)	
Husband's characteristics:					
Husband salaried			0.045 **	0.005	
			(2.219)	(0.125)	
Husband has basic education			-0.096 ***	-0.030	
			(-2.591)	(-1.345)	
Husband has secondary education or above			-0.008	0.004	
			(-0.927)	(0.390)	
Community-level variables					
Log mean agricultural wage					0.005
					(-0.045)
Proportion of landless households					0.030
					(0.307)
Average agricultural plot size (in *qirats*)					-0.001
					(-1.101)
Social Capital Index					-0.057
					(-1.258)
Economic Capital Index					0.064
					(1.003)
Log-likelihood function	-714.9	-861.6	-706.7	-860.3	-680.0
Number of observations	1,724	2,412	1,724	2,414	1,971

Notes: The t-statistic (in parentheses) is that of the associated binomial logit coefficient. Standard errors have been corrected for the cluster design of the survey. Marginal effects are calculated for changes from 0 to 1 for dummy variables and for variables measured as proportions and infinitesimal changes for continuous variables. § The reference individual is 35 to 44 years of age, married, not a household head, lives in Lower Egypt and has not gone to school. In rural area, she lives in a household that has no livestock and has the average amount of land. *** Significant at the 1 percent level; ** significant at 5 percent level; * significant at 10 percent level.

Table 17—Marginal effects from multinomial logit model—Probability of being unemployed (economically active females, 15-64)

	Baseline Model		Household Model		Community Model
	Urban	Rural	Urban	Rural	Rural
Probability for Reference Individual§	0.068	0.192	0.137	0.176	0.267
Marginal effects of :					
Region (reference is Lower Egypt)					
Metropolitan	-0.038 ***		-0.072 **		
	(-2.761)		(-2.528)		
Upper Egypt	-0.029 **	-0.096	-0.056 *	-0.105	-0.144
	(-2.292)	(-0.193)	(-1.909)	(-0.347)	(-0.692)
Age group (reference is 35-44)					
Age 15-24	0.398 ***	0.143 ***	0.429 ***	0.083 ***	0.086 ***
	(6.573)	(5.888)	(5.620)	(5.876)	(3.909)
Age 25-34	0.203 ***	0.114 ***	0.227 ***	0.063 ***	0.099 **
	(4.582)	(2.944)	(3.244)	(2.923)	(2.280)
Age 45+	##	-0.097	-0.114 *	-0.102	-0.152
		(-0.913)	(-1.728)	(-0.769)	(-1.053)
Marital and headship status					
Not married	0.088 ***	0.102	0.135 **	0.193	0.091
	(4.024)	(1.274)	(2.151)	(1.192)	(1.314)
Head of household	0.021	-0.098	0.047	-0.090	-0.138
	(-0.046)	(-0.628)	(0.147)	(-1.021)	(-1.203)
Educational attainment (reference is no schooling)					
Less than basic	-0.032	0.044	-0.079	0.080	0.015
	(-0.736)	(-1.407)	(-0.933)	(-0.936)	(-1.447)
Basic education	-0.026	-0.085 ***	-0.071 *	-0.093 ***	0.021
	(-1.500)	(-3.618)	(-1.732)	(-3.603)	(-1.091)
Secondary and above	-0.012	-0.090 ***	-0.042	-0.064 ***	-0.154 ***
	(-1.570)	(-4.966)	(-1.624)	(-4.108)	(-4.451)
Household assets					
Presence of livestock		-0.111 *		-0.104 *	-0.110
		(1.662)		(1.692)	(1.010)
Size of landholding (in *qirats*)		0.015		0.018	0.019
		(1.039)		(1.359)	(0.811)
Presence of children					
Child 0-2			-0.012	0.033 **	
			(0.405)	(2.357)	
Child 3-6			0.039 **	-0.052	
			(1.973)	(-1.106)	
Child 7-11			-0.065	-0.063	
			(-1.381)	(-0.189)	
Husband's characteristics:					
Husband salaried			-0.072 ***	-0.039 *	
			(-3.212)	(-1.656)	
Husband has basic education			-0.099	0.156 ***	
			(-0.404)	(2.807)	
Husband has secondary education or above			0.048	0.184	
			(1.040)	(1.069)	
Community-level variables					
Log mean agricultural wage					0.032
					(0.762)
Proportion of landless households					0.109
					(0.549)
Average agricultural plot size (in *qirats*)					-0.004
					(0.391)
Social Capital Index					0.071
					(-0.170)
Economic Capital Index					-0.041
					(0.830)
Log-likelihood function	-353.0	-350.0	-336.4	-332.6	-256.6
Number of observations	452	398	452	398	309

Notes: The t-statistic (in parenthesis) is that of the associated coefficient from the multinomial logit model, where salaried employment is the base outcome. The standard errors have been corrected for the cluster design of the survey. The marginal effects are calculated for changes from 0 to 1 for dummy variables and for variables measured as proportions and infinitesimal changes for continuous variables. § The reference individual is 35 to 44 years of age, married, not a household head, lives in Lower Egypt and has not gone to school. In rural area, she lives in a household that has no livestock and has the average amount of land. *** Significant at the 1 percent level; ** significant at the 5 percent level; * significant at the 10 percent level. ## Dropped due to 0 observations with the unemployed outcome.

Table 18—Marginal effects from multinomial logit model—Probability of being a salaried worker (economically active females, 15–64)

	Baseline Model		Household Model		Community Model
	Urban	Rural	Urban	Rural	Rural
Probability for Reference Individual§	0.427	0.060	0.360	0.052	0.036
Marginal effects of					
Region (reference is Lower Egypt)					
Metropolitan	0.127		0.117		
Upper Egypt	0.140	-0.027	0.084	-0.027	-0.014
Age group (reference is 35-44)					
Age 15-24	-0.290	-0.056	-0.262	-0.050	-0.034
Age 25-34	-0.190	-0.039	-0.153	-0.037	-0.027
Age 45+	-0.062	-0.008	0.054	-0.017	0.002
Marital and headship status					
Not married	-0.156	-0.005	-0.131	0.006	-0.014
Head of household	0.103	-0.003	0.054	0.014	0.022
Educational attainment (reference is no schooling)					
Less than basic	0.053	0.226	0.044	0.157	0.286
Basic education	0.299	0.579	0.269	0.625	0.175
Secondary and above	0.485	0.824	0.470	0.809	0.839
Household assets					
Presence of livestock		-0.046		-0.041	-0.024
Size of landholding (in *qirats*)		-0.001		-0.001	0.001
Presence of children					
Child 0-2			-0.143	-0.043	
Child 3-6			-0.186	0.025	
Child 7-11			0.053	-0.001	
Husband's characteristics					
Husband salaried			0.388	0.060	
Husband has basic education			-0.224	-0.047	
Husband has secondary education or above			-0.100	0.008	
Community-level variables					
Log mean agricultural wage					-0.029
Proportion of landless households					-0.001
Average agricultural plot size (in *qirats*)					-0.002
Social Capital Index					0.006
Economic Capital Index					-0.064
Log-likelihood function	-353.0	-350.0	-336.4	-332.6	-256.6
Number of observations	452	398	452	398	309

Notes: t-statistics are not available for the marginal effects on the probability of being a salaried worker because this is the base outcome in the multinomial logit model. The marginal effects are calculated for changes from 0 to 1 for dummy variables and for variables that are measured as proportions and for infinitesimal changes for continuous variables. § The reference individual is 35 to 44 years of age, married, not a household head, lives in Lower Egypt and has not gone to school. In a rural area, she lives in a household that has no livestock and that has the average amount of land. *** Significant at the 1 percent level; ** significant at the 5 percent level; * significant at the 10 percent level.

Table 19—Marginal effects from multinomial logit model—Probability of being a casual worker (economically active females, 15–64)

	Baseline Model		Household Model		Community Model
	Urban	Rural	Urban	Rural	Rural
Probability for Reference Individual§	0.079	0.370	0.078	0.358	0.428
Marginal effects of					
Region (reference is Lower Egypt)					
Metropolitan	0.060		0.072		
	(0.537)		(0.658)		
Upper Egypt	0.008	-0.230	0.008	-0.246	-0.266
	(-0.290)	(-0.488)	(-0.188)	(-0.565)	(-0.576)
Age group (reference is 35-44)					
Age 15-24	0.135 ***	-0.175 **	0.118 ***	-0.166 ***	-0.159
	(2.966)	(2.380)	(2.929)	(2.560)	(2.189)
Age 25-34	0.091 **	-0.209	0.080 *	-0.179	-0.204
	(2.008)	(0.035)	(1.855)	(0.557)	(0.635)
Age 45+	0.027	-0.223	0.028	-0.217	-0.235
	(0.637)	(-1.362)	(0.370)	(-0.930)	(-1.145)
Marital and headship status					
Not married	0.019	0.066	0.028	0.030	0.052
	(0.721)	(0.498)	(0.484)	(0.060)	(0.916)
Head of household	-0.035	0.097	-0.036	0.102	0.148
	(-1.245)	(0.388)	(-1.265)	(0.052)	(-0.267)
Educational attainment (reference is no schooling)					
Less than basic	-0.019	-0.176 **	-0.029	-0.158 *	-0.292
	(-0.398)	(-2.359)	(-0.587)	(-1.900)	(-2.558)
Basic education	-0.042 *	-0.176 ***	-0.044 **	-0.167 ***	0.010
	(-1.836)	(-3.437)	(-2.138)	(-3.121)	(-1.270)
Secondary and above	-0.069 ***	-0.364 ***	-0.069 ***	-0.350 ***	-0.420
	(-5.588)	(-7.237)	(-5.634)	(-6.372)	(-6.014)
Household assets					
Presence of livestock		-0.143		-0.127 *	-0.139
		(1.631)		(1.846)	(0.939)
Size of landholding (in *qirats*)		-0.021		-0.026	-0.025
		(-1.181)		(-1.074)	(-1.106)
Presence of children					
Child 0-2			##	-0.099	
				(1.488)	
Child 3-6			-0.044	-0.057	
			(-0.338)	(-0.536)	
Child 7-11			0.003	0.172	
			(-0.182)	(0.938)	
Husband's characteristics					
Husband salaried			0.001	-0.205 **	
			(-0.821)	(-2.087)	
Husband has basic education			-0.008	-0.077 *	
			(0.914)	(1.745)	
Husband has secondary education or above			0.059	##	
			(0.904)		
Community-level variables					
Log mean agricultural wage					-0.025
					(0.189)
Proportion of landless households					0.337
					(0.685)
Average agricultural plot size (in *qirats*)					0.003
					(1.575)
Social Capital Index					0.069
					(-0.065)
Economic Capital Index					-0.129
					(0.135)
Log-likelihood function	-353.0	-350.0	-336.4	-332.6	-256.6
Number of observations	452	398	452	398	309

Notes: t-statistics (in parenthesis) are that of the associated coefficient from the multinomial logit model, where salaried employment is the base outcome. The standard errors have been corrected for the cluster design of the survey. The marginal effects are calculated for changes from 0 to 1 for dummy variables and for variables measured as proportions and infinitesimal changes for continuous variables. § The reference individual is 35 to 44 years of age, married, not a household head, lives in Lower Egypt and has not gone to school. In a rural area, she lives in a household that has no livestock and that has the average amount of land. *** Significant at the 1 percent level; ** significant at the 5 percent level; * significant at the 10 percent level. ## Dropped due to too few observations with the salary outcome.

Table 20—Marginal effects from multinomial logit model—Probability of being a self-employed (economically active females, 15–64)

	Baseline Model		Household Model		Community Model
	Urban	Rural	Urban	Rural	Rural
Probability for Reference Individual§	0.451	0.182	0.425	0.216	0.136
Marginal effects of					
Region (reference is Lower Egypt)					
Metropolitan	-0.149		-0.118		
	(-1.060)		(-1.094)		
Upper Egypt	-0.119	0.527 ***	-0.035	0.560 ***	0.533
	(-0.927)	(3.075)	(-0.332)	(2.810)	(2.401)
Age group (reference is 35-44)					
Age 15-24	-0.243	-0.025 **	-0.285	-0.032 **	-0.004
	(0.502)	(2.332)	(0.027)	(2.306)	(2.262)
Age 25-34	-0.104	0.061 *	-0.154	-0.047	-0.029
	(0.576)	(1.721)	(0.017)	(1.222)	(1.107)
Age 45+	0.046	0.318	0.031	0.304	0.255
	(0.189)	(1.198)	(-0.242)	(1.344)	(0.942)
Marital and headship status					
Not married	0.048	-0.140 *	-0.033	-0.177 **	-0.106
	(0.744)	(-1.665)	(0.365)	(-1.992)	(-0.867)
Head of household	-0.090	-0.125	-0.065	-0.138	-0.098
	(-0.414)	(-0.948)	(-0.393)	(-1.070)	(-1.259)
Educational attainment (reference is no schooling)					
Less than basic	-0.001	-0.034	0.064	-0.036	0.004
	(-0.204)	(-1.622)	(0.022)	(-1.358)	(-1.212)
Basic education	-0.231	-0.151 ***	-0.155	-0.193 ***	-0.100
	(-1.503)	(-4.330)	(-1.127)	(-4.752)	(-2.180)
Secondary and above	-0.403 ***	-0.176 ***	-0.359 ***	-0.202 ***	-0.131
	(-5.565)	(-6.554)	(-4.152)	(-4.943)	(-6.480)
Household assets					
Presence of livestock		-0.168		-0.203	-0.124
		(-1.342)		(-1.598)	(-1.518)
Size of landholding (in *qirats*)		##		##	##
Presence of children					
Child 0-2			0.186	-0.127	
			(1.374)	(0.746)	
Child 3-6			0.191 *	0.236	
			(1.635)	(0.544)	
Child 7-11			0.009	-0.173 *	
			(-0.019)	(-1.757)	
Husband's characteristics					
Husband salaried			-0.317 ***	0.291	
			(-2.997)	(-0.029)	
Husband has basic education			0.330 *	-0.120	
			(1.751)	(1.183)	
Husband has secondary education or above			-0.006	-0.161	
			(0.202)	(-0.833)	
Community-level variables					
Log mean agricultural wage					0.014
					(0.921)
Proportion of landless households					-0.198
					(-0.396)
Average agricultural plot size (in *qirats*)					0.000
					(0.906)
Social Capital Index					-0.065
					(-1.509)
Economic Capital Index					0.092
					(1.616)
Log-likelihood function	-353.0	-350.0	-336.4	-332.6	-256.6
Number of observations	452	398	452	398	309

Notes: The t-statistic (in parenthesis) is that of the associated coefficient from the multinomial logit model, where salaried employment is the base outcome. The standard errors have been corrected for the cluster design of the survey. The marginal effects are calculated for changes from 0 to 1 for dummy variables and for variables measured as proportions and infinitesimal changes for continuous variables. § The reference individual is 35 to 44 years of age, married, not a household head, lives in Lower Egypt and has not gone to school. In a rural area, she lives in a household that has no livestock and that has the average amount of land. *** Significant at the 1 percent level; ** significant at the 5 percent level; * significant at the 10 percent level. # # Dropped due to too few observation with the salaried outcome.

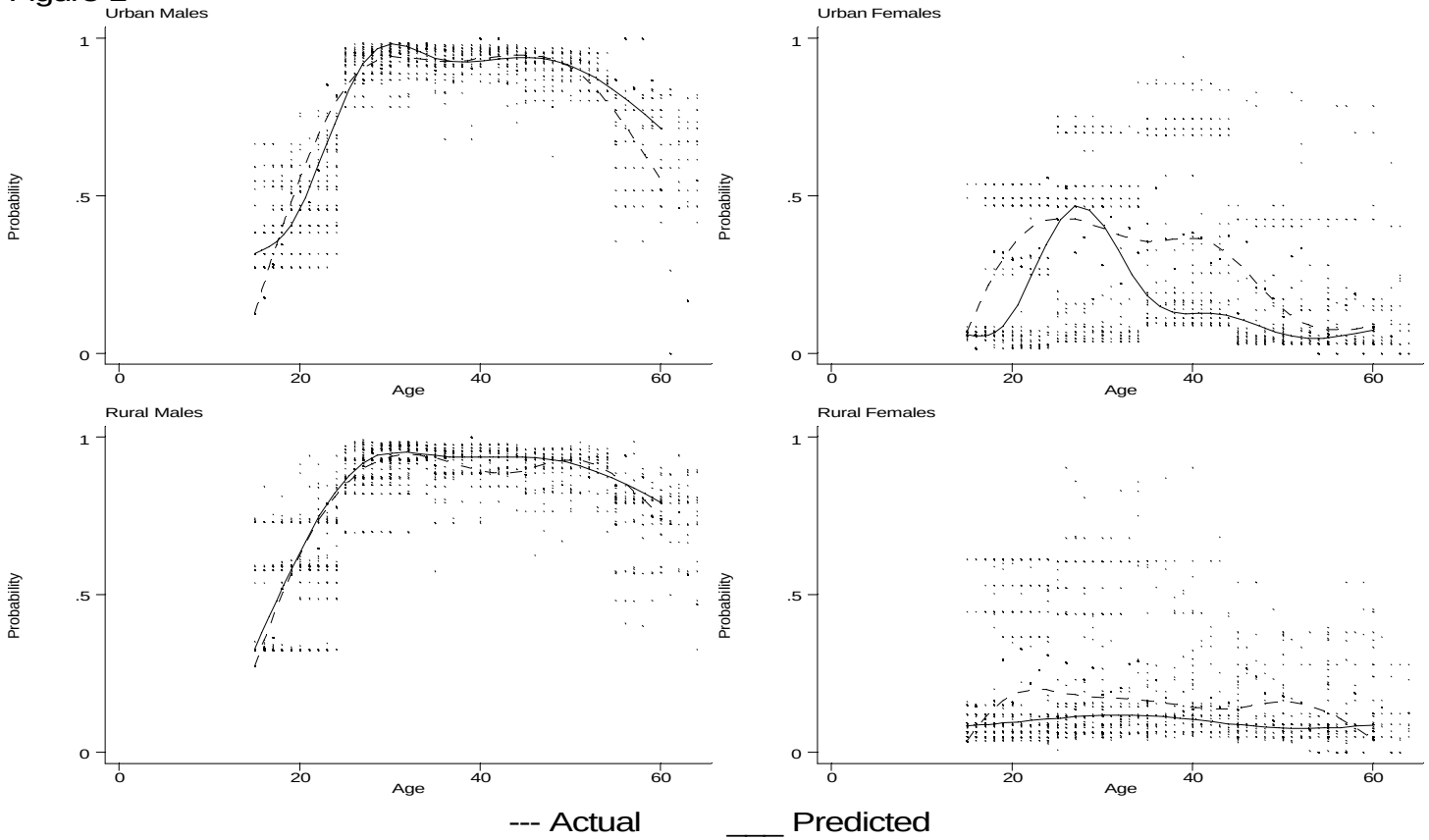
Table 21—Marginal effects from multinomial logit model—Probability of being a farmer (economically active females, 15–64)

	Baseline Model Rural	Household Model Rural	Community Model Rural
Probability for Reference Individual§	0.196	0.197	0.134
Marginal effects of			
Region (reference is Lower Egypt)			
Upper Egypt	-0.174 **	-0.182 **	-0.109
	(-2.304)	(-2.425)	(-1.476)
Age group (reference is 35-44)			
Age 15-24	0.113 ***	0.164 ***	0.112 ***
	(3.465)	(3.561)	(4.133)
Age 25-34	0.074	0.200 **	0.161 **
	(1.575)	(2.207)	(2.205)
Age 45+	0.009	0.033	0.129
	(-0.037)	(0.326)	(0.522)
Marital and headship status			
Not married	-0.023	-0.052	-0.024
	(-0.123)	(-0.643)	(0.354)
Head of household	0.129	0.113	0.066
	(0.660)	(0.173)	(-0.174)
Educational attainment (reference is no schooling)			
Less than basic	-0.059 *	-0.043	-0.013 *
	(-1.899)	(-1.421)	(-1.643)
Basic education	-0.167 ***	-0.173 ***	-0.106
	(-3.361)	(-3.407)	(-1.618)
Secondary and above	-0.194 ***	-0.195 ***	-0.133 ***
	(-7.126)	(-6.462)	(-5.403)
Household assets			
Presence of livestock	0.468 ***	0.475 ***	0.397 **
	(3.501)	(3.532)	(2.366)
Size of landholding (in *qirats*)	0.008 *	0.010 **	0.004 **
	(1.703)	(2.163)	(2.086)
Presence of children			
Child 0-2		0.235 **	
		(2.514)	
Child 3-6		-0.151 **	
		(-2.458)	
Child 7-11		0.065	
		(0.729)	
Husband's characteristics			
Husband salaried		-0.107 *	
		(-1.780)	
Husband has basic education		0.088 **	
		(2.527)	
Husband has secondary education or above		-0.086	
		(-0.470)	
Community-level variables			
Log mean agricultural wage			0.009
			(0.692)
Proportion of landless households			-0.246
			(-0.865)
Average agricultural plot size (in *qirats*)			0.002 ***
			(3.119)
Social Capital Index			-0.081
			(-1.162)
Economic Capital Index			0.141
			(1.513)
Log-likelihood function	-350.0	-332.6	-256.6
Number of observations	398	398	309

Notes: The t-statistic (in parenthesis) is that of the associated coefficient from the multinomial logit model, where salaried employment is the base outcome. The standard errors have been corrected for the cluster design of the survey. The marginal effects are calculated for changes from 0 to 1 for dummy variables and for variables measured as proportions and infinitesimal changes for continuous variables. § The reference individual is 35 to 44 years of age, married, not a household head, lives in Lower Egypt and has not gone to school. In a rural area, she lives in a household that has no livestock and that has the average amount of land. *** significant at the 1 percent level; ** significant at the 5 percent level; * significant at the 10 percent level. # # Dropped due to too few observation with the salaried outcome.

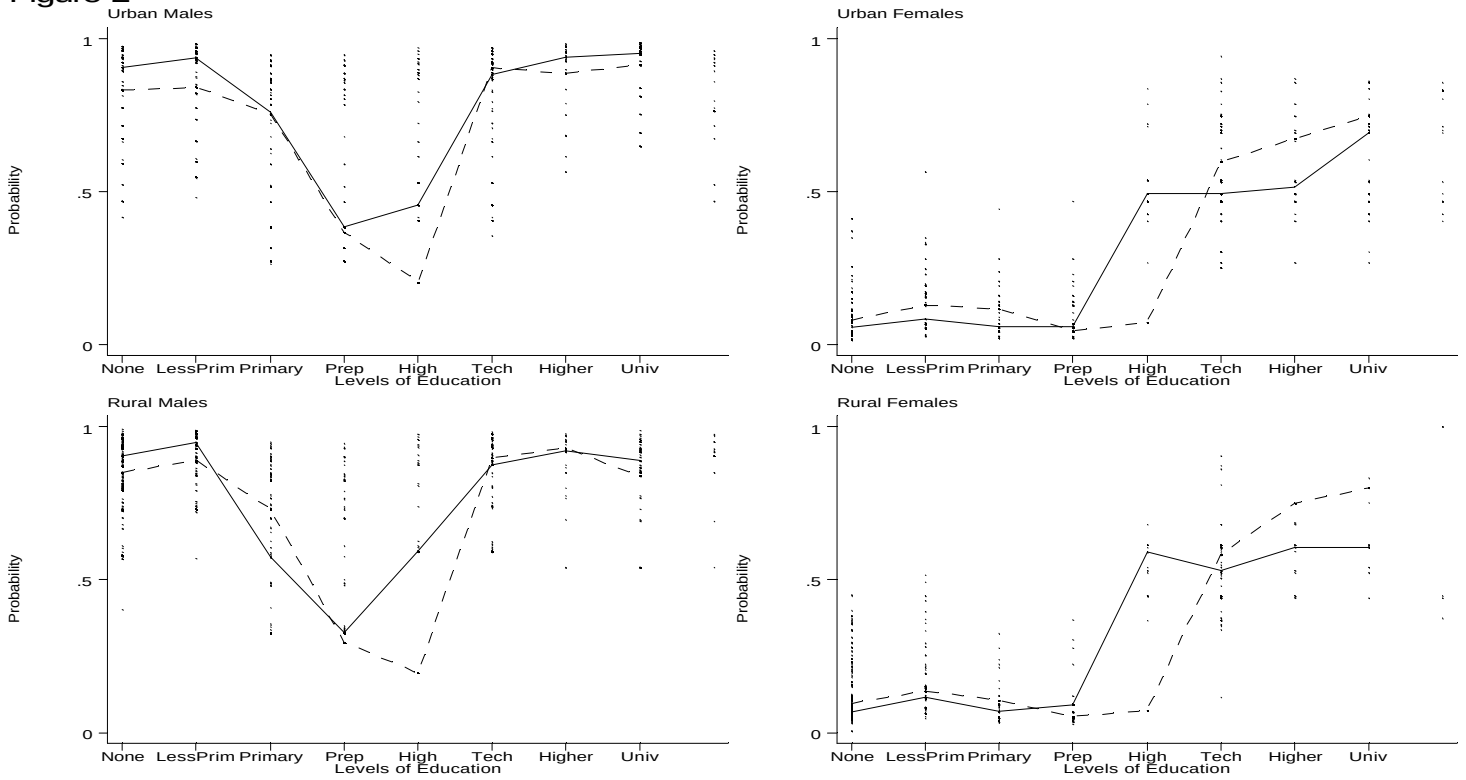
FIGURES

Figure 1



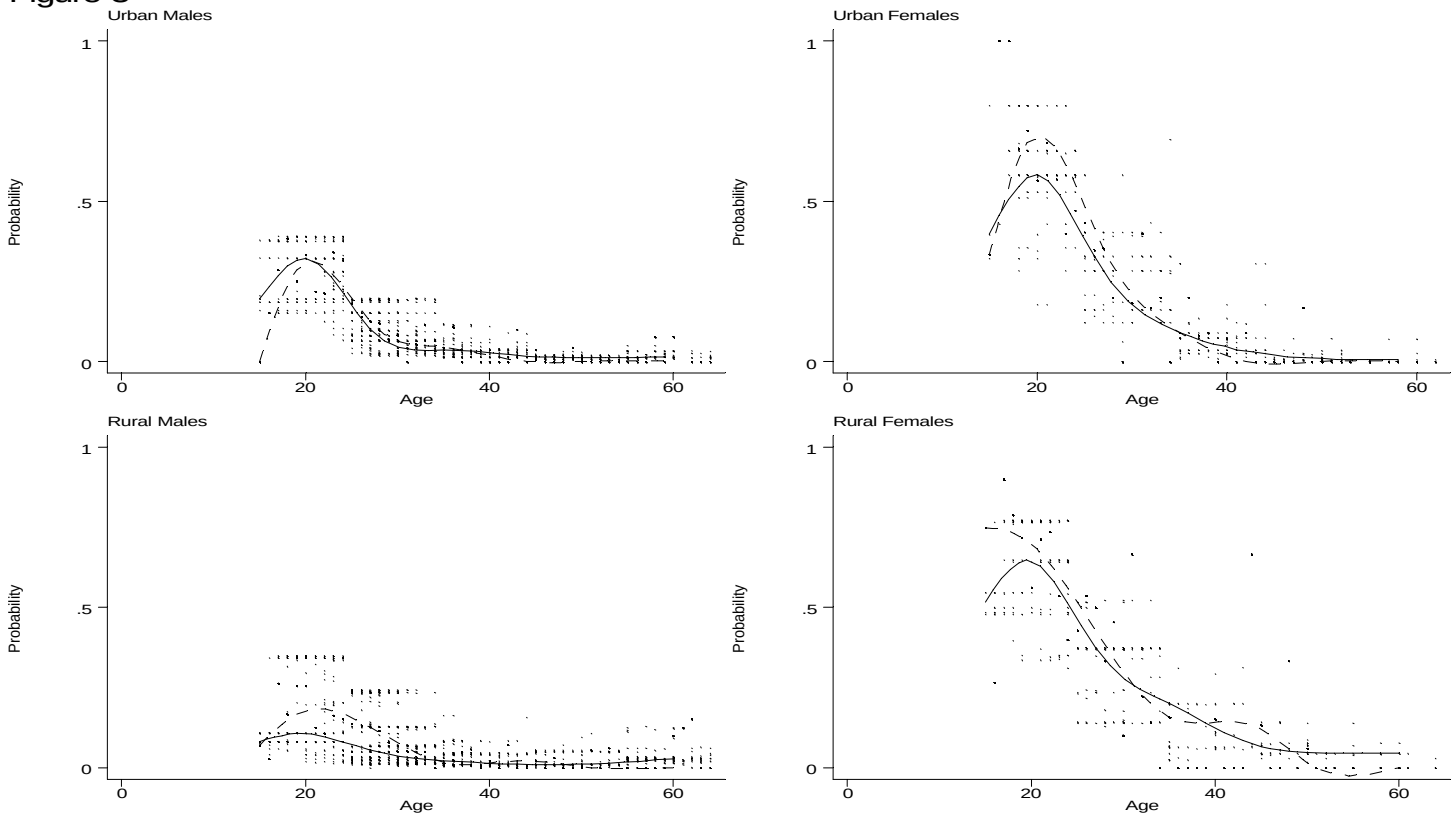
Actual & Predicted Probability of Labor Force Participation vs. Age

Figure 2



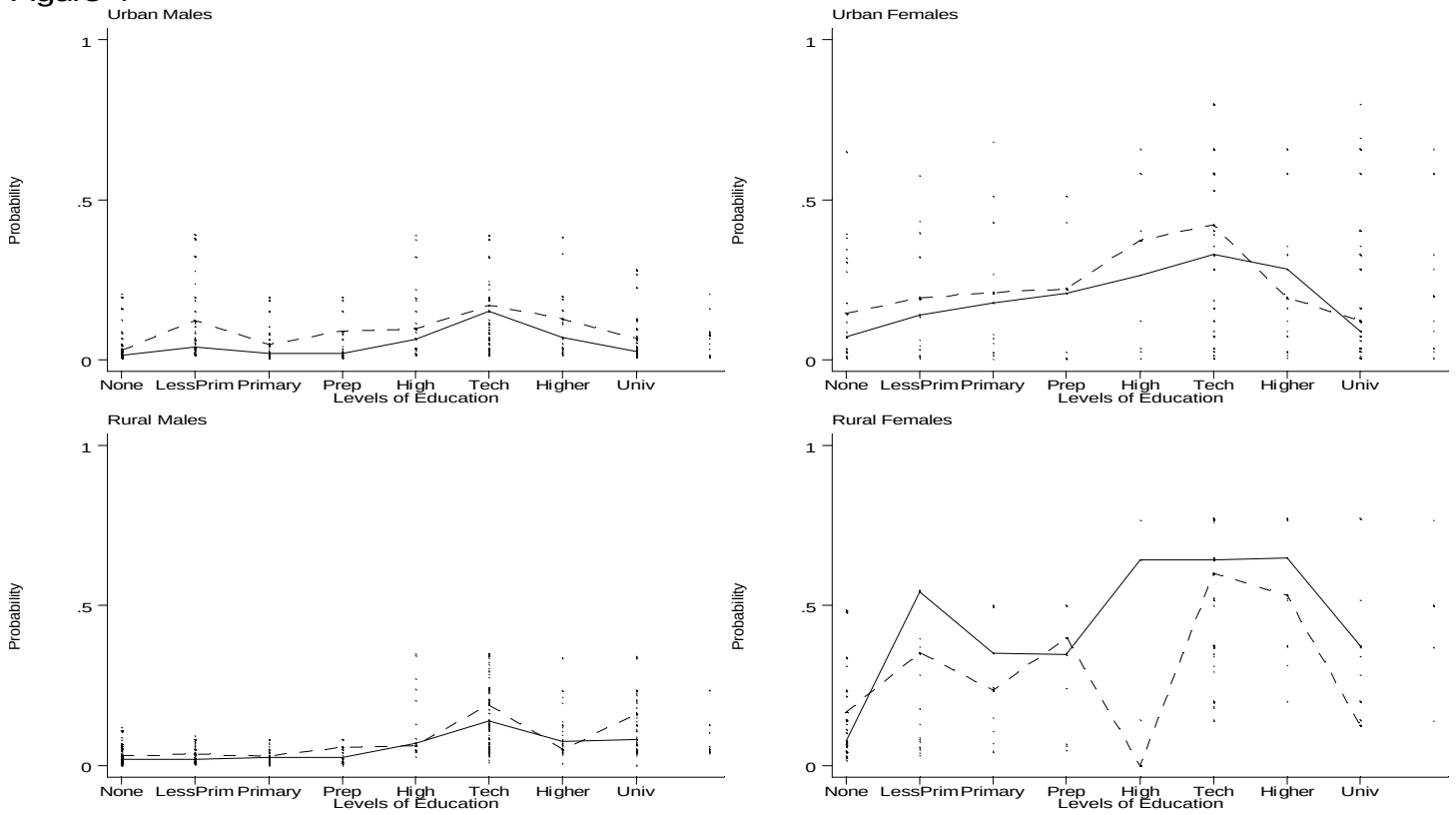
Actual & Pred. Probability of Labor Force Participation vs. Education

Figure 3



Actual & Predicted Probability of Unemployment vs. Age

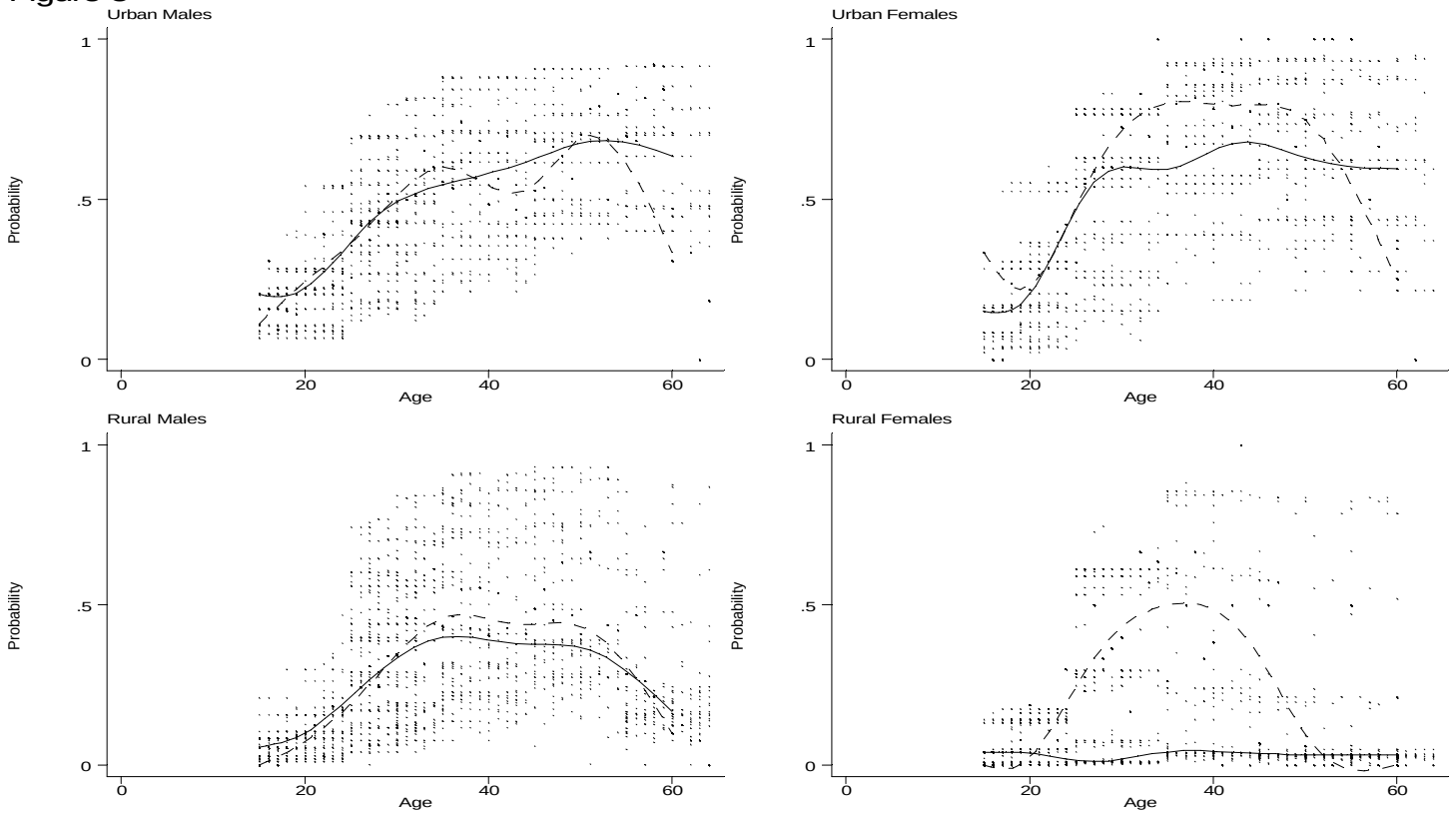
Figure 4



--- Actual ___ Predicted

Actual & Predicted Probability of Unemployment vs. Education

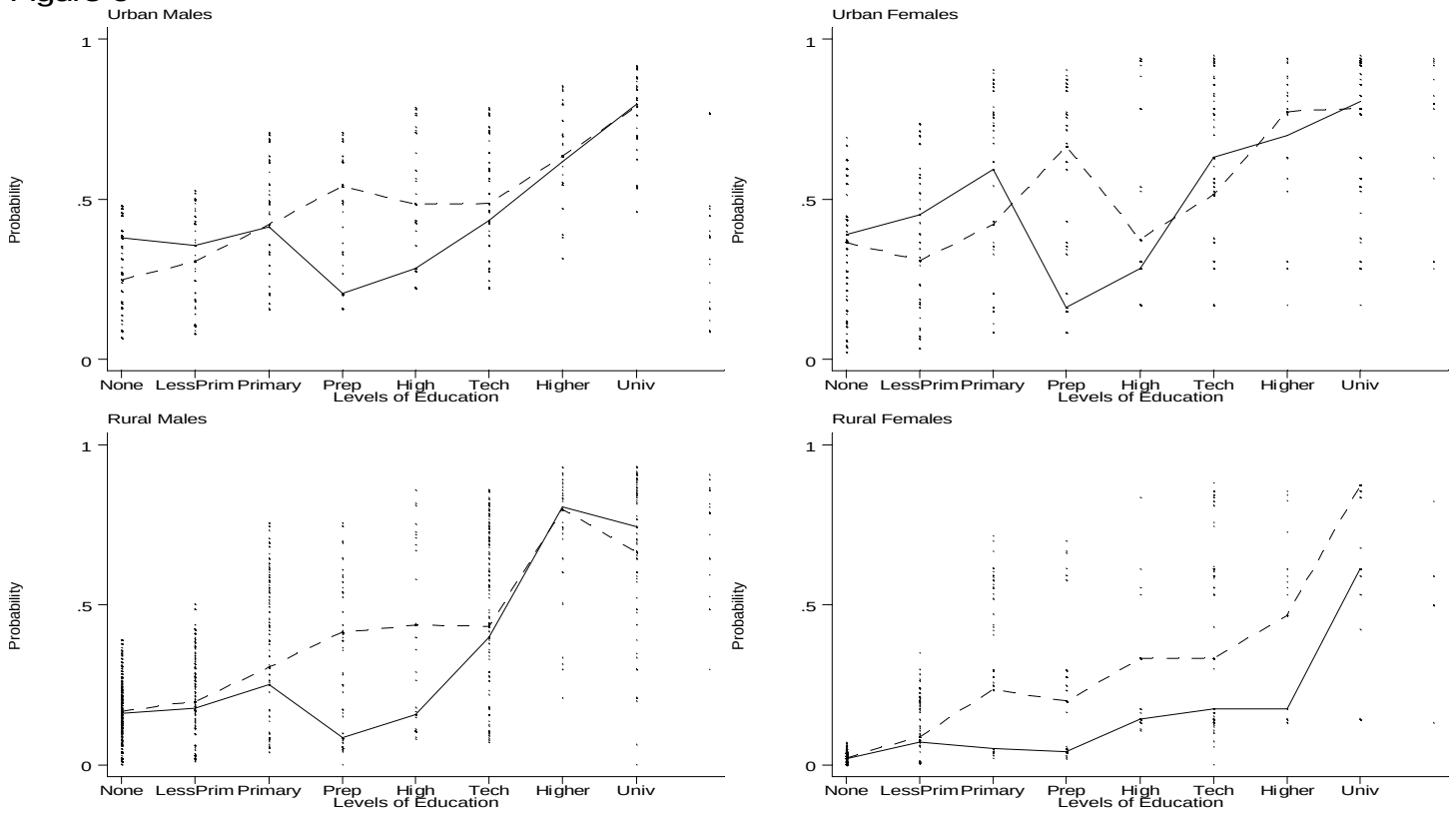
Figure 5



--- Actual ___ Predicted

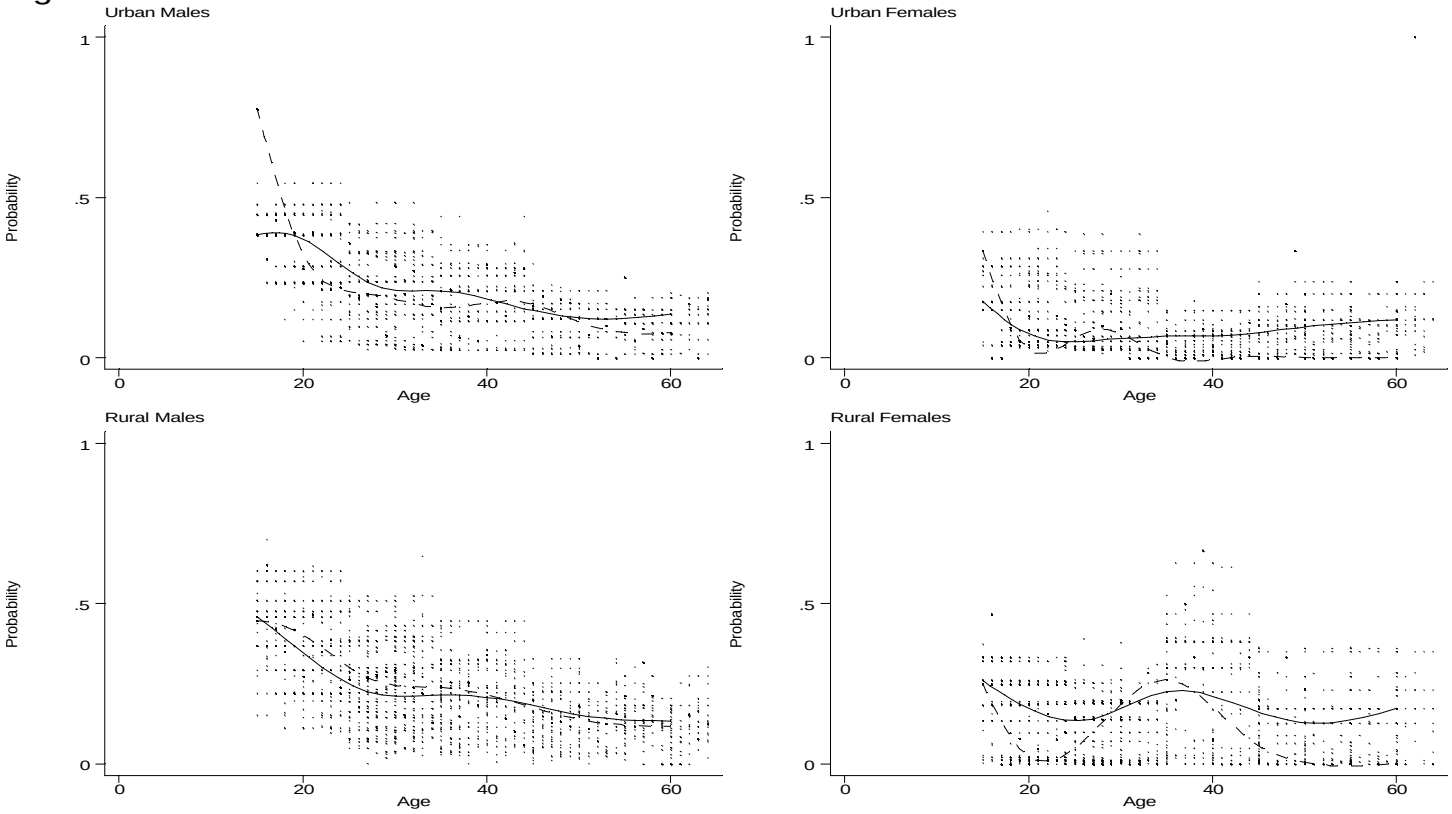
Actual & Predicted Probability of Salaried Work vs. Age

Figure 6



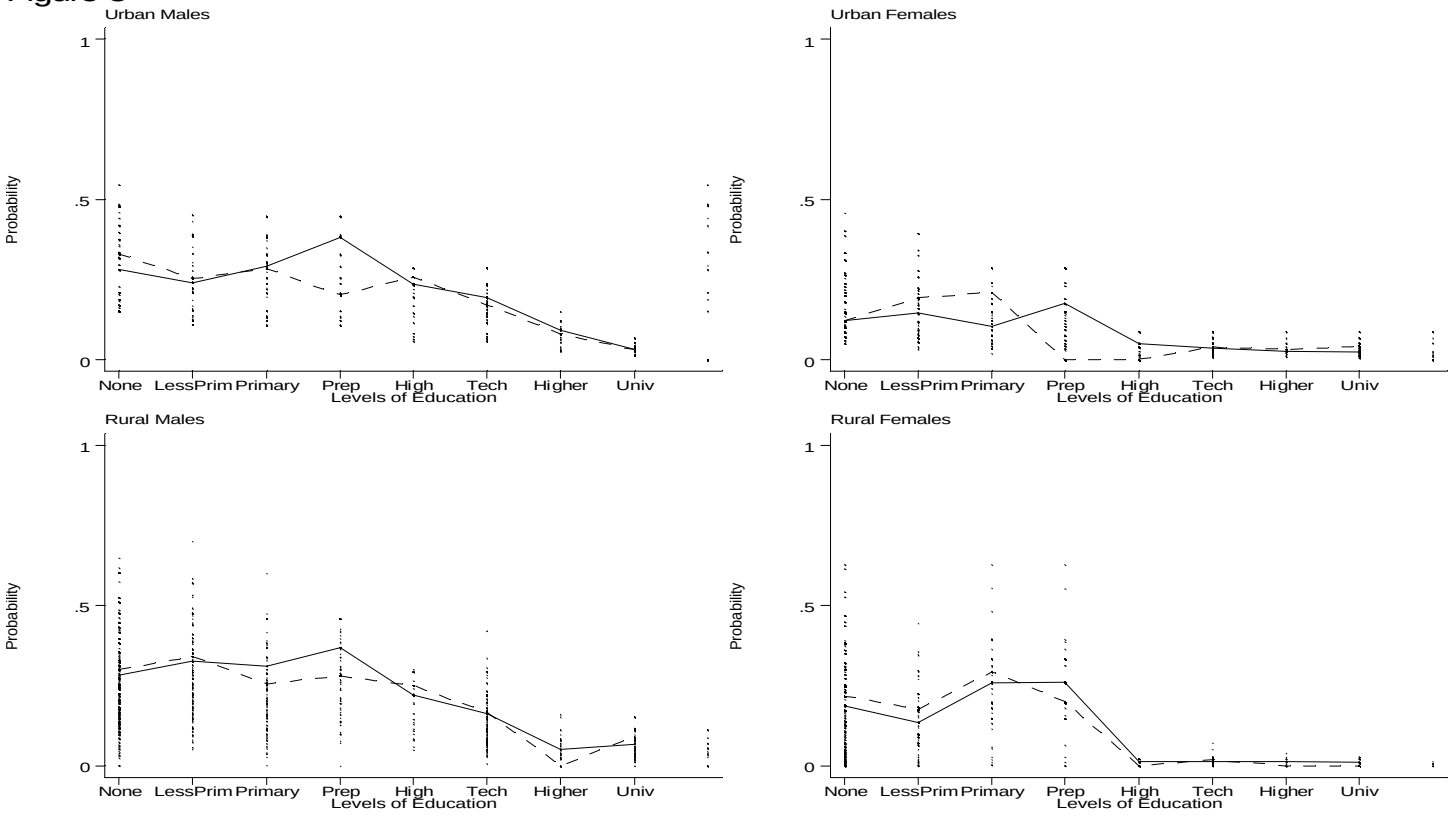
Actual & Predicted Probability of Salaried Work vs. Education

Figure 7



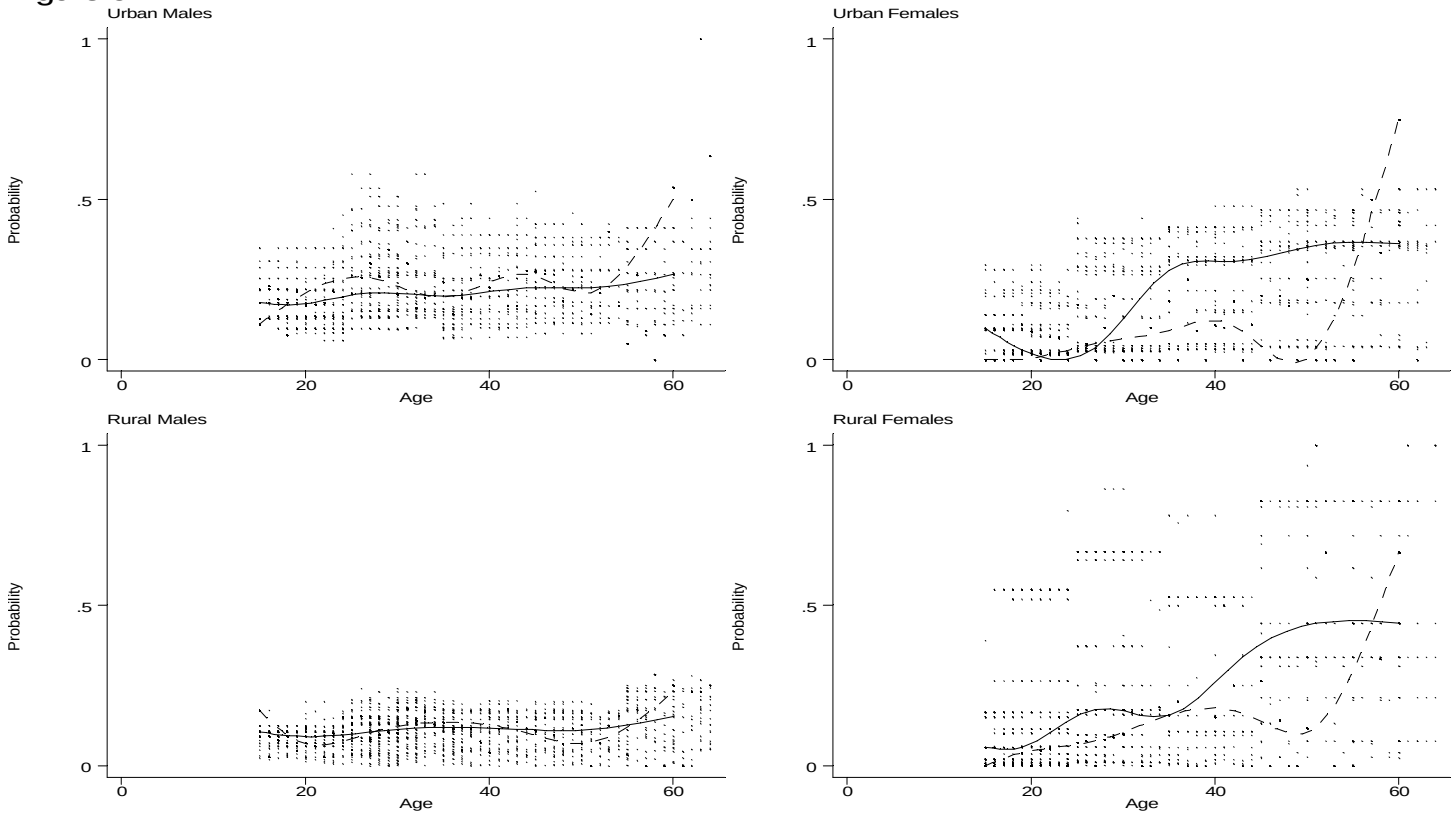
Actual & Predicted Probability of Casual Work vs. Age

Figure 8



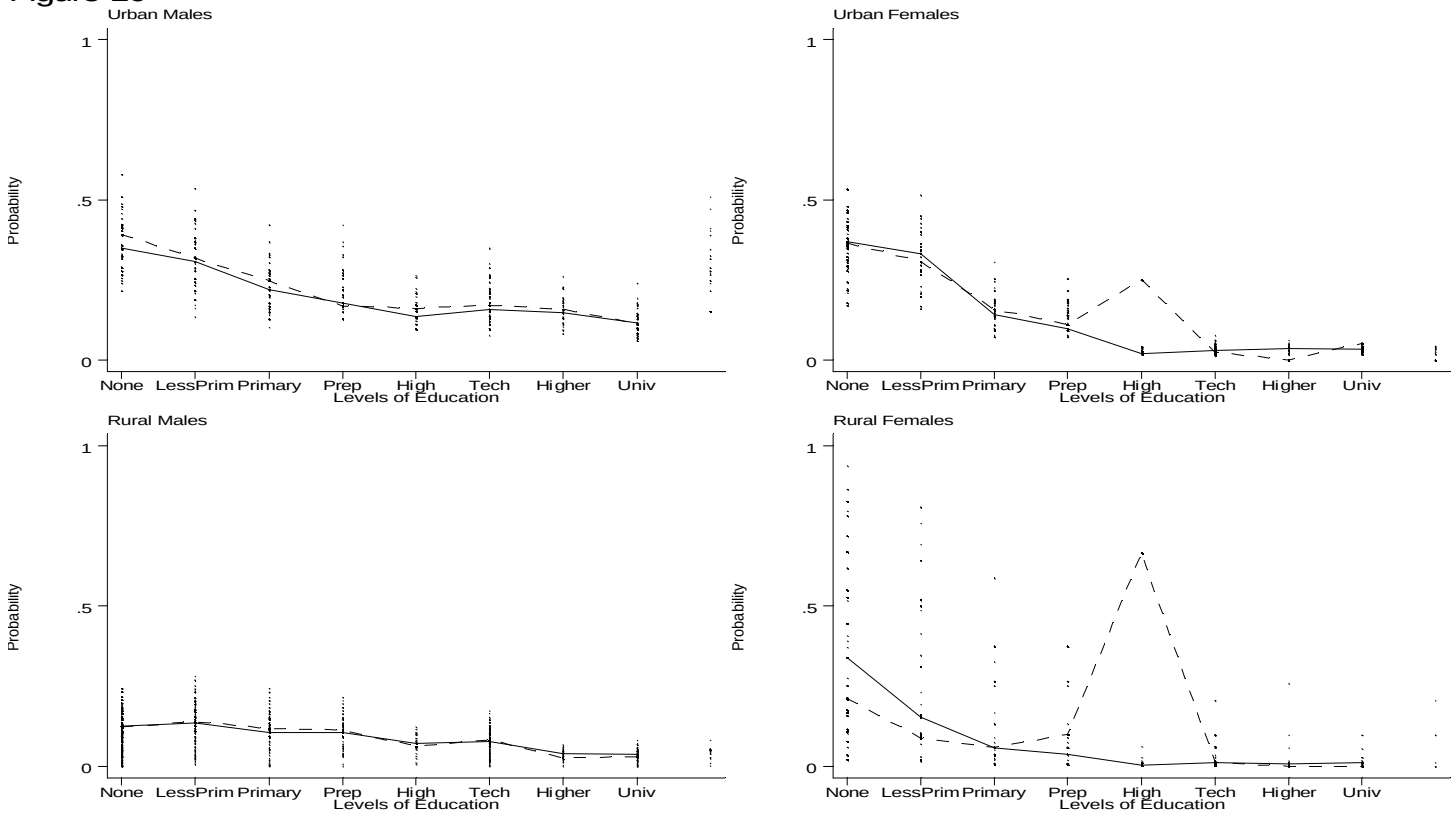
Actual & Predicted Probability of Casual Work vs. Education

Figure 9



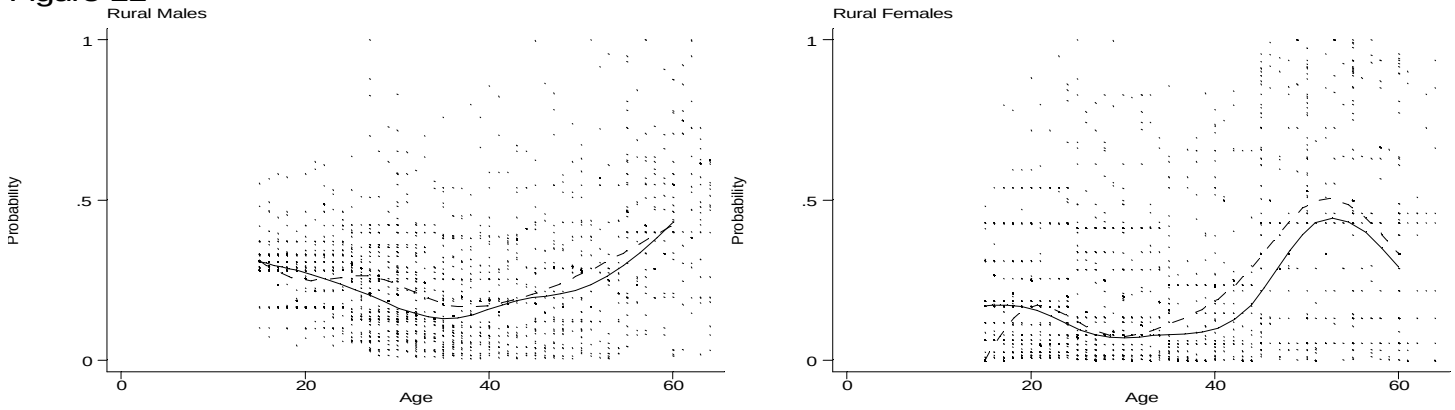
Actual & Predicted Probability of Self-Employment vs. Age

Figure 10



Actual & Predicted Probability of Self-Employment vs. Education

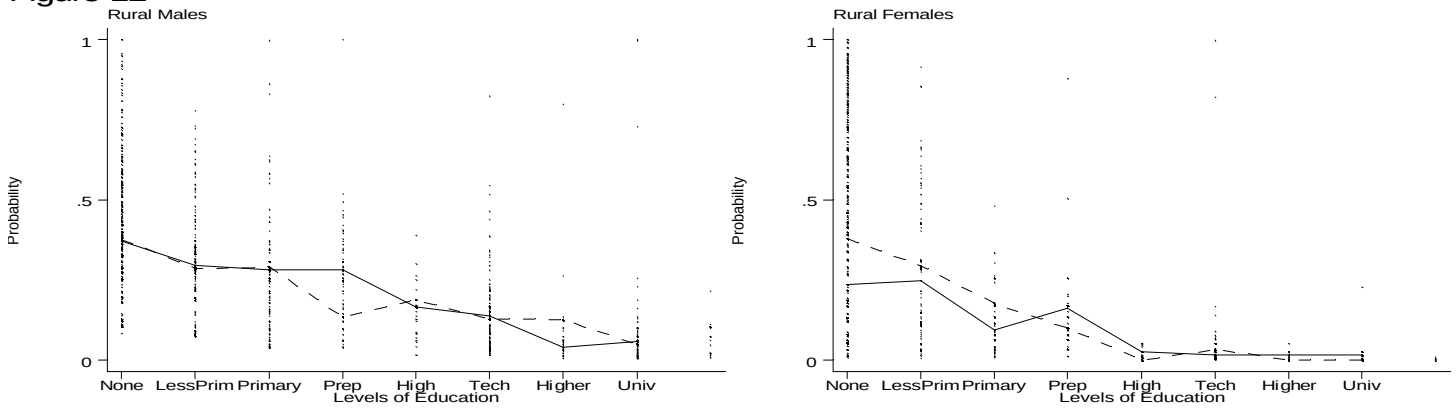
Figure 11



--- Actual ___ Predicted

Actual & Predicted Probability of Farming vs. Age

Figure 12



--- Actual ___ Predicted

Actual & Predicted Probability of Farming vs. Education

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