# Rethinking Time Allocations of Egyptian Women: 

# A Life-Cycle Analysis * 

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#### Abstract

The present research explores for the first time to our best knowledge the extremely biased division of labor within Egyptian households. Time activities in respect of paid and unpaid work are an important aspect of this study. The classical dichotomy of "work in the market" versus "leisure" may serve as a good approximation of the role the male plays in the production activity of the household but does gross injustice to the female since it overlooks the whole time she spends, outside the market, on domestic activities. And, studying the females' invisible unpaid work is crucial since it remains the female's main occupation. Time use profiles are constructed using the Egyptian time use data available, only for females, in the Egyptian Labor Market and Panel Surveys of 1998 and 2006. In a first part of this paper, we analyze the main features and determinants of Egyptian females' time uses. We then estimate a duration model of employment in order to evaluate the impact of a change in the marital status on the female's employment. Thanks to the duration analysis that allows to better understand the female's time use over time.


JEL classification: C41, D13, J22.
Keywords: Duration analysis, Time Allocation, Egypt.

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## 1 Introduction

The need to adopt the household as a unit of analysis is particulary significant if the focus of attention is females' economic behavior as they tend to invest more time in activities that remain outside the cash economy. Economists have made a large effort to explain the market behavior of married women (i.e., patterns of participation, number of hours worked, determinants of wives earnings...). However, very little has been done to analyze the reallocation of time within the home sector (Gronau, 1976).

The classical dichotomy of "work in the market" versus "leisure" may serve as a good approximation of the role the male plays in the production activity of the household but does gross injustice, especially in developing countries, to the female. As Gronau said thirty years ago, calling the whole time spent by the female outside the market sector "leisure" is to overlook the production activities she engages in work at home. These activities are better termed "domestic production".

According to the UN convention "all persons of either sex who furnish the supply of labor for the production of economic goods and services" should have been included in labor force statistics during the last two decades (ILO, 1976:32, quoted in Beneria 1981: 21). In addition to that, economic activities are, theoretically, all those activities that satisfy human needs through the production of goods and services, regardless of wether they are channeled through the cash market or other forms of exchange. Then, there is no good reason why cooking and food processing should be considered less productive than growing food, especially that cooking for one's employer is an economic activity but cooking for one's own household is not (Waring, 1988). Adoption of such a definition would give visibility to females and children in national figures since they make important economic contributions to the domestic unit (and to the national economy) through these activities.

In addition to that, Neoclassical theory (Becker, 1965) has convincingly argued that the division between females' participation in nonmarket activities and males' in market activities is based on efficiency and the maximization of utility. However,
the latter does not seem to be justified since females contribution to their household often exceeds that of their male partner and their share of benefits is less (Folbre, 1984). Moreover, while many females contribute more hours of work to support their households than their husbands do, they are often heard to declare "I do not work" or "I am only a housewife", because their labor is not remunerated. And this has significant implications for their status and position not only in their households but also in society (Hoodfar, 1997).

Like in Gronau's (1976), the wife's time is an iceberg: We have plenty of information about the visible tip, the time spent in the market, but almost none about the submerged part spent at home. In other words, the problem of females' activities is that they are often not 'counted' in statistics, not 'accounted for' in representations of the economy and not 'taken into account' when policies are created (Elson, 2000). Suitable statistical means to recognize and make visible the full extent of the work of women and all their contributions to the national economy including their contribution in the unremunerated and domestic sectors (United Nations, Fourth World Conference on Women, 1995-68.b).

Let's start by defining the "Domestic Production". It is identified as the unpaid work done to maintain family members and/or a home. This topic has been widely recognized, in developed countries, as an important area of research study since the nineties. During the last decade, various studies and publications were the result of a strong turn of attention towards the analysis of the division of labor between members of the same household. Fewer studies on this topic have been conducted in developing countries and no studies at all in the Arab world. In addition to this, most of the studies exploring the females participation in Egypt during the last decade concluded that educated females are tending to less participate in the labor market. The reasons of such a fact are usually analyzed relying on the labor market conditions and especially the privatization reforms that took place in the 1990's. However, the present research makes some evidences about new explanations of these most educated patterns. The perfectly biased intra household allocations of time prevents Egyptian married women to increase the time they spend in the labor
market. For that, the implementation of more serious family policies calling for a more equitable division of labor within the family are strongly needed to allow to married women, and specifically the more educated ones, to increase their market's labor supply. Also, part time jobs taking full account of the burden of females' household responsibilities are crucial to enforce females insertion in the labor market. But, the question is to what extent marriage alone (and hence, the home burden) affects the female's employment duration. In other words, how marriage affects the hazard of exiting the labor market. To answer this question, we rely on a duration analysis aiming to evaluate the impact of marriage on employment duration. The latter takes into full consideration the possible endogenous nature of marriage.

The paper is organized as follows: Section 2 is devoted to the presentation of the datasets used as well as the methodology adopted. Section 3 exibits some stylized facts on the female's time allocation in Egypt. Section 4 shows the empirical results. And, Section 6 goes on to conclude and discussions of the policy implications .

## 2 Methodology

### 2.1 Data: ELMPS of 1998 and 2006

What about the division of labor within Egyptian families? And what are its implications on females market work? To answer this question, we are fortunate in having both the Egyptian Labor Market Survey 1998 and the Egyptian Labor Market Panel Survey 2006. In a first part of the study (cross section analysis), our sample contains all women, aged between 16 and 64 , which represents a total of 4,703 and 5,767 women from 1998 and 2006 surveys respectively. Moreover, a sample for single and married males is created due to the same sample selection. Those constitute a random sample of the population. In the ELMPS 2006, a whole section is devoted to time use of Egyptian women. We base our analysis on a specific question: how did you spend the preceding week. The domestic activities were classified into 14 groups. The background information for each respondent includes age, education, occupation, work status, spouse's education, individual earnings, family income, family's welfare, and a lot of information regarding parents' background, fertility,
marriage costs etc... In a second part of this study, we explore the panel aspect of the data in the duration analysis. For this, we consider all females that were singles in 1998 and follow their marital to 2006 (got married or remained single). We obtain a total of 1850 females.

### 2.2 A Duration Model of Employment with Endogenous Marital status

The objective here is to estimate a causal multivariate duration model (Abbring J.H. and Van Den Berg J.; 2003). We Consider females in a certain state (working/not working) taking into account the working sector if working. After a stochastic amount of time, she leaves this state (exiting/entering the labor market). Also, a different type of event occur at some other random time (changing the marital status). We are intersted in the causal effect of the latter on the duration. In other words, we aim to evaluate the effect of treatment (getting married) on the employment duration.

First, we run Kaplan-Meier estimates of the survival function of the durations of employment. We assume here that marriage is exogenous T. Then, to take into account the possible endogeneity of marriage in the decision of exiting/ entering the labor market we estimate bivariate probit models. Let us first consider the first spell. Let's assume that the individual occupies state $\kappa$ in 1998. It is an employment spell if $\kappa=e$, or an inactivity spell if $\kappa=u$. And we denote $U_{\kappa}^{*}$ the duration of the spell occupied by the individual in 1998. We are interested in the impact of getting married during the eight-years period (1998 and 2006) on the conditional probability that this spell lasts at least D months. We note $T_{\kappa}$ the dichotomic variable describing the marital status (married versus single). Let $U_{\kappa}^{*}=X_{\kappa}^{\prime} \beta_{\kappa}+T_{\kappa} \delta_{\kappa}+\epsilon_{\kappa}$ and $T_{\kappa}^{*}=Z_{\kappa}^{\prime} \gamma_{\kappa}+\nu_{\kappa}$ be the correspondent latent variable. We have the following relations

$$
\begin{equation*}
U_{\kappa}=1, i f U_{\kappa}^{*}=X_{\kappa}^{\prime} \beta_{\kappa}+T_{\kappa} \delta_{\kappa}+\epsilon_{\kappa} \geq D, \tag{1}
\end{equation*}
$$

[^1]and
\[

$$
\begin{equation*}
U_{\kappa}=0 o t h e r w i s e, \tag{2}
\end{equation*}
$$

\]

where $\left(\epsilon_{\kappa}, \nu_{\kappa}\right)$ are i.i.d. $N(0, \Sigma), X_{\kappa}$ and $Z_{\kappa}$ are vectors of explanatory variables ( $\kappa=e, u$ ).

We instrument the endogenous marital status variable $T_{\kappa}$ using the median age at marriage at the village level.

A history of a given female can be represented by a sequence of realizations of a discrete time stichastic process $Y_{t}, t \in 1998,2006$, taking its value in a discrete-state space $E=1,2,3,4,5 . Y_{t}$ is the state occupied by the female at time $t$. Let us assume that the realizations of the process are independent and identically distributed. We then have $Y_{t}=1$ if the female is employed in the public sector at time $t, Y_{t}=2$ if the female is employed in the private sector at time $t, Y_{t}=3$ if the female is inactive at time $t, Y_{t}=4$ if the female is married at time $t, Y_{t}=5$ if the female is single at time $t$.

This is a discrete-time discrete-state labor market participation process (see, Fougere and Kamionka, 2008; Heckman, 1981; Lancaster, 1990). The estimation is done using the simulated likelihood estimator (SML).

## 3 Some stylized facts: Marriage, employment and time use in Egypt

Tables and Figures are presented in the Appendixes.

In Egypt, as in most of developing as well as developed countries, the rise of females' labor force participation in last decades calls researchers and policy makers to give a considerable attention to the interaction between work and the family. There is an extensive literature on the "dilemmas" of modern family life (Frinking and Willemsem, 1997; Gerson, 1985). It has to be recognized that the division of paid (market) and unpaid (domestic) work does not only concern the family unit but
also the whole society since it has many socioeconomic implications. It also seems that even though women's level of education has considerably increased differences in paid work- though narrowing- are still largely persisting. Regarding the absence of time allocation literature in Egypt (and in the Arab world), the present work is considered to be the first studying the allocation of time of paid and unpaid work for Egyptian females. This needs to be extended, in future works, to the study of the allocation of time of both sexes in order to allow for a better understanding of modern households and consequently, to implement active family policies. But for this, researchers need more detailed time use data on both sexes in Egypt and in the MENA region general.

Despite all the changes that have occurred in the cultural and economic contexts in Egypt, domestic production continues to be considered as a typically female chore. Studying domestic production is then crucial to illustrate the economic contribution of housewives to the financial affaires of a household and to society at large. Note that the abuse of the concept of the sitt el beit (housewife) in collecting data has been a major source of underreporting and misunderstanding of female's gainful employment (Ibrahim, 1983).

Several questions arise: Does the increase in the female labor participation during the last decade implies the substitution of work at home by work in the market. How did the domestic production change over time (especially with the decrease in fertility and increase of time saving devices). How does marriage affects time uses of Egyptian females (not only in terms of work in the market/ domestic production but also in terms of market sectors public/ private).

Regarding the first question addressed bellow, as showed in previous empirical studies in Egypt, at each point of time (in 1988, 1998 and 2006), over 65 percent of all married females are not actively engaged in market production and during any given year not more than 30 percent participate in the labor market. In other words, the wife's sole occupation in Egypt remains housewife. The main serious limitation is that in Egypt, detailed time use data are only available for females. Males are thus assumed to not contribute at all to domestic production. Their time use is then entirely devoted to market work and leisure. A more complete time use survey on both sexes is crucial for more complete studies on time allocation. Although, it
remains useful to examine the factors that determine the females time allocation at two given points of time 1998 \& 2006.

As it is showed in the table 1, married female's spend, in mean, about 46.72 hours per week on domestic chores. And, assuming that males do not participate at all in work at home, married females work in total (hours spent on both market and domestic production) much more than married males do. However, time use data on both sexes can allow a more precise study on intra household time allocation. Similar results are presented in figure 1. Contrarily to Singles, married women tend to spend much more time on domestic activities (wether housework or child care) and less time in the labor market.
[Figure 1 about here]
Table 3 shows the significant increase in domestic labor supply as a result of the presence of children in the household. Looking precisely at married women aged between 16 and 35 years old, they spent respectively 32 and 56 hours on domestic chores with the absence/presence of children. Based on those analysis, we can see that the presence of children (more than marriage) is the main factor causing the increase of domestic labor supply.

Time use in market and domestic work also differ due to the level of education as it is represented in table 9. In figure 6 and 7, married illiterate females as well as those married and having general education tend to work more than single ones both on the market and at home. But, with the increase in the level of education as shown in figure 9 and 10, married females spend more time at home and less time in the market compared to single ones.

## 4 Duration analysis: Evaluating the impact of Marriage

Preliminary results are presented in Appendix C.
Results od the duration analysis are in progress.

## 5 Research's Contribution and Policy Implication

We have plenty of information and studies about the time that spouses spend in the market but none on the submerged part spent at home. Economists have made a large effort to explain the market behavior of married women, that is, their pattern of participation, the number of hours worked, the determinants of wives earnings, their occupational choice, and the male- female wage differential. However, the present research is the first to analyze the allocation of time within the home sector, an allocation which may have an impact in the well- being of the family that is not less important than the change in the woman's working habits. Actually, it seems quite difficult to detect the influence of policy measures on the actual individual behavior, especially with regard to work, child care and housekeeping. It is necessary though to calculate how much time is spent on each of the above activities. No money is involved in work like cooking, taking care of the children or house cleaning, though much time is needed for this kind of work. If women have to pay for the value of domestic work for reconciling family and working life, the risk for them to leave their labor market position and their independent incomes becomes higher. Thus, Egypt, as most of developing and developed countries, needs for many regulation reforms to reduce the persistent gender biased intra household division of labor. For this, policies that support women's access to productive employment, with equal wages for equal jobs, taking full account of the burden of women's family and household responsibilities are strongly needed to be considered. An example of such kind of jobs could be part time jobs. Hence, we expect the results of this study to be of great importance to policymakers and Non Governmental Organizations; especially when designing family policies. More specifically, effective state policies are needed to actively support the role of the family, i.e. of women, to substitute the lacking welfare state to affect towards the division of paid and unpaid work. Then, policies affecting not only women's participation in the labor force but also people's attitudes towards the division of paid and unpaid work are needed. And, it seems that the existing policies in Egypt are not sufficient in the respect. The aim of this project is then, first, to explore this new area of research in Egypt in order to gain insight into policy measures that are effective in influencing women's time allocation. Our tar-
get is thus to propose, relying on empirical results, more effective policies in Egypt that would allow not only the increase of women's participation to paid work but also a more equitable division of labor within families: Flexible employment facilities the reconciliation of work and family life. Best practice arrangements could be: employee sovereignty over working times, equal access to productive employment with equal wages for equal jobs (for men and women), promotion and benefits, the reconciliation of paid work and family life. It is surely important to find appropriate forms of intervention for supporting the family, which should combine financial support for beneficiaries, without undermining the structure of family life. Organized voluntarism could also play an important role, while the informal networks, which have traditionally sustained the family, should be reinforced.

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## 6 Annex A: Definitions

## Market Work

All females having a paid work and a positive number of market working hours during the reference period.

## Domestic Work

It is identified as the unpaid work done to maintain family members and/or a home. In the present study, we distinguish between two categories of domestic work. The first category is "housework" and the second is "child care". In our data, "housework" includes agriculture activities, raising poultry, producing butter/ cheese, cooking, washing dishes, doing laundry, cleaning house, collecting water, collecting firewood, helping in construction work, caring for the sick/ the elderly and shopping for the household. And, regarding "Child care", it represents the time spent taking care of children.

## Independent Workers

All females having irregular wage jobs, household entreprise workers or being self employed with no household members.

## Annex B: Tables and Figures

Tables
7
7.1
Table 1: Time Use Survey: Sample Means by Marital Status and Presence of Children in the Household

Singles Married without children | Married with children All |
| :--- |

| Time use (hours per week) |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
|  |  |  | $\mathbf{9 . 2 6}$ | $\mathbf{8 . 8 3}$ |
| Market Work | $\mathbf{8 . 8 7}$ | $\mathbf{7 . 5 6}$ | $\mathbf{5 1 . 7 2}$ | $\mathbf{3 7 . 5 3}$ |
| Domestic Work | 20.84 | $\mathbf{3 2 . 5 8}$ | 38.86 | $\mathbf{3 0 . 9 7}$ |
| (i)Housework | 19.97 | 31.74 | 12.86 | $\mathbf{6 . 5 6}$ |
| (ii)Child Care | 0.87 | 0.84 | 60.98 | $\mathbf{4 6 . 3 6}$ |
| (iii)Total Work | $\mathbf{2 9 . 7 1}$ | 40.14 | 5526 | $\mathbf{1 1 6 2 9}$ |
| Observations | 4103 | 2000 |  |  |

Notes: (i) Housework includes agriculture activities, raising poultry, producing butter/ cheese, cooking, washing dishes, doing laundry, cleaning house, collecting water, collecting firewood, helping in construction work, caring for the sick/ the elderly and shopping for the household. (ii) Child care represents the time spent taking care of children. (iii) Total work represents the sum of all time spent on work in the market and work at home. Source: Constructed by the author using the ELMPS of 2006.
Table 2: Time Use Survey: Sample Means by Marital Status and Age Group

|  | Singles | Married |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\mathbf{1 6 - 3 5}$ | $\mathbf{3 6 - 4 5}$ | $\mathbf{4 6 - 6 4}$ | $\mathbf{1 6 - 3 5}$ | $\mathbf{3 6 - 4 5}$ | $\mathbf{4 6 - 6 4}$ |
| Time Use (hours per week) |  |  |  |  |  |  |
| Market Work | $\mathbf{7 . 8 9}$ | $\mathbf{1 9 . 2 6}$ | $\mathbf{8 . 8 1}$ | 5.49 | $\mathbf{1 8 . 3 1}$ | 8.05 |
|  |  |  |  |  |  |  |
| Domestic Work | $\mathbf{1 8 . 9 1}$ | $\mathbf{3 4 . 4 9}$ | $\mathbf{2 2 . 9 4}$ | $\mathbf{3 2 . 0 5}$ | 32.28 | 32.86 |
| Housework | 18.28 | 31.35 | 21.99 | 31.92 | 32.03 | 31.64 |
| Child Care | 0.63 | 3.14 | 0.95 | 0.12 | 0.25 | 1.22 |
| Total work | $\mathbf{2 6 . 8 0}$ | 53.75 | $\mathbf{3 1 . 7 5}$ | $\mathbf{3 7 . 5 4}$ | $\mathbf{5 0 . 5 9}$ | $\mathbf{4 0 . 9 1}$ |
|  |  |  |  |  |  |  |

[^2]Table 3: Married Females Time Use Survey: Sample Means by Presence of children and Age Group

| Time Use (hours per week) |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
|  | Market Work | $\mathbf{5 . 4 9}$ | $\mathbf{1 8 . 3 1}$ | $\mathbf{8 . 0 5}$ |
| Married without children | Domestic Work | 32.05 | 32.28 | $\mathbf{3 2 . 8 6}$ |
|  | Housework | 31.92 | 32.03 | 31.64 |
|  | Child Care | 0.12 | 0.25 | 1.22 |
|  | Total Work | $\mathbf{3 7 . 5 4}$ | 50.59 | 40.91 |
|  |  |  |  |  |
|  | Observations | $\mathbf{6 4 0}$ | $\mathbf{6 5}$ | $\mathbf{1 2 9 5}$ |


| Time Use (hours per week) |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
|  | Market Work | $\mathbf{6 . 4 6}$ | $\mathbf{1 3 . 8 3}$ | $\mathbf{1 3 . 1 1}$ |
| Married With Children | Domestic Work | $\mathbf{5 5 . 8 4}$ | $\mathbf{4 7 . 0 2}$ | $\mathbf{3 9 . 4 2}$ |
|  | Housework | 38.98 | 39.24 | 36.80 |
|  | Child Care | 16.86 | 7.77 | 2.62 |
|  | Total Work | $\mathbf{6 2 . 3 0}$ | $\mathbf{6 0 . 8 5}$ | $\mathbf{5 2 . 5 3}$ |
|  |  |  |  |  |
| Source: Constructed by the author using the ELMPS of 2006. |  |  |  |  |

Source: Constructed by the author using the ELMPS of 2006.
Table 4: Time Use Survey: Sample Means by Marital Status, Presence of Children and Working Sector (only for working females)

|  | Singles | Married Without Children | Married with Children | All |
| :---: | :---: | :---: | :---: | :---: |
| Public | 41,11 (23,3\%) | 41,41 (17,03\%) | 40,55 (59,68\%) | 37.72 (100\%) |
| Government | 40,93 | 41,16 | 40,42 |  |
| Public entreprises | 42,84 | 44,92 | 43,25 |  |
| Private | 54,27 (70,34\%) | 47,12 (6,3\%) | 43,2 (23,36\%) | 51.70 (100\%) |
| Formal | 51,09 | 45,15 | 44,7 |  |
| Informal | 55,93 | 49,45 | 45,84 |  |
| Independent | 36,99 (27,23\%) | 31,43 (17,58\%) | $32,89(55,18 \%)$ | 33.75 (100\%) |

[^3]Table 5: Time Use Survey: Sample Means of Single Females by Type of Work

|  | Public | Private | Independent | Housewives | All |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Time Use (hours per week) |  |  |  |  |  |
| Market work | 41,11 (31.33\%) | 54,27 (32.29\%) | 36,99 ( $36.39 \%$ ) | 0 (0\%) | 100\% |
| Domestic work | 25,61 | 14,62 | 31,77 | 20,21 |  |
| Housework | 24,39 | 14,36 | 30,04 | 19,39 |  |
| Child care | 1,22 | 0,26 | 1,73 | 0,83 |  |
| Total work | 66,72 | 68,89 | 68,76 | 20,21 |  |
| Observations | 260 (6,4\%) | 268 (6,61\%) | 302 (7,45\%) | 3226 (79,54\%) | 2608 (100\%) |

Table 6: Time Use Survey: Sample Means of Married Females Without Children by Type of Work

|  | Public | Private | Independent | Housewives | All |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Time Use (hours per week) |  |  |  |  |  |
| Market work | 41,42 (46.45\%) | 47,12 ( $5.87 \%$ ) | 31,43 (47.68\%) | 0 (0\%) | 100\% |
| Domestic work | 32,3 | 32,08 | 42,22 | 31,64 |  |
| Housework | 31,7 | 31,04 | 41,16 | 30,8 |  |
| Child care | 0,6 | 1,04 | 1,06 | 0,84 |  |
| Total work | 73,72 | 79,2 | 73,65 | 31,64 |  |
| Observations | 190 (9,55\%) | 24 (1,21\%) | 195 (9,8\%) | 1580 (79,44\%) | 1989 (100\%) |

Table 7: Time Use Survey: Sample Means of Married Females With Children by Type of Work

|  | Public | Private | Independent | Housewives | Total |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Time Use (hours per week) |  |  |  |  |  |
| Market work | $\mathbf{4 0 , 5 5}(\mathbf{4 8 . 6 5 \%})$ | $\mathbf{4 5 , 2}(\mathbf{6 . 5 0 \%})$ | $\mathbf{3 2 , 8 9}(\mathbf{4 4 . 7 0 \%})$ | $\mathbf{0}(\mathbf{0 \%})$ | $\mathbf{1 0 0 \%}$ |
|  |  |  |  |  |  |
| Domestic work | $\mathbf{4 6 , 0 3}$ | $\mathbf{4 5 , 6 2}$ | $\mathbf{5 4 , 5}$ | $\mathbf{5 2 , 3 9}$ |  |
| Housework | 36,09 | 32,49 | 46,99 | 38,26 |  |
| Child care | 9,94 | 13,12 | 7,51 | 14,13 |  |
| Total work | $\mathbf{8 6 , 5 8}$ | $\mathbf{9 0 , 8 2}$ | $\mathbf{8 7 , 3 9}$ | $\mathbf{5 2 , 3 9}$ |  |
| Observations |  |  |  |  |  |
| Source: Constructed by the author using the ELMPS of 2006. |  |  |  |  |  |

Table 8: Time Uses of Egyptian Married Females: Sample Means by Level of Education

| Level of education |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Illiterate | Less than intermediate | Intermediate | Above intermediate | Total |
| Age | 40,17 | 34,78 | 31,36 | 33,99 | 36 |
| Time Uses (hours per week) |  |  |  |  |  |
| Market work | 6,68 | 3,14 | 9,79 | 17,66 | 8,83 |
| Domestic work | 42,97 | 48,23 | 51,06 | 48,01 | 46,72 |
| Housework | 36,42 | 38,51 | 37,87 | 36,08 | 37,04 |
| Child care | 6,55 | 9,72 | 13,18 | 11,94 | 9,68 |
| Total work | 49,65 | 51,37 | 60,85 | 65,67 | 55,5 |
| Observations | 3241 | 955 | 2146 | 1167 | 7511 |

Source: Constructed by the author using the ELMPS of 2006.
Table 9: Time Uses of Egyptian Single Females: Sample Means by Level of Education

| Level of education |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Illiterate | Less than intermediate | Intermediate | Above intermediate | Total |
| Age | 42.73 | 22.45 | 23.05 | 28.02 | 29.41 |
| Time Uses (hours per week) |  |  |  |  |  |
| Market work | 8.73 | 3.77 | 9.02 | 19.66 | 8.97 |
| Domestic work | 26.06 | 16.27 | 20.05 | 21.35 | 21.05 |
| Housework | 24.76 | 15.70 | 19.20 | 20.73 | 20.17 |
| Child care | 1.29 | . 56 | . 85 | . 62 | . 88 |
| Total work | 34,79 | 20,04 | 29,07 | 41,01 | 30,02 |
| Observations | 1,211 | 1,026 | 1,296 | 522 | 4056 |

Source: Constructed by the author using the ELMPS of 2006.
Table 10: Time Uses of Egyptian Married Females: Sample Means by Number of Children

|  | Number of children |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
|  | Zero | One | Two or more | Total |
| Age | 44,47 | 25,3 | 35,14 | 36 |
| Time Uses (hours per week) |  |  |  |  |
|  |  |  |  |  |
| Market work | $\mathbf{7 , 6 1}$ | $\mathbf{6 , 4 3}$ | $\mathbf{1 0 , 0 8}$ | $\mathbf{8 , 8 3}$ |
| Domestic work | $\mathbf{3 2 , 7 4}$ | $\mathbf{5 3 , 9 1}$ | $\mathbf{5 1 , 1 5}$ | $\mathbf{4 6 , 7 2}$ |
| Housework | 31,9 | 36,23 | 39,65 | 37,04 |
| Child care | 0,84 | 17,68 | 11,49 | 9,68 |
|  |  |  |  |  |
| Total work | $\mathbf{4 0 , 3 5}$ | $\mathbf{6 0 , 3 4}$ | $\mathbf{6 1 , 2 3}$ | $\mathbf{5 5 , 5}$ |
|  |  |  |  | 4293 |
| Observations | 1989 | 1229 | 7511 |  |
| Source: Constructed by the author using the ELMPS of 2006. |  |  |  |  |

### 7.2 Figures

Figure 1:
Time allocation by marital status


Figure 2:
Evolution of Domestic work by marital status: 1998-2006


Figure 3:
Evolution of Market work by marital status: 1998-2006


Figure 4:
Evolution of time allocation by age group 1998-2006: Singles


Figure 5:
Evolution of time allocation by age group 1998-2006: Married


Figure 6:
Time allocation by marital status: for illiterate


Figure 7:
Time allocation by marital status: for general intermediate


Figure 8:
Time allocation by marital status: for technical intermediate


Figure 9:
Time allocation by marital status: for above intermediate


Figure 10:
Time allocation by marital status: for university


| Table 11: Probability of Treatment |  |  |
| :--- | :---: | :---: |
|  | Coefficient | Std. Err. |
| age | $.7520413^{* * *}$ | $(.0641813)$ |
| age square | $-.012661^{* * *}$ | $(.00115)$ |
| Educ dummy 2 | $.5886295^{* * *}$ | $(.125069)$ |
| Educ dummy 3 | $.8485586^{* * *}$ | $(.2725803)$ |
| Educ dummy 4 | $.3766527^{* * *}$ | $(.0838041)$ |
| Educ dummy 5 | $.1404819^{* *}$ | $(.1468604)$ |
| Educ dummy 6 | $.1471579^{* * *}$ | $(.097093)$ |
| Working in 1998 | $.2461176^{*}$ | $(.1128857)$ |
| Working in 2006 | $-.5984873^{* * *}$ | $(.0833816)$ |
| High HH Wealth in 1998 | $-.2309597^{* * *}$ | $(.0950077)$ |
| Constant | $-10.75684^{* * *}$ | $(.8648618)$ |
|  |  |  |
| Pseudo R2 | 0.1161 |  |
| Prob chi2 | 0.0000 |  |
| N | 1809 |  |


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| Pseudo R2 | 0.1161 |  |
| Prob chi2 | 0.0000 |  |
| N | 1809 |  |

Table 12: Tobit Results: Time spent on Domestic Work

|  | Singles (16-64) <br> Coefficient | Married (16-64) <br> Coefficient | All <br> Coefficient |
| :--- | :---: | :---: | :---: |
| age | $2,617^{* * *}$ | $1,412^{* * *}$ | $4,049^{* * *}$ |
| age square | $-0,034^{* * *}$ | $-0,023^{* * *}$ | $-0,047^{* * *}$ |
| Age at marriage | - | $0,212^{* *}$ | - |
| HH whealth in 1998 | $-1,360^{* * *}$ | $0,891^{* *}$ | $-1,009^{* * *}$ |
| Basic Services in 2006 | $-0,641$ | $-0,753^{*}$ | $-1,622^{* * *}$ |
| Educ dummy2 | $14,185^{* * *}$ | 1,349 | $7,925^{* * *}$ |
| Educ dummy3 | 3,723 | $-0,802$ | $10,953^{* * *}$ |
| Educ dummy4 | $8,473^{* * *}$ | 1,865 | $12,243^{* * *}$ |
| Educ dummy5 | $9,460^{* * *}$ | 2,141 | $12,764^{* * *}$ |
| Educ dummy6 | $6,654^{* * *}$ | $-1,913$ | $9,463^{* * *}$ |
| Number of Children in HH | $1,454^{*}$ | $4,890^{* * *}$ | $6,138^{* * *}$ |
| Parent in the HH | - | $-30,323^{* * *}$ | $-24,164^{* * *}$ |
| Sister/Bro. in law | - | - | $-26,280^{* * *}$ |
| Mother in law | - | $-15,750$ | $-39,366^{* * *}$ |
| Dummy for Family Projet | 1,021 | $-1,559$ | $-0,891$ |
| Region dummy 2 | 0,667 | $-7,404^{* * *}$ | $-4,042^{* * *}$ |
| Region dummy 3 | $-0,551$ | $-4,176^{* * *}$ | $-1,887^{* * *}$ |
| Constant | $-22,570^{* * *}$ | $22,121^{* * *}$ | $-41,202^{* * *}$ |
| Sigma | 19,494 | 27,028 | 25,718 |
| Log Likelihood | $-6868,7003$ | $-18045,825$ | $-33284,573$ |
| Pseudo R squared | 0,0188 | 0,0109 | 0,0626 |
| N | 1835 | 3851 | 8554 |

Table 13: Tobit Results: Time spent on Market Work

|  | Singles (16-64) <br> Coefficient | Married (16-64) <br> Coefficient | All <br> Coefficient |
| :--- | :---: | :---: | :---: |
| age | $-0,350$ | 0,429 | 0,103 |
| age square | 0,003 | $-0,006^{*}$ | $-0,002$ |
| Age at marriage | - | 0,097 | - |
| HH whealth in 1998 | $-0,212$ | $-1,159^{* * *}$ | $0,368^{* * *}$ |
| Basic Services in 2006 | $-0,510$ | $-0,120$ | $-0,026$ |
| Educ dummy2 | $-1,542$ | $-0,387$ | $-0,016$ |
| Educ dummy3 | 20,031 | $-3,974$ | 3,616 |
| Educ dummy4 | 1,412 | $-1,896$ | $-2,061$ |
| Educ dummy5 | $-1,482$ | $-2,592$ | $-3,407^{* * *}$ |
| Educ dummy6 | $-8,518^{* *}$ | $-1,659$ | $-4,390^{* * *}$ |
| Number of Children in HH | 2,459 | $-0,517$ | $-1,053^{* * *}$ |
| Parent in the HH (dummy) | - | $-14,810$ | $-0,362$ |
| Sister/Bro. in law | - | - | $-6,277$ |
| Presence of a Mother in law | - | - | $-20,724$ |
| Dummy for Family Projet | 0,637 | $1,305^{*}$ | $1,855^{* * *}$ |
| Region dummy 2 | $-3,816^{* *}$ | $-2,988^{* * *}$ | $-3,678^{* * *}$ |
| Region dummy 3 | $-8,665^{* * *}$ | $-4,823^{* * *}$ | $-6,308^{* * *}$ |
| Constant | $67,175^{* * *}$ | $61,426^{* * *}$ | $62,445^{* * *}$ |
| Sigma | 13,104 | 11,787 | 12,939 |
| Log Likelihood | $-1244,3003$ | $-3681,4066$ | $-5886,6716$ |
| Pseudo R squared | 0,0418 | 0,0253 | 0,0267 |
| $\mathbf{N}$ | 313 | 948 | 1480 |


[^0]:    *I am grateful to Catherine Sofer and Ragui Assaad for useful discussions and comments. Also thanks to all ERF conference participants. This work is carried out with the aid of a grant from the International Development Research Center, Ottawa, Canada, to the Population Council's WANA Regional Office in Cairo.
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[^1]:    ${ }^{1}$ This assumption is relaxed later on.

[^2]:    $65 \quad 1295$

    640
    $2954 \quad 284 \quad 865$
    Source: Constructed by the author using the ELMPS of 2006.

[^3]:    $1369(52,49 \%) \quad 2608(100 \%)$

    409 (15,68\%)

    Source: Constructed by the author using the ELMPS of 2006

