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Three Essays on Young Married Women in Egypt

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Submitted for the degree of Doctor of Philosophy
Department of Economics
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Declaration

I hereby declare that this thesis has not been and will not be submitted in whole or in part to another university for the award of any other degree.

Signature

University of Sussex

Degree of Doctor of Philosophy in Economics

Three Essays on Young Married Women of Egypt

Dina Abdel Fattah

Summary

This thesis empirically studies three aspects of marriage pertaining to young women in Egypt using a young people specific Survey of Young People in Egypt 2009.

The first essay investigates the determinants of the marriage valuation of young women in Egypt through the value of the jewellery received on marriage. The empirical analysis focuses on the role of circumcision, kinship marriages and the competitiveness in the marriage market in determining the marriage valuation of young women. A Cox proportional hazard model as well as a Heckman-two step model is used to correct for selection into marriage using circumcision as the identifier variable. The analysis allows the computation of the returns to investments in female's human capital in the marriage market and the comparison with the similar returns in the labour market. The overall results show the role of circumcision in the marriage prospects of women rather than the marriage valuation. Kinship marriages, although popular in the Arab region show no impact on the marriage valuation of young women. Marriage market competitiveness, however, significantly determines young women's marriage valuation. The comparison between the returns to female's investments in education in both the marriage market and the labour market show the high degree of substitutability between the two market.

The second essay investigates the determinants of young wives' happiness in marriage. The analysis investigates the role of institutions (religiosity and social trust), the time use of the wife, living with in-laws as well as inter-marital discussions using an ordered probit model. The results suggest the significance of the demographic and the economic variables in determining young wives' marital happiness. However, the mutual relationship with the husband and the inter-marital discussions appear to play a more significant role in determining the marital happiness of young wives.

Finally, the third essay adds the labour market outcomes of the husband to the ordered probit model of the wives' marital happiness. The analysis investigates the role of the husband's labour market outcomes, the time use of the husband and the social network of the husband on the wife's marital happiness. a heterogeneous impact of husband's annual earnings (in the rural areas) and the time the husband allocates to joint leisure

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Abbreviations

ASCE	The Adolescence and Social Change in Egypt
CAPMAS	Central Agency for Population Mobilisation And Statistics
COJ	Cost Of Jewellery
DHS	Demographic and Health Survey
FGM	Female Genital Mutilation
IDSC	Information and Decision Support Center
ILO	International Labour Organisation
MENA	Middle East and North Africa
OLS	Ordinary Least Squares
PCA	Principal Component Analysis
PSU	Primary Sampling Unit
QMR	Quantile Median Regression
SYPE	Survey of Young People in Egypt
SWB	Subjective Well Being
UFW	Unpaid Family Work
UNICEF	United Nations

Chapter 1

Introduction

Egypt is currently going through a unique phase in its demographic evolution characterised by a youth bulge. This youth bulge is driven by the hidden momentum of population growth, where birth rates have increased and then decreased, exerting a delayed impact on the overall population growth rate. This bulge commenced with a baby boom that worked through the education system and is now currently impacting the labour market. The youth bulge started entering the labour market (job hiring age) in the year 2009 with their effects now currently reflected in the Egyptian labour market.

However, in addition to the labour market, this bulge in the population has also had effects in the marriage market. Therefore, the entry of young people in the 15 to 29 age group into the labour market as well as the marriage market is a topic of current interest for both labour economists and development economists. An inter-relationship between the labour market and the marriage market exists. In particular, potential grooms need to have the financial ability and the source of income to allow them to marry and sustain a family. Therefore, marriage for males is usually postponed until their late twenties or early thirties. This makes labour market outcomes an important pre-requisite for marriage. Therefore, for males in the age group 15-29, the more appropriate focus is initially on the labour market and then the marriage market.

On the other hand, given the societal pressure and the culture and traditions of Egyptian society (and the Arab region at large), females in the age group 15-29 are at their most marriageable years. In this context, society places more emphasis on the marriage market for females, where the labour market is considered a secondary market of less importance. Therefore, for this age group, the labour market assumes more relevance for males with the marriage market adopting more relevance to females.

In addition to the relative importance of one market over the other, the economic, social and professional circumstances of women are of concern to the Arab world. Given the population growth rate, the role of women and female empowerment has been a topic of debate for some time in the Arab region. The youth bulge is inevitably followed by another bulge (the echo of the previous one) and is reflected in another baby boom that has occurred in the period 2011/2012. This new baby boom brings the role of women in the Egyptian society into a sharp focus. Labour economists have implicated these demographic changes to the limited opportunities for women in the labour market who instead occupy their time between non-market and household production/ consumption activities.

In this thesis, the limited opportunities available for women in the labour market is acknowledged and the marriage market, being a more relevant market for women especially those of marriageable ages, is the primary focus of investigation. This thesis is therefore, comprised of three essays on economic aspects of marriage for young Egyptian females. To this end, the thesis exploits a survey in Egypt specifically designed for young people known as the 2009 Survey of Young People in Egypt (SYPE09).

The interest in studying the marriage market in Egypt for young women arises from the role marriage plays in defining the life of young females in Arab society. The application of Becker's theories on comparative advantage in the household context reveal that females have a comparative advantage in household production and non-labour market activities. In this context, Assaad and others (2013, 2015) have frequently attributed the shortage of woman in the labour market to the attractiveness of the marriage market (e.g., see Assaad and Krafft (2013) and Assaad and Krafft (2015)).

Marriage is considered the most important transition to adulthood in the life of young Arabs. In particular, the life of Arab females revolves around marriage, to the extent that the formal title assigned to a woman only changes (from 'girl' to 'woman') upon marriage regardless of her age. Reproduction, in Egypt and the Arab world, is strictly confined to marriage. In addition, marriage is considered the most important and the largest transaction in the lives of young couples and their families. Marriage costs in Egypt are equivalent to years of financial accumulation for both families. Hence, it is important to further understand the marriage market as it impacts women.

The institution of marriage has been the subject of empirical research with a focus on analysing age at marriage and the probability of marriage itself (Paul Glick's (1988), and Dnes and Rowthorn (2002)). Despite the significant role of marriage in the life of young Egyptians, very little empirical research exists on the economics of marriage in Egypt and the Arab region at large. Binzel and Assaad (2008), Rose (2001) and Ghimire et al. (2006) have discussed the female marriage outcome in Egypt in relation to socioeconomic and demographic characteristics. Mensch (2005a), Abdel Kader et al (2006), Singerman (2007) and Assaad and Krafft (2014) find that the cost of marriage in Egypt is highly inflated due to the different components that comprise the costs of marriage including jewellery, housing, furniture and appliances, and their essential nature to newlyweds.

This thesis is divided into three essays focusing on three important issues germane to the marriage market for females. However, as a prelude to these empirical essays, two separate chapters (Chapters two and three) are review of the Egyptian context and the data respectively.

The empirical analysis exploits the Population Council's 2009 nationally representative Survey of Young People in Egypt (SYPE09). The survey provides rich data on education, employment and family formation, along with other details which are discussed in chapter three of the thesis. The richness of the data contained in the different survey modules together with its focus on young people in Egypt at a demographically unique point in time permits the examination of the research questions. Variables from other data sources were also used, specifically the sex ratios variable at the governorate level were extended from the CAPMAS population census of 2006, to enrich the analysis.

The Arab region, and Egypt in particular, exhibits special features when it comes to both the labour market as well as the marriage market. These unique characteristics arise due to the demographics, traditions and cultures impacting the marriage markets. Chapter two, therefore, provides an overview of the Egyptian labour and marriage markets and their distinctive features.

Chapter 4 of the thesis, the first empirical essay, examines the marriage prospects and the marriage valuation of women. Chapter 5 (the second empirical essay) then examines the self-reported marital happiness of young Egyptian focussing on economic, demographic, socio-economic and inter-marriage variables. Chapter 6 (the final empirical

essay) is motivated by the findings of chapter 5, and investigates the role of the economic and labour market characteristics of the husbands on the self-reported marital happiness of the wives.

The existence of the marriage market as an attractive and alternative opportunity for females relies on the benefits females expect to enjoy in this market. In this context, chapter 4 focuses on the cost of marriage with particular attention to the cost of jewellery, paid by the groom and/ or his family to the bride for her own personal and direct use. This cost of jewellery is used as a proxy for the value placed on the young female in the marriage market. Chapter 4, therefore, is an investigation of this valuation of young (15-29 years) females within the Egyptian marriage market.

Four main themes are addressed in chapter 4. The first theme examines the role of female circumcision in the Egyptian society on the marriage outcome, marriage hazard and the marriage valuation. It is found that circumcision plays a significant role in improving the probability of marriage as well as increasing the hazard of marrying for a young woman but has no significant role in determining the valuation of the woman in the marriage market.

The second theme in this chapter focuses on the returns to human capital investments of females in the marriage market. Given the significant empirical relationship between education and the overall marriage costs (for example see Rose (2001) and El Badawy (2007)), returns to female education in the marriage market are computed. The returns to female education in the marriage market is found comparable in magnitude to those obtained for Egyptian woman in the labour market.

The comparability in returns between the two markets provides a potential explanation for female (or their parents') investment in education, and more specifically higher education, despite the low participation in the labour market and the high unemployment rate among young females (more details on this is provided in chapter 3). This chapter reveals that if a female chooses or is encouraged by parental pressure to get married, her higher education will be comparably rewarded in the marriage market as it would be in the labour market. This explains the high substitutability between the labour and marriage markets for young females in Egypt.

Another important theme covered by this chapter is kinship marriages and their impact on the transaction costs of marriage. Kinship marriages, for reasons outlined in the

chapter, are expected to lower the transaction costs of marriage. However, our findings suggest that kinship marriages play no significant role in determining the cost of jewellery (or marriage costs) for brides.

This finding leads to two potential conclusions, either the benefits of kinship marriages are reflected along other dimensions, or that kinship marriages do not reduce the cost of jewellery, as it is considered an unavoidable component of the overall cost of marriage.

Chapter 4 also investigates the competitiveness of the marriage market and the role it plays in the the marriage valuation of women. A highly competitive marriage market, where the number of males exceed the number of females, appears to significantly improve the valuation of women in marriage. However, this finding is found to be sensitive to the existence of outliers and becomes insignificant when a median rather than a mean regression is used for the analysis.

Chapters 5 and 6 of the thesis take the focus away from the cost of marriage and examines the determinants of the self-reported marital happiness of young Egyptian wives. This chapter investigates the impact of both economic and non-economic factors on marital happiness.

Chapter 5 is centred on four main themes. The first is an examination of the role of religiosity and social trust on the marital happiness of wives. The degree of religiosity of woman in Egyptian society is captured in two separate and distinct ways. The first is wearing a veil or a niqab (a distinction between the two forms of women cover up is made in chapter 2) and the second is the frequency of visits to places of worship (being mosques or churches). This chapter concludes that wearing a veil or a niqab has no significant impact on a wife's marital happiness. In contrast the frequency of visits to places of worship (mosques or churches) has a significant impact on the marital happiness of wives.

Over one-third of the sample live with either the wife's parents or the husband's parents. The existing literature from the field of sociology has argued that there is a positive impact on the life satisfaction of women living with their in-laws (for example see Al-Attar and El Gibaly 2014). The empirical work reported in this chapter detects a contrary effect with the self-reported marital happiness of wives adversely affected by living with their in-laws.

Another focus is the time allocation of wives to household chores. This chapter concludes that the time allocated to household chores (either inside or outside the house), reduces self-reported marital happiness.

Finally, chapter 5 assesses the comparative roles of economic and the non-economic variables in determining the female marital happiness. In this context, the chapter concludes that even though economic (and demographic) variables play a significant role in determining the marital happiness of wives, non-economic variables exert a more effect on marital happiness. In particular, the contribution of good quality inter-personal relationships to marital happiness dominates the contribution of both economic and demographic variables.

Becker (1991) has emphasized the significant role of husbands in the wellbeing of their wives. Becker has argued that a ‘...(f)ather’s direct and indirect child-rearing tasks are often missing from the assessment of family work on individual or marital wellbeing’ (p.2). Thus, Becker has emphasised the significant role of the husband/ father in the analysis of the wives’ self-reported marital happiness.

Chapter 6 further explores the impact of the husband’s economic and labour market characteristics on the wife’s self-reported marital happiness. This chapter explores three main issues in relation to the role of the husband on the wife’s marital happiness. First, the way the husband allocates his time affects the wife’s marital happiness.

A second area of interest is the effect of husband’s labour market outcome in enhancing the wife’s marital happiness. It appears that among the variables reflecting the labour market outcomes of the husband, annual earnings are the only variable significantly influencing the self-reported marital happiness of wives. However, earnings appear to have a heterogeneous effect, with a larger impact in rural as opposed to the urban areas.

The general conclusion of this chapter is that, apart from the husband’s earnings and his time allocated to social activities (which involves spending time with the wife and the family), none of the husband’s characteristics have an impact on the wife’s marital happiness. Marital happiness of the wife is actually driven by what she believes enhances her happiness rather than the husband’s labour market and other activities.

Chapter 2

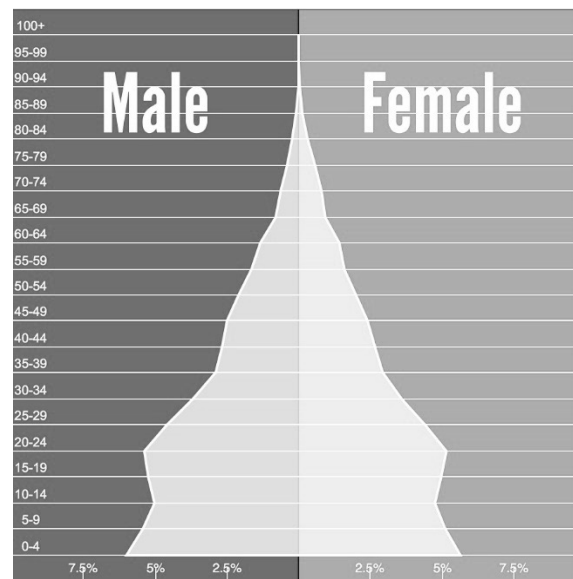
Egypt Context

2.1 The labour and marriage markets in Egypt

Egypt is the most populous Arab country with a current population of 94 million (as of end 2016) with an average annual population growth rate of 1.9%-2.1% (CAPMAS, 2016). A main characteristic of Egyptian society is its young population. A rapid population growth has been experienced since 1988. During this time, infant and child mortality decreased, followed by a time-lag decline in fertility rates. These changes in the mortality and fertility rates have given rise to a period of rapid growth which later on slows down. The demographic change eventually impacted the working age population in the years 2008-2009. This phenomenon is known as the “youth bulge,” where this shock in the population leads to a sudden rise, followed by a subsequent decline in the share of youth in the population. Consequently, almost two-thirds of the Egyptian population is in the working age category (15-64 years), and 40% are aged between 10 and 29 years.

Figure 3.1 below, shows the distribution of the Egyptian population in the year 2009 by age and gender. The figure shows a smooth population distribution for males and females across the age groups, with the exception of the 10-29 age group. A feature of the curve suggests that the population is exceptionally large at this point. This shows that a baby boom has taken place at some point around the year 1988 resulting in a sudden increase in the population, then falling back to normal. This boom is making its way through the different levels of education as well as into the labour market hiring age.

Figure 2.1: Egypt population pyramid 2009

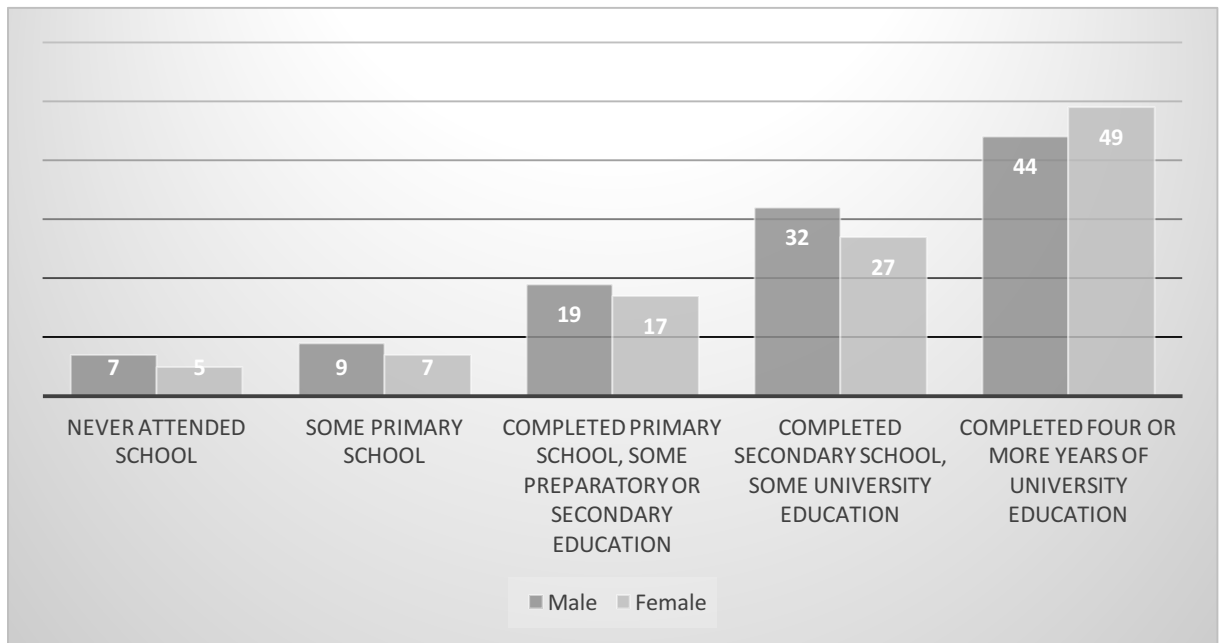


Source: populationpyramid.net

Beyond the year 2009, young people were integrated into the labour market. Additionally, the young people assume their roles into parenthood and are integrated in marriage markets creating a new baby boom acting as an echo to the youth bulge. The echo of this bulge reverberates for a number of reasons among which is the already large number of females of child bearing age. Moreover, the reduced opportunities of women in the labour market has increased fertility rates (Krafft, 2016).

Prior to discussing the labour market and the role of women in the labour market, it is only appropriate to discuss educational attainment being the most vital form of human capital investments. The education attainment of women has changed over time. Figure 2.2 below shows the percentage of young males and females attaining a certain degree of education by the year 2009. Figure 2.2 shows that, in general, the males' average education attainment is higher than that of the females, with the exception provided at the highest levels of education. More females than males are reported to have completed university education.

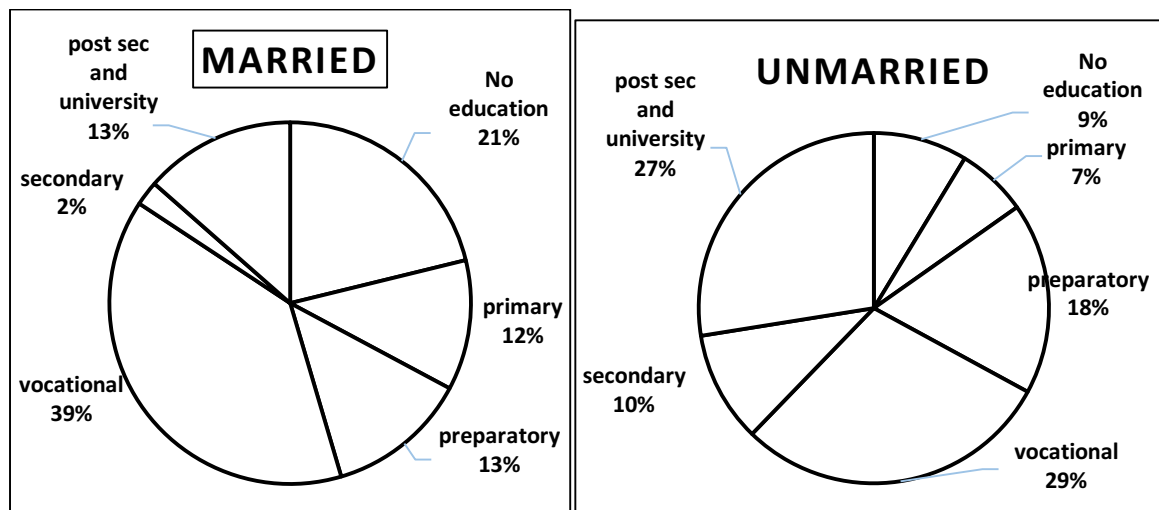
Figure 2.2: Education attainment of Egyptian youths by gender (2009)



Source: Author's own calculations based on SYPE09.

With the social and economic significance of education, parents have been investing in female's education. Socially, it is believed that an educated female is an educated mother and has positive impact on children's wellbeing. Abdel Mowla (2009) shows that '...(m)others' education shows universally positive impacts on children's schooling' (p.11). Economically, human capital investment is an incentive for labour force participation driven by the expectation of incremental wages, thus raising the opportunity cost for inactivity. Therefore, driven by the expected returns to the investment in education, females have recently accumulated higher levels of education. Figure 2.3 below shows the highest educational level of the married and unmarried young females aged 15-29.

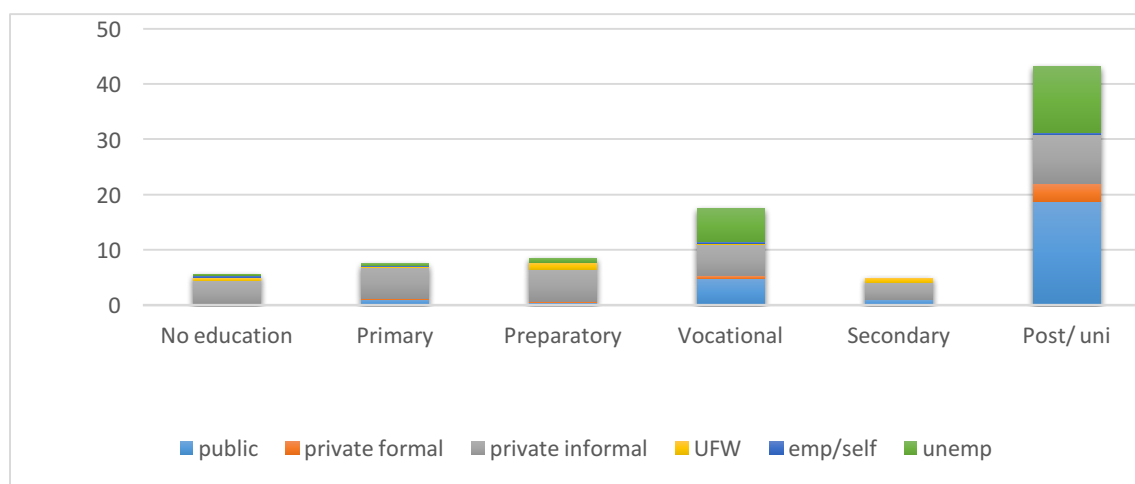
Figure 2.3: Highest level of education attained by marital status, young women (2009)



Source: Source: Author's own calculations based on SYPE09.

Figure 2.3 above shows that more than 50% of the married females have achieved either a vocational education (39%) or a university education (13%). This percentage rises to 56% for the unmarried females. Only 9% of females who are unmarried have no education at all. This re-asserts the importance of education for females. Figure 2.4 below further shows the labour market outcomes of the young Egyptian females (married and unmarried) according to their level of education.

Figure 2.4: Labour market outcome by education level, young women (2009)



Source: Author's own calculations based on SYPE09.

Among the females with a vocational or a university or post graduate education levels, only 82.3% and 56.5% are out of the labour force, respectively. At least 90% of females of other educational level, or with no education at all, are considered out of labour force. Excluding this category from the labour market status of the females, figure 2.4 shows that, the most dominating sector of employment for the females, especially at the lower levels of education is the informal sector. On the other hand, the public sector appears to be the main employer of females at the higher levels of education. Finally, unemployment seems to be a more serious problem for the the higher levels of education as opposed to the lower ones.

The previously noted trends in education and employment of females are considered the consequences of the policies and programs implemented in the 1950s. During president Abdel Nasser's political leadership, in the late 1950s (1956-59), a series of nationalisation programmes, commonly known as "Egyptianization", led to the expansion of the public sector. The government has embarked on an employment drive, where every state-owned enterprise was required to include, among their annual targets the creation of new jobs. This promise to hire has encouraged the employment of young people, especially women, taking advantage of the government's free education policy.

Furthermore, the Nasser administration supported the education of women as well as their integration into the country's national development. In this context, labour law 91 enacted in 1954 guaranteed equal rights and equal wages with non-wage benefits for married women and mothers. This has extended to the time of Sadat and has further facilitated female labour market participation. This law was applied to the public sector, the main female employer in Egypt, making jobs more attractive to women. Barsoum et al (2014) show that the flexibility of the public sector working hours, maternity leaves and work load, together with the social security and the pension scheme, makes the public sector more attractive for women. Assaad and Krafft (2014a) show that "... (m)ore than half (52%) of employed females are working in the public sector in 2012, in contrast to less than a quarter (24%) of employed males."

The Egyptian government was able to keep its promise so long as the number of graduates was limited and government revenues from oil, gas and foreign aid were

maintained. Starting in the mid-1980s, with the fall in oil prices, the financial pressures started to accumulate, together with the rise in the number of educated young people, the government began altering its commitment by delaying the hiring of new graduates. This has led to a dramatic contraction in public sector hiring (down from 70% of all educated new entrants to the labour market in 1980, to 20% in 2006).¹

Krafft and Assad (2014b) show that starting in the late 1990s, the slowdown in public sector hiring, following the structural adjustments and reform programs in Egypt, pushed females into either unemployment or unpaid family work. The private sector, either the formal² or informal constituents of it, has not represented an attractive alternative to public sector employment for females.

The nature of the private sector jobs (long working hours, fewer benefits, and larger shares of male employees in the work place among others) deters women from participating in the private sector. In addition, the contraction in formal private sector hiring meant that the informal private sector provided the main labour market absorbent for the majority of the new educated entrants to the labour market, who aspired a formal public sector job. At first, they started queuing up for the formal private sector jobs. This led to the swelling of the unemployment rate among educated young people. The informal sector, however, is not viewed as entirely compatible with the household and child bearing roles of women. Therefore, women decided to exit the labour market as opposed to joining the private sector. This led to an inflated number of females who exited the labour market and a high dominance of the public sector in recruiting women.

Given the economic downturn and slowdown in labour market activity, Assaad and Krafft (2015) reported that the educated young people from higher social class backgrounds who could afford to stay longer without a job because they were supported by their parents constituted the majority of the pool of unemployed young people. Others, both males and females, who cannot support themselves and their families without having a job resort to the informal sector.³ According to El-Laithy et al. (2003), “....(t)he

¹ In absolute terms, the total number of people employed in the public sector increased from 4.2 million in 1980 to 6.3 million in 2006. However, with the faster increase in the labour force (from 13 million to 23 million) and the inability of the private sector to absorb the remaining job seekers, unemployment rates increased significantly.

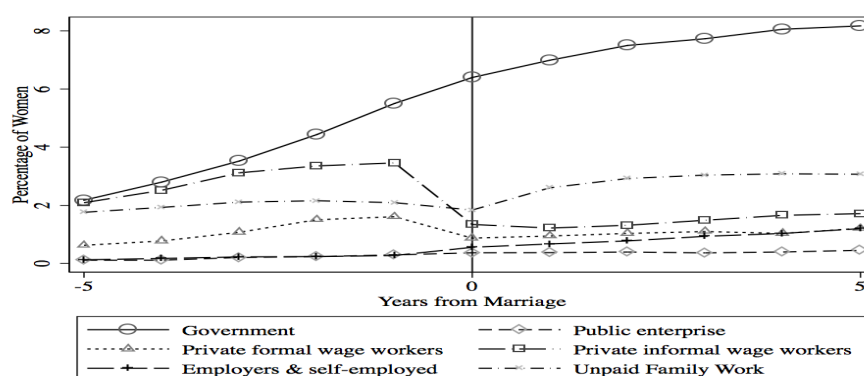
² The formality of the private sector is measured as having either a legal work contract or social insurance connected to their job.

³ One of the most famous informal jobs for females, especially for the ones with no education or with low levels of education is domestic house helpers, more commonly known as housemaids. This category is not however

Egyptian poor tend to live in large families, have low levels of education, work in the informal sector and be concentrated in low-paying unskilled activities”(p.14).

These conditions have worsened in the years 2008-2010 due to the global financial crisis further dampening job creation in the Egyptian economy. Thus, the main employer of young females during this period (2008-2010) has been the private informal sector. Figures 2.5 and 2.6 below provide a comparison of the female employment status of different age groups, at different points in time.

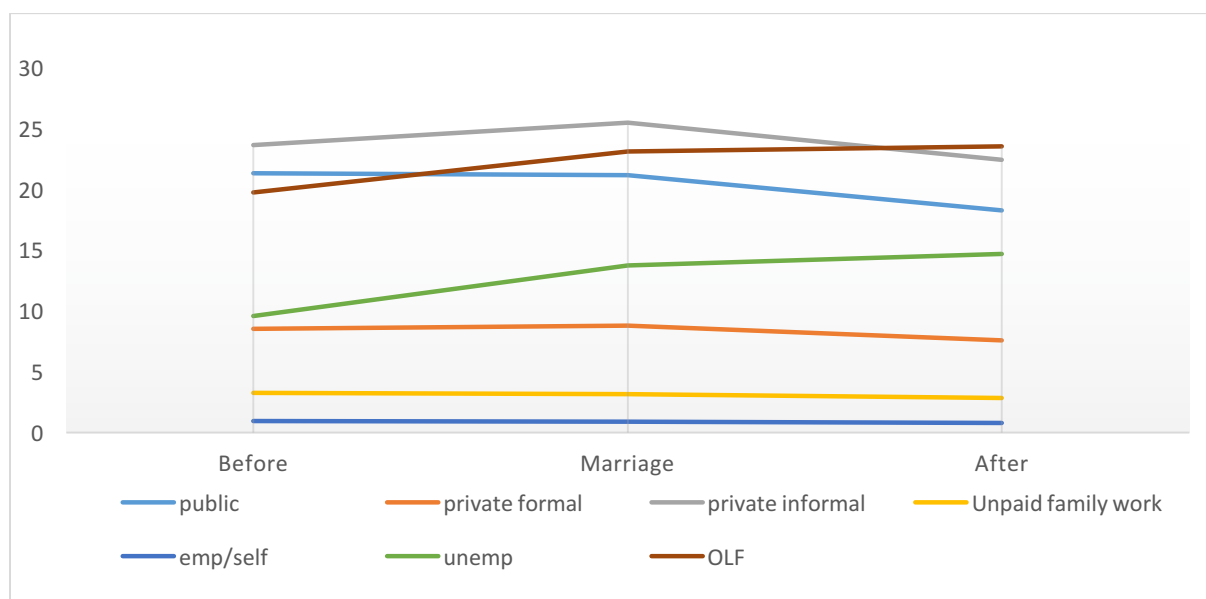
Figure 2.5: Percent of Women (aged 10-65) in Different Types of Employment Before and After Marriage in years, for Women Married Between 1992 and 2012, Egypt



Source: Hendy (2015)

represented in surveys due to the discouragement of the girls reporting it as a job being a non-prestigious and humiliating job.

Figure 2.6: Percent of Young Women (aged 15-29) in Different Types of Employment before and after marriage, for Women Married Between 1992 and 2009, Egypt



Source: Source: Author's own calculations based on SYPE09.

Figures 2.5 and 2.6 above reveal that the public sector is not the main employer of the younger generations of females. On the contrary, for young Egyptian women, the informal sector acts as the main sector of employment. Women of the previous generations believe that informal employment jeopardizes their reputation and marriageability and, therefore, force them to withdraw from the labour force in the case of the unavailability of jobs.

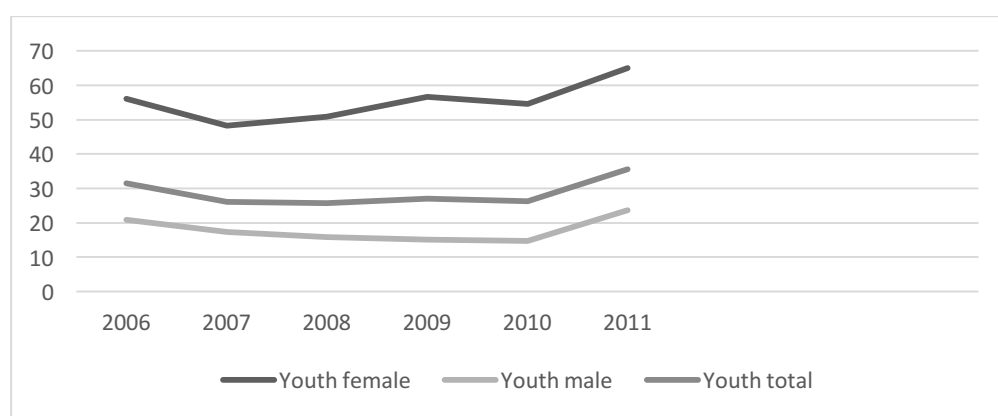
Young educated women in Egypt prefer public sector jobs given their stability, flexibility, better working conditions, social security and the more flexible nature of leaves (i.e., maternity leave and also accompanying husbands who may be required to travel abroad to work). However, given the scarcity in government jobs and the longer waits for young people to get a formal private sector job, the informal sector provides an opportunity for relieving the pressures of poverty. According to the International Labour Organisation (ILO), for the year 2009, approximately 50% of the labour force are employed in the informal sector. Along with the emergence of the private informal sector, a higher rate of female unemployment, as well as an early exit of women from the labour force, have been the consequences.

Figure 2.6 further shows the significant change in female labour market outcomes at the point where marriage takes place. A slowdown in female employment upon marriage takes place. On the other hand, an increase in the proportion of unemployed and the inactive (out of labour force) women is observed, confirming Hendy's (2015) view that with the decline in the public sector jobs, females prefer to exit the labour market on entry into the marriage market.

This previous analysis highlights the abundance of females outside the labour force, where the Egyptian labour market is heavily dominated by men. An exceptionally low participation rate of 13% for females has characterised the Egyptian labour market over the past number of decades. The low participation of females is explained by the cultural norms as well as the role of marriage and family formation, and in some cases frustration borne of a long unproductive job search.

In addition to the significant proportion of inactive, out of labour force females, an unemployment rate of 56% among the young females, as opposed to 15% for the males for the year 2009, is indicative of two main imbalances in the Egyptian labour market. The young people, forming the majority of the population, cannot find job opportunities in the labour market, and females are at a greater disadvantage with respect to that. Figure 2.7 below shows that the rates have been exceptionally high among young women, comprising more than 60% of unemployed youth, exceeding the rates for adults, suggesting that unemployment is more a young person's issue, with the most prolonged duration of unemployment being among the new graduates of higher education levels (UN, 2002).

Figure 2.7: Unemployment Rates Among Youths, by Gender, Egypt (2009)



Source: World Bank data bank

The plight of the youth unemployment in Egypt has its roots in the high rates among the more financially able and educated as compared to the poor and the less educated. The less educated and less financially able young people cannot afford to stay without a job due to the financial constraints they face, and will accept any kind of job they get. However, the educated and the better off young people can afford to stay longer without a job, waiting for a formal and a more stable job offer. Therefore, the unemployment problem is more acute among the educated young people of Egypt. Accordingly, high youth unemployment (according to CAPMAS 2005 Labour Force Sample Survey 92% of the unemployed are below the age of 30), low female participation in the labour market, high levels of informality, and low quality jobs are the main adverse outcomes of the Egyptian labour market.

Employment relationships in Egypt are governed by four main laws, namely, Law No.47 for the year 1978, which applies to civil servants of the State; Law No.48 for the year 1978, which organizes the rules applicable to public sector employees; Law No.203 for the year 1991, which was promulgated to address special requirements for employees working in the public commercial sector of the State; and Law No.12 for the year 2003, which is considered the main labour law currently in Egypt and aims at regulating the relationship between employers and employees in the private sector and guides the contract drafting, the different forms of vacations (annual leave, sick leave and maternity leave), as well as anti-discriminatory policies.

Article 120 of the 2003 labour law is the only regulation discussing issues of discrimination in the work place. According to this article, race, sex, social status, family obligations, pregnancy, religion or political views are insufficient grounds for termination. Several recent attempts have been made to introduce an anti-discriminatory law, the last of which was in 2016. However, with the absence of strict enforcements and clear regulations, discrimination is an evident feature of the work place, mainly in the private formal sectors, and gendered segregation and wage differential are the main consequences.

Bettio and Verashchagina (2009) show that the comparative biological advantages⁴, as well as barriers to entry, are the main root causes for segregation. Krafft and Assaad

⁴ Comparative biological advantage of women refers to the role of women in childbearing.

(2014b) in addition to Hoodfar (1997) agree that, according to the gender comparative advantages, the division of labour within the household is that men are mainly engaged in employment, while women are mainly responsible for home responsibilities.

Said and El Hamidi (2008) further show that labour market outcomes in developing countries differ significantly with respect to rates of participation, occupational choice, sectoral allocation, unemployment and the wage distribution. Unequal wage distribution is the main indicator of segregation in the labour market. They further show that, labour laws prohibit women from entry into certain types of jobs (dangerous, unhealthy or with night shifts). On the other hand, social traditions and family commitments confine women to specific employment opportunities. Job segregation, therefore, plays a major role in discouraging female participation in the labour market.

With the increased education attainment for women, and the slowdown of the public sector, being the main female employer, the absence of segregation and accordingly wage discrimination could lead to women enjoying higher earnings as compared to men. Moreover, Assaad and El Hamidi (2007), Said (2003) and El Hamidi (2006) all show that with the declining role of the public sector and the main role of private formal and informal sectors, female employment is at risk. The previous studies show that the trend in private sector female employment is “... (s)ignificantly less than the growth of female labour force participation as well as the employment of men in the same sector, suggesting there are significant barriers to women employment in the private sector.” (Said and El Hamidi (2008) p. 8)

Given the slowdown in public sector hiring, the lack of adaptability of the private sector to the social role and comparative advantage of women, the increase in the unemployment rates and the increase in the average education attainment of women provide incentives to sustain this trend. The marriage market, therefore, acts as a substitute market for women where they can realise returns to human capital comparable to the labour market returns.

This thesis will redirect the attention of labour economists to the marriage market acting as the main absorbent of young females in the Egyptian society. The main focus of labour economists has been on the marriage outcome and the delayed marriage strategies adopted by young people.

However, with the marriage market acting as the main market relevant to young women, as well as, according to Singerman (2007), marriage is the cultural meaning of adulthood with the delay in marriage being involuntary; it is an important cause of youth exclusion and may cause social and psychological stress for youth and their families.

Therefore, this thesis aims to narrow down the focus on marriage markets to two novel topics, mainly the value of the females in the marriage market, , as well as the marital happiness of young wives, acting as the main measure of quality as well as wellbeing of wives and consequently the children. In what comes is an overview of the Egyptian marriage market as well as a description of the prevailing customs and tradition.

2.2 The nature of marriage in Egypt

Marriage is generally considered a key feature of life, marking the transition to adulthood, and is especially significant for females in Egypt and the Arab world. Female status is mainly defined by their roles as mothers and wives. Failing to meet this expectation, they do not experience an easy life in the Arab society.

Egyptian men tend to marry younger women. Therefore, for the rapid population growth experienced by most of the developing countries over the past 50-years, a surplus of marriageable women over marriageable men, of the same age group, is usually the result (Sieverding, 2012). Moreover, internal migration affects the distribution of males across the governorates of Egypt, where males will be located where opportunities for work exist. Therefore, whenever the sex ratios (defined as the proportion of males to females) increases, the number of potential husbands increases and thus the competition among the potential suitors, increases having implications for marriage costs.

The average age at marriage for men and women in Arab countries is rising and more young people stay single longer or do not marry at all. Prior to the passage of the Child Law amendments in 2008, the female legal age at marriage rose from 16 to 18 years. Early marriage, is usually defined as marriage before the age of 18. It is considered a common phenomenon in Egypt for women, where almost 29.2% of females marry prior to that age (Osman and Girgis, 2009).

According to the CAPMAS population census of 2006, 98.5% of males and 88.3% of females, between the minimum age of marriage and 20 years of age, remain unmarried. This percentage drops significantly for females in the next age bracket (20-30) to reach

33.7% and is 71.4% for males. Marriages, are generally postponed for males beyond the age of 30, with the majority of Egyptian females marrying before the age of 30. This reflects the age difference prevalent in Egypt between husbands and wives. In this context, the 2006 population Census further reveals that 38.2% of all marriages in Egypt has a husband who is between five and nine years older than their wives, with over one-fifth having a 10-14 year age difference.

Marriage is a well-defined turning point that confers prestige, recognition and societal approval on both partners. However, in the Arab world, marriage is considered a household decision rather than an individualistic one in contrast to other regions of the world (e.g., Europe and the US). Marriage remains a social and economic contract between two families.

Marriage rituals differ between urban and rural areas. Marriages in the rural areas are more traditional than in the city. Starting with the choice of spouse, the different ceremonies, and the financing of marriage. Marriages in rural areas are mostly arranged marriages, and the spouse is a relative, a family friend or a referral from a trusted person. In the city, there are more opportunities for the couple to meet and get to know each other.

Marriage rates in Egypt, as per the CAPMAS 2006 population census, have slowed down from 10.8 per 1000 person in 1952 to 7.3 per 1000 person in 2006. Demographers have analysed this decline and noted it to be beneficial for Egyptian society. Increases in age at marriage, especially among women, is generally associated with more opportunities for female education, a lower fertility rate, and greater family autonomy.

Sociologists and psychologists, on the other hand, have referred to negative consequences for young people, especially in Arab countries and Egypt. The delay in marriage has been referred to by Binzel and Assaad (2008) as “waithood” (short for wait adulthood). This “waithood” is a state where years of adolescence and an ambivalent social status produces anxieties for both parents and their children. These negative consequences are compounded by a society that defines adulthood by entry into marriage.

Economic circumstances were defined as one of the main deterrents to establishing families. Young people comprise a large demographic cohort in Egypt, and the longer they remain excluded, alienated, and economically vulnerable, the region will suffer both politically and economically. In that context, the economic conditions germane to young

people leading to the postponement of marriage are the same conditions that have given impetus to the Arab spring. This is not just the case in Egypt, but also for other Arab world countries too.

Delayed marriage is considered to be both a voluntary and an involuntary decision. A voluntary decision is a consequence of choice made by young men and women to remain longer in school, have less children, or participate in the labour market. To the extent that the delay in marriage is involuntary, it is an important cause of youth exclusion and of social and psychological stress for young people and their families.

Another coexisting phenomenon with delayed marriage in Egypt is the persistence of early marriages prior to the age of 18. The two opposing trends reveal that early marriage is still a common phenomenon among Egyptians. On the other hand, economic difficulties and financial constraints postponing marriage for males have a double impact on females. One effect is found in the form of females postponing marriage until the groom is financially ready.

The delay of marriage is considered a social burden for the family of the female. This has placed pressure on the family to find a possible suitor in the close social network to ensure they socially protect their daughters through marriage. A family with an unmarried female is considered a family in crisis. All family members and friends start going through the list of people they know to find one who has a possible suitor. This has resulted in an increasing rate of what is commonly known as “living-room marriages.”⁵

The anecdotal reference to these marriages as living-room marriages comes from the fact that the couples usually meet for the first time in the living room of the bride’s house, under the supervision of her family, and sometimes that of the groom’s. In a culture where premarital friendship between men and women is frowned upon, these marriages can be a way to satisfy family pressure to get married. These marriages usually take place very rapidly usually in less than six months. Similarly, a groom usually decides on the qualities of the bride he is looking for (it can go as far as the colour of the skin), and a matchmaker, who is usually a friend or a family member, prepares a list of possible brides and on interview, an agreement is reached.

⁵ In the typical Egyptian marriage, it is the prospective groom who actively pursues a potential bride. If he has not already found one on his own, then it is he, often with his mother, who visits his intended and her family (traditionally in their living room, which is why arranged marriage is referred to as *gawaz al-salonat*, or living-room marriage, in Egyptian argot).

2.2.1 Education, employment and marriage

Egyptian females in the last two decades have become more focused on education, whether university education or post-graduate education and therefore postponing marriage until a later age. Comparing this situation with decades earlier, an era when female education was not a popular choice among parents, early marriages were a significant pattern among Egyptian females.

Mensch et al (2005b) argue that the delay in marriage for females can be attributed to the effect of increased educational attainment among women. In accordance with the higher female educational achievements, marriage has been deferred until later ages. However, a concern for Egyptian society is a female's decision to postpone marriage, whether due to education or pursuing a career in the labour market. This delay is compounded by the fact that young men in the region, due to the aforementioned reasons, are forced to delay getting married often until their thirties or even early forties, which means many girls of marriageable age are being left without a suitor. These thoughts have introduced the concept of spinsterhood in Egypt and it's no longer uncommon to find unmarried girls in their mid-late twenties or even thirties.

Females who are employed before marriage contribute a larger proportion of the total cost of marriage, though a substantial portion of this contribution goes to offset some of her own family's contribution. This reveals that for employed females, the bride's family contribution to the total cost of marriage is increased, yet this does not appear to expedite the transition to marriage

In Egypt, the most sought after positions for women in the labour market often have an unwritten policy against hiring the religiously observant. For a female to find a good job, she would need to lose her identity with fundamentalism, but once she adopts behaviours viewed as consistent with secularism, she would find marriage options in her own community limited.

This has resulted in a tendency to delay the transition to adulthood, since obtaining a job doubles the hazard of marrying as compared to a similar individual who does not have a job, and if the job found is a 'good' job⁶, the hazard of marrying doubles again (Binzel

⁶ A good job is one with a value higher than 0.5 in the Job Quality Index that is devised according to the ILO specifications.

and Assaad, 2008). Another consequence of unemployment and labour market problems in the MENA region is the increase in the age gap between spouses (Mensch 2005a). Another direct result was the inability to afford the high cost of marriage or the inability to signal the ability/eligibility for marriage to potential brides and their families.

2.2.2 Religions and marriage

Throughout history, Egypt has been considered a multi-denominational country.⁷ Egyptian society permits differences in religious views. However, when it comes to cultures and traditions, especially those relevant to marriage, regardless of religious background, Egyptians mostly act under the same umbrella of cultures and traditions.

Religiousness is socially determined through the attire of the female. A veiled woman wearing a “hijab” just covers her hair, and wears loose clothes that cover her body except for the hands and face. A Munaqaba woman wearing a “Niqab” covers hands and face as well with the exception of her eyes. A Munaqaba women is thought of as being more religious than a veiled one.

The veil, however, has become a socially dictated habit more than a religious act, especially among the poorer and lower socioeconomic groups. Considered as a way of covering oneself and avoiding harassments in the streets, many females (muslims and non-muslims) opt for covering up their hair in the streets as a way to protect themselves from harassment. Therefore, the veil could be interpreted as acting as a social constraint in Egyptian society.

Religious customs, for Muslims and Coptic Christians, prohibit sexual relationships outside of marriage. Moreover, Egyptian traditions frown upon any independent living for young people of both gender groups. Therefore, marriage is considered the only way for young people to get their independence from their parents and transition into being adults. Parents, on the other hand, consider marriage as the main protection method from any unapproved sexual relationships.

Marriage in Egypt is a religious obligation. Religion, Islam and Coptic Christianity, heavily guide marriages in Egypt. From being a religious obligation to dictating marriage

⁷ Judaism has been widely spread in Egypt until the time of Abdel Nasser where all the Jews left the country due to discrimination against them.

rituals and rights. Qur'an, prophetic practices, and the Bible all encourage marriage. The process and the different steps to marriage however are guided by cultures and traditions.

Muslim and Christian marriages rely on intertwined religious and cultural processes and ceremonies, the most significant and important of which is the spousal choice. A Muslim female can only marry a Muslim male; however, a Muslim male can marry a Muslim or non-Muslim female. A Christian male and female can marry a Christian or a non-Christian; however, marrying a non-Christian is discouraged at the level of the family and the church.

For Muslim marriages, the religious ceremony is the first step of the official religious signing of the marriage contracts. The act of signing marriage contracts is a cultural process. However, the announcement of the marriage in a religious context (and informing people) is the true essence of marriage in Islam. Additionally, the symbolic Mahr/ bride price is a religious act of presenting a valuable gift for the bride at the time of marriage.

Marriages for Coptic Christians is guided by religious acts. The church ceremony and the religious ritual is the true essence of marriage. Moreover, the lack of divorce or the dissolution of marriage is another unique feature characterizing a Coptic marriage. Apart from these Muslim and Christian religious acts, everything else falls under the umbrella of cultural traditions. The presentation of jewellery and gifts, the engagement party, the wedding party, the furniture, and the sharing of the costs of marriage between the groom and bride and their families are all cultural imperatives.

2.2.3 Circumcision and marriage

Female circumcision is more commonly known as Female Genital Mutilation (FGM). This has occurred in Egypt over years and remains a problem for many reasons.⁸ At first, it was believed to be a religious tradition and more specifically an Islamic one. As religious leaders denounced this act, declaring it as an act that predates Islam⁹, it has been considered a cultural practice, one meant to protect the female against any pre-marital sexual involvement.

⁸ The practice of FGM is concentrated in 27 African countries in addition to Yemen, Iraq and some other countries in Asia, the Middle East south Asia as well as among migrant families in Europe and the United States.

⁹ The practice of FGM cuts across religions and is practiced by Muslims as well as Christians

Female Genital Mutilation/Cutting is usually carried out between infancy and 15 years of age, with most of the circumcised females mutilated before the age of five. The intended motive is to keep women "pure," marriageable, and unable to enjoy sex. In Egypt alone, 27.2 million females (91% of married Egyptian females) have been circumcised according to the 2013 FGM UNICEF report.

The demographic and health survey in Egypt in 2000 showed that 97% of married women included in the survey had been victims of FGM. Another study by the Egyptian ministry of health and population in 2003 reported that over 94% of married women had been exposed to FGM, 69% of which agreed for the procedure to be carried out on their own daughters as well.

Being a cultural habit, it is well believed in Egypt, especially in rural areas, that a circumcised female is a well-protected and well-mannered female. Therefore, potential grooms and their mothers¹⁰ may be looking for a potential wife who is circumcised to guarantee her virginity and loyalty upon marriage.

2.2.4 Kinship marriages

Marriages within the same family is very common in Egypt and the Arab world, with marrying first cousins is the most common form of kinship marriage. Assaad and Krafft (2015) show that around 29% of all married women in the age of 18-39 are married to a relative. Casterline and El-Zeini (2003) and Singerman (2007) propose that one reason for the popularity of first cousin marriages is the lower upfront cost of marriage and the protection of family property. However, there has been no empirical support for the contribution of kinship marriage to the cost of marriage.

The profile of young people in consanguineous marriages suggests that these young people may marry relatives because their disadvantaged socioeconomic position limits their access to other networks to meet potential spouses. Consanguinity may also be a strategy to reduce the costs of marriage; relatives may be less demanding during marriage negotiations (Hoodfar 1997; Singerman 2007).

Kinship marriages have been associated with traditional and arranged marriages. In

¹⁰ In the case of an arranged marriage the main factor that would convince the mother to introduce a potential bride to her son is if she is circumcised. Otherwise the mother may not even think she is a potential bride for her son.

the countryside and in the poorer areas of the cities, these agreements usually take place upon the birth of the girl and the boy that they are destined to get married as soon as they are old enough. Hoodfar (1997) adds that kinship marriages are believed to reduce uncertainties between the families and could reduce domestic violence against wives.

2.3 Marriage costs

One of the main issues concerning marriage in the Arab world in general and Egypt in particular is the cost of marriage. The cost of marriage¹¹ is high to the extent that many young people spend years accumulating earnings to cover marriage costs and thus remain at home, maintaining their status as “children” despite being twenty or thirty years of age (Singerman, 2007).

Marriage in Egypt and the Arab world take place in several stages. Starting with pre-engagement, the engagement, the religious officiating of marriage and the wedding. Each step has a lump-sum cost associated with it. Once an agreement is reached regarding the spouse, the parents start discussing the timings of the different consecutive ceremonies, the price of jewellery¹², the cost of bride price “*mahr*”, and the contribution of each side to the housing, furnishings and ceremonies. In addition to the actual cost of marriage, a deferred dowry¹³ has to be agreed upon early and explicitly written down in a marriage contract.

The jewellery presented to the bride is one main item of the marriage costs that is non-negotiable. The families could agree on avoiding unnecessary costs within the trousseau of the bride, having small ceremonies equally sharing the costs, waiving the bride price at the cost of sharing all furnishings costs and even avoiding a new house, and living with parents of the bride or the groom. It is not unusual to find a young couple living in the same household as either of the couples’ parents due to the high costs of housing. The jewellery, however, cannot be subject of negotiation. The value of the

¹¹ The main consequences of costly marriages in Egypt is the rise and spread of Urfi Marriages as well as Female Spinsterhood.

¹² The value of the jewellery involves a number of decisions: whether the jewellery is gold or diamond. If it is gold, the number of different pieces is the key. If the jewellery is diamond then it usually comprises 2 rings, one with 1 piece of diamond and the other with 5 pieces. The size of the diamonds is what matter in this case.

¹³ A customary deferred dowry is a sum of money that has to be paid by the groom to the bride in the event that a separation or divorce takes place as a way of securing the divorcee.

jewellery could increase or decrease and cannot be avoided, regardless of the religion of the couples.

Publicly announcing a marriage is another pre-condition of marriage in Egypt. Initially, this condition was dictated by Islamic regulations. However, over time, it has spread to become part of Egyptian culture. In that context, Egyptian marriages are characterised by a number of ceremonies. Marriage ceremonies in the Arab world and Egypt, in particular, take place in four steps, with minor differences between Muslim and Christian marriages. The first step is the unofficial engagement and the recital of the opening verses of the holy Qur'an "*Al-fateha*", usually few people, the bride and grooms' parents, close family members, especially males, attend this event. This event involves all the arrangements for the upcoming ceremonies, the sharing of the cost of marriage, the value of jewellery and the bride price.

Following this event, the formal engagement and the presentation of the jewellery "*Shabka*" takes place. This event is a social event for Muslims. However, for Coptic Christians, a church event takes place which is followed by a social event. The official signing of the marriage contract "*Katb Ketab*", where usually the "*Mahr*" (*bride price*) is paid, follows for Muslims. During this event, the public announcement of the wedding takes place, the marriage certificate is issued and officially registered. A similar event takes place for the Coptic Christians at the church. Finally, a social wedding ceremony takes place either on the same day of the religious one or on a different day.

Marriages in Egypt have to follow this number of ceremonies, regardless of the social class and the area of residence. However, the costs and the choice of places differ from one social class to the other and between urban and rural areas. The costs of ceremonies form the bulk of the total cost of marriage in Egypt.

The cost of ceremonies is usually shared between families of the bride and the groom. The engagement ceremony is usually the responsibility of the bride's parents. However, the jewellery presented is fully paid for by the groom and his family. The wedding ceremony is fully paid for by the groom's family. The different prestigious marriage ceremonies are considered a reflection of the social status of the two families, and the higher the social and economic backgrounds of the bride or the groom's family, the bigger in scale are the different ceremonies.

In addition to the cost of ceremonies, the cost of housing, furnishings and electric equipment are shared. Moreover, all furnishings, clothes and electric equipment should be newly purchased, the cost of which is divided between the couple and their families.

Average marriage costs in Egypt are generally higher than in other societies. According to a study by Singerman (2007), “....the average cost of a marriage in Egypt in the late 1990s was around \$6,000” (p. 10) where on average, the per-capita income during this time was \$1,490. The rising cost of marriage is in part attributed to the rising expectations and consumerism that accompanied the 1970s open door policy.

Singerman and Ibrahim (2001) further show that households in rural areas, who were living below the poverty line, spend an average of 15 times their annual household expenditure per capita on marriage-related costs. Households in urban areas spend nine times their annual household expenditure per capita.

Employment is important in order for young men to accumulate the sums required to marry in Egypt (Assaad et al. 2010). Accordingly, rising expectations about living standards, inflation, unemployment rates¹⁴, low wages, an increase in the share of informal employment, and the decline in the quality of jobs for new labour market entrants are considered the main reasons why males delay their first marriage in the MENA region (Binzel and Assaad, 2008).

Three- quarters of the marriage costs are covered by a groom and his family. The recent increase in the costs of marriage and the participation of females in the labour market has led to the sharing of the costs of marriage between the families of the bride and groom. The groom and his family are traditionally responsible for providing housing for the joint residence on marriage, the jewellery, the bride price, as well as any electronic equipment for the household and the wedding ceremonies. The bride and her family on the other hand are responsible for the furniture and the engagement ceremonies. Often the money used to purchase these furnishings comes from the bride price (mahr) that the groom pays to the bride.

The demographic bulge in Egypt is making its way through to the working age, exerting pressures on the labour market.¹⁵ The 2004 economic reforms caused an

¹⁴ The unemployment rate is higher among post-secondary and university graduates.

¹⁵ The highest rates of unemployment have been recorded for the young people (15-24).

economic revival at the aggregate level, anticipated improvements in labour market outcomes for young people.

The Egyptian economy, has failed to generate enough jobs to keep up with the growth in the population. Most of the Arab countries find it challenging to overcome the youth bulge and transform it into an opportunity. This is mainly due to an inability to put together economic and social policies that exploit the available human resources in the country.

In the face of general economic stagnation, together with the inability of finding jobs and accumulating savings, marriage costs continue to be an underlying factor for young people in delaying their marriage. The upsurge in the general cost of marriage has had a number of unintended consequences for marriage patterns. Urfi (secret) marriage in addition to female spinsterhood are examples.

Chapter 3

Survey of Young People in Egypt 2009

Labour market surveys take place in Egypt since the 1980s with a full coverage of the age spectrum. The available surveys, with the exception of SYPE09, are not dedicated to young people and therefore are considered general surveys not fully representative of young people. The 2009 Survey of Young People in Egypt (SYPE09) is the first Egyptian survey tailored for young people. The survey was administered at a time in Egyptian demography where the youth bulge reached the hiring age. Therefore, it is appropriate to be used for labour market analysis pertaining to young people.

SYPE is a nationally representative survey of young people in Egypt between the ages of 10 and 29. The survey was carried out by the National Population Council, Central Agency for Public Mobilization and Statistics (CAPMAS) and Information and Decision Support Centre (IDSC). The survey is considered providing a profile on the socio-economic and cultural situation of young people in Egypt.

A limited number of labour market surveys exist in Egypt with the most common being the Egyptian Labour Market Survey (1988) and the Egyptian Labour Market Panel Surveys (1998, 2006 and 2012) in addition to the Survey of Young People in Egypt (2009) (SYPE09). However, SYPE09 contains unique features that make it more relevant for the purpose of the current study.

The SYPE sample is unique for being the first comprehensive, nationally representative young people's survey in Egypt. A previous Population Council survey on "The Adolescence and Social Change in Egypt (ASCE 1997)" focused on the young people aged 10-19 identifying health issues only. The ASCE 1997 is considered the single reference to surveys dealing specifically with young people in Egypt prior to SYPE09.

All 27 Egyptian governorates are represented in the sample, including the five frontier governorates, Sinai and the deserts that lie west and east of the river Nile. Frontier governorates have not been previously studied from a gender and labour market perspective in the amount of detail and coverage provided by SYPE09. The inclusion of slum areas within the urban sample is also an innovation by SYPE09. Slums are defined, in Egypt, as an unauthorized settlement in areas not intended for housing (lacking security, basic services and adequate sanitation facilities). However, drawing upon the IDSC list of slums, no clear geographical boundaries of slum areas were found. Accordingly, slums are being referred to in SYPE09 as informal urban areas.

Moreover, although the survey questions contained in SYPE09 resemble very much that of ELMPS06, some unique features of the former attempted to get over issues with ELMPS06. ELMPS06 does not provide a historical retrospective insight at education and employment, it relies on the panel feature of it and the existence of the 1998 survey serving that purpose. ELMPS06 discusses features pertaining to the level of education as well as the first and current jobs for the interviewee without any reference to job mobility. SYPE09 provides a retrospective dimension to the labour market as well as education, with starting and ending dates for each phase, allowing the determination of the status of the individual at any point in time.

3.1 Sample selection

SYPE09 collected data on key elements on young people's key life transitions: Education, Work, Family formation, Health, and Civic and political participation. The sample selected is based on a stratified, multi-stage cluster sampling procedure. The master sample is based on the CAPMAS 2006 census, and primary sampling units (PSUs) were selected from the master sample. The SYPE sample is divided into 455 primary sampling units (PSUs), and between urban and rural areas.

The previous sampling technique has given rise to the identification of 11,372 households with a total number of 20,200 young members of the households within the eligible age group (10-29). The original sample comprised 16,061 individuals and 15,029 young people were actually interviewed. Attrition was due to the individual's rejection or unavailability during the data collectors' visit or their subsequent two re-visits to the same household. SYPE random selection was based on age and gender as follows:

- One young person (either male or female) from 10-14 age group;
- One female and one male aged 15-21;
- One female and one male aged 22-29.

3.2 Survey design

The survey was originally designed as three separate sets of questionnaires: a household-level questionnaire, individual questionnaire and community-level questionnaire. The household questionnaire was administered to the head of the household and collected information on all the individual members of the household, regardless of age and gender. Six versions of individual questionnaires were used based on the previous age and gender selection of individuals. The community-level questionnaire aims at providing a profile of the areas in which the young people reside.

The household questionnaire, administered to all members of the household, covers general demographic questions, education, health, work, financial transfers (in the form of pensions, subsidies and remittances), housing and living conditions and assets and durable goods' ownership. The individual questionnaire is generally comprised of eight modules, covering health, education, employment, international migration, marriage and family formation, social issues, values and civic engagement and time use.

The interviews were administered by a same gender interviewer inside the household at the time and place of convenience to the individual selected for interview. Follow up with second and third visits were allowed for further follow-up questions and queries.

Given the main focus of the current research, household questionnaire and the 15-21 and 22-29 female questionnaires were used. Modules of interest used from SYPE included education, work, time use and personal belongings, and family formation and health. The household questionnaire together with the family formation module provide a collective mapping of the marital status and conditions for the young females. Details of these modules follows.

3.3 The different modules of SYPE

SYPE09 comprises a household roster and questionnaire in addition to five different questionnaires relating to the different groups outlined above. Accordingly, there is a 10-

14 questionnaire, a male and a female for those aged 15-21 years, and a male and a female one for those aged 22-29. Different questionnaires have common sections as well as distinct sections that apply specifically to the gender and the age group subject to interview.

The main difference exists between the groups of males and females less than 15 years of age and those older than 15. Some sections within modules are not fit for purpose for the younger age groups. The different sections apply to all the subsequent groups. However, the type of questions asked differ depending on the gender and the exact age group.

Generally speaking, the main modules composing this survey are:

Household roster

Employment module*

Education module

Migration module**

Civic participation module*

Time use and personal belongings module

Family formation and health module*

* These modules apply selectively to all the different age groups for both gender groups

** This section does not apply to the males and females' sections in the 10-14 age group

The household roster presents the demographic structure of the household, with respect to the number of people living in the household, their relationship to the household head, the gender, age, month and year of birth of each member of the household. This is followed by a subsection on the characteristics of the household with respect to the marital status of the household members (older than 15 years of age) and the age at first marriage. Additionally, a section on the education of all the members of the household starting with the toddlers and whether they are enrolled in nursery or preschool moving on to the educational backgrounds of the remaining members of the household. A section on health contains information on any disabilities, chronic diseases and health insurance. With regards to employment, the household survey is concerned with the current status of all members of the household concerning participation in the labour market, the sector and the degree of formality of the job. The household survey then moves to any kind of money transfers in the form of pensions, subsidies or remittances the household receives. Finally,

the household survey covers the living and housing conditions as well as the asset ownership at the household level. The household survey allows the selection of the eligible individuals based on the age and gender. Upon this eligibility selection, the individuals are presented with the relevant age and gender survey for the rest of the interview.

The module on employment is one of the biggest and most comprehensive modules in the survey. It provides detailed information on all aspects of employment relevant to young people from the characteristics of their jobs, to unemployment, out of labour force, under and over employment, entrepreneurship and self-employment, employment history, and the financial behaviour of young people.

More specifically the employment module covers issues related to the employment of individuals during the seven days prior to the interviews. This section aims to classify individuals among the general categories of labour force participation (e.g., employed, unemployed and out of labour force). Subsequent sections focus on the detailed characteristics of the current job with respect to the hours of work (overemployment and underemployment), any job difficulties and skills required for the job, followed by a detailed section on earnings.

The employment module provides a section on employment history. This section provides retrospective details on three employment stages, the current, the previous and the pre-previous. This section allows a detailed mapping of the employment conditions with respect to the starting and ending dates of each job, its location, the type of job, the sector and the degree of formality of the job. This section of the employment module is considered a major improvement over existing labour market surveys in Egypt.

Moving to the education module. Similar to the employment module for each level of education from the preschool/ nursery education all the way to post-graduate education. More specifically, it provides detailed information on the type of school (government, Azhar or private, or international), the type of degree awarded in addition to the attitudes towards the school and the quality of teachers. This section also provides information on young people dropping out of education.

The migration section is another module that is only administered to males and females above the age of 15 years. The migration module collects data on personal previous migration experience, migration experiences of family or friends and aspirations to migrate and pull and push factors acting to shape these aspirations. Moreover, it

provides information on internal migration and moving within the borders of Egypt either individually or within a family.

The civic participation module provides information on volunteering in any service program, as well as networking and friendships, community values, political participation and religiosity. The questions on religiosity differ between males and females due to the existence of questions on the “Hijab” and the “Niqab”. With respect to males, the subsection on the ‘hijab’ asks whether the male is willing to take an unveiled wife and if she wears a hijab would he ask her to wear the ‘niqab’ too.

Time use and personal belongings provides a profile of what young people spend their time doing. The participation in different activities during the last week, and the day before the survey as well as the number of hours spent on each activity on the day before the survey are the main questions asked on time use. Different activities include personal activities (e.g., sleeping, bathing, dressing, personal care and eating), School related activities (e.g., school, homework, study at home, private or group tutoring), domestic duties (e.g., household chores inside the house, household chores outside the house and care of children , sick or elderly), work (e.g., paid work, unpaid work, learning work/ skill), leisure work/ spare time activities (e.g., spending time with family, resting/ napping/ relaxing, visiting relatives, hanging out with friends, dating, chatting on the phone with friends, internet use, reading, listening to music, watching TV, video games, exercising), religious activities, volunteer activities and commuting time. The time use module additionally asks questions on the different sources of news and the use of internet. Personal ownership of assets and belongings is also recorded in this module, in addition to the general household ones.

Finally, the survey ends with a family formation and health module. This module is concerned with the marriage background, the relation with the spouse, the cost of marriage and housing issues. Additional to the marriage questions, a number of questions related to the health of young people are administered. This sections covers the general health of young people, their risk behaviour and safety, nutrition, tobacco, drugs and alcohol abuse, mental health and social development, exercise and physical activity and finally reproductive health.

The module of utmost importance to this thesis is the family formation module, which asks a variety of specific questions on marriage. In addition to the extraction of the

main dependent variables for the three essays in this thesis, other independent variables are also used. The independent variables are extracted from the household roster, the family formation module in addition to the other survey modules. We now provide a deeper analysis of the various variables extracted from the marriage and family formation module.

3.4 Family formation module

Identifying marriage as a major issue pertaining to the young people of Egypt and the Arab World at large, a module of SYPE was devoted to marriage and family formation. The family formation module covered issues on marital status, characteristics of marriages of the young, spouse selection, costs of marriage, perceptions of problems facing young people preparing for marriage as well as fertility issues. Child law¹⁶ on marriage age was passed in June 2008, which has raised the legal age at marriage for females to 18 years. However, most respondents on the marriage module are of marriage age under the old law, where the legal age was originally defined as 16 for females.

Several facts of marriage that are of importance to young people are concluded using survey data. Overall, 40.6% of women between the age of 15 and 29 years have reported being married, as opposed to only 13.3% of the males within the same age group. Moreover, females tend to marry at a younger age (19) than males (25). Table 3.1 below shows the percentage of married males and females between the ages of 15 and 29 as well as the median age at marriage.

Table 3.1: Proportion of married youths and median age at marriage by sex and age group, Egypt (2009)

Age group	Married	Median age at marriage
Males		
15-17	0.0	n.a.
18-24	5.14	20
25-29	40.9	23
Females		
15-17	2.3	16
18-24	35.4	18
25-29	77.7	20

Notes to table 3.1: Author's own calculations using the household data from SYPE09.

¹⁶ "Law no. 126 for 2008" (Arabic only) <http://www.egypt.gov.eg/english/laws/>

The marriage and family formation module covers detailed questions on marriage in each section that are of high relevance to the current research. Questions on kinship marriage, living arrangements (upon marriage and current), time taken between different marriage ceremonies (e.g., engagement, religious marriage contracts, and wedding) have all been asked to females of the selected age group. Additionally, using the section on marriage costs, the cost of jewellery is the only variable used due to the small number of missing values, as compared to other components of the marriage costs.

3.5 Sex ratios

Sex ratios are recorded in the Egyptian population census as the number of males per 100 females available in the governorate at the time of the survey (November of every 10 years). They count the current number of males and females available in the governorate regardless of their place of birth or where they actually live. The average of sex ratios in Egypt is within the accepted range of 1.02-1.04.

Two specific governorates in Egypt, however, have exceptionally higher recorded sex ratios, namely the Red Sea and the South Sinai governorates. Together the Red Sea and the South Sinai governorates share the fact that both are touristic governorates. The number of touristic establishments in the two governorates represent a large percentage of overall tourism in Egypt. Although the tourism sector is highly populated by female as well as males' workers, internal migration, even for the purpose of employment in the tourism sector for females is very rare. The males outnumber the females in the Red Sea and the South Sinai governorates due to the huge number of males coming from the different governorates who are employed in the tourism sector. In addition to tourism, there are also the key petroleum cities in the South Sinai. The petroleum sector is highly populated with males especially in the oil field areas, which are the ones in the South Sinai governorates.

3.6 Other modules

Questions from other modules were used, due to their relevance to marriage and thus serving a relevant purpose for the current research. Marital happiness and the frequency of

communication with husbands on different matters (e.g., work, sexual relations, romantic relations, and future of the family), religiosity variables, financial autonomy, social networks and trust were used from the community values module. However, these questions were only asked to females aged 18 to 29 years. Females aged 15 to 17 were excluded from the happiness and communications questions, despite being married, because they were classified as too young to make such decisions on their own.

Moreover, a variable reflecting on female circumcision was used from the health module. Additionally, the time use section was used to capture information on the number of hours spent by the husbands and wives, separately, on different activities both inside and outside the house.

With the very low female participation in the labour market, missing values are highly reported on the earnings variables for the women. Moreover, it is within the Egyptian culture that people get to be less reluctant to explicitly report on the monetary personal on household wealth. Therefore, to get over this information scarcity, a household asset index is construct serving the purpose of the analysis. The index is constructed based on the ownership of physical assets for the household in which the female is currently residing. Details on the index and the constructions of it follows in chapter 5.

Accordingly, SYPE's richness in information and wide coverage of modules presents a very good opportunity to study the young people in Egypt, through the lens of marriage, in a time of youth bulge and social, political and economic marginalization.

Appendix A: Extra variables from the survey and brief description

Given the richness of the survey, and the wide variety of variables that potentially serve the purpose of the analysis of the coming chapters. A number of variables were selected and reported in the coming chapters. Other variables were selected and referred to a number of times in the following chapters, however were not reported due to their insignificant impact. The following table A.1, therefore, provides a full list of the variables used (reported and not reported) with a brief description of the variables.

Table A.1: Summary and description of full list of variables

Variable name	Description
Family size	A continuous variable on the total number of family members living in the same household as the sampled woman
Number of siblings	A continuous variable on the total number of siblings a sampled woman has
Number of female sisters	A continuous variable on the total number of female sisters a sampled woman has
Husband in the same household	=1 if the sampled woman's husband is currently living in the same household. =0 otherwise
Mother alive	=1 if the sampled woman's biological mother is alive. =0 otherwise
Father alive	=1 if the sampled woman's biological father is alive. =0 otherwise
Disability or chronic disease	=1 if the sampled woman has a disability or a chronic disease. =0 otherwise
Gender attitudes (when jobs are scarce, men should have preference over women for getting a job?)	=1 if the sampled woman is expressing egalitarian views =2 if the sampled woman is expressing neutral views =3 if the sampled woman is expressing traditional views
Perceived religiosity	=1 if the sampled woman describes herself as very religious =2 if the sampled woman describes herself as religious =3 if the sampled woman describes herself as not religious

Respect unveiled	=1 if the sampled woman respects unveiled women =0 otherwise
Ideal number of children	A continuous variable reflecting on what a sampled woman thinks is the ideal number of children
Final decision to marry	=1 if the sampled woman took the marriage decision herself =0 otherwise
Discuss number of children with husband	=1 if discuss daily =2 if discuss often =3 if never discuss
Discuss future plans with husband	=1 if discuss daily =2 if discuss often =3 if never discuss
Discuss problems at work with husband	=1 if discuss daily =2 if discuss often =3 if never discuss
Discuss life with husband	=1 if discuss daily =2 if discuss often =3 if never discuss
Accept to live with in-laws	=1 if sampled woman accepts to live with in-laws upon marriage =0 otherwise
Health perception	=1 if the sampled woman thinks her health is good =2 if the sampled woman thinks her health is neutral =3 if the sampled woman thinks her health is poor
Weight perception	=1 if the sampled woman thinks she is overweight =2 if the sampled woman thinks she is right weight =3 if the sampled woman thinks she is underweight
Pollution	=1 if the sampled woman feels the environment is polluted =0 otherwise
Sexual harassment	=1 if the sampled woman has ever experienced any form of sexual harassment =0 otherwise
Sexual harasser	=1 if sampled woman reported a family member performing sexual harassments =2 if sampled woman reported a person she knows but not a family member performing sexual harassments

	=3 if sampled woman reported a stranger performing sexual harassments
Reported sexual harassments	=1 if sampled woman reported sexual harassment =0 otherwise
Age first menstrual period	A continuous variable reflecting on the age the sampled woman got her first menstrual period
Number of live births (number of children)	A continuous variable reflecting on the total number of births/ children a sampled woman has
Miscarriages	A continuous variable reflecting on the number of miscarriages a sampled woman ever had
Pregnant	=1 if sampled woman is pregnant =0 otherwise

Appendix B: SYPE09



SURVEY of YOUNG PEOPLE in EGYPT

SYPE 2009

Household Roster

Usual residents	Relationship	Residence	Gender	Age	Date of birth
1)	2)	3)	4)	5)	6)
Please give me the members' names (even if they are not here now), starting with your household head?	What is the relation of (NAME) to the household head?	Does (NAME) live with the family now, or does s/he lives elsewhere within Egypt, or elsewhere outside of Egypt?	Is (NAME) Male or Female?	How old was (name) at his/her last birthday? Record in completed years. <i>children less than one year are coded zero</i>	Month and year of birth

If AGE 15+							
17) What is (NAME)'s current marital status? If answer (2-4) (→Q20) If answer (5-7) (→Q21)	18) Does (NAME)'s husband/wife live in this household? Yes (1) No (2) (→Q20)	19) Interviewer : <i>Copy husband / Wife ID</i>	20) What was (NAME)'s age at his/her first marriage?	21) Is (NAME)'s biological mother alive? Alive (1) Deceased (2) (→Q23)	22) Interviewer : <i>Copy mother ID</i> <i>If she is not present in the family record (zero)</i>	23) Is (NAME)'s biological Father alive? Alive (1) Deceased (2) (→Q25)	24) Interviewer : <i>Copy Father ID</i> <i>If he is not present in the family record (zero)</i>

If AGE 6+				If AGE 10+ If Q27 < 3	
26) Has (NAME) ever attended School/Institute/College or is s/he currently in School/Institute/College or has s/he never attended School?				27) What is the highest level of education that (NAME) attended? (Code below)	28) What is the last year that (NAME) attended school? Record (0) if s/he did not pass the first year, and (8) for Don't know
In School/Institute/College (1)	Attended School/Institute/College (2)	Had diploma without attending (3)	Never been to a School/College (4) (→Q29)		29) Can (NAME) read and write? (1) Read & Write (2) Read Only (3) Neither Read nor Write (8) Don't Know

Interviewer : if Q(26) = 1	Interviewer: if Q(26) = 2 or 3 or 4
30) Is (NAME) attending a School/Institute/University this academic year (2008/2009)?	31) What is the reason (NAME) never attended school or dropped out of school? Record the main reasons. (the Codes written below)

38) Is (NAME) currently doing any work for cash?		39) Where is (NAME) working? (Code below)	40) What's (NAME) employment status now? (Code below)	41) Does (NAME) Contribute to the social security system? (→ Q44)		42) Did (NAME) want and were you ready to work during the past week?		43) Did (NAME) actively search for a job over the past three months?	
Yes (1)	No (2) (→ Q42)			Yes (1)	No (2)	Yes (1)	No (2) (→ Q44)	Yes (1)	No (2)

47) How many rooms are there for the sole use of this household (<i>excluding bathrooms, kitchens, and stairway areas</i>)?	Number of rooms <input type="text"/> <input type="text"/>
-------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------

63) **Interviewer:** *What types of windows are in the house?*

- All windows have glass panes (1)
- Some windows have glass panes and some do not have glass panes (2)
- No windows have glass panes (3)
- No window openings (4)

64) **Interviewer:** *what is the main material of the interior walls?*

- Brick, stone and concrete (1)
- Brick, Stone and mud (2)
- Wood & tree branches (3)
- Reinforced concrete (4)
- Mud bricks (5)
- No walls (6)
- Other: _____(96)

65) **Interviewer:** *what is the main roofing material?*

- Straw (1)
- Mud (2)
- Wood (3)
- Steel (galvanized) (4)
- Reinforced concrete (5)
- Tiles/wooden planks (6)
- Other : _____(96)

66) **Interviewer:** *what is the main flooring material used in the house?*

- Natural floor (earth/sand) (1)
- Rudimentary floor (wood plank) (2)
- Finished floor (parquet or polished wood) (3)
- Ceramic/marble tiles (4)
- Cement tiles (5)

- Cement (6)
- Wall-to-wall carpeting (7)
- Vinyl (8)

Item	90) Does your household have:	
	Yes (1)	No (2) (→ Next item)
1. Radio	OY (1)	ON (2)
2. B&W television	OY (1)	ON (2)
3. Color television	OY (1)	ON (2)
4. Video or DVD player	OY (1)	ON (2)
5. Satellite dish	OY (1)	ON (2)
6. Manual washing machine	OY (1)	ON (2)
7. Automatic washing machine	OY (1)	ON (2)
8. Sewing machine	OY (1)	ON (2)
9. Vacuum cleaner	OY (1)	ON (2)
10. Refrigerator	OY (1)	ON (2)
11. Water heater	OY (1)	ON (2)
12. Air conditioner	OY (1)	ON (2)
13. Automatic dish washer	OY (1)	ON (2)
14. Microwave	OY (1)	ON (2)
15. Computer	OY (1)	ON (2)
16. Laptop	OY (1)	ON (2)
17. Telephone	OY (1)	ON (2)
18. Mobile	OY (1)	ON (2)
19. Motorcycle	OY (1)	ON (2)
20. Truck	OY (1)	ON (2)
21. Taxi	OY (1)	ON (2)
22. Micro-Bus	OY (1)	ON (2)
23. TokTok	OY (1)	ON (2)
24. Personal car	OY (1)	ON (2)
25. Vacant land for buildings	OY (1)	ON (2)
26. Buildings	OY (1)	ON (2)

Individual survey

133) what is the net amount received (in L.E.) for each of the following categories?								
	133_1) Frequency							133_2) Net value
	O Da y (1)	O Week (2)	O Mont h (3)	O 3 Months (4)	O Year (5)	O NA (7)	O DK (8) <i>Go to the next category</i>	
A. Basic wage	O	O	O	O	O	O	O	
B. Supplementary payment	O	O	O	O	O	O	O	
C. Bonus	O	O	O	O	O	O	O	
D. Incentives	O	O	O	O	O	O	O	
E. Overtime	O	O	O	O	O	O	O	
F. Profits	O	O	O	O	O	O	O	
X. Other	O	O	O	O	O	O	O	
Z. Total	O	O	O	O	O	O	O	

[6] Employment History

172) Interviewer: Has (Name) ever worked?		O Yes (1)	O No (2) (→Q200)
	i) Current situation in the past seven days	ii) Previous position	iii) Position before previous position
173) Employment status (<i>see code below</i>)	from 6 to 11 (→Q198)	from 6 to 11 (→Q198)	from 6 to 11 (→Q198)
174) Interviewer: check question (Q134) and (Q135)	////////////////	O This is my first job but not my current job (1) (→ before previous) O This is my first and current job (2) O This job is different from the first and/or the current (3)	O This is my first job but not my current job (1) (→Q200) O This is my first and current job (2) O This job is different from the first and/or the current (3)
175) Description of position			

176) Occupation			
177) Economic activity			
178) Economic sector (<i>see code below</i>)			
179) Job stability (<i>see job below</i>)			
180) Did you have contract?	O Yes (1) O No (2) (→Q182)	O Yes (1) O No (2) (→Q182)	O Yes (1) O No (2) (→Q182)
181) Type of contract?	O Defined (1) O Unlimited (2)	O Defined (1) O Unlimited (2)	O Defined (1) O Unlimited (2)

Q(173) Code:

(1) Waged employee

(2) Employer

(3) Self-employed

(4) Unpaid working for family

(5) Apprentice unpaid

(6) Unemployed

	i) Current situation in the past seven days	ii) Previous position	iii) Position before previous position
182) Did you have social security?	O Yes (1) O No (2)	O Yes (1) O No (2)	O Yes (1) O No (2)
183) Did you have medical insurance?	O Yes (1) O No (2)	O Yes (1) O No (2)	O Yes (1) O No (2)
184) Did you get any training?	O Yes (1) O No (2)	O Yes (1) O No (2)	O Yes (1) O No (2)
185) Is your work in/out of the establishment?	O In the same establishment (1) O Out (2) (→Q190)	O In the Same (1) O In Another (2) O Out (3) (→Q190)	O In the Same (1) O In Another (2) O Out (3) (→Q190)
186) What is the legal status of the firm you work in? (see code below)			
187) What is the number of employees in firm (including respondent)?	O _ _ _ O 100 or more put (100)	O _ _ _ O 100 or more put (100)	O _ _ _ O 100 or more put (100)
188) Is this establishment registered?	O Yes (1) O No (2) O Don't know (8)	O Yes (1) O No (2) O Don't know (8)	O Yes (1) O No (2) O Don't know (8)
189) Is this establishment licensed?	O Yes (1) O No (2) O Don't know (8)	O Yes (1) O No (2) O Don't know (8)	O Yes (1) O No (2) O Don't know (8)
190) Country	O In Egypt (1) (→Q192) O Abroad (2)	O In Egypt (1) (→Q192) O Abroad (2)	O In Egypt (1) (→Q192) O Abroad (2)

191) Country name (→Q196)			
192) Governorate			
193) Kism/Markaz/District			
194) Shiakha/Village			

(7) Housewife

(8) Full time student/Army recruit

(9) Does not want to work

(10) Temporarily disabled

(11) Unpaid leave for a year or more

Q(178) Code:

(1) Government

(2) Public enterprise

(3) Private

(4) Investment

(5) Foreign

(6) Non-profit NGO

(7) Other including co-operatives

(96) Other

Q(179) Code: (1) Permanent

(2) Temporary

(3) Seasonal

(4) Casual

Q(186) Code: (1) Individual project (2) Partnership/company

(3) Joint venture

(4) Company with limited liability (5) Has no legal entity

(8) DON'T KNOW

195) Place of work	O Urban (1) O Rural (2)	O Urban (1) O Rural (2)	O Urban (1) O Rural (2)
196) Why did you quit? (see code below)			
197) How old were you when you started this work?	A) Month		
	B) Year		
198) Started	A) Month		
	B) Year		
199) End	A) Month		
	B) Year		

Q(196) Code:

(1) The employer terminated the contract

(2) I willingly left this job to start another one

(3) I willingly left for any other reason

(4) I did not change to another work place

216) Who decided how you will use your money/savings?	O Myself only (1) (2) Relatives (4)	O My Husband O My Parents (3) O
447) Would you say that you have same-gender friends (relatives or non- relatives) with whom you could discuss personal matters?	O Yes (1) O No (2)	

448) Would you say that you have opposite-sex friends (relatives or non-relatives) with whom you could discuss personal matters?	O Yes (1) O No (2)
449) How many friends on average do you have?	A) Females — B) Males —

450) Have you ever discussed any of the following matters with your							
Issues	Father (A)	Mother (B)	Brother/Sister (C)	Friend (D)	Others (E)	Husband (F)	No (7)
A) School performance							
B) Friendship							
C) Romantic relationship							
D) Issues related to growing up and puberty							
E) Being teased/bullied at school							
F) Your future							
451) Do you feel loved by your family?				O Yes (1)		O No (2)	

453) Generally speaking, would you say that most people can be trusted, or that you need to be very careful in dealing with people		
O Most people can be trusted (1)		O Must be very careful (2)
468) How often do you go to mosque/church (other than for a funeral or a wedding or other religious occasions)?		
O More than once a day (1)	O More than once a week (2)	O Once a week (3)
O Once a month (4)	O Never, practically never (5)	
471) Are you veiled or <i>monaqaba</i> ?	O Veiled (1) (→Q474)	O Monaqaba (2) O No (3)

	475) Were you involved in [ACTIVITY] during the last week? O Yes (1) O No (2) (→Next) (→Q478)	476) Were you involved in [ACTIVITY] yesterday? O Yes (1) O No (2) (→Next) (→Q478)	477) How many hours were you involved in [ACTIVITY] yesterday? Hour Minute
I. Personal activities			
A) Sleeping		O Yes (1) O No (2)	
B) Bathing, dressing, Personal care		O Yes (1) O No (2)	
C) Eating		O Yes (1) O No (2)	
II. School Related Activities			
D) School (include commute time in duration of activity)	O Yes (1) O No (2)	O Yes (1) O No (2)	
E) Homework/studies at home	O Yes (1) O No (2)	O Yes (1) O No (2)	
F) Private or group tutoring	O Yes (1) O No (2)	O Yes (1) O No (2)	
III. Domestic Duties			
G) Household chores inside the house (clothes/dish washing, cleaning, cooking, mending, etc)	O Yes (1) O No (2)	O Yes (1) O No (2)	
H) Household chores outside the house (washing clothes, bringing goods, fetching water, etc)	O Yes (1) O No (2)	O Yes (1) O No (2)	
I) Care of children, sick or elderly	O Yes (1) O No (2)	O Yes (1) O No (2)	
IV. Work			
J) Paid work	O Yes (1) O No (2)	O Yes (1) O No (2)	
K) Unpaid work (other than household chores)	O Yes (1) O No (2)	O Yes (1) O No (2)	
L) Learning work/skill	O Yes (1) O No (2)	O Yes (1) O No (2)	
V. Leisure/spare time activities			
M) Spending time with my family	O Yes (1) O No (2)	O Yes (1) O No (2)	
N) Resting/napping/relaxing	O Yes (1) O No (2)	O Yes (1) O No (2)	
O) Visiting relatives	O Yes (1) O No (2)	O Yes (1) O No (2)	

P) Hanging out with friends	O Yes (1) O No (2)	O Yes (1) O No (2)	
Q) Dating	O Yes (1) O No (2)	O Yes (1) O No (2)	
R) Chatting on the phone with friends	O Yes (1) O No (2)	O Yes (1) O No (2)	
	475) Were you involved in [ACTIVITY] during the last week?	476) Were you involved in [ACTIVITY] yesterday?	477) How many hours were you involved in [ACTIVITY] yesterday?
	O Yes (1) O No (2) (→Next) (→Q478)	O Yes (1) O No (2) (→Next) (→Q478)	Hour Minute
S) Internet use	O Yes (1) O No (2)	O Yes (1) O No (2)	
T) Reading (magazines, books, or newspapers)	O Yes (1) O No (2)	O Yes (1) O No (2)	
U) listening to music	O Yes (1) O No (2)	O Yes (1) O No (2)	
V) Watching television	O Yes (1) O No (2)	O Yes (1) O No (2)	
W) Video games	O Yes (1) O No (2)	O Yes (1) O No (2)	
X) Exercising/physical activities	O Yes (1) O No (2)	O Yes (1) O No (2)	
VI. Religious activities	O Yes (1) O No (2)	O Yes (1) O No (2)	
VII. Volunteer activities	O Yes (1) O No (2)	O Yes (1) O No (2)	
VIII. Commuting time	O Yes (1) O No (2)	O Yes (1) O No (2)	

483) Do you personally own any of the following?	O Yes (1)	O No (2)
1. Radio	O	O
2. Color television	O	O
3. Video or DVD player	O	O
4. Telephone	O	O
5. Mobile telephone	O	O
6. Desktop computer	O	O
7. Laptop computer	O	O
8. MP3/Ipod	O	O
9. Personal car	O	O
10. Building(s)	O	O
11. Agricultural land	O	O
12. Vacant land for buildings	O	O

Vehicle for commercial use (not for private use)		
13. Motorcycle	<input type="radio"/>	<input type="radio"/>
14. Truck	<input type="radio"/>	<input type="radio"/>
15. Micro-bus	<input type="radio"/>	<input type="radio"/>
16. Taxi	<input type="radio"/>	<input type="radio"/>
17. TokTok	<input type="radio"/>	<input type="radio"/>

487) Do you have your own bedroom?	<input type="radio"/> Yes (1) (→Q489) <input type="radio"/> No (2)	<input type="radio"/>
488) Do you have your own bed?	<input type="radio"/> Yes (1) <input type="radio"/> No (2)	<input type="radio"/>
489) Interviewer: Check Q(106): Has this (FEMALE) ever been married?	<input type="radio"/> Yes (1) (→Q491) <input type="radio"/> No (2)	<input type="radio"/>
493) How old were you when you entered into a marriage contract with (only/first) husband?	____ Months / ____ Years	
494) How old was your (only/first) husband?	____ Months / ____ Years	

498) How did you meet your husband?

- ☐ At work (1) ☐ While studying (2)
☐ We were neighbors (3) ☐ We are related (4)
☐ Through friends/relatives/acquaintances (5) ☐ Through the internet (7)
☐ Through religious/charitable activities (8) ☐ Through a matchmaker (who took money) (9)
☐ Other:(96)

499) Who made the final decision that you should marry your only/last husband?

- ☐ Myself (1) ☐ Father (2)
☐ Mother (3) ☐ Older brother (4)
☐ Other: (6)

504) Was your husband related to you either by blood or marriage before you married him?

- ☐ Yes (1) ☐ No (2) (→Q506)

505) In what way was he related to you?

- ☐ Son of father's brother (1) ☐ Son of father's sister (2)
☐ Son of mother's brother (3) ☐ Son of mother's sister (4)
☐ Other relatives (5)

507) How often do you talk to your husband:				
	Almost never (1)	Often (2)	Daily (3)	NOT APPLICABLE (7)
A) About your plans for the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B) About problems you are having at work or school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
C) About how things are going in your life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

D) do you discuss your marital sexual relations with your husband?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
--------------------------------------------------------------------	-----------------------	-----------------------	-----------------------	-----------------------

508) How would you describe your marriage?	<input type="radio"/> Very unhappy (1) <input type="radio"/> Unhappy (2) <input type="radio"/> Fair (3) <input type="radio"/> Happy (4) <input type="radio"/> Very happy (5)
--------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

509) How much time passed between the formal engagement (KHUTUBA) and the legal marriage (KATB AL-KITAAB)?	<input type="radio"/> _ _ Months (0) <input type="radio"/> Same Day
510) How much time passed between the legal marriage (KATB AL-KITAAB) and the actual marriage (DUKHLA)?	<input type="radio"/> _ _ Months (0) <input type="radio"/> Same Day
511) What was the value of the jewelry presented to the bride (SHABKA)?, LE. <input type="radio"/> Don't know (99998)

512) What was the total cost of the marriage that you and your parents paid, excluding housing expences (including appliances, furniture, GIHAZ, and celebrations)?, LE. <input type="radio"/> Don't Know (99999998)
513) What was the total cost of marriage that your husband paid, excluding housing (including appliances, furniture, GIHAZ, and celebrations)?, LE. <input type="radio"/> Don't Know (99999998)
514) Interviewer: <i>If the answer in (Q512) or (Q513) is "Don't know" (→Q516)</i>	
515) What percentage of the total cost of the marriage did the bride/groom/bride's family/groom's family contribute?	
A. Bride only %
B. Bride's family %
C. Groom only %
D. Groom's family %
Z. Don't Know	
Total	100%
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Interviewer: <i>Total percentage must equal 100%</i> </div>	

516) When you and your husband started living together, did you live with your family, with your husband's family, with someone else or by yourselves?

- ☐ Respondent's family (1) ☐ Spouse's family (2)
☐ Someone else (3) ☐ Lived alone (4) (→Q521)

517) Did you have your own living and cooking facilities or did you share living and cooking facilities with relatives?

- ☐ Had own living and cooking facilities (1) ☐ Shared living and cooking facilities with relatives (2)

518) How long did you stay there? (→Q521)

O Months

O Don't Know (998)

568) Have you ever experienced any sexual harassment?

O Yes (1)

O No (2) (→Q574)

634) Have you had your first menstrual period?

O Yes (1)

O No (2) (→Q638)

635) How old were you when you had your first menstrual period?

O Years

O Don't Know (98)

650) (NAME) Are you circumcised?

O Yes (1)

O No (2)

O Refuse to answer (5) (→Q654)

651) How old were you when you were circumcised?

O Years

O Don't Know (98)

Chapter 4

The determinants of cost of jewellery for young brides: The case of Egypt

4.1 Introduction

The unique nature of marriage in the Arab region has generated a range of stylized facts that may not be very pertinent to Western societies. An example of which is the importance of marriage itself, the problematic delay in marriage as well as the costs accompanying marriage. These issues have all been relevant to the Arab world but not as germane to most of the western world.

The cost of marriage is one particular aspect relevant to marriages in the Arab region and Egypt in specific. The different costs of marriage comprise the cost of housing, the bride price “The Mahr”, the accommodation furnishings, the ceremonies and the jewellery. Any increase or decrease in the value of the different components of the overall cost of marriage should automatically be reflected in the overall cost of marriage.

It has been discussed in a previous chapter of this thesis (chapter 2 page 25), how the cost of jewellery is one of the most unique components of the overall cost of marriage. Other components of the cost of marriage (e.g., the cost of housing, furnishings and ceremonies) can all be shared between the families of the groom and the bride. The couple could live with their in-laws (35% of the entire sample of married females live with parents or in-laws in the current data) to avoid housing costs. Moreover, the families could agree to forgo the Mahr to reduce the overall cost of marriage. Avoiding the Mahr is socially acceptable if the cost of furnishings and ceremonies is shared between the couples and their families or if the Mahr is substituted by a larger investment allocated to the other

components (for more details on the cost of marriage components see the Egyptian context chapter 2 page 24).

Jewellery is considered a gift by the groom to the bride and the former determines its value. The families of the bride and the groom are equally proud of the amount of money invested in the jewellery gift and they socially share it with friends and family, and even strangers. On the one hand, the amount of money invested in the jewellery presented to the bride is a reflection of the financial and social status of the groom. On the other hand, this amount of money and accordingly the value of the jewellery, presented for the direct use of the bride, is a reflection of how much the groom values the bride. The value of the Jewellery can increase or decrease, depending on a number of reasons among which are the financial ability of the groom, the social class of both the groom and the bride, and by how much the groom values the bride.

The cost of marriage (with the jewellery cost being an important portion) has been interpreted in the economic literature for the Middle East as a factor delaying marriage. Accordingly, the mainly descriptive literature has for long treated it as an important determining variable explaining the “delayed” marriage for men in the Arab region. Another dimension well covered in the available literature on the cost of marriage in Egypt, are the attributes of a groom to be or a bride to be, as opposed to their parents, which determines their own proportional contribution to the cost of marriage.

However, little research attention has been devoted to the overall, as well as the different components of the marriage costs. In particular, none has attempted to explain the determinants of the cost of jewellery, being the most unavoidable component of the total cost of marriage. Several factors play a role in determining the value of jewellery, one of which is how the husband values the bride. Therefore, it is believed that the cost of jewellery is a determinant of the valuation of the female in the marriage market.

The present chapter, therefore, explores the attributes and the characteristics of females that increase or decrease this cost of jewellery at marriage, and consequently her value in the marriage market. In other words, it aims to determine what makes a young female an attractive proposition in the Egyptian marriage market as reflected in the value of jewellery offered by the groom.

Attempting to find responses to the above question, the Survey of young people in Egypt (SYPE09) is used to analyse the determinants of the cost of jewellery (COJ) using

the reported real cost of jewellery, focusing on a sample of young females, aged 15-29 years of age.¹⁷ The selected subset starts with those aged 15 years, even though young people are defined as individuals from the age of ten, but a female under the age of 15 is socially considered not marriageable due to her young age.

The cost of jewellery is only realised for the married females who have already received their jewellery. For females who are not married, at the time of the survey, the cost of jewellery variable has missing values. Therefore, the impact of the different characteristics of the females on the jewellery cost can be estimated for the married females only. However, the main aim of the analysis, is to analyse the impact of the characteristics of the females on her realised marriage value as measured by jewellery costs.

In an attempt to estimate the cost of jewellery model for the whole range of young females, whether married or not, selection into marriage is taken into consideration. The variables impacting the probability of getting married could be the same explaining the variations in the cost of jewellery. Accordingly, sample selection could be present and therefore, the results could be subject to bias. Selection models rely on the existence of observable characteristics of females having an impact on the marriage probability but not the cost of jewellery, which are used as identifiers. In a search for identifiers for the selection model, details of which are explained in the results section (section 4.6 p. 72), female circumcision is used. Female circumcision is found to significantly shift the marriage probability but not the log real cost of jewellery, hence its statistical suitability as an identifier in the current application.

The analysis investigates first the determinants of the marriage prospects of young women moving on to their marriage valuation as well as the determinants of the hazards of marriage. The focus is on the validating the social beliefs regarding the relationship between kinship marriage as well as circumcision on the marriage prospects of young women, the speed of marriage as well as their marriage valuation. Another main focus is, the competitiveness of the marriage market and what effect does it have on the marriage valuation of women.

¹⁷ Even though the legal age at marriage for females has been raised in 2008 to 18 years, but child marriage is still prevalent in Egypt, and a number of females presented in the survey between the ages of 15 and 18 are already married.

Another main focus of this analysis is the degree of comparability between the marriage market and the labour market for young women. Using the available data and empirical results, returns to investments in education in the marriage market. Although the estimated model does not allow for the calculation for the similar returns in the labour market, but the Egyptian labour market literature is very rich on this topic, and therefore the numbers are extracted from most recent work on the topic in Egypt and the rates of return to investments in education in the two markets are compared.

The estimated model adds to the available literature on the economics of young people, and more specifically young women as it provides insights on the the degree of substitutability between the labour and the marriage markets. This explains the equal attractiveness of the marriage market and the labour market to females especially for the more educated ones using a young people's survey and providing empirical support which has not previously taken place in the literature. Also, the findings contribute to providing economic explanations to two of the very common social practices rooted in the Egyptian society, namely kinship marriages and female circumcision. Finally, the findings add to the understanding of the role of the marriage market at large on the marriage valuation of young women.

This chapter is divided into six sections. Section 2 presents the literature review and section 3 discusses the data used, variables definition and summary statistics. Section 4 then outlines the methodology. Section 5 details the empirical results and section 6 offers the conclusions of the analysis.

4.2 Literature review

Economic theories have long focused on the probability of marriage and factors determining that probability. Applying economic theories to the institution of marriage originally started with the work of Becker in 1973. Becker's theories are considered among the first economic theories of marriage concerned with couple formation and dissolution. Prior to that, marriage was mostly studied from a sociological or anthropological perspective

Beyond Becker's contribution, theorists started to discover economic explanations linked to marriage. They attempt to explain why males and females choose to get married and how economic resources will either ease or hinder the process (for example see: Paul

Glick's (1988) on the 'marriage squeeze'). They further discuss how wage opportunities drive female preferences for the labour market over the marriage market.

A different strand of literature discusses the costs of marriage, specifically in the context of cohabitation and exit from marriage. Wydick (2004), Chiappori et al (2005) and Dnes and Rowthorn (2002) have discussed the choice between cohabitation and marriage based on divorce costs. They discuss how the costs of exiting a marriage play a significant role in the decision to choose between marriage and cohabitation.

The cost of marriage comprises a number of components including the bride price (*mahr*) and the jewellery. The burden of the costs and sharing it between the families of the brides and the grooms is highly guided by culture. Bride prices, the transfer of the costs from the family of the groom to the family of the bride is the more prevailing form of marriage transfers in the Egyptian culture.

Among the determinants of bride price vs dowry is the role of women in the society. Siwan Anderson (2007) argues that historically, bride price has been more common in societies with active role of women in agriculture. These transfers from the groom and his family to the bride and her family are common in societies where polygyny, where men can have more than one wife, and where divorce is allowed.

More ancient literature on the study of bride prices show that the value of the bride price is culturally linked to the "right to labour and reproductive capabilities" (Anderson, 2007). Quale (1988) and Goody (1973) further argue that the size of the marital transfer is related to the number of rights acquired at marriage rather than the wealth of the families. Further characteristics of the marriage and the bride that affect the size of the marital transfer is the marriage to a paternal cousin vs a distant relative, in addition to the expected number of children a woman will bear (Bianquis, 1996).

Anderson (2007) further classifies bride price into transfers from the groom's family going to the bride's family (bride price) and those going to the bride herself (dower). The dower remains under the ownership of the couple but are considered a formal property of the wife throughout the marriage.

Bishai and Grossbard (2007) show that a strong determinant of the bride price is wife's fidelity at marriage and the lack of non-marital sexual relationships. Therefore, the wife's qualities are considered the main determinants of the size of the bride price. Anderson (2007) further shows that the wife's characteristics further determines the

size of the dower being the direct transfer to the property of the wife herself. In the Egyptian culture, a main and direct component of a dower is the value of the jewelry which remains the property of the wife throughout marriage. Anderson (2007) links the transfers from the grooms' families to the brides' or their families, in the form of dower and bride price, respectively, to the value of the brides' productivity and contribution to marriage reflecting on women's welfare.

With the differences in cultures, as well as the emergence of new trends of bride price and dowries with the economic advancement and industrialization, the economic studies of marriage transfers have declined with the decline of its significance in the western world. Therefore, the topic of marriage transfers is under-researched in the international and multi-cultural literature. The recent literature indicates that trends of lower levels of childbearing, higher divorce rates, increases in the average age at marriage, rising non-marital childbearing, and rising levels of cohabitation characterise western societies (Smock et al 2004). However, little attention is given to marriage costs or savings accumulations for western marriage due to the lack of relevance of these themes in those societies.

Other areas in the world, however, exhibit significant marriage costs such as in the Arab region. India is considered a country with inflated marriage costs. Banerjee et al (2013), Rao (2006), Jaggi (2001) and Do et al (2008) report that India is facing a 'marriage squeeze' problem (i.e., an excess of females over males¹⁸) resulting in a rise in the groom-price. For women who have no education or employment opportunities out of marriage, the 'marriage squeeze' (with 1.2 women per man) explains why the groom-price has risen. This has acted to reduce the relative worth of women in the Indian marriage market.

The findings in the Arab world concur with those for India in the correlation between pecuniary measures and the value of the bride in the marriage market. However, in India, this value is determined by financial transfers from the bride to the groom in the

¹⁸ Indian men marry women who are 5-10 years younger, so there were always more women in the "marriage market" than men creating a "marriage squeeze." On the other hand, there are more boys than girl of the *same age* –leading to the "missing women phenomenon". However, the "marriage squeeze" overwhelms the "missing women" effect resulting in about 1.2 women for every man in the marriage market.

form of a groom price. In the Arab region, the financial transfers in terms of jewellery and bride price “The Mahr”, go in the opposite direction, from the groom to the bride.

Despite the existing availability of empirical research dealing with marriage outcomes in the Arab world at large and Egypt in particular, similar empirical work on the marriage costs is scarce. There is generally only descriptive analysis available on this topic.

Abdel Kader et al (2006) argue that savings for marriage is a major component of the budgets of the working young, particularly women. Using the Egyptian Labour Market Panel Survey (ELMPS¹⁹), Assaad and Krafft (2014) note that married couples spend an average of 4,000 LE (approximately 570 USD) on the jewellery given to the bride from the groom on their engagement. The jewellery varies from gold to diamonds depending on the social class and the characteristics of the bride as well as the financial capacity of the groom’s family.²⁰

Singerman (2007) and Mensch (2005a) further reveal that housing, furniture and appliances are all essential for newlyweds and this has also inflated the cost of marriage thus delaying the time to marriage. Assaad and Barsoum (2007) have identified the cost of housing for a married couple to be one of the main problems facing young people in influencing their marriage decision.

Moving on to the relationship between education attainment and labour force participation on one hand and marriage outcome and costs on the other, the international literature delineates different relationships. Posel and Casale (2013) for South Africa report that education attainment plays no significant role on the marriage outcome of white women. For other ethnic groups, however, there is evidence that female education investments by parents increase their expectations of wealth transfers from groom and family upon marriage. Participation in the labour market has been addressed in the context of savings accumulation of the married couple. However, no discussion of female

¹⁹ ELMPS is a labour market survey by the Economic Research Forum (ERF) which started in 1988, with follow up rounds in 1998 and 2006 and lately in 2012. The ELMPS is representative of all Egyptian society with respect to age ranges. Therefore, the representation of young people in the sample is more limited compared to SYPE09.

²⁰ In the case of gold shabka, it is usually formed of a gold engagement ring, bracelets, necklaces and earrings. The diamonds shabka is made of a five stone engagement ring in addition to the main stone diamond ring. Depending on the social class, the jewellery is either gold or diamonds and within both groups the size and the value differs greatly.

employment in regard to marriage outcome or finances has been referred to in the international literature on marriage.

Arab and Egyptian literature focuses more on the relationship between education and marriage, rather than cost. For instance, El Badawy (2007) suggests that better marriage prospects guide the decision to invest in the education of female children. The impact of education on postponing marriage has been widely discussed in the Egyptian literature (for example see Binzel and Assaad (2008), Rose (2001), Yabiku (2005) and Ghimire et al (2006)).

In the previous context, education is expected to impact marriage costs through matching with the prospect of a husband with higher income (for example see Rose (2001) and El Badawy (2007)). Families of educated women aim for costlier marriages, believing that education has improved the value of the female in the marriage market. Assaad and Barsoum (2007) suggest that this is one of the main reasons for the increasing number of single educated females.

On the other hand, the relationship between work and marriage, and how they interact, affect the transition of females to adulthood through marriage (Sieverding, 2012). Whether or not employment improves the female marriage outcome has implications for their incentives to work and commit to the labour market. When employment opportunities for women are scarce, many of them look at marriage as the best road to economic security. Amin and Al Bassusi (2003) have discussed the role of female employment in expediting the marriage process. The financial contribution of a working female to the overall marriage cost is therefore one of the main incentives for female labour market participation.

Additionally, sorting and mating are believed to have an impact on costs of marriage. For example, kinship marriages, being popular among Arabs compared to Western societies (Hamamy, 2012), are assumed to reduce the pressure on marriage costs. Assaad and Kraft (2014) show that kinship marriages remain popular, especially in rural areas²¹ given “the enforced stability and the higher compatibility between the couples and their families” (Hamamy, 2012). Given the reduced uncertainties associated with the

²¹ In rural areas of Egypt, kinship marriages are so prevalent within some families, especially among families with shared businesses, that as soon as a girl is born, an agreement is entered into by her father that she would be wedded to someone among her uncles' sons.

groom's financial position, kinship marriages are believed to reduce transaction costs of marriage and therefore expedite the process of marriage.

In contrast, Assaad and Kraft (2014), argue that it was not demonstrated empirically that “consanguineous marriages substantially shift the marriage cost” (p. 10). The trust, accompanying these marriages, allows for some of the household formation expenses to be deferred thus reducing the transaction cost of marriage. On the other hand, kinship marriages may contribute to increasing the cost of marriage due to the matching of the social and economic backgrounds between the two families. Therefore, the impact of consanguinity on the overall cost of marriage is unpredictable, with a strong assumption that it is likely to reduce the marriage cost.

Another important factor germane to the cost of marriage, relates to the competition within the marriage market itself as captured by the sex ratio. Rao (1993) emphasizes the relationship between the demographic population growth and the marriage squeeze on the size and the inflation of the marital transfers. Using the ELMPS and discrete time duration models, Binzel and Assaad (2008) conclude that an increase in the sex ratios within a geographical area reduces the hazard of marrying (i.e., exiting the state of spinsterhood/singlehood).

Finally, the existing empirical literature on the cost of marriage (for example see El Badawy (2009), Hendy (2011) and Sieverding (2012)) has emphasized the importance of taking the selection into marriage into consideration.

The above discussion of the international and Egyptian literature suggests a dearth of empirical work on marriage and jewellery costs in the Arab world. This also represents a research gap and therefore lays the foundation for the main research questions that this analysis addresses.

Research Question 1: Does circumcision enhance the marriage prospects and the marriage valuation of woman? Female circumcision is socially believed to play a significant role in marriage, therefore, is it supported by the data that female circumcision plays a role both in the marriage outcome as well as the valuation of the woman in the marriage market.

Research Question 2: Are there returns to human capital in the marriage market for women and how do they compare to the returns in the labour market? Based on the number of conclusions already drawn upon in the data chapter and in the previous section

of the literature review, regarding the education level of the female. Investments in human capital are considered rewarding if they bring returns in the labour in the labour market and the expected earnings. However, the data above shows that parents invest in their daughters' education despite of the low level of participation in the labour market. There has to be another form of realised rewards for the females and their parents. Therefore, comparing the returns to investments in females' human capital in the marriage market and the labour market gives an insight of the degree of substitutability or complementarity between the two markets for females.

Research Question 3: Does kinship marriage reduce the transaction costs of marriage? Given the popularity of kinship marriage in Egypt and the Arab world, is it actually supported that kinship marriage reduce the transaction costs of marriage?

Research Question 4: Does the marriage market affect the marriage valuation of women? Does the ratio of males to females in a given place and at a given point in time (representing the marriage market) play a role in the marriage valuation of women? Does this marriage market and the degree of competitiveness it presents determine the value of women in the marriage market?

4.3 Data Sample

The SYPE09, being the most comprehensive survey of young people in Egypt to date, collects data on young males and females aged 10-29. However, specific sections on marriage have only been administered to those married females aged 15-29. Although the legal age of marriage in Egypt is 18 years²², a considerable number of Egyptian females get married prior to that age (30% of the married females in the sample married before the age of 18). Therefore, the selected sample is inclusive of females marrying before the age of 18. Early marriages, although technically illegal, are taken into consideration here in the empirical analysis given their prevalence in Egypt.

²² The legal marriage age in Egypt was 16 years old until the year 2008 when it was raised to 18. It is socially acceptable that females get married as soon as they hit puberty, and average puberty age for females in Egypt is between 12 and 15 years.

With a sample of size 7,559 females aged between 15 and 29 years, 7,021 of them report on their marital status and therefore classified as either married or unmarried. The selected sample only includes females in their first marriages, as second and third marriages, if any, usually happen at an older age. The data reveal that only 2,905 females have ever been married. Missing observations on a number of key variables (e.g., religion, employment and education at the time of marriage), as well as the jewellery costs, reduce the full sample to 6,121, with 2,288 of them married woman.

4.4 Methodology

The primary aim of the current analysis is to study the determinants of the valuation placed on young Egyptian females in the marriage market, using the log of the real cost of jewellery as a proxy. Given the continuous nature of the dependent variable, Ordinary Least Squares (OLS) is used for the purposes of modelling. However, given the nature of the dependant variable and what it represents (the real cost of jewellery), the residuals may be characterized by deviations from normality. If non-normality in the OLS residuals is detected, then a Quantile Median Regression (QMR) potentially provides a more appropriate empirical method.²³

The selected sample includes females who have ever been married, including those who are currently married or have been married in the past and are now either divorced or widowed. Therefore, the cost of jewellery is reported for these women. The cost of jewellery is only observed for the females who have ever been married. Selection into marriage may be a potential source of bias for the empirical analysis, thus prompting our concern to correct for selection bias.

Heckman's²⁴ (1974,1978,1979) sample selection model was developed to provide an econometric framework for handling possible selection bias of the sort noted above. Heckman's two step estimation procedure for a continuous variable can be used to incorporate the cost of jewellery paid with the decision to join marriage. The model assumes a correlation between the unobservables determining the decision to marry and

²³ The results for the QMR are reported for robustness checks.

²⁴ The Maximum Likelihood Estimates (MLE) and the Heckman two-step procedure are the most common econometric methods used in such cases. The results for both methods have been calculated. However, for greater robustness of the results, the Heckman two-step procedure will be preferred over the MLE, given the procedure is generally found to be more stable.

those determining the cost of jewellery, where ρ represents the correlation between the unobservables in the selection and outcome equations. If $\rho \neq 0$, standard regression techniques applied to the regression equation yield biased results and this provides the central test for selection bias.

Among the married females, 38 have a zero value for their reported cost of jewellery. The zero observations on the cost of jewellery for the married females could either be due to refusing to report the value, a data entry error or a lack of complete knowledge regarding the value. The characteristics of females reporting a zero cost for jewellery have been studied in comparison to the ones reporting the cost, no systematic differences have been observed, and therefore ensuring a random sample of of jewellery cost. Given its small scale, we ignore this small group and drop them from the analysis.

The OLS model previously selected based on the continuous nature of the dependant variable is not fit for purpose in this case, unless selection effects are absent. The Heckman's two-step estimation procedure comprises a probit first step selection equation for the marriage decision and a second step OLS outcome equation for the cost of jewellery, taking into consideration information regarding the selection into marriage from the previous first step of the procedure. The Inverse Mills Ratio (IMR), generally denoted by the term λ , is therefore a key factor in Heckman's sample selection model. The IMR represents the pseudo residuals from the marriage probit model.

The Heckman two-step procedure is described as follows:

Step 1: selection equation

$$\Pr[\text{Married}=1]=\Phi(Z'\gamma)$$

where $\Phi(.)$ is the Cumulative Density Function (CDF) operator, Z is a vector of explanatory variables, γ is a vector of unknown parameters.

The estimated residuals from this probit model are then generated to construct the inverse Mills ratio (IMR or λ) term, which is used for testing for selection bias in the second stage outcome equation.

The cost of jewellery is observed only if the selection equation equals one (i.e. the marriage occurs). The second-stage regression model is estimated using OLS and contains a set of explanatory variables and the IMR from the selection equation.

Therefore, the second stage provides the regression model with the estimated pseudo-residuals included as an explanatory variable to control for truncation. The significance of this selection term is the main indicator of any bias in the results resulting specifically from non-random selection into marriage based on unobservables.

Step 2: Outcome equation

$$\text{Log(Real COJ)} = \beta'X_i + \delta\lambda_i + e \quad e \sim N(0, \sigma^2)$$

The estimation of the Heckman two stage models requires unique identifying variable(s) that shift the selection equation but not the outcome equation.

The existence of selection bias is investigated by testing against zero the coefficient on the λ term in the Heckman two-step procedure. Selection bias on unobservables may not be an issue here if the observable variables included are highly correlated with these unobservables.

The findings of the first step selection model provide more information on the determinants of the probability of marriage at a point in time. However, a relevant analysis is investigating the effect of the selected independent variables upon the time marriage takes to happen. Given the independent variables selected and being constant over time, the cox regression model serves the purpose of this analysis. The cox regression model allows the examination of how the selected variables influence the rate of marriage happening at a particular point in time.

The cox regression model is expressed as a hazard function denoted by $h(t)$. this hazard function can be interpreted as the risk of dying (marriage) at time t . It can be represented as follows:

$$h(t) = h_0(t) \times \exp(b_1x_1 + b_2x_2 + \dots + b_nx_n)$$

where,

t represents the survival time

$h(t)$ is the hazard function determined by a set of covariates.

the coefficients (b) measure the size of effects of covariates

h_0 is the baseline hazard when all the x_i are equal to zero

' t ' in $h(t)$ indicates that the hazard may vary over time.

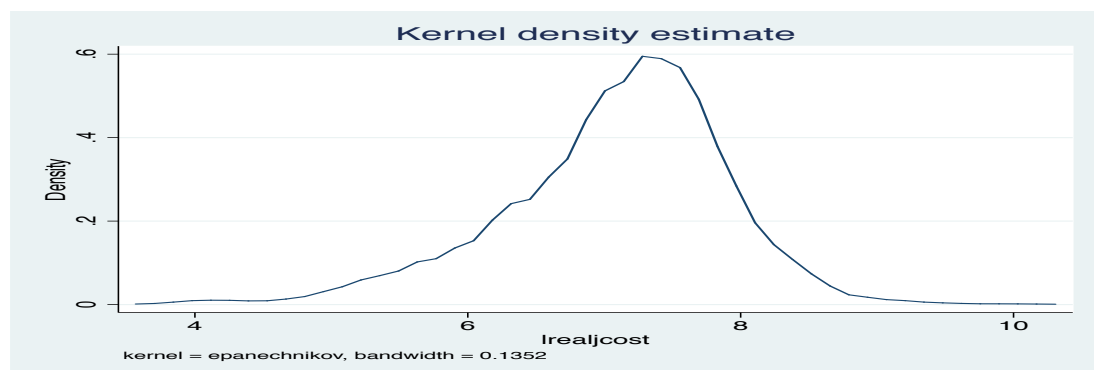
4.5 Variables and summary statistics

4.5.1 Dependant variable

Given the objective of this essay, the log of real cost of jewellery is the key dependent variable under study reflecting the real value of the young female in the marriage market. As previously discussed, the cost of jewellery is considered a significant unavoidable component of the overall cost of marriage. Different factors play a role in identifying that cost, among which is the social status of the couples, the financial ability of the husband together with how the groom values the bride.

Looking at the distribution of the log real cost of jewellery, figure 4.1 below shows the deviation from normality of the dependant variable. The Chi-squared test (291.9) of normality rejects the null hypothesis of a normal distribution. Accordingly, this deviation from normality has to be taken into consideration in the model estimation.

Figure 4.1: Log Cost of jewellery distribution



4.5.2 Independent variables

The list of independent variables used for modelling the cost of jewellery could be grouped into socioeconomic and demographic variables as well as marriage related variables. The education level and the employment status of a female are hypothesised to have an impact on the marriage outcome as well as the log real jewellery costs. Variables reflecting the education level and the employment status of females are measured at the

time of marriage for the married females. However, level of education and employment status for the unmarried females are measured as of current status at the time of the survey. With the exclusion of current students from the selected sample, females in the sample have either received no education at all or have received education in the past.

The employment variable is constructed as a binary variable which captures whether the married and unmarried females were employed in the labour market at the time of marriage or at the time of the survey respectively. A common feature in Egypt is the exceptionally low labour force participation of women. Therefore, accounting for the sector of employment has generated a small percentage in each separate group. Therefore, the key concern here is whether the female is employed or not employed (including the unemployed and the out of labour force).

An educated female is generally considered a challenging match for grooms. In this context, education is expected to reduce the chances of a female in the marriage market, negatively affecting her marriage outcome. Rashad et al (2005) reveal that, recently, education has been associated with later marriages in Egypt. On the contrary, a groom appreciating the education outcome of the prospective bride, values her highly as compared to an uneducated or a lower educated bride, and thus increasing the value of the jewellery. Employment of a female, on the other hand, is less socially accepted in the Egyptian society. Therefore, it is expected to negatively impact both the marriage probability and the cost of jewellery.

The age of a female is believed to affect the value of the female in marriage, either through determining her chances of finding a husband or in determining her value at marriage. Females usually postpone marriage for reasons that are related to education or career advancement. However, a female remaining outside of marriage for a longer period, regardless of the reasons, is confronted by different marriage circumstances.

Given that the sample is inclusive of females who are both married and unmarried, the concern is not with the current age of the female or the age at marriage, but the age is used to reflect on the determinants of marriages occurring relatively earlier than others.

Sex ratios are calculated as the ratio of males to females in a certain place and point in time through information provided by the Egypt 2006 population census.²⁵ A buoyant

²⁵ Population census take place every 10 years. It is believed that sex ratios don't show much change during the time between one census and the next. Therefore, the 2006 census sex ratios are representative for the 2009 period of the survey.

marriage market with an abundance of males should present different marriage outcomes and costs resulting from competition between possible suitors. The variable is expected to have a positive impact on the marriage outcome and the value of the female in the marriage market. The existence of outliers is expected to affect the estimated results, therefore, the variable is log transformed to smooth the impact of any outliers on the estimation. This impact is mediated through increasing the chances of finding a suitor and increasing the competition between suitors respectively.

In the case that the young people are currently residing at the same household with the parents, SYPE09 provides the background demographic and social characteristics on the parents. However, if young individuals, and females to be more specific, move to a different household especially upon marriage, information on the parents is lost. With a significant percentage of married females living on their own (65%), demographic information on the parents is therefore lost.

One of the survey variables, however, provides insights into different conditions confronting the parents, namely the nursery/ preschool enrolment for the female. The role of nursery/preschool enrolment is to capture parental opinions regarding a woman's future employment.

An employed mother, who is financially able to send her kids to nursery/ preschool, reflects two possible outcomes. First, an employed mother is one concerned with early child development and encourages her daughter to continue education in order to avail of labour market job opportunities in the future. Second, the financial capacity signals the ability to pay for the fees of a nursery/ preschool (mostly private sector nursery/ preschools are dominating in Egypt) and may thus reflect an income effect. Consequently, this variable could either provide background information on parental attitudes or reflect the socio-economic status of the parents.

Another nation-wide phenomenon that is of high relevance to females and marriage in Egypt is circumcision. Female circumcision is a widespread phenomenon, where it is commonly believed that circumcision reduces the sexual desire of a female and thus is designed to preserve her virginity. Therefore, potential grooms and their mothers²⁶ may be looking for a circumcised woman to guarantee virginity and loyalty upon marriage. In this

²⁶ In the case of an arranged marriage the main factor that would convince the mother to introduce a potential bride to her son is if she is circumcised. Otherwise the mother may not even think she is a potential bride for her son.

context, circumcision is expected to improve the chances of a female getting married. Its impact on the cost of jewellery, however, is ambiguous.

In addition to the cost of marriage in the Arab world, marriages in the Arab world are characterised by another unique feature in the matching process. In this sense, kinship marriages appear to be a prevalent form of marriage in the Arab world. The kinship marriage variable in the survey is represented by the degree of relationship (by blood) between the bride and the groom. The different relationships are first cousin, from either the mother's or father's side, or a distant relative. The available literature on kinship marriages review the presumed popularity of this form of marriage based on the contribution it has to lowering marriage risks and therefore costs (e.g., see Assaad and Kraft 2014, Hamamy 2012). Therefore, it is socially believed that kinship marriages have an impact on the transaction costs of marriage. However, no empirical work has previously investigated this relationship. Therefore, in the current context, kinship marriages are irrelevant in the marriage probability model. However, they are expected to negatively impact the cost of jewellery given their impact on transaction costs.

4.5.3 Summary statistics

Upon selecting the sample and the list of covariates of interest, some descriptive analysis is undertaken. Table 4.2 below provides the definitions and the data summary for the selected variables of interest for the full and the married samples of females separately. Table 4.1 reports the correlation coefficient between the different variables, the marriage probability and the cost of jewellery.

Human capital variables, defined in terms of education and employment are assumed to impact both the marriage outcome and the cost of jewellery. Females with a university degree are least likely to get married. However, they have the highest average cost of jewellery compared to other educational levels. This reveals either some sort of difficulty in finding good marriage opportunities, or in choosing to remain single and postpone marriage for career development. Nevertheless, once a marriage decision is taken, they are highly valued as compared to the other levels of education. A positive significant correlation between education and the marriage probability and a negative one with the cost of jewellery, supports a relationship between education, on the one hand, and marriage probability and cost of jewellery on the other.

In addition to education, the data show that females who are not employed or who are either unemployed or out of the labour force, are the most likely to get married. In a society that frowns upon female employment, non-employed females (88% of the sample) have a better chance of finding a suitor.

Kinship marriages are popular with around one-third of the females married to relatives. Nearly 60% of these are married to their first cousins from either parents' side. The data confirm Osman and Girgis (2009) observation, that kinship marriages are more popular in rural (38%) as opposed to urban areas (26%). Despite this, the cost of jewellery does not yield a significant difference between the different categories of kinship marriages.

Table C.2 indicates that the average cost of jewellery is relatively similar (Chi-squared value of 1.2) for females married to their first cousins, distant relatives or unrelated spouses. Given an insignificant correlation between the two variables, the statistical results reveal a lack of relationship between kinship marriage and the cost of jewellery.

Table 4.1: Correlation coefficients of the marriage probability and the cost of jewellery with the selected list of variables

Variables	Married	Ln (real COJ)
No education	0.07***	-0.13***
Less than secondary	0.01	-0.13***
Secondary	0.04**	0.07***
Post-secondary	-0.13***	0.22***
Employed	-0.12***	-0.02
Urban	-0.06***	-0.02
Sex ratios	0.04***	0.03
Age	-0.25***	0.04**
Nursery	-0.02	0.1***
Muslim	0.03**	-0.03
Circumcised	0.23***	-
Kinship	-	-0.02

Source: Author's own calculations from SYPE09

SYPE09 confirms the continued prevalence of female circumcision among the group of females (15-29), where 87.8% of Egyptian females in this age group are circumcised, with a highest occurrence in rural areas (63%). The negative significant (at the 1% level) correlation between circumcision and the age at marriage (for the married females) and a positive with the current age of females (for the unmarried ones) suggests that

circumcision was more important for marriage (in general) in the past, with the impact perhaps decreasing over time. This emphasises the role of the different NGOs and awareness campaigns against the presumed role of circumcision in expediting and securing marriages.

Sex ratios are assumed to be fairly constant from one population census to the next with an average close to 1.05. The distribution of sex ratios reveals two outlying governorates. The Survey data chapter 3 (p.28) of this thesis discussed in more detail the situation regarding the two governorates of concern. Looking at the average sex ratios with and without outliers, no significant difference in the average sex ratios is reported (1.05 and 1.04 respectively). A positive significant (at the 1% level) correlation with the marriage probability and insignificant correlation with the cost of jewellery, suggests a strong association with a marriage probability and an ambiguous one with the cost of jewellery.

About one-quarter of the interviewed females have previously been enrolled in a nursery or a preschool at some point during their earlier years. Around two-thirds of the females who have ever enrolled in nursery/ preschool reside in urban areas. Close to one-fifth (18%) of females previously enrolled in nursery/preschool are active members of the labour market and more than 40% of them have completed post-secondary or university education (as opposed to 14% for the females not enrolled in pre education). This gives an impression that the families willing to send their daughters to nursery/preschool at a young age are the same ones willing to accept their daughter's participation in the labour market and achieving higher levels of education. A negative significant correlation and a Chi-squared value of 1.2 suggest a lack of a statistical relationship between nursery enrolment and the marriage outcome. On the other hand, a positive significant (at the 1% level) correlation and a Chi-squared value of 447.9 shows the strong statistical relationship with the cost of jewellery.

The descriptive analysis concludes different opposing impacts of education attainment on the marriage outcome and the cost of jewellery. Higher levels of education exert a lower impact on the marriage outcome and an upward one on the cost of jewellery. Additionally, an ambiguous relationship between the cost of jewellery, and circumcision and kinship marriages has been detected. The descriptive statistics have laid the

foundation for an econometric analysis which permits the control of a variety of different factors when modelling the jewellery costs.

Table 4.2: Variables definition and summary statistics

Variable	Description	Full sample Mean	Married Females Mean
Log(real COJ)	The log of the real cost of jewellery (deflated by the GDP deflator for each year)	n/a	7.08 (0.81)
Married	=1 if the female was ever married, divorced, separated or widowed, =0 otherwise	0.45	1
Urban	=1 if the female lives in urban areas, =0 otherwise	0.44	0.37
Education			
No education	= 1 if the female has no education, =0 otherwise.	0.14	0.2
Less than secondary	=1 if the female has less than secondary degree, =0 otherwise.	0.31	0.28
Secondary	=1 if the female has a secondary degree ²⁷ , =0 otherwise.	0.33	0.4
Post-secondary	=1 if the female has post-secondary ²⁸ , =0 otherwise.	0.21	0.13
Employed at marriage	=1 if the female was employed at the time of marriage, =0 otherwise.	0.9	0.08
Circumcised	=1 if the female was circumcised as a child, =0 otherwise.	0.83	0.91
Sex ratios	The natural log of the ratio of males to females in each governorate, using the population census for the years 1986, 1996, and 2006	0.05 (0.05)	0.05 (0.05)
Nursery	=1 if the female was ever sent to a nursery/preschool, =0 otherwise.	0.32	0.23
Muslim	=1 if the female is Muslim, =0 otherwise.	0.97	0.97
Kinship	=1 if the female is married to a relative (direct cousin/distant relative), =0 otherwise.	n/a	0.34
N		6121	2288

Notes to table 4.2: (a) The variables \ln real cost of jewellery and kinship marriage are only realised for the married females, therefore not available for the full sample (including the unmarried). (b) Standard deviations are only reported for the non-binary variables in the dataset

²⁷ Secondary degree involves General secondary, Azhar secondary, International secondary or Vocational secondary

²⁸ A post-secondary degree is University, or post-graduate degree

4.6 Results

Following a close examination of the data, variables that shift the marriage outcome but not the cost of jewellery have been explored and the circumcision variable is used for that purpose. Trials to look for other identifying variables among district level and demographic variables involved the use of female labour force participation rate at the governorate level, family size, and sibling number. These variables were found to be statistically insignificant in both the selection and the cost of marriage equations.

However, prior to investigating the probability of marriage and how selection into marriage might affect the determinants of the cost of jewellery, the hazard function for marriage is estimated. The cox proportional model provides more insight into how the independent variables increases/ decreases the hazard of marriage.

4.6.1 Marriage Hazard and Probit Models²⁹

The existing empirical work highlighted the role of economic and non-economic variables in shaping marriage probabilities in the Arab world. However, the role of society in mediating the relationship between the marriage probability, on the one hand, and economic and non-economic variables, on the other, has not been developed. Many variables appear to exert a direct impact on marriage probabilities.

The cox proportional model edifies the covariates that significantly increases/ decreases the occurrence of the event of marriage for females aged between 15 and 29.

Together both models enrich the analysis of the determinants of marriage for a young woman in Egypt. The cox proportional model refers to the determinants of getting into marriage and what covariates are more significant in allowing a faster entry into marriage, however the probit model shows the determinants of the probability of getting married at a particular point in time.

²⁹ See table C.2 for the marginal and impact effects

Table 0.3: Cox proportional hazard model

Variables	Coefficients
Less than secondary	-0.09* (0.05)
Secondary	-0.39*** (0.05)
Post-secondary	-1.27*** (0.07)
Urban	-0.19*** (0.04)
Sex ratios	1.003*** (0.26)
Nursery	-0.05 (0.05)
Muslim	0.05 (0.12)
Circumcised	0.37*** (0.06)
N	6121
LR test	Chi2(8)=760.29

Education in general reduces the hazard of exiting the single state and the occurrence of marriage for young females. Likewise, residence in urban areas significantly reduce the hazard of marriage occurring. However, sex ratios and circumcision significantly increases the hazard of marriage. Collectively, the results of the cox proportional model show that education and circumcision play a significant role in determining the hazard of marriage for females. The results of this model highly agrees with the results of the probit selection model.

The marriage selection model, on the other hand, is informative of the determinants of marriage outcome for females aged between 15-29 years. The estimated results presented in table 4.4 are generally in agreement with the hypothesised relationships between marriage outcome and the variables defining this choice.

Sex ratios and circumcision both significantly determine the marriage outcome. Both variables increase the probability of getting married for young Egyptian females. Education, at the lower and the higher levels of education, the probability of marriage falls as opposed to no education.

Table 4.4: The probit marriage model

Variables	Probit Selection
Constant	-0.13 (0.108)
Less than secondary	-0.6*** (0.05)
Secondary	-0.34*** (0.05)
Post-secondary	-0.79*** (0.06)
Urban	0.04 (0.04)
Sex ratios	1.08*** (0.29)
Nursery	-0.23*** (0.04)
Muslim	0.07 (0.09)
Circumcised	0.49*** (0.05)
R-squared	0.06
N	6121
LR test	Chi2(8)=543.06

Note to table 4.3: (a) SE in parentheses and below their relevant coefficients. (b) Statistical significance level 10% *, 5% ** and 1%***

This probit selection model answers the first part of the research question 1 on the impact of circumcision on marriage prospects of women. Driven by the socially accepted relationship between circumcision and marriage, and motivated by tradition more than religion, is a further explanation for the statistical relationship with the marriage probability. The empirical relationship confirms the statistical one with a positive and significant circumcision effect at the 1% level. Circumcision is found to increase the probability of getting married by 19 percentage points, on average and *ceteris paribus*. Families choose to circumcise their daughters for a number of reasons, among which is to improve her marriageability. The common perception that a circumcised female is a well-protected and well-raised one. She is thus shielded by her family against any unapproved out of marriage relationships and this largely explains the sizeable positive impact of circumcision on the probability of marriage.

The contribution of circumcision to the marriage probability of young females explains its high prevalence in the Egyptian society. The previously

discussed statistical relationship between age and circumcision shows a decline overtime in the incidence of the phenomenon. However, with its close association with marriage, it continues to be an instrument for increasing female marriage incidence.

Moving on to the impact of economic variables on the marriage prospects of women. Jointly, the estimated coefficients for education are significant in determining the marriage outcome with a Chi-squared value of 164.44 and three degrees of freedom. However, only the estimates for the less than secondary and the post-secondary education categories are found to be significant. Less than secondary education reduces the marriage probability by almost eighteen percentage points compared to uneducated females, whereas post-secondary education reduces the probability by 29 percentage points. However, secondary level of education shows no significant impact on the marriage probability relative to this base. This means that having lower education or higher education are both worse than having no education at all.

The results of the probit selection model highly agree with the results of the cox proportional hazard model for the entry into marriage. Both models show the negative impact of education on the marriage prospects as well as the hazard of entry into marriage. This shows that female education acts as a deterrent to the entry into marriage. the more educated a female is the less are her chances to get married and therefore postpones her entry into the marriage state.

Furthermore, the results for circumcision further highlights its impact on marriage prospects and the entry into marriage. This emphasises the role of circumcision in increasing the marriageability of women and allow a faster entry into the marriage state.

The results of both models serve the purpose of understanding the marriageability of women and what determinants contribute to a higher probability and a faster transition to marriage. The next section then uses such results for the selection equation into understanding the determinants of the marriage costs.

4.6.2 Heckman two step model for jewellery costs

The cost of jewellery, as previously mentioned, is a variable only defined for young females, aged 15-29, who have ever been married. Upon estimating the marriage outcome model, the evaluation of the significance of the selection bias follows. The IMR variable is constructed using the estimates of the marriage selection equation, and is subsequently used as an extra variable in the cost of jewellery equation.

A number of variants of the Heckman two-step model has been estimated, the results of which are not all reported here. For example, variables referring to sexual harassment, wearing the veil, parental attitude towards the employment and the education of females, different categories of the kinship marriages were also experimented with. In addition, the role of district level variables in the form of marriage and divorce rates at the governorate level, female unemployment rates, gold prices prevalent at the time of marriage and a set of interaction variables were also investigated. In general, the estimated effects for this array of variables were found to be statistically insignificant in the different specifications in both the cost of jewellery model and the selection model.

The absence of a significant selection effect, as indicated by the insignificant IMR in the Heckman OLS model, suggests no evidence of selection bias here.

Table 4.5: Heckman OLS

Variables	Heckman OLS
Constant	6.93 (0.16)
Less than secondary	0.03 (0.07)
Secondary	0.27*** (0.05)
Post-secondary	0.69*** (0.1)
Employed	-0.15** (0.06)
Urban	-0.16*** (0.03)
Sex ratios	0.69** (0.31)
Nursery	0.06 (0.05)
Muslim	-0.1 (0.1)
Kinship	0.002 (0.03)
N	2288
R-squared	0.09
IMR	0.08 (0.15)
Wald test	Chi2(9)=152.28

Note to table 4.4: (a) Robust SE in parentheses and below their relevant coefficients.
(b) Statistical significance level 10% *, 5% ** and 1%***

The uncorrected Ordinary Least Squares estimation of the cost of jewellery model yields results that are similar (sign and significance) to the Heckman two-step outcome model estimation in table 4.5 above. Therefore, for interpretational purposes, the estimates for the cost of jewellery model using the OLS method provide the focus of our discussion.

Table 4.6: Uncorrected OLS Estimates

Variables	OLS
Constant	7 (0.11)
Less than secondary	0.06 (0.05)
Secondary	0.29*** (0.05)
Post-secondary	0.74*** (0.06)
Employed	-0.15** (0.06)
Urban	-0.16*** (0.03)
Sex ratios	0.65** (0.29)
Nursery	0.07* (0.04)
Muslim	-0.12 (0.09)
Kinship	0.002 (0.03)
N	2288
R-squared	0.08
Wald test	F(9,2278)=25.65

Note to table 4.5: (a) Robust SE in parentheses and below their relevant coefficients. (b) Statistical significance level 10% *, 5% ** and 1%*** (c) Heteroskedasticity test on the OLS model report $\chi^2(1)=28.72$, significant at the 1% level

4.6.2.1 Circumcision

Revisiting back the first research question, circumcision appears to play no significant role in predicting the marriage valuation of women. This result is supported by the uncorrected OLS model including the circumcision variable as an independent variable, results are not reported here. However, with a t-test value of -0.41 on the circumcision variable, it appears to play no significant role in determining the value of the women in the marriage market. This result further asserts the use of the circumcision variable as an identifier in the Heckman two step model. It can then be concluded that female circumcision plays a significant

role in determining the marriage prospects of women, however an insignificant role in their marriage valuation.

4.6.2.2 Returns to investments in human capital

This part of the analysis takes into consideration providing a concrete answer to the second research question of this chapter regarding the returns to investments in human capital. Female education provides some interesting effects in their relationship with the cost of jewellery. The higher the female's education level, the higher is the value of the cost of jewellery. This suggests that once a female enters the marriage market, education, beyond the basic level of less than secondary education, increases the value of that female in the marriage market. In the absence of a clear significant relationship with the marriage probability, education provides a platform for explaining issues of interest in Egyptian society. The prevalence of the investments of families in the education of their daughters despite the low chances of employments give rise to the question on returns to these investments in education. Are the returns to investing in female education realised in a different market other than the labour market?

Using the Mincerian wage equation returns to the different levels of education and the additional investments in each extra level of education is measured with respect to the wages earned in the labour market. In this context, collective returns to education in the labour market have been studied in Egypt. However, the gender aspects to the determinants of these returns in the labour market have received less attention. Said (2008), Salehi- Isfahani (2009) and more recently Rizk (2016) were among the few papers studying returns to education in the Egyptian labour market. Different measures at different points in time provide a number of results and a pattern is noticed in this regard. Said (2008) shows that returns to female education is high (as compared to males) due to self-selection out of low pay jobs generally practised by women. Salehi-Isfahani (2009) further adds that more able women participate in the labour market. Despite the high returns to female education in the labour market, female participation still remains low and selective (Said (2008), Salehi- Isfahani (2009), Rizk (2016)). An

explanation widely available in the limited research on female returns to education in the labour market is the existence of another market where women derive rewarding returns to their investment in education.

The current analysis allows the study of returns to female education in the alternative (marriage) market at the time of marriage through the value of the jewellery received on marriage. A wider definition of the returns to female's education in the marriage market includes the household or the husband's stream of future income. However, in the context of the current analysis, and focusing on the female's characteristics only, the value of the jewellery could serve the purpose of quantifying the returns to education. These returns to education are measured with respect to her value in the marriage market determined, among other things, by the value of the jewellery received on marriage.

Returns to education in the labour market is measured against the log earnings of females and in the marriage market against the log real cost of jewellery received on marriage. Following the same methodology applied for the calculation of the labour market returns to investments in education, returns in the marriage market are calculated. The returns for the investments in the secondary education and university and above levels of education respectively are as follows

$$r_{\text{marriage}}(\text{secondary vs less than secondary}) = \frac{\beta_s - \beta_{ls}}{S_s - S_{ls}}$$

$$r_{\text{marriage}}(\text{post-secondary and above vs secondary}) = \frac{\beta_{ps} - \beta_s}{S_{ps} - S_s}$$

where r stands for returns to education in marriage and S stands for the number of years of schooling at each successive level of education (ls = less than secondary, s= secondary and ps= post-secondary).

The similarity in the method of calculation allows for the comparison between the rates in the marriage market and the labour market making use of the most recent estimates for Egypt provided by Rizk (2016). The returns to education in the labour market found in Rizk (2016) are very similar to the rates reported in Psacharopoulos and Patrinos (2004) work on returns to education. Table 4.7 below contains the returns to different levels of education, and the corresponding standard errors, in the labour market, based on Rizk (2016) and the marriage market at the mean level.

Table 4.7: Returns to education in the labour and marriage markets

Level of education	Labour market	Marriage market	t-test
Secondary	0.069 (0.025)	0.077 (0.038)	0.178
Post-secondary	0.075 (0.028)	0.0925 (0.06)	0.265

Notes to table 4.6: (a) Returns to female education in the labour market have been calculated based on results presented in the most recent Rizk, 2016. (b) Returns to education in the marriage market are based on author calculation given the results in table 4.6 (c) The calculations were based on 8 years for less than secondary education and 4,5 and 6 years for post-secondary/ university education.

The returns to education for the secondary level education is measured based on three years of education. Post-secondary and university education averages 4-6 years based on the chosen field of study. Therefore, the returns to the post-secondary and the university education have been calculated for 4, 5 and 6 years separately and the average has been recorded. In the three cases, the returns to female education in the marriage market measured by the change in the real cost of jewellery is still significantly comparable to the returns to the same level of education in the labour market. Less than secondary education appears to have an insignificant impact on the cost of jewellery. Therefore, the returns to female less than secondary education have not been calculated. Therefore, the choice between the labour market and the marriage market for the lower levels of education depends on factors unrelated to investments in education, unlike the higher levels of education.

Statistical t-tests comparing the significance of the equality of the two values for the returns to education at each level of education is computed based on data provided in table 4.7 above. The t-tests do not reject the null hypothesis of equal returns to the labour market and the marriage market for all levels of education at the 99% level of significance. Investments in education are equally fruitful in the marriage market as compared to the labour market. This highlights the comparability of both markets and the indifference in choosing between the two of them. Given declining opportunities in the public sector and the private sector being not highly suitable for married women, women prefer to exit the labour market and enter the marriage market given the comparable returns to their

investments in education. Having an educated wife and mother and improving her value in the marriage market highlight the interest of parents in investing in the education of their female children. This partially explains the inclination of females to the marriage market as opposed to the labour market creating a degree of non-complementarity between the two markets.

4.6.2.3 Kinship marriages

Moving to the third research question on whether kinship marriages reduce transaction costs of marriage. Kinship marriages, popular in the Arab society, are believed to ease the financial constraints on marriage, lowering transaction costs. Uncertainties regarding the family background, social class or financial ability are non-existent in kinship marriages.

Table 4.6 above, however, reports an insignificant impact of kinship marriages on the log of real cost of jewellery. The estimated results show that, empirically for young females, kinship marriages do not significantly affect the cost of jewellery, and other variables play larger roles in determining the cost. For further robustness check of this result, different groups of kinship relationships have been used instead of the compiled binary variable. Groups of kinship from mother's side, kinship from father side versus non kinship, also first cousins from either mother or father side, distant relative from either mother or father side versus non kinship. Using the different groups, the lack of significance holds and no changes have been observed in the results.

Additionally, table C.1, shows that real cost of jewellery is similar for kinship and non-kinship marriages. This implies that Kinship marriages are popular for reasons beyond the expected lower transaction marriage costs. Moreover, the use of the cost of jewellery as a specific unavoidable component of the overall cost of marriage, may affect the results. Kinship marriage may have a significant impact on other more negotiable components of the overall cost of marriage. Therefore, it cannot be concluded, based on this current analysis, that kinship marriages have no impact on the overall cost of marriage. Therefore, more analysis, based on other components of the cost of marriage is required before drawing such a general conclusion.

4.6.2.4 Sex ratios

Moving to the fourth research question, the empirical results of the OLS model show a significant impact of sex ratios in log form on the log real cost of jewellery at the mean level. This implies that the more competitive the marriage market is, reflected by the relatively limited number of females to males of marriage age at a certain point in time in a particular governorate, the higher is the value of the female in the marriage market. This result provides a demographic dimension to the determinants of female valuation in marriage.

Given the non-normal distribution of the residuals of the uncorrected OLS model (with a $\text{Chi}^2(2) = 314.7$), the cost of jewellery is also estimated using QMR (Quantile Median Regression) at the median observation for robustness checks. Table 4.8 below reports the coefficients and bootstrapped standard errors of the Quantile Median Regression. In comparison to the Heckman selection correction and the uncorrected OLS, the results of the QMR are very similar. One exception is the sex ratios significance. Estimating the model at the median values of the dependant variable, the sex ratios variable no longer becomes significant.

As mentioned earlier, two governorates in Egypt (namely Red Sea and South Sinai) are considered outliers in their values of sex ratios. Dropping these two governorates from the analysis, changes the significance of the sex ratios variable. Excluding the outliers, the sex ratios appear to be significant again. Therefore, estimating the impact of the marriage markets on the real cost of jewellery both at the mean and the median values (excluding the outliers), conclusion is drawn on the role of the marriage markets in improving the women value in the marriage market.

Table 4.8: QMR

Variables	Q(0.50) 4.8.1	Q(0.50) 4.8.2
Constant	7.11 (0.08)	7.03 (0.11)
Less than secondary	0.02 (0.05)	0.04 (0.06)
Secondary	0.23*** (0.4)	0.26*** (0.05)
Post- secondary	0.65*** (0.06)	0.67*** (0.06)
Employed	-0.21*** (0.05)	-0.24*** (0.07)
Urban	-0.18*** (0.05)	-0.19*** (0.04)
Sex ratios	0.77** (0.34)	2.06** (1.03)
Nursery	0.02 (0.05)	0.01 (0.05)
Muslim	-0.09 (0.08)	-0.08 (0.09)
Kinship	-0.01 (0.03)	-0.02 (0.04)
N	2288	2258
R-squared	0.049	0.049

Note to table 4.7: (a) Model 4.8.2 is estimated excluding the Red Sea and South Sinai governorates (b) Bootstrapped SE in parentheses and below their relevant coefficients. (c) Statistical significance level 10% *, 5% ** and 1%***

4.6.2.5 Other results

Moving on to more brief discussion of other empirical results. The results show that the employment of young females in the labour market contributes to a lower marriage probability, as previously mentioned, in addition to a lower value in the marriage market. The estimated impact of employment in the labour market is a decline in the value of the female in the marriage market by about 13% ceteris paribus. The taboos imposed by Egyptian society on females, one of which is that participation in the labour market is discouraged, surfaced while studying the marriage market for females. As previously mentioned, an employed female is viewed as an undesired female in marriage terms due to the fact it reflects autonomy and independence, which further negatively affects her value in the marriage market.

Enrolment in nursery/ preschool at a younger age, signals, among other things, the economic background of the family. It is considered a proxy for the socio-economic background of the parents. The enrolment in a nursery/ preschool in the early years, signalling either a higher social class of the parents or greater concern with early child development, significantly increases the cost of jewellery by 9% *ceteris paribus*. Both variables contribute significantly to increasing the value of the female in the marriage market.

4.7 Conclusions

The main objective of this chapter is to investigate the determinants of the marriage valuation of young women. The estimated models in this paper have gone beyond the determinants of the marriage outcome and have actually focused on the value of the female in the marriage market in Egypt.

The analysis aims to further investigate the role of circumcision, kinship marriages and the marriage market and whether they have an impact on the value of the young Egyptian females in the marriage market. Another main area of focus is the degree of substitutability between the marriage market and the labour market for young educated women driven by the comparison of the rate of returns to investments in education in both markets.

This paper investigates the marriage valuation of young women in a two-step model, taking the selection into marriage into consideration using the Heckman two-step model. The sample selected for analysis in this chapter is the group of females aged between 15 and 29 years. The full sample is composed of 6121 women, and 2288 of them are currently married.

The analysis first investigates the marriage prospects of young women as the first step probit selection model, where circumcision appears to play a positive significant role. The analysis then turns focus to the determinants of the marriage valuation. The results reveal a number of key factors exert a significant impact on the marriage valuation of the young females.

Against expectations³⁰ in Egypt and the Arab world in general, kinship marriages, being highly popular especially in the Arab world, do not exert an independent effect on the cost of jewellery. Therefore, the conventional wisdom implying that kinship marriages are cheaper marriages is not supported by the current analysis. However, the measure of the female's value in the marriage market is the log real cost of jewellery. A component considered, in the Egyptian society, as unavoidable and one which cannot be shared between the families nor sacrificed. Therefore, kinship marriage may reduce the overall transaction costs of marriage more broadly measured, or at least other specific components of the cost of marriage which could be negotiated or forgone all together. However, the analysis shows that it has no significant effect on the specific cost of jewellery used to reflect on the value of young women in the marriage market.

The results reveal other findings of interest to economists. The appearance of the marriage market as competitive to the labour market perhaps explains the dilemma of high education and low employment for females. Economists have been looking at the low participation of females in the labour market from the demand side related to the imbalances in a market that discourages female participation. This essay added an extra dimension to the discussion, where the low participation is not just about the discouraged engagement in the labour market, but provides a focus on the supply of females to the labour market through the marriage market which places a high value on an educated female. In this case, the foregone value of marriage, due to marriage postponement, is the indirect and opportunity cost of investments in education and/ or employment in the labour market.

This lack of complementarity between the marriage market and the labour market for young women, has forced women to choose one market over the other. Given social pressures, we see women highly represented in the marriage market as opposed to the labour market. This decision has its demographic and economic consequences on the country at large. The involvement of women in the marriage market as opposed to the labour market reduces the opportunity cost of having

³⁰ No empirical conclusion has been drawn regarding the relationship between kinship marriages and the cost of marriage before this paper

children, therefore giving rise to the new baby boom Egypt is currently experiencing. On the other hand, with women forming approximately half the Egyptian population, and with a very low economic activity and labour participation rate, a pressure is exerted on the economic growth of the country. The more economically active participation of a larger proportion of the population, the higher the expected economic growth of the country at large.

In addition, certain issues of relevance in Egyptian society were seen as important for marriage, namely circumcision and marriage market competitiveness. It is widely asserted that circumcision improves the value of the female in the marriage market and increases her marriage prospects. The results concur with the second hypothesis. However, the results re-affirm that circumcision exerts no independent significant impact on the valuation of woman in the marriage market.

Furthermore, the competitiveness in the marriage market significantly improve the marriage valuation of young women. This result, however, was not robust to estimating the model at the median cost of jewellery. Further investigation however shows that by dropping the two governorates with outlier values of sex ratios, the impact of marriage market competitiveness is significant and robust at the median level.

Overall the analysis in this chapter reinforces the role of the marriage market in explaining the low participation of females in the labour market, in addition to the role of the socially popular phenomena of circumcision and kinship marriage. however, whether the results on the kinship marriage will hold for the entire transaction cost of marriage requires further investigation using different categories of the overall cost of marriage.

Appendix C

Table C.1: Summary of cost of jewellery by kinship groups:

Kinship	Mean (St. deviation)	25 th percentile	50 th Percentile	75 th Percentile
Non kinship	7.1 (0.81)	6.71	7.19	7.63
Kinship	7.04 (0.83)	6.47	7.19	7.65
Mother cousin	7.03 (0.76)	6.5	7.12	7.51
Father cousin	7.04 (0.83)	6.48	7.19	7.65
Other relative	7.06 (0.85)	6.69	7.16	7.58

Table C.2: Marginal and impact effects of the Probit selection model

Variable	Marginal/impact Effect (st. error)
Less than secondary	-0.23*** (0.02)
Secondary	-0.13*** (0.02)
Post-secondary	-0.29*** (0.02)
Urban	0.017 (0.01)
Sex ratios	0.43*** (0.11)
Nursery	-0.09*** (0.02)
Muslim	0.03 (0.04)
Circumcised	0.19*** (0.02)

Table C.3: Different specifications for the probit selection equation

Variables	Model 1.1	Model 1.2	Model 1.3	Model 1.4
Constant	0.37 (0.04)	0.25 (0.1)	-0.09 (0.1)	-0.13 (0.1)
Less than secondary	-0.76*** (0.05)	-0.65*** (0.05)	-0.61*** (0.05)	-0.61*** (0.05)
Secondary	-0.36*** (0.05)	-0.38*** (0.05)	-0.35*** (0.05)	-0.34*** (0.05)
Post-secondary	-1.04*** (0.05)	-0.94*** (0.06)	-0.8*** (0.06)	-0.79*** (0.06)
Urban		-0.09** (0.03)	0.05 (0.04)	0.04 (0.04)
Muslim		0.21** (0.09)	0.09 (0.09)	0.07 (0.09)
Sex ratios				1.08*** (0.29)
Nursery			-0.22*** (0.04)	-0.23*** (0.04)
Circumcised			0.5*** (0.05)	0.49*** (0.05)
R-squared	0.05	0.04	0.06	0.06
LR test	Chi2(3)=509.7 Chi2(5)=371.5 Chi2(7)=529.1 Chi2(8)=543.1			

Table C.4: Heckman OLS cost of jewellery

Variables	Model 2.1	Model 2.2	Model 2.3
Constant	6.7 (0.19)	6.9 (0.16)	6.75 (0.19)
Less than secondary	0.04 (0.07)	0.04 (0.07)	0.04 (0.07)
Secondary	0.29*** (0.05)	0.27*** (0.05)	0.29*** (0.05)
Post- secondary	0.69*** (0.09)	0.7*** (0.1)	0.69*** (0.09)
Employed	-0.15** (0.06)	-0.15** (0.06)	-0.15** (0.06)
Urban	-0.17*** (0.04)	-0.16*** (0.04)	-0.17*** (0.04)
Sex ratios	4.3*** (1.19)	0.69** (0.3)	4.3*** (1.2)
Nursery	0.04 (0.05)	0.06 (0.05)	0.04 (0.05)
Muslim	-0.09 (0.11)	-0.1 (0.11)	-0.09 (0.1)
Kinship	0.008 (0.04)		
Mother cousin		-0.05 (0.07)	-0.03 (0.07)
Father cousin		0.004 (0.06)	0.017 (0.06)
Other relative		0.01 (0.05)	0.008 (0.05)
Mills	0.09 (0.14)	0.08 (0.15)	0.09 (0.14)
Chi2	Chi2(9)=186.1	Chi2(11)=152.8	Chi2(11)=186.58
N	2258	2288	2258

Notes to table A1.3: Model 2.1: drops the two governorates with the extreme value of sex ratios (The red sea and south Sinai). Model 2.2: uses the different groups for the kinship marriage. Model 2.3: combines both, dropping the red sea and using groups for kinship

Chapter 5

What makes young women happy in marriage? Evidence from Egypt

5.1 Introduction

The previous chapter of this thesis was concerned with the marriage prospects for young women and their marriage valuation. However, of equally significance for both the Egyptian society and economy perhaps is the nature and quality of any marriage. Therefore, this paper aims to look beyond the economics of selection and entry into marriage and into post-marriage quality.

The previous chapter detected comparable returns to investments in female human capital for both the labour and the marriage markets. In this context, the private returns to female human capital is as high in the labour market as in the marriage market. The female decision to join the marriage market in larger numbers when compared to the labour market (as supported by data provided earlier in the context chapter 2 p.11) has its own social implications. The social impact of this decision is measured through the impact this marriage has on the wife's welfare.

A wife is an active member of society, so whatever impacts the wife will therefore have an impact on the husband as well as any children. Therefore, in a time of demographic bulge and with having an echo of a new baby boom in Egypt, the environment the children are raised in will affect their choices and therefore their subsequent social value.

The Arab and Egyptian literature have focused on marriage outcomes for both males and females around the theme of social pressure on the young to get married. This focus however was not led to a consequential concern for the welfare of women after marriage. The available literature has dealt with marriage as an end in itself, not a means to an end.

It has been well documented in the happiness literature that marriage makes people happy (see, for example, Stutzer and Frey 2006, Stack and Eshleman 1998, MacKerron 2012, Conceição and Bandura 2008). In this context, the marital status of individuals has been found to be one of the most significant determinants of general happiness, resulting in a strong correlation between happiness and marriage.

Marital happiness has been regarded as a critical component of overall life satisfaction, affecting the physical and mental health of spouses. Cummings and Davies (2010) have also shown the impact of marital happiness, especially of wives, on children's development, wellbeing, academic performance, social skills and interpersonal relationships. In addition, the happiness of wives in their marriage reflects positively on the general happiness of the husbands and therefore contributes to the success of the whole marriage. The real question, therefore, is what makes wives happy in their marriage. More specifically what are the determinants of marital happiness of wives?

The economic analysis of marital happiness sparked by Gary Becker in 1980s was not met with a corresponding empirical interest. Economic research on marital happiness is restricted to a very narrow context, mainly sociologically and psychologically, in the Arab World. In addition, happiness research in general is an under-researched topic in the Arab world, with very little work undertaken on the general happiness and subjective wellbeing (SWB) of individuals. Moreover, although internationally, empirical work on general happiness and subjective wellbeing is available, empirical research on marital happiness is not as common.

Therefore, due to the dearth in empirical and economic analysis of wives' welfare and happiness in marriage in the Arab world, in Egypt and even internationally. The marginal benefits from any empirical research on the topic is very high. Being informed about the economic and non-economic determinants of wives' welfare, with the consequences this has on the society at large is highly adding to the very scarce literature on the topic.

The current analysis empirically investigates a number of questions on the impact of economic (wealth and time use) and institutional (religions and social networks) determinants of marital happiness of young Egyptian wives. The focus then moves to the role of non-economic variables. Inter-marital relationships

reflecting on the quality of the marital relationships are added to enrich the analysis and to serve as a comparison of the impact of economic and non-economic variables.

The main aim of this chapter is to analyse what makes a young married woman happy in her marriage. Therefore, the analysis makes use of a sample of married females aged 15-29 years selected from the Survey of Young People in Egypt (SYPE09). The main dependent variable is provided by ordinal responses to a question on self-reported happiness at marriage. Given this ordinal nature of the dependant variable, self-reported marital happiness is estimated in an ordered probit model.

This chapter contributes two main findings on the economics of wives' marital happiness in Egypt. On the one hand, economic and institutional variables significantly impact marital happiness for wives. More specifically, human capital investments, through education, as well as labour market outcome play significant roles in influencing the marital happiness of young wives. Additionally, the time use of wives appears to play a significant role in wives' welfare. On the other hand, non-economic variables appear to play a more significant role in determining the marital happiness of young wives. These findings reveal that economic variables register as strong explanatory variables. However, mutual relationships appear to be the main driver of marital happiness for young wives in Egypt. A finding that is interesting to economists and non-economists alike, making wives' welfare a topic that needs to be equally tackled by both behaviours.

The paper proceeds as follows: Section 2 provides a brief discussion on different definitions and measures of marital happiness followed by a literature review comprising a theoretical and empirical review of the topic. Section 3 provides the sample selected for analysis. Sections 4 and 5 provide the empirical methodology and the variables selection and summary statistics. Section 6 presents the empirical results. Finally, section 7 concludes.

5.2 Literature review

5.2.1 Marital status and general happiness

Bradbury et al (2000) have noticed two main recurring themes within the available limited work: interpersonal processes and micro/ macro contexts. Within the two themes, tangible and intangible variables have emerged having an impact on the quality of marital relationships. Feelings of love, trust, respect and commitment as well as equity of tasks and gender roles are examples of such variables.

The extant literature on the topic of happiness is mainly motivated by evaluating the impact of different variables on happiness, one of which is marriage. Table 5.1 below provides a summary of the available literature on happiness and marriage. Veenhoven (1997) shows that remaining single, being a form of deprivation, has large negative impacts on the individual's happiness. Different definitions and measures are used interchangeable in the literature to reflect on the welfare associated with marriage. the broad definitions include marital stability, satisfaction, quality and happiness. Carr et al (2014), however show that these different definitions, and more specifically the marital quality is strongly associated with subjective well-being and more so for women as compared to men.

Booth and Edwards (1985) start by referring to the effect of early versus late marriages on the the stability of marriage. Bernard (1972) in the early 1970s brought together the intra-household division of labour in mediating the relationship between marriage and overall quality of life. In this context, Bernard (1972) has focused on the role of the husband as the main breadwinner in the household, as opposed to the classical role of the wife inside the house. In this context, marriage is only relevant in measuring the overall life satisfaction and subjective wellbeing of women.

In comparing the relative contribution of marital happiness to the overall life happiness, Glenn (1990) concluded that marital happiness contributes more to the overall life satisfaction of individuals as compared to happiness at work. The focus in the literature has then shifted for quite some time to marital stability and happiness gaps before going back to the specificities of the overall happiness in relation to marriage. Further, Stutzer and Frey (2003) have revisited Gary Becker's model of intra-household division of labour and the gains from marriage, and

concluded that specialisation and division of labour is actually beneficial for the life satisfaction of couples.

Lee et al (1991), Vanlaningham et al (2001) and Easterlin (2003) have all incorporated the factor of time into the relationship. They show the evolution of happiness with years of marriage. Finally, and only very recently, Soulsby and Bennet (2015) focused on the role of social support in mediating the relationship between marital status and overall wellbeing. The available literature studying marital status in relation to general happiness, however, has not thoroughly analysed the empirical specificities of marital happiness especially relating to that of wives.

Table 5.1: The use of happiness in economic research

Author(s)	Variables used	Conclusion
Bernard (1972)	SWB Marriage Division of labour SWB	“Marriages and intimate relationships are more central to women’s identities and more consequential for their overall level of wellbeing relative to men.” This goes to the division of labour between spouses with husbands mainly focusing on income-related labour work.
Booth and Edwards (1985)	Happiness Marriage Marriage timing	Early marriages and late marriages both increase marital instability, however more instability is associated with early marriages
Glenn (1990)	Marital happiness Happiness	“The estimated contribution of marital happiness to global happiness is far greater than the estimated contribution of satisfaction with work, financial situations, community, non-working activity, family life, friendship and health.”
Lee et al. (1991)	Marriage Happiness gap	Happiness gap has decreased in recent years between the married and the unmarried individuals.
Coombs (1991) Stack and Eshleman (1998) Myers (1999) Diener et al (2000)	Happiness Marriage	Married individuals, generally and married females specifically report higher happiness than unmarried (never married, divorced, separated or widowed) women.
Veenhoven (1997)	Happiness Marriage	Shows that “deprivation” consequent from remaining single, results in serious decline in the level of happiness

Vanlaningham et al (2001)	Happiness Marriage Years of marriage	Happiness shows a U-shaped relationship with marriage and years of marriage. This relationship was highly correlated with several monetary and non-monetary challenges
Easterlin (2003)	Happiness Marriage	Adaptation to marriage flattens off the level of initial happiness. Adaptation to being single, divorced or widowed leads to the flattening of the level of unhappiness.
Stutzer and Frey (2003)	Happiness Marriage	Married men and women show similar levels of happiness, confirming the relationship regardless of the gender differences.
Carr et al (2014)	SWB Marriage Gender	The positive relationship between marital quality and SWB is stronger among women than men
Soulsby and Bennet (2015)	Marriage SWB Social support	Social support has appeared to be a significant intermediary in the relationship between marital status and wellbeing

5.2.2 Marital happiness

Research on happiness and satisfaction³¹ within marriage commenced in the 1960s, and in the 1980s, the interest in the literature shifted to marital stability. At the time, marital happiness was used as a tool for analysing different psychological and sociological issues. Self-reported responses of individuals have been the main tool for measuring marital happiness. Amato et al (2007) referred to the ordinal measure of marital happiness through the survey question “Taking things altogether, how would you describe your marriage?”

In addition to the use of the person’s own evaluation of his status, a number of other tools have been used in the literature to reflect on marital happiness. As an example, multiple scale questions were used to reflect both marital satisfaction and happiness. Another commonly used measure signifying marital happiness is marital quality referring to the presence of good aspects of a marriage and the absence of bad ones.

³¹ Psychologists have later defined marital satisfaction as “a global evaluation of the state of one’s marriage and a reflection of the marital happiness and functioning and involves the evaluation of benefits and costs of marriage.”

On marital quality, Allendorf (2013) reports that there is no single standardized measure used across studies. However, there are a number of indices that are commonly used. In this regard, researchers have attempted to combine different aspects of a marriage to define marital quality in a way that best caters for the needs of the research. For example, Amato et al (2003) looked at marital quality using spousal reports on satisfaction. On the other hand, Vanlaningham et al (2000) and Orden and Bradburn (1969) defined overall marital quality using people's feelings towards various aspects of the marital relationship.

Campbell et al (1976) show that even though marital satisfaction and marital happiness are closely related and highly correlated, they are not synonymous concepts. Accordingly, emotional evaluation of marriage is closely related to marital happiness as opposed to marital satisfaction, which measures the marriage circumstances against a standard benchmark. Lewis and Spanier (1979) further show that marital quality, on the other hand, is inclusive of both terms. Therefore, marital happiness is the personal evaluation component of overall marital quality.

Elmslie and Tebaldi (2014) note that empirical work on marital happiness is very scarce due to the very limited data availability in addition to the potential endogeneity of the variable used. Endogeneity is presenting itself in the first place in the general relationship between marriage and general happiness. On the one hand, married people report being happier as compared to unmarried and single ones. On the other hand, a generally happier female is more prone to marriage as opposed to another female who is generally not happy in her life. Therefore, when marital happiness, measured through self-reporting of the happiness status at a certain point in time is the main focus. More conclusive results are drawn when determinants are measured at that same point in time.

The economic empirical analysis has given more attention to marital quality and satisfaction as opposed to self-reported marital happiness. Economic, social and psychological variables appear as strong determinants of marital satisfaction and quality. Despite of the implicit relationship between marital quality and marital happiness, reverse causality exists between the two and estimating one does not necessarily lead to the other. Accordingly, more specific analysis of marital

happiness has later appeared as a separate theme in the economic, sociological and psychological research.

Waite et al (2009) show that all models on marital happiness include as controls a set of demographic variables associated with marital status and psychological wellbeing such as the measures of race, sex, education in years, children, employment status and household income. However, factors affecting happiness may differ across cultures and are based on the exact question being under test.

Among the most common themes on marital happiness, is the evaluation of marital happiness through time. Vanlaningham et al (2000) show that most cross-sectional studies suggest a U-shaped relationship between marital happiness and the years of marriage (for example see Hamilton (1929), Rollins and Feldman (1970) Spanier and Lewes (1980) and Glenn (1990)). Longitudinal studies, on the other hand, involve following a group of couples or individuals throughout their lifetime. These types of studies are scarce in the literature due to the difficulty and the expenses involved in following the same individuals overtime.

Education, children, social capital, household division of labour, religiosity and interpersonal relationships are the main determinants of marital quality. In addition, household wealth has proved to be significant in the marital satisfaction of couples. A physical assets index is commonly used by researchers as a proxy for household wealth (See. For example, Howe et al. (2008) and Alkire and Santos (2010)).

The available literature relating education and general happiness mostly report a positive impact of education on general happiness (See, for example, Easterlin, 2001; Graham and Pettinato, 2002; Blanchflower et al. 2004). Studies on western and non-western countries reveal similar results with respect to the impact of education on marital quality.

Western studies, according to Allendorf (2013), suggest that education is associated with less depression, higher incomes, and better communication skills. On the other hand, non-western studies suggest that education improves marital satisfaction due to the exposure of young people to western values and the provision of greater independence of female experiences. Amato et al (2003) and

Vanlaningham et al (2001), on the other hand, have reported the lack of a significant impact of education on marital happiness.

Feldman (1971), Miller (1976), Tsang et al. (2003), Tao (2005) and Vanlaningham et al (2000) show that having children is associated with lower levels of marital happiness. However, the causality of the relationship cannot be determined, whether children are causing marital unhappiness or if generally unhappy couples are more likely to have children. Empirical research, however, concludes that having children as well as the number of children has a significant impact on marital happiness indirectly through an implicit impact on the duration of marriage.

Social capital, represented by an individual's social network and social trust, exerts a significant impact on general and marital happiness. Lewis and Spanier (1979) developed a theoretical model implying that personal and social resources of spouses are important determinants of marital happiness. Roizblatt et al (1999) further show that trust, love and loyalty together are associates of marital satisfaction. Social trust, for the sake of this model, is being represented through the wife's answer to the binary question: 'Generally speaking, would you say that most people can be trusted, or that you need to be very careful in dealing with people?'

Social networks, on the other hand, are measured as the continuous number of friends the wife has (males or females, separately). Social networks are expected to provide a social buffer against life's difficulties and stresses. Social networks provide social support, which consist of instrumental (time, money and energy), informational, appraisal and emotional support (Rostami, 2013). Lairetiter and Bauman (1992) suggest that women have a greater number of close relationships and more extensive social network compared to men.

Time allocation between labour market jobs, leisure activities and domestic chores have not been the subject of research in the Arab world with respect to general or marital happiness. Leisure activities have been thought to improve the happiness of individuals in general and in turn positively affect marital happiness.

The issue of religiosity and its relation to general happiness and marital happiness has been one of the most debated topics among different religious beliefs. Ahmadi et al (2006) report that religious beliefs affect all aspects of human life

among which are family relationships. Several studies focused on the positive effect of religious affairs and worships on marital happiness (Rostami and Gol (2014) and Roohani and Manavipoor (2006)). In this framework, religiosity has been found to mediate marital happiness through reducing conflicts and better ability to resolve challenges that arise between couples (Giblin, 1994). Mahoney et al (1999) has pointed out that couples that pray and attend religious services experience a better marital quality and happiness.

Interpersonal relationships are another major determinant of marital happiness. Bernard (1972) suggests that marriage and intimate relationships are more central to women and therefore more essential for the overall marital happiness of women. Given the division of marital powers and roles in the household, wives are more responsible for the emotional and nurturing role of a spouse and a parent, where husbands focus on paid jobs outside the house.

Given the dearth of empirical work on marital happiness, even fewer studies, mainly psychological and/ or behavioural ones, have been conducted for Egypt. Al-Attar and El-Gibaly (2014) report that the social environment in which couples live has tremendous effects on the marital life of the husband and the wife, with a particular focus on the role of co-residence with in-laws. Living with in-laws is found to affect marital quality in the early years of marriage, with the birth of the first child and throughout the years of marriage.

Mansour (2015), on the other hand, shows that the multiple roles of wives as parents, care providers, and employees might result in stressful feelings that affect their overall wellbeing. Moreover, on time allocation, Abdelfatah et al (2013) divided leisure activities into passive, social and active activities. With the active activities encompassing physical activities, reading and internet use. Passive activities, on the other hand, involve relaxing, watching TV, listening to music, playing video games. Finally, social activities comprise spending time with family, relative and friends, chatting on the phone and dating. Time spent on “active” activities as opposed to social and passive prevent young people from suffering any psychological problems. However, spending time on passive and social activities does not add real value to the young people and they thus tend to suffer psychological problems.

Based on the review of the current literature relevant to marital happiness, there appears a limited number of international and Egyptian studies that have focused on overall happiness, life satisfaction and SWB. Moreover, the study of marital happiness is very scarce in the international literature and almost non-existent in the Egyptian case. However, marital happiness was considered a case-by-case evaluation and mainly undertaken by psychologists. These psychological studies are considered the only studies on married females and their happiness within marriage. Therefore, the current essay contributes to the literature on marital happiness at the international level through providing insights through the use of economic and non-economic and time use variables and their contribution to marital happiness. On the local Egyptian level, this topic creates a first stream of literature on the marital happiness of young wives. Given the role of women in the household and the pre-assumed role of marital happiness in the overall life satisfaction, compared to the labour market role. Therefore, it becomes more relevant to study the marital happiness of women as opposed to other aspects of their labour market participation.

In light of the identified research gaps, and the contribution of this paper. The analysis of this chapter fills the gap in the literature through the focusing on four main research questions.

Research question 1: Do institutions, represented in religiosity and social trust enhance wives' marital happiness. The topic of religiosity has been receiving recent attention in the literature. What role does it have on wives' welfare?

Research question 2: The wife allocates time to a number of activities, among them are the household chores inside and outside the house as well as leisure activities. Does the allocation of a wife's time to domestic chores affect her marital happiness?

Research question 3: Looking at the pros and cons of living with in-laws, does it have an effect on wives' marital happiness the same way addressed in the literature? An Egyptian non-economic research by Al-Attar and El-Gibaly has addressed the positive impact of living with in-laws on the marital satisfaction of wives.

Research question 4: Are economic and demographic variables more central to the question on marital happiness of wives and wives' welfare, or do non-economic variables appear more important?

5.3 Data

The data used for the empirical investigation are drawn from a sample of young married females aged 15 to 29 collected from the Population Council's Survey of Young People in Egypt (SYPE09). The females who are engaged to be married or have signed the marriage contract are regarded as not married in this analysis, as they have not yet lived a married life and therefore the question on self-reported marital happiness has not been administered to them. Even though marriage could take place at less than 15 years in Egypt, they are considered illegal marriages and the females are considered too young and immature to decide upon the conditions of their marriages and therefore the question on self-reported marital happiness has not been administered to them also.

Out of 7,021 females between the ages of 15 and 29, 2,879 (41%) report themselves as being currently married, and 2,704 (94%) report on their current level of marital happiness through the answer to the question

“How would you describe your marriage? would you say it as: ‘Very happy’, ‘Happy’, ‘Neutral’, ‘Unhappy’ or ‘Very unhappy’”

The non-response rate is 6%. However, there is no systematic pattern observed between the females reporting on their marital happiness and those with missing observations.

In addition, some observations have been dropped due to missing values reported on the key variables used in model estimation. Therefore, a final sample of 2,692 married females between the ages of 15 and 29 is used in the empirical analysis.

The key question on marital happiness was asked during an interview administered by a female interviewer to the female interviewee at a place of her choice inside the household, without the close presence of the husband. Other variables relating to marriage, were all administered during the same interview by the same person at the same place and point in time. This ensures the suitability of

the data for the purpose of the analysis. All the questions used for the sake of this estimation are, therefore, reflective of the current status of the female at the same circumstances and point in time when the answer to the main dependent variable was provided.

5.3.1 Dependent variable

The original dependent variable at hand is a 5-point scale variable. Table 5.2 below reveals the frequency distribution of the original 5-point scale marital happiness variable.

Table 5.2: Frequency distribution of the 5-point marital happiness

Marital happiness	Frequency	Percent	Cum.
Very unhappy	27	1.0	1.0
Unhappy	53	1.97	2.97
Neutral	385	14.3	17.27
Happy	1,985	73.74	91.01
Very happy	242	8.99	100
Total	2,692	100	

Due to the low variation in responses at different categories, responses have been conflated into three main categories. Table 5.3 below reports the frequency distribution of the conflated dependent variable depicting marital happiness for young Egyptian females.

Table 5.3: Frequency distribution of marital happiness responses

Marital happiness	Frequency	Percent	Cum.
Not happy (very unhappy, unhappy, neutral)	465	17.27	17.27
Happy	1,985	73.74	91.01
Very happy	242	8.99	100
Total	2,692	100	

It can be seen that most of the married females report being at least happy, with very few being unhappy. Given the sample selected and the marriage history of the investigated wives. Being only recently married, these wives are considered to

be in a phase where life has not yet confronted them with the problems, and challenges haven't come to the extent that would allow them to label their marriage as an unhappy one. More details on the dependant variable are presented in the summary statistics section below (p. 105).

5.4 Modelling approach

This section of the paper presents the empirical model used and its different specifications. The results and the analysis are reported in subsequent sections.

Given the ordinal nature of the dependent variable, as presented above (p. 103), an ordered probit model is put to use (See, for example, McKelvey and Zavoina (1975)). The observed dependent variable is Y_i , $i=1, \dots, n$ where n is the number of observations. The values of Y_i are determined by a latent or unobservable variable Y^* . The observable dependent variable is the married female's answers to the question: How would you describe your marriage? Would you say it is 0 ('not happy'), 1 ('happy') and 2 ('very happy')? A higher value means that the female is happier in marriage.

The outcome equation can be expressed as a function of a vector of explanatory variables (X_i) weighted by a vector of unknown parameters (β) using the following relationship:

$$Y_i^* = X_i' \beta + U_i$$

where U_i is a normally distributed variable, with a variance normalised to 1. In this case the observed Y is related to the unobserved Y^* using θ_j as thresholds partitioning the real line into a series of regions corresponding to the various ordinal categories. The observable Y can take 3 distinct values, 0 ('very unhappy', unhappy and neutral), 1 (happy) or 2 (very happy). Therefore, we have:

$$Y_i = 0 \text{ if } -\infty < Y_i^* \leq \theta_0 = X_i' \beta + u_i \leq \theta_0$$

$$Y_i = 1 \text{ if } \theta_0 < Y_i^* \leq \theta_1 = \theta_0 < X_i' \beta + u_i \leq \theta_1$$

$$Y_i = 2 \text{ if } \theta_1 < Y_i^* \leq +\infty = X_i' \beta + u_i > \theta_1$$

$$\text{where } U_i \sim N(0, \sigma^2)$$

Now the probabilities of observing $Y=0, 1$ or 2 can be defined as follows, where $\Phi (.)$ refers to the cumulative distribution function operator for the standard normal:

$$\Pr(Y=j)= \Phi (\theta_j-X'_i\beta) - \Phi (\theta_{j-1}-X'_i\beta) \quad \text{for } j=0,1,2$$

Maximum likelihood estimation (MLE) is then used to estimate the above model, and the log-likelihood function is given as

$$L = \sum_{i=1}^n \sum_{j=0}^2 \delta_{ij} \ln [\Phi (\theta_j - X'_i\beta) - \Phi (\theta_{j-1} - X'_i\beta)]$$

where δ_{ij} is an indicator variable=1 if the i^{th} individual's response falls within the j^{th} category, and =0 otherwise.

5.5 Variables and summary statistics:

5.5.1 Independent variables

The variables selected for the analysis have been motivated by their use in the existing literature on this theme. With the focus on education attainment in the available literature on general and marital happiness. The education level of the wife at the time of the survey is used as a measure of educational attainment. A categorical variable for the stages of education, reflecting on the highest level of education attained at the time of the survey is used.

Given the age of the wives (15-29) and the average length of marriage (5 years), for the selected sample, it is expected to see an average of two children per wife. This, however, is not indicative enough and not showing much variation and raises collinearity issues with other variables. Therefore, a binary variable reflecting whether the couple have children or not is used as opposed to the number of children.

Religiosity and marital happiness, however, exhibit a degree of potential endogeneity. Is it the case that a religious wife may be a happy wife, or is a happy wife thankful to God and therefore more religious? Trying to get over the

endogenous relationship, religiosity is represented in the empirical model using a variable reflecting whether the woman wears a veil (covering the hair only, the hair and face, or covering neither) in addition to the frequency of visiting worship place (a mosque or a church). The two variables together attempt to minimize the bias in the results driven by the endogeneity in the variables.

A set of variables have been used to model the impact of time allocation of the wife in the most comprehensive manner possible given the data. Becker's household perspective labour supply model indicates that a female divides its time between a labour market job, household production/ consumption and leisure/ non-market activities. The wife's time spent on chores inside the household and chores outside the household are taken to represent the time allocated to the household. Furthermore, the time allocated to leisure activities represent the non-market time. However, due to the low employment rate of the sampled females (8%), it has not proved feasible to account for the labour market activity using the time allocated to this activity. However, a binary variable reflecting the employment of the female is used as a proxy for time spent in the labour market.

Interpersonal relationships are another major determinant of marital happiness. A proxy for inter-marital relationship used in the current model at hand, is the ordinal response to the question: "Do you discuss your marital sexual relations with your husband? Do you say you 'Never', 'Often' or 'Daily' discuss them?"

With the absence of a variable reflecting the overall wealth of the wife, the couple or household the wife currently lives in, a variable reflecting such wealth is constructed. Therefore, in advance of reviewing the summary statistics, the construction of a variable capturing the overall wealth of the household the wife is currently living in is formed using Principal Component Analysis (PCA). The details regarding the construction of the asset index are presented in the next section.

In addition to the above, and supported by the existing literature, an additional list of demographic and marriage related variables are included. Details of the full list of variables used in the analysis are presented in a subsequent section, together with summary statistics for each variable.

5.5.2 Household wealth index

A variable reflecting the wealth or the income level of the household the wife currently lives in is required in an attempt to capture the impact of economic welfare on marital happiness. However, as previously mentioned in the context (chapter 2) of this thesis, variables reflecting on the overall income, earnings or financial transfers suffer from missing values and therefore will not be suitable for use in the analysis.

Many demographic surveys, however, do not ask direct questions on income or wealth, an example of which is the Demographic and Health Surveys (DHS). Direct questions on wealth and monetary income could lead to great biases in responses. Therefore, personal and household ownership of assets are used to proxy for household income and wealth. Following the common pattern in the economic modelling and analysis, an index that can be used as a proxy for the household wealth can be used for this purpose.

It can be seen that a number of variables vary greatly with wealth and are highly correlated with other economic and non-economic determinants of the young wives' marital happiness. Therefore, the index is generated to be used as an independent variable in the models estimating young wives' marital happiness. One common way is to simply develop a household asset index using Principal Component Analysis (PCA) on the number of physical assets owned by the household in which the wife currently lives.

Almost a quarter of the sampled wives in this analysis live either with parents or in-laws. Therefore, the assets index constructed cannot get referred to as the wife's asset index as for the quarter of the females, these assets belong to the entire household, including other members and are available for the use of the wife. Therefore, the constructed index is referred to as the household wealth index and is relevant to the household the wife currently lives in and are therefore available for the use of the wives.

Filmer and Pritchett (2001) argue that "the first principle component of the household's ownership of household physical assets is highly correlated with household expenditure and can be used as a reasonable proxy." Po et al (2012) further argue that this method is very common in single cross-sectional surveys

carried out in one country, which SYPE09 is an example of.

Different studies (for example, see Gwatkin et al. 2000; Filmer and Pritchett 2001; McKenzie 2003) use PCA to derive what is commonly known as the socio-economic status index. PCA creates uncorrelated indices or components, where each component is a linear weighted combination of the initial variables. Houweling et al. (2003) further argue that it is assumed that the first principal component is a measure of economic status. McKenzie (2003) has further considered the use of additional principal components, investigating their use, and concluded again that only the first principal component was necessary for measuring wealth.

Accordingly, PCA is used along with SYPE data for the derivation of an asset index acting as a proxy for household wealth. Given the interest in the thesis is on married females aged 15-29, a choice between personal assets as opposed to household assets is first made. With approximately 34% of the 15-29 married females residing with someone (parents or in-laws), then focusing on the entire household assets will be more relevant given the purpose of the index. Therefore, the index is constructed based on household assets of all the members of the household including the wife. The constructed continuous wealth asset index is then used to act as a proxy for the household wealth and is deployed as an explanatory variable in the model for this chapter (5), as well as the next chapter (6).

Initially, and before constructing the index, the correlation coefficient of the variables used to construct the index is computed. However, given the binary nature of the assets (as opposed to continuous variables) capturing whether the household owns this asset or not, a weak correlation coefficient between the selected assets is anticipated. Table 5.4 below provides the descriptive statistics (i.e., mean and standard deviations) of the selected assets together with the factor scores of the first factor with an Eigen value of 3.93.

Table 5.4 shows that, as expected, the black and white tv, the manual washing machine and the tuktuk all load negatively into the asset index, revealing a negative effect on the overall household asset index. This is because these assets are considered of lower quality, and signal a lower social class. The index has been estimated separately for urban and rural areas. However, no differences in the factor scores were recorded. This allows us to revert back to the collective household asset

index in our subsequent analysis.

Table 5.4: Descriptive statistics and Factor Scores

Variable	Mean	Standard deviation	Factor Scores
Rooms	3.28	1.05	0.05
Wall	0.91	0.29	0.07
Floor	0.88	0.32	0.07
Roof	0.79	0.41	0.1
Telephone	0.34	0.47	0.07
Mobile	0.73	0.44	0.05
Computer	0.1	0.3	0.09
Laptop	0.02	0.13	0.06
Ipod	0.007	0.08	0.03
Radio	0.59	0.49	0.04
Fridge	0.84	0.37	0.06
Dish washer	0.003	0.06	0.04
Color tv	0.79	0.4	0.12
Black & white tv	0.09	0.29	-0.04
Video (VCR)	0.05	0.22	0.06
Air conditioning	0.03	0.17	0.1
Microwave	0.01	0.11	0.06
Water heater	0.33	0.47	0.14
Sewing	0.01	0.12	0.01
Manual washing machine	0.77	0.42	-0.05
Automatic washing machine	0.19	0.39	0.27
Vacuum cleaner	0.16	0.36	0.11
Scooter	0.05	0.21	0.01
Car	0.04	0.19	0.11
Satellite dish	0.49	0.5	0.07

Notes to table 5.4: (a) the variables used are all binary variables reflecting on the ownership of the asset, except for the number of rooms which is a continuous variable reflecting the number of rooms in the house for the use of the female/couple (b) standard deviations are only used to reflect on the variations between households in the ownership of the asset.

5.5.3 Summary statistics

The current analysis uses a question on self-reported marital happiness as the main dependent variable (See, for example, Waite et al (2009), McBride (2010), Amato et al (2003)). More specifically, the answer to the question “How would you describe your marriage? would you describe it as: ‘Very happy’, ‘Happy’, ‘Neutral’,

‘Unhappy’ or ‘Very unhappy’” reflecting the female’s own perception of her marriage, is used as the main dependent variable.

The review of the literature and table 5.1 show that some of the independent variables available to us have been previously employed in the literature on the relation between happiness and marital status. However, a new list, of economic and interpersonal variables, is being added to capture the uniqueness of the Arab context. The independent variables comprise a list of objective and subjective variables. Furthermore, these variables have been categorized into a list of demographic, human capital, marriage and relationships, religious, institutions and networks, and sundry other economic variables. Table 5.2 below provides the description and summary of the list of explanatory variables available to us in this study.

More specifically, independent variables used for the analysis include the living arrangements of the couple, the nature of kinship in marriage, time spent between engagement and marriage, religiosity (wearing the veil as well as frequency of visits to places of worship), social capital (social network and social trust), interpersonal relationships and time allocation of the wife both within the house and outside. Institutions focused on trust, as measured through the respondent’s agreement to the binary question “do you think most people can be trusted?”

The quality of inter-personal relationships is captured using the frequency of discussing sexual relationships with one’s spouse (a dummy variable for whether the couple often discuss or discuss on a daily basis their sexual relationship with the base category being never discuss). Finally, household time allocation has been measured using the number of hours spent daily on leisure activities, household chores inside the house, and household chores outside the house. A labour market participation variable was also created assuming a value of 1 if the respondent participated in the labour market and zero otherwise.

Table 5.5: Variables definition and summary statistics

Variable	Definition	Mean
Demographic Variables		
Urban	=1 if the female lives in urban areas, =0 otherwise	0.39
Greater Cairo	=1 if living in one of the Greater Cairo governorates (Cairo, Giza, Helwan, 6 October), =0 otherwise	0.15
Age dummy		
15-19 years	=1 if the age is between 15 and 19, =0 otherwise	0.06
20-24 years	=1 if the age is between 20 and 24, =0 otherwise	0.37
25-29 years	=1 if the age is between 25 and 29, =0 otherwise	0.57
Years since marriage	Time from marriage till the time of the survey in years.	5.72 (3.42)
Children	=1 if the female has no children, =0 otherwise.	0.89
Living arrangements		
Living with wife parents	=1 if currently living with wife's parents, =0 otherwise	0.02
Living with in-laws	=1 if currently living with wife's in-laws, =0 otherwise	0.22
Living alone*	=1 if currently living alone, =0 otherwise	0.66
Nature of kinship		
Not related	=1 if married to a non-kin, =0 otherwise	0.66
First cousin	=1 if married to a first cousins, =0 otherwise	0.2
Distant relative	=1 married to a distant relative, =0 otherwise	0.14
Household Asset index	The household's assets ownership (for more details on how it is formed, see p. 98)	0.015 (0.93)
Human Capital		
Education		
No education*	= 1 if the female has no education, =0 otherwise.	0.2
Less than secondary	=1 if the female has less than secondary degree, =0 otherwise.	0.24
Secondary	=1 if the female has a secondary degree ³² , =0 otherwise.	0.41
Post-secondary	=1 if the female has post-secondary ³³ , =0 otherwise.	0.14
Marriage and relationships		

³² Secondary degree involves General secondary, Azhar secondary, International secondary or Vocational secondary

³³ A post-secondary degree is University, or post-graduate degree

Time from engagement to wedding		
Less than 6 months	=1 if overall marriage procedure ³⁴ takes place in less than 6 months, =0 otherwise.	0.28
6 months to 1 year	=1 if overall marriage procedure take from 6 months to 1 years, =0 otherwise.	0.29
1-2 years	=1 if overall marriage procedure take from 1 to 2 years, =0 otherwise.	0.28
2+ years	=1 if overall marriage procedure take longer than 2 years, =0 otherwise.	0.15
Religious		
Veil		
Hijab/veil*	=1 if a female is covering her hair, =0 otherwise.	0.89
Niqab	=1 if a female is covering her hair and face, =0 otherwise.	0.08
Neither hijab nor niqab	=1 if not wearing a veil or niqab, whether a muslim or not, =0 otherwise.	0.03
Frequency of visit to mosque/ church	=1 if visits the mosque/church more than once a week, =0 otherwise	0.85
Institutions and networks		
Female friends	The number of female friends	1.99 (1.7)
Male friends	The number of male friends	0.03 (0.38)
Trust people	=1 if the female generally trusts people, =0 otherwise	0.09
Personal relationships		
Discussing sexual relation with husband		
Never discusses	=1 if they never discuss sexual relations, =0 otherwise.	0.31
Often discusses	=1 if they often discuss sexual relations, =0 otherwise.	0.55
Discusses daily	=1 if they discuss sexual relations daily, =0 otherwise.	0.14
Economic variables		
Household work and leisure		
Chores inside the house	The time spent on household chores inside the house in hours per day ³⁵	3.07 (1.55)

³⁴ Marriage procedures involve engagement, katb ketab and wedding

³⁵ Household chores inside the house involve washing clothes, dish washing, cleaning, cooking, mending

Chores outside the house	The time spent on chores outside the house in hours per day ³⁶	0.62 (0.93)
Leisure time	The time spent on leisure activities ³⁷ in hours per day	5.68 (3.01)
Currently employed	=1 if the female is currently employed, =0 otherwise.	0.08
Financial autonomy	=1 if the female decides herself on how to spend her money/savings, =0 otherwise.	0.79
(Children) x (chores inside the house)	An interaction variable between having children and the time spent on domestic chores in hours per day	2.75 (1.75)
(currently employed) x (chores inside the house)	An interaction variable between having a job and the time spent on domestic chores in hours per day	0.212 (0.8)
N		2692

Notes to table 5.5: (a) The mean column reports the sample proportion for binary variables and means for the continuous ones. (b) The standard deviations are only reported for the non-binary variables in the dataset and are reported in parenthesis

³⁶ Household chores outside the house involve washing clothes, bringing goods, fetching water

³⁷ Leisure activities involve time with family, resting/napping/relaxing, visiting relatives, hanging out with friends, dating, chatting on phone with friends, internet use, reading, listening to music, watching tv, video games and exercising/physical activities

Demographic variables give early insights into the happiness of females in their marriages. With only 38% of the sample being urban residents, approximately 84% of them have reported being happy in their marriage. This proportion of wives who expressed themselves as happy with their marriage is very similar to the responses from rural areas. A similar proportion of happy wives exists across governorates (Greater Cairo governorates and the rest of the governorates). Among the 88% of the married sampled females who have children, 82% have reported being happy in marriage as opposed to 92% of those who do not have any children.

The household's Asset Index is another main covariate of interest from within the demographic set of variables. This index is proxy for the household welfare, and is constructed consistently with the previous literature, and is testing the relationship between asset ownership and wives' welfare and marital happiness.

Religiosity measures have been constructed using two variables: one on wearing the veil/Hijab and the other on the frequency of visits, per week, to places of worship. The proportion of females covering their hair only or their hair and face together, and the frequency of visits to worship places per week, reflect the degree of religiosity of Egyptian females.

In evaluating marital happiness of females, it is essential to look at the time allocation of a wife. Time is allocated between labour market participation, leisure activities, chores inside and outside the household. This shows the change in marital happiness due to different time allocations between leisure activities and household chores inside and outside the house. However, there is an inverse relationship between the number of hours allocated to chores outside the house and marital happiness.

Table 5.6: Spearman's pairwise correlations: marital happiness and main covariates

Variables	Happy
Time since marriage	-0.16***
Children	-0.11***
Asset index	0.14***
Education	0.17***
Veil	-0.02
Religious frequency	0.07***
Trust	0.01
Discuss sexual life	0.15***
Employment	-0.02
Leisure time	0.05**
Chores inside the house	-0.06***
Chores outside the house	-0.08***
Financial autonomy	0.06***

Notes to table 5.6: (a) ***, **, * denotes statistical significance at the 0.01, 0.05 and 0.10 level respectively

The correlation between the dependent and the independent variables provides a prelude to the econometric modelling and confirms the potential for an empirical relationship. Spearman's pairwise correlation between the three-point conflated marital happiness variable and the main covariates are presented in table 5.6 above. Marital happiness of wives is significantly correlated with the main covariates used in the model. It is positively correlated with the household's asset index, the education of the wife, the frequency of visits to places of worship, inter-marital discussions, leisure time and if the woman controls decisions regarding use of her money. It is negatively correlated with having children and time allocation activities whether in terms of domestic chores or chores outside the house.

Based on the correlations and the summary statistics, figure D.1 provides a summary of what characterizes a happily married female with respect to the main list of covariates. This figure shows that on average, a happily married female is a veiled female who has children, with secondary level education, is not employed, lives alone with her spouse and

children, has control over her own money, and often discusses with the spouse their sexual relationships.

Table 5.7 below reports how happily married wives differ across different characteristics or attributes. It can be seen that the average marital happiness for young Egyptian wives does not yield a significant difference across the different categories of wives. However, using appropriate chi-squared tests, no significant differences were reported in the proportions of married happy wives across different groups.

Table 5.7: Mean marital happiness by groups

Variable	Marital happiness
Demographic variables	
Region	
Urban	0.84
Rural	0.82
Governorates	
Greater Cairo	0.82
Other Governorates	0.83
Age dummy	
15-19 years	0.84
20-24 years	0.86
25-29 years	0.8
Relationship to spouse	
<i>Not related</i>	0.83
<i>First cousin</i>	0.84
Distant relative	0.79
Human capital variables	
Education	
<i>No education</i>	0.75
<i>Less than secondary</i>	0.78
<i>Secondary</i>	0.86
<i>Post-secondary</i>	0.93
Household	
No children	0.91
Children	0.83
Living arrangements	
<i>Living with wife parents</i>	0.76
<i>Living with husband parents (in-laws)</i>	0.8
<i>Living alone</i>	0.84
Economic variables	
Wealth Quintile 1	0.85

Wealth Quintile 2	0.86
Wealth Quintile 3	0.88
Wealth Quintile 4	0.97
Wealth Quintile 5	1.02
Leisure time lowest 25%	0.81
Leisure time upper 25%	0.82
<i>Chores in the house</i> lowest 25%	0.83
<i>Chores in the house</i> upper 25%	0.75
<i>Chores outside the house</i> lowest third	0.37
<i>Chores outside the house</i> upper third	0.42
Financial autonomy	
Someone else decide	0.79
Wife decides herself	0.83
Employment	
Employed	0.83
Not employed	0.77
Social variables	
<i>Hijab/veil</i>	0.82
<i>Niqab</i>	0.83
<i>Neither hijab nor niqab (whether muslim or not)</i>	0.89
Frequency of visit to mosque/ church	
Less than once a week	0.75
Once or more a week	0.841
Female friends	
0-1 friends	0.83
2 friends	0.84
3 friends	0.82
4+ friends	0.77
Trust	
Not trusting people	0.83
Trusting people	0.81
Inter-personal variables	
<i>Never discusses</i>	0.76
<i>Often discusses</i>	0.85
<i>Discusses daily</i>	0.88
Misc. variables	
Time since marriage	
0-3 years	0.88
4-5 years	0.84
6-8 years	0.81
9+ years	0.76
Time from engagement to marriage	
<i>Less than 6 months</i>	0.81

<i>6 months to 1 year</i>	0.85
<i>1-2 years</i>	0.83
<i>2+ years</i>	0.81

5.6 Empirical results

The empirical results, based on estimating an ordered probit model, are reported in table 5.4. The results for the conventional variables used in this type of modelling are in agreement with similar results found in the literature as discussed in the previous sections. However, a novel contribution of this chapter is the use of variables not used in the literature to date. This adds a new dimension to this type of analysis.

The estimated effects for the economic and institutional variables are found to be statistically significant. Specifically, increases in the household wealth, as measured by the asset index, as well as the wife's financial autonomy, both significantly improve marital happiness of wives. In addition, time allocated to chores outside³⁸ the house significantly reduce the marital happiness of wives as opposed to time allocated to the labour market, as well as leisure activities and domestic chores.

Our findings also suggest religion and social networks are determinants of happiness in marriage. In particular, wearing the Hijab or Niqab³⁹, frequency of visits to worship places (mosques or churches) and the degree of social trust the young wife has in the surrounding environment all exert a significant impact (whether positive or negative) on the self-reported marital happiness of young wives. Other interesting social determinants of self-reported marital happiness is the place of residence and the time taken to marriage.

This analysis goes beyond the empirical finding of delayed marriage among young women in Egypt, and actually focuses on the impact this delay, when exists, has on wives' welfare upon marriage. The analysis shows that the longer the time taken until the couple actually get married, has a significant impact on the overall self-reported marital happiness of young wives.

³⁸ Refer back to footnotes 36 and 37 p.113 for definitions of chores inside and outside the house

³⁹ Distinction was made earlier, see thesis chapter 2 on Egyptian context p. 21.

In addition, the nature of the living arrangements on marriage (i.e., alone or with in-laws) also impacts happiness with negative effects detected for those couples who live with their parents, or in-laws, against what has been documented in the only Egyptian literature devoted to the topic.

A further contribution of this paper is the use of non-economic indicators in determining marital happiness. Interpersonal and inter-marital relationships between the husband and the wife, controlling for economic and institutional variables, are found to significantly impact the self-reported marital happiness of people. This finding is in comport with the psychological and sociological literature (Bernard (1972)) that concludes that debriefing, marital discussions and sexual relations enhance marital quality and is of more value to the wife.

The empirical work reported here confirms the relative importance of these variables in a regression model that already controls for the economic status and indicators. In particular, the impact of the quality of inter-marital relationships of marital happiness are more potent than the economic and demographic variables.

Table 5.8: Determinants of marital happiness: Standard Ordered Probit

Variable	Model 1 Coefficient (Std. errors)	Model 2 Coefficient (Std. errors)	Model 3 Coefficient (Std. errors)	Model 4 Coefficient (Std. errors)
Urban	-0.13** (0.06)	-0.16*** (0.06)	-0.16*** (0.06)	-0.16*** (0.06)
Greater Cairo	-0.17** (0.07)	-0.17** (0.07)	-0.19*** (0.07)	-0.19** (0.07)
20-24 years	-0.09 (0.11)	-0.09 (0.11)	-0.08 (0.11)	-0.07 (0.11)
25-29 years	-0.19 (0.12)	-0.2* (0.12)	-0.16 (0.12)	-0.16 (0.12)
Years since marriage	-0.03*** (0.01)	-0.03*** (0.01)	-0.03*** (0.01)	-0.03*** (0.01)
Children	-0.27*** (0.08)	-0.27*** (0.08)	-0.27*** (0.09)	-0.03 (0.16)
Living arrangements				
Living with wife parents	-0.28* (0.16)	-0.29* (0.16)	-0.29* (0.17)	-0.29* (0.17)
Living with husband parents	-0.12** (0.06)	-0.14** (0.06)	-0.12** (0.06)	-0.13** (0.06)

(in-laws)				
Nature of kinship				
First cousin	0.1*	0.08	0.06	0.07
	(0.06)	(0.06)	(0.06)	(0.06)
Distant relative	-0.04	-0.06	-0.07	-0.07
	(0.07)	(0.07)	(0.071)	(0.07)
Household Asset index	0.12***	0.12***	0.12***	0.12***
	(0.03)	(0.03)	(0.03)	(0.03)
Human capital				
Less than secondary	0.01	-0.01	-0.02	-0.02
	(0.07)	(0.07)	(0.07)	(0.07)
Secondary	0.22***	0.2***	0.18**	0.19**
	(0.07)	(0.07)	(0.07)	(0.07)
Post-secondary	0.42***	0.39***	0.38***	0.39***
	(0.11)	(0.11)	(0.11)	(0.11)
Time from engagement to marriage				
Less than 6 months	0.09	0.08	0.06	0.06
	(0.08)	(0.08)	(0.08)	(0.08)
6 months to 1 year	0.16**	0.16**	0.14*	0.14*
	(0.08)	(0.08)	(0.08)	0.08
1-2 years	0.15**	0.15**	0.14*	0.14*
	(0.08)	(0.08)	(0.08)	(0.08)
Veil				
Niqab	0.04	0.06	0.05	0.05
	(0.09)	(0.09)	(0.09)	(0.09)
Neither hijab nor niqab (whether muslim or not)	0.25*	0.24*	0.25*	0.24*
	(0.14)	(0.15)	(0.15)	(0.15)
Frequency of visit to mosque/ church	0.13*	0.13*	0.14**	0.14**
	(0.07)	(0.07)	(0.07)	(0.07)
Female friends	-0.03**	-0.03**	-0.03**	-0.03**
	(0.01)	(0.01)	(0.01)	(0.01)
Male friends	0.05	0.07	0.07	0.08
	(0.06)	(0.06)	(0.06)	(0.06)
Trust people	0.1	0.15*	0.14*	0.15*
	(0.08)	(0.08)	(0.08)	(0.08)
Wife discussing sexual relation with husband				
Often discusses		0.29***	0.32***	0.32***
		(0.05)	(0.05)	(0.06)
Discusses daily		0.56***	0.57***	0.57***
		(0.08)	(0.08)	(0.08)
Household work, and leisure				
Chores inside the house			-0.04**	0.04
			(0.02)	(0.05)
Chores outside the house			-0.12***	-0.12***
			(0.03)	(0.03)

Leisure time			0.003 (0.008)	0.003 (0.01)
Currently employed			-0.25*** (0.09)	0.14 (0.2)
Financial autonomy			0.13** (0.06)	0.13** (0.06)
(Children) x (chores inside the house)				-0.09* (0.05)
(Currently employed) x (chores inside the house)				-0.15** (0.07)
N	2692	2692	2692	2692
R-squared	0.04	0.06	0.07	0.073
LR chi2	Chi2(23) =185.8	Chi2(25)= 242.3	Chi2(30)= 283.2	Chi2(32)= 290.9
θ_0	-1.31*** (0.16)	-1.1*** (0.16)	-1.18*** (0.18)	-0.96*** (0.2)
θ_1	1.09*** (0.16)	1.34*** (0.16)	1.29*** (0.18)	1.52*** (0.21)

Notes to table 5.8: (a) Standard error in parentheses. (b) ***, **, * denotes statistical significance at the 0.01, 0.05 and 0.10 level respectively.

5.5.4 Institutional variables: religiosity and social trust

Institutional variables, in the form of religiosity and social trust, show a significant relationship with the self-reported marital happiness of young wives. Religiosity is measured in two ways in the current analysis. One measure is the frequency of visits to worship places, while the other is reflected in the religious attire worn by women. Given the prevalence of Muslim females in the data, covering up (face and/or hair) in addition to the frequency of attending worship venues (whether mosques or churches) at least once a week are the key variables capturing religiosity. The Friday prayers for Muslim and the equivalent for Coptic Christians is a once a week compulsory meeting or visit to worship places, and therefore is used to explain the significance of once a week as a threshold for the religiosity levels used in the current analysis.

As a first measure of religiosity, not covering both the hair and the face, whether being a Muslim or not, significantly increases the marital happiness as compared to a veiled Muslim female. The veil could be acting as a social constraint in the Egyptian society. The context chapter (2) of this thesis shows that the veil, and the niqab, is becoming more of a social attire attempting to protect women against any form of harassments on the street. The mix up between the religious and the social implication of

the veil and the niqab is a reason behind the lack of relationship with marital happiness. For the women wearing neither a hijab nor a niqab, this form of social pressure is slightly relieved and religiosity could be expressed differently for her. This relieve of the social pressure is what is driving the positive association with a happier marriage.

The other factor explaining the positive impact on the unveiled women is the existence of the non-Muslim females within the category. The non-Muslim female reflected in this category could possibly inflate the significance of the impact of this variable on the self-reported marital happiness. Given the inability of Christians to suspend a marriage, they manage to look for happiness within the marriage. Where unhappiness in marriage exists, it is not taken as a valid reason for divorce by the Coptic Church. Therefore, the two previously mentioned reasons, highly driven by social pressures, are driving the positive relationship with wives' welfare.

On another note, frequency of visits to worship places is referred to as an alternative religiosity measure. For Muslims, women's attendance to the mosque is considered an additional effort not a compulsory one, where Islam allowed women to pray at their comfort at home. Therefore, visits to the mosques are considered a sign of either extra religiosity or social activities. For Christian women, although church visits are more compulsory, but the motive could still either be spiritual or social. However, unable to differentiate between the motives for the worship places visits, findings still show a positive and significant association with the marital happiness of young wives.

Other social variables of interest are those reflecting on social capital. Social capital is defined in the literature (e.g., see Lewis and Spanier (1979); Roizblatt et al (1999)) as the social network as well as the social trust. Social trust is almost always associated with higher general happiness and consequently marital happiness. A low percentage of young married women experience trust in the surrounding environment. This is a finding dictated by the Egyptian culture, where girls are actually being raised asked not to place trust in the surrounding network of people. The general belief is that more harm could come with more trust, so being cautious is always better. However, this creates a tension environment for a female to grow up in. Therefore, when a married woman has trust in her surrounding environment, this releases the social tension and would therefore have a positive impact on her marital happiness.

5.5.5 Time use

The time allocation of wives between leisure activities and domestic chores, both inside and outside the house, has received minimal or no attention in the literature on happiness. The available strand of literature in this respect has been devoted to marital powers and the division of roles within the household. However, the impact of this division on the marital happiness of either or both spouses has not been investigated in a systematic fashion to date.

The data allow a close look at how many hours per day a female spends on leisure activities, domestic chores inside the house, and outside the house. No significant impact of time allocated to leisure activities on marital happiness is detected. However, as previously suggested by Abdelfatah et al. (2012), time allocated to leisure activities could be divided between active, passive and social activities. Nevertheless, breaking down time allocated to leisure activities, the impact on marital happiness, details of which are not reported here, are robust and no significant impact is observed for the three categories of leisure activities.

Domestic chores inside and outside the house, however, both have a significant negative impact on self-reported marital happiness. As the number of hours spent on household chores increases, the marital happiness of young females drops significantly. It is further noted that the negative impact on self-reported marital happiness mediated through domestic chores is more severe than that of chores outside the house. Based on the model estimates, a reduction of 1.51 hours (significant at the 5% level) of domestic chores inside the house are required to compensate for one extra hour of domestic chores outside the house to ensure that the wife remains at the same level of happiness. This reveals that wives place a higher value on domestic work given that it is worth more in terms of happiness in her marriage than chores outside the house.

Given the role of the chores inside the house, further decomposition of it is required to understand more of it. Indirectly, the impact of the time allocated to chores inside the house is indirectly mediated through its interaction with the employment of the wife or with having children. Therefore, interaction variables between having children and being employed in the labour market, separately, with the number of hours spent on the chores

inside the house are added to the model. The interaction variables both have a significant negative impacts on wives' marital happiness.

The interaction variables show that, the number of hours devoted to domestic chores inside the house, when the wife has no job or children, does not significantly affect her marital happiness. However, for a wife with children, or with a job, the impact of longer hours spent on chores inside the house are more severe on her marital happiness.

With children or with a job, not only does the average number of hours per day spent on chores negatively impact marital happiness, but the nature of the work and the energy required to perform the tasks is now different (Becker 1981). Therefore, the implication of domestic chores on the marital happiness can depend on whether the couple having children and/or a job.

5.5.6 Living arrangements of the couples

The current place of residence of the wife show a significant impact on marital happiness. More specifically living in the urban areas and the Greater Cairo governorates, with the over-crowdedness and stressful living conditions negatively affects marital happiness of females. This is a result that is anticipated. As people move away from the overcrowded urban areas and into rural areas, the self-reported marital happiness of young Egyptian wives significantly improves.

In addition to the area of residence, the place of residence plays a significant role in the marital happiness of wives. Al Attar and El Gibaly (2014), being the only Egyptian literature tackling the relationship between living with in-laws, and marital satisfaction, but from a non-economic angle, concludes that, the impact of living with the mother-in-law improves the life satisfaction of the Egyptian wives. This has been further explained through the contribution of the mother in law to reducing the work load of the wife and sharing the responsibility of the kids.

Given the difference in the definitions between marital satisfaction and happiness (previously discussed earlier in this essay see p. 94), our analysis reports a negative impact on the wife's self-reported happiness if the couple live with either the wife's or the husband's parents compared to the ones living alone. Given the age range of the sampled wives and controlling for the length of marriage in years, with an average of 5.7 years of

marriage, the self-reported marital happiness of young Egyptian wives significantly decreases if the couple lives with either parents as opposed to living alone. With marriage marking the main transition to adulthood in the Arab region and Egypt in specific, continuing to live with parents or in-laws upon marriage delays this transition and therefore reduces the wives' welfare.

Even though living with someone could take away part of the every-day responsibilities of the household, to be shared with a trusted close family member. However, having to sacrifice independence and the full transition to adulthood achieved upon marriage has its negative impact on the marital happiness of young wives.

5.5.7 Other economic and demographic findings

Moving focus to the impact of other demographic and economic variables, we first examine the role of the demographic ones. The demographic variables captured by the age of the wife and having children yield contrasting results. The current age of the wife plays no significant role in impacting her self-reported happiness. On the other hand, having children, has a significant negative impact on marital happiness. Having children is believed to add to the burdens of a married wife and therefore yields a negative relationship with marital quality and satisfaction (see, for example, Glenn et al. (1982)). Given the age range of the selected sample, a young wife who is below the age of 29 years, having children could add to her responsibilities and consume larger amounts of energy having a significant downward push on her self-reported marital happiness.

Given the role of the marital life, the number of years since marriage, in explaining the variation in the self-reported marital happiness of wives. Previous empirical studies on marriage have specifically focused on the variation in marital happiness through the marriage life. A U-shaped relationship is the common finding on the relationship between years of marriage and marital happiness. Given the chosen cohort of young females for the purpose of the study, the relationship may not be easily identified. However, a negative and significant impact, consistent across all specifications is found here. This may reflect the fact that the individuals in our sample are on the decreasing portion of the U-shaped curve.

In addition to the years since marriage, a common feature of marriages in Egypt and the Arab world is not only the delay in the timing of marriage, but also the extended time taken between engagement and the wedding (formal or religious marriage). In this context, time between engagement and the official wedding is of importance for both young couples and their parents. The period in our sample ranges from the same day to 10 years. The estimated impact of waiting time on marital happiness is found to be statistically significant. The delay result for a number of reasons, with the most important being financial constraints. Given the financial constraints on the husbands and their families, this process may take years. The faster the marriage and the shorter the wait time between the engagement and the official wedding, the happier is the female at marriage. This is consistent with the positive and significant estimated impact of a shorter wait period on self-reported marital happiness (see table 5.8).

Results in table 5.8 reveal that human capital accumulation, as measured through attained levels of education, and especially for the higher levels of education, positively impacts self-reported marital happiness. Stevenson and Wolfers (2008) show that one of the paths education impacts general happiness is that mediated through financial benefits. However, controlling for household income and given a low participation of females in the labour market, education appears to impact marital happiness for its own good. Powdthavee et al. (2013) report that education correlates with unobserved characteristics of the females which could be the driving force for the increased self-reported marital happiness.

The above result is further emphasised through the impact of employment of females in the labour market. A binary variable reflecting on whether the female is employed in the labour market, at the time of the survey, is used in this model rather than the sector of employment, due to the very low female participation in the labour market. Employment, therefore, has a negative and significant impact on self-reported marital happiness of young Egyptian wives. This is in comport with the findings of Al-Attar et al (2014), which reports that young Egyptian wives, who are employed in the labour market, experience lower happiness in marriage when compared to young wives who are not active in the labour force. Employment is considered one of the few control variables that

have been addressed in literature in relation to marital quality (For example, see Amato et al (2003)).

However, given models 3 and 4 of table 5.8 above, controlling for having children and the number of hours the wife spends on the chores inside and outside the house, employment in the labour market significantly reduces the self-reported marital happiness of young wives. Combining the employment in the labour market with the chores inside the household, employment is no longer found to be statistically significant. Where an employed wife who does not participate in household chores, or a wife who participates in household chores but is not employed, both have no significant relationship with marital happiness. However, for an employed wife, as the number of hours devoted to household chores inside the house increase, the negative impact on wives' welfare is elevated. This reveals that the impact of the employment in the labour market is mediated through its impact on the pressure on the wife with respect to the number of hours spent daily in the labour market.

In addition to analysing demographic as well as marriage related variables, the impact of the economic variables provides additional understandings to the determinants at hand. Among the economic variables, the household asset index, in a continuous form, in addition to the educational attainment, the employment status, the financial autonomy of the wife is addressed in relation to marital happiness of wives.

The asset index positively and significantly impacts marital happiness. The marginal effects, reported in table D.2, reveal that one standard deviation increase in the asset index decreases the probability of reporting a non-happy marriage by 3.4 percentage points and increases the probability of reporting a very happy marriage by 2 percentage points. An improvement in the household wealth, improves the level of marital happiness for young Egyptian wives. It can be concluded, therefore, that the financial security provided by the household asset ownership, acting as a proxy for household wealth, plays a key role in the happiness of wives in their marriage.

In addition to the financial security, achieved through the household asset ownership, the financial autonomy of the wife enhances her marital happiness. Therefore, not only does the financial security of the entire household improve marital happiness, but the wife's own financial security plays an important role too. Financial autonomy in the

context of this analysis is the ability of the wife to decide herself how to use her own money earned upon employment outside the house and inside the labour market, pre-marital savings, as well as allowance received from parents or the husband.

Therefore, our finding on financial autonomy for young wives is a positive significant relationship with their marital happiness through its direct impact on the wives' own perception of happiness in marriage. This result agrees with Al-Attar et al (2014), where marital satisfaction increases most when wives feel that their opinion is valued and where some equality in the decision-making process is achieved.

5.5.8 Non-economic determinants

A novelty of our empirical approach is combining variables that capture the quality of inter-personal relationships and economic variables to determine their relative power in influencing marital happiness. The sociology literature on general happiness and marital quality emphasises the importance of debriefing and conversations between the spouses, in particular on issues around the sexual relationship between the spouses. Given the taboo placed on direct sexual discussions in the Arab world, direct questions on sexual activities have been replaced in SYPE09 with a question on spousal discussions on sexual relationship and the frequency of these discussions. This is considered a direct proxy for the sexual activity between the couple which Blanchflower et al (2004) concluded has a strong positive impact on happiness. The frequency of discussions between spouses regarding their intimate sexual relationships is expected to impact the marital happiness of the wives, and in our application does.

The inter-personal variables make a bigger contribution to the explanatory power of the model than the economic and demographic variables. The R-squared values of models 1 and 2 for calculating the impact of the inter-marital relationship, and models 2 and 3 for the impact of the economic variables, show a 30% increase in the goodness of fit of the model, as opposed to a 17% increase due to economic variables. This result shows the limited role of economics in defining the determinants of marital happiness. Economists highly focus on demographic, labour market, monetary and institutional variables in attempting to explain general and marital happiness. The estimated results and the previous analysis, however, show the relatively higher relevance of the inter-marital

covariates to the self-reported happiness of young Egyptian wives as opposed to the economic variables.

This essay shows that economics play a significant role in identifying determinants of self-reported marital happiness of young Egyptian wives. However, the role of economics is limited and inadequate in solely explaining these determinants. The quality of inter-marital relationships and discussions between spouses appear to be the more important determinant of wives' welfare.

5.7 Conclusion

The objective of this chapter is to go beyond determinants of general happiness, life satisfaction or SWB and focus down on marital happiness. The analysis explains the main determinants of a specific type of happiness (marital happiness) and within a specific context (the Arab context) for young Egyptian wives (aged 15-29) using self-reported information on happiness.

This chapter investigates the role of institutions, time use of the wife and living arrangements in marriage on young wives' welfare. The chapter then shifts focus to non-economic determinants and namely the mutual inter-marital relationships. This paper investigates the marital happiness through the answer of the wife to the question: "How would you describe your marriage? would you say it as: 'Very happy', 'Happy', 'Neutral', 'Unhappy' or 'Very unhappy'" the imbalance in the frequency distribution among the 5 categories led to the conflation of the dependant variable. With a three categories of responses, the marital happiness of wives is investigated using an ordered probit model. The sample used in the analysis of this chapter, is a sample of married young wives between the ages of 15 and 29 with a final sample of 2692 observations.

The analysis first investigates the role of institutions, in the form of religiosity and social trust, in the marriage welfare of young wives. Religiosity in this analysis is expressed in the form of the Islamic attire of the young wife (wearing the veil or a niqab) in addition to the frequency of visits to worship places (mosques and churches). Wearing neither a veil nor a niqab, together with the frequent visits to mosques or churches as well

as social trust in the surrounding community significantly improve the marital happiness of young wives.

The time the wife allocates to the household chores, inside and outside the house significantly worsens the wife's marital happiness. However, time devoted to leisure activities have no significant impact on the wife's marital happiness. The findings allow the investigation of the trade-off between the wife's time allocated to household chores inside and outside the house, keeping the marital happiness constant. A 1.51 hours of chores inside the house is equivalent to one hour outside the house. This highlights the more emphasis the wife places on the household chores inside the house.

The added pressure of having kids and/ or a job is obvious through their impact on the household chores. The analysis shows that a wife who is employed or has children, however not engaged in household chores, no significant change in the marital happiness is monitored. The same holds for having to do household chores with no job or kids. However, having a job or children and involved in the household chores inside the house has a more severe impact on wives' welfare.

The analysis of this chapter is in disagreement with one main sociological literature on the impact of living with in-laws on the marital quality of wives. The study by Al-Attar and El-Gibaly (2014) concludes that living with in-laws improves the marital quality of wives due to sharing the household chores as well as the responsibility of the kids. However, this analysis concludes that, when the happiness of young wives is the concern, living with anyone (parents or in-laws) has a negative and significant effect. Given the average number of years since marriage, as well as the age of the wives selected for analysis, living with someone is not highly favoured and therefore has a negative effect on wives' marital happiness.

Finally, the analysis of this chapter shows the superior effect of inter-marital relationships over the role of the demographic and economic variables in explaining wives' marital happiness. In this context, economic discipline by itself does not really explain marital happiness. Economists on their own cannot really account for what matters for the happiness of young wives. If proper account for marital happiness is the goal, then other fields are required to complement economic discipline in achieving it.

Appendix D

Table D.1: Frequency distribution of the 5-point marital happiness

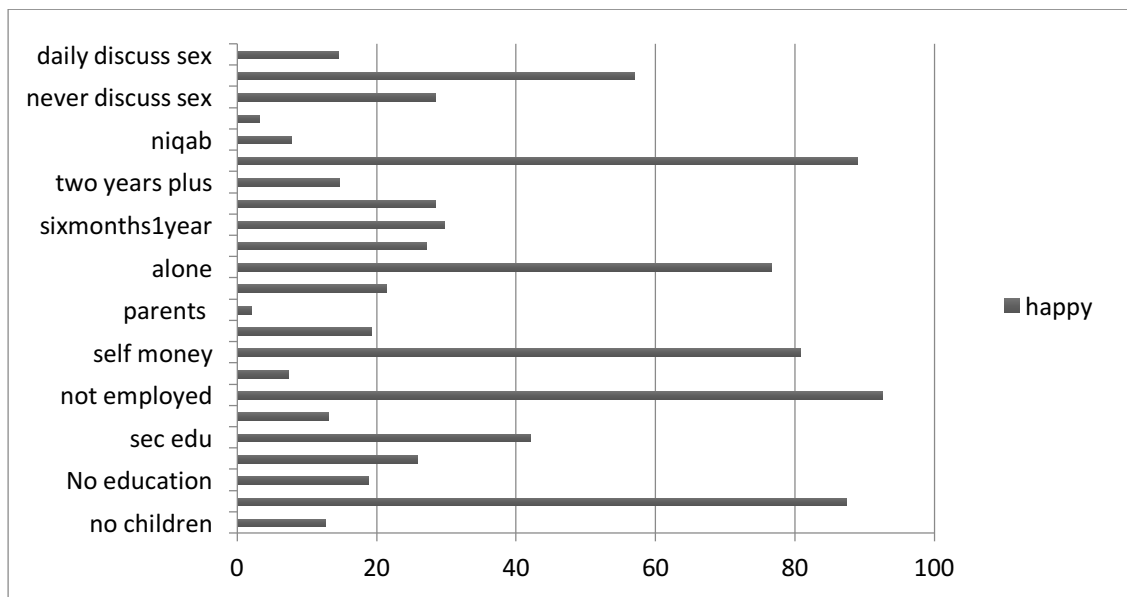
Marital happiness	Frequency	Percent	Cum.
Very unhappy	27	1.0	1.0
Unhappy	53	1.97	2.97
Neutral	385	14.3	17.27
Happy	1,985	73.74	91.01
Very happy	242	8.99	100
Total	2,692	100	

Table D.2: Marginal and impact effects of selected variables for model 2 of ordered Probit model

Variable	Happiness		
	0	1	2
Demographic Variables			
Urban	0.03955	-0.0173	-0.0222
Great Cairo	0.04644	-0.0231	-0.0233
20-24 years	0.0165	-0.007	-0.0095
25-29 years	0.0373	-0.0148	-0.0225
Years since marriage	0.0063	-0.0026	-0.0037
Children	0.0057	-0.0023	-0.0035
Living with wife parents	0.0786	-0.0457	-0.0329
Living with husband parents (in-laws)	0.0308	-0.0142	-0.0166
First cousin	-0.0154	0.0059	0.0095
Distant relative	0.0166	-0.0074	-0.00918
Asset index	-0.03356	0.0138	0.0197
Human capital			
Less than secondary	0.006	-0.0025	-0.0035
Secondary	-0.0431	0.0167	0.0264
Post-secondary	-0.0784	0.0131	0.0652
Marriage			
Less than 6 months	-0.0139	0.0055	0.0085
6 months to 1 year	-0.0316	0.0116	0.0199
1-2 years	-0.0309	0.0114	0.0196
Religious variables			
Niqab	-0.0125	0.0047	0.0078
Neither hijab nor niqab (whether muslim or not)	-0.0496	0.0112	0.0384
Frequency of visit to mosque/ church	-0.0344	0.0165	0.0179
Institutions and social networks			
Female friends	0.0069	-0.0029	-0.0041
Male friends	-0.0189	0.0078	0.0111
Trust people	-0.0331	0.0105	0.0227
Personal relationships			
Discussing sexual relation with husband			
Often discusses	-0.0768	0.0333	0.0435
Discusses daily	-0.1073	0.0021	0.1052
Economic variables			
Currently employed	-0.0318	0.0101	0.0217

Household work, and leisure			
Chores in the house	-0.0103	0.0042	0.006
Chores outside the house	0.0284	-0.0117	-0.0167
Leisure time	-0.00061	0.00025	0.0003
Financial autonomy	-0.0328	0.0153	0.01746
(Children) x (chores inside the house)	0.0202	-0.0083	-0.01188
(Employed) x (chores inside the house)	0.0349	-0.0144	-0.0205

Figure D.1: General characteristics of a female happy at marriage



Chapter 6

Does time usage of husbands affect the marital happiness of young Egyptian wives?

6.1 Introduction

The previous essay investigated young wives' self-reported marital happiness based on demographic, economic, social and institutional features in addition to spousal relationships. The empirical results revealed that economic and institutional variables play a significant role in impacting wives' self-reported marital happiness, however, a larger impact on self-reported marital happiness is mediated through the quality of the wives' inter-marital relationships as measured through the frequency of personal discussions with the husband on their sexual relationship. This emphasizes the role of the husband in the marital relationship as well as his impact on the marital happiness of wives. When one speaks of marriage, a couple is involved, a husband and a wife. Therefore, analysing marital happiness of wives requires an analysis of the attributes of the husband not just those of the wives.

The role of economic and institutional variables relevant to the husband are examined and the findings aim to focus on three main angles. First, the labour market, being the more relevant market for husbands. Do labour market outcomes of the husband have an impact on wives' marital happiness? A second area of focus is the way the husband spends his time; does it impact women's happiness? Finally, is the husband's social network in relation with the wife's happiness in marriage?

The literature on the interaction between husbands and wives and the impact of this interaction on either spouse's marital happiness is scarce at the international and regional levels and particularly so in Egypt. Therefore, this paper aims to fill a gap in the

economics literature on the self-reported marital happiness of wives through examining the impact of the husbands' economic and institutional characteristics.

The previous chapters 4 and 5 show that among the females aged 15-29 represented in the survey, only 8% are active participants in the labour market as opposed to 94% of husbands. This context of females staying at home and husbands going to work is examined in this essay to determine its impact on the wife's marital happiness. Becker's theory of time use suggests that individuals spend their time between the labour activities, leisure activities and non-labour household activities. In addition, husbands have a comparative advantage in labour market activities. Therefore, the husbands spend time commuting to work and also spend time at work. In addition, husbands spend time with friends and also at home, sometimes participating in the household chores. The key research question here is whether this allocation of husband's time have an impact on his wife's self-reported marital happiness.

Different characteristics and traits, observables or not, of the husband may have an impact on the marital happiness of wives. In an attempt to relate the husbands' characteristics to the wives' self-reported marital happiness, the analysis requires information on both the husbands and the wives who are in couples. Therefore, 2248 couples were selected with given information was available for both the husband and the wife for this set of couples. Among these 2248 couples, 682 (30%) of wives are married to husbands within the same age group (15-29) and 539 (80%) of these are available for the current analysis. The remaining 70% of the couples have females married to males older than 29 years old and are outside the age-group of SYPE09, so no data on these men were collected. More details on the sample used is covered in more details in section 6.3.

The Egyptian marriage market is very unique for the previously discussed reasons explored in the Egyptian context chapter 2 of this thesis (p. 37). This chapter studies the marital happiness of wives in couples with husbands of all ages, and then separately re-estimates the model for wives in couples with younger (15-29 years old) and for the wives in couples with older husbands' (30 years old and above). This is done to determine if there are any significant differences in the happiness determination process across these different categories of age-groups.

The addition of the husbands' economic and institutional variables leads to two main conclusions. The first being that none of the husbands' economic and institutional variables exert any direct impact on their young wives' self-reported marital happiness. The exceptions appear in very limited circumstances and very specific conditions. More specifically, the husband's annual earnings, matter for the self-reported marital happiness of the wife in rural areas only. The second is related to the robustness of the results discussed in the previous chapter, through the addition of the different variables relevant to the husband. This conclusion demonstrates the role of the wives own characteristics in shaping her own self-reported marital happiness. In this context, the quality of the interpersonal relationships still features as the most significant determinant of the wife's own self-reported marital happiness.

The essay proceeds as follows: Section 2 provides literature review comprising of theoretical and empirical review of the topic. Section 3 provides the sample selection. Sections 4 and 5 provide the methodology and the data used. Section 6 provides the empirical results. Finally, section 7 concludes.

6.2 Literature review

The impact of the husbands' characteristics on the self-reported marital happiness of their wives are now studied and the results contrasted with what we found in the previous chapter. The current review of the available literature goes beyond the definitions and different measures of happiness. However, it studies the available work on features pertinent to the husbands (i.e., time allocation, social relations and economic variables) and their impact on the wives' self-reported marital happiness. It has already been stated in the previous essay that the empirical work studying the determinants of marital happiness for wives is scarce. However, an even thinner literature studies the combined impact of wives as well as husbands' characteristics (both economic and non-economic) in shaping the self-reported marital happiness of wives. Therefore, the current analysis adds to the existing literature and provides some insights that fill the literature gap on the role of the husbands in shaping the marital happiness of the wives.

Atta et al (2013) concluded that for a proper evaluation of the impact of wife's characteristics on her own marital happiness, they have to be studied within the context of the features relevant to the husband. In this context, Hendy (2011) has shown that attempting to study the labour force participation of wives involves the study of time allocation between market employment and household chores, not only for the wives but also for the husbands. Moreover, Hendy identified the lack of any literature (international, regional or Egyptian) relating husbands' characteristics to wives' general happiness, this being particularly the case for marital happiness.

A Korean study by Hyunju Kim (1992) examined gender role attitudes with respect to the household division of labour, and women employment, on the marital satisfaction of the husband and the wife. Kim related the willingness of the husband and the wife to participate in household activities, and whether the husband accepts the woman's participation in the labour market, on his and his wife's marital satisfaction. This is the only paper available in the literature that explicitly relates variables pertaining to husbands to the marital satisfaction of their respective wives.

On the same note, a weak link has appeared in the literature between the allocation of husbands' time in the labour market and the happiness of wives. This link was only studied in relation to the returns to husbands' time spent in the labour market, their earnings. Wilcox (2006), in this context, supported the positive association between the husband's higher earnings and the happier wife through unpublished work of his. Wilcox shows that even wives, who convey more egalitarian views on labour market wages, are happier in their marriage when their husbands "earn the lion's share of household income." However, the relationship between earnings and marital happiness has not been expanded on, and the few available studies on this issue look mainly at the reasons behind the female employment in the developing countries. This is usually due to the financial needs or by choice for career advancements, and are mostly related to what the husband earns. In short, the existing studies tackle the employment of the females in a discouraged worker or added worker effects framework. In this context, they combine the husbands' characteristics, mainly earnings, together with the wives to inform on the impact of these on the wife's happiness.

Even though the international literature on topics related to marriage and inter-spousal relationships have tackled issues on time allocation and marital happiness/satisfaction as well as quality. However, the literature covers each topic separately, with no explicit link made between the two topics.

Sharing household and children responsibilities makes both husbands and wives happier (Bradbury et al 2000). The key debate here has for long been around the definition of sharing, and what it entails with respect to the time allocation of the husband and the wife. Galovan et al (2013) have stated that sharing “can mean something different to every couple. It could be taking turns with chores, or dividing different chores or doing things together” (p. 37). In this context, Galovan et al. (2013) concluded that the more the wife perceives the husband’s participation in the daily routine of the family, the happier she is.

The previous definition of sharing differs for dual career couples as opposed to single career ones. A wife with a labour market job, as well as housework, has a different definition of sharing than a housewife. In this context, Greenstein (2000) shows that despite the recent global increase in labour force participation of married women, and the increasing number of wives being the primary breadwinner, “married women still do the majority of housework” (p322). This partially explains the time allocation behaviour of husbands within the household.

Time allocation not only entails the division of responsibilities between the couples, but also how else the couples spend their time. Husbands and wives allocate some time away from the labour market and/or the household chores into leisure non-labour activities. Passive and active leisure activities for the husband and the wife play different and conflicting roles in shaping the marital happiness of the wives. If leisure time is defined as the couple spending free time together or with their children and enjoying the bonding, it has a positive impact on marital happiness and cohesion. However, leisure time defined in the sense of the husband or the wife spending more time alone or with friends, does not always achieve the desired impact on marital happiness.

Orthner and Mancini (1990) have further identified three types of leisure activities: individual, parallel and joint, based on the level of interaction between the spouses. The individual mainly refers to each spouse spending his leisure time totally independent of

the other and not necessarily at the same time. In this extreme case, one spouse could be staying home or is at work, while the other is out with friends. Parallel, on the other hand, refers to the involvement of each spouse in a separate activity but within the same defined conditions. More specifically, parallel activities could refer to both spouses being out of the house but each is with his or her own friends, or both are in the house, with each one engaged in a different leisure activity. Finally the joint, is the involvement of the two spouses in the same activity together at the same place and point in time.

Positive association with marital happiness was only achieved with the joint leisure activities, a negative with the individual and an ambiguous with the parallel activities. Therefore, the type of activity or how leisure time was spent does not necessarily drive marital happiness one way or another. The degree of acceptance and the attitude and perceptions accompanying these activities is what impacts the relationship and guides the impact on the happiness of one of the spouses.

The Egyptian literature has focused, in its very limited work on the economics of marriage, on the marital powers and the division of labour within and outside the household. However, this focus was not in the context of evaluating marriages nor the impact they have on marriages and the happiness of either spouse. It was mainly conducted for their labour market implications (Hendy 2015, Assaad and El Hamidi 2009). The lack of a well-defined international literature examining specific issues of husbands' time allocation and the wives' marital happiness motivates the empirical analysis to be undertaken in this chapter.

Therefore, the analysis in this chapter fills the gap in the literature by tackling three main research questions relating to the husband and their relationship with the self-reported marital happiness of their wives.

Research question 1: First and most important is the time allocation of husband and what effect does this have on their wives' marital happiness. Husbands have a comparative advantage in labour market activities. Beyond the time the husbands spend at work, the husband uses his time, in household chores inside and outside the house as well as in different forms of leisure activities, has an impact on the marital happiness of his respective wife.

Research question 2: Among the labour market outcomes, does the husband's earnings enhance his wife's marital happiness? The comparative advantage of the husband in the labour market has its implication on the wife's marital happiness.

Research question 3: Finally, does the husband's social network affect the wife's marital happiness? apart from the previously mentioned activities where the husband uses his time, social networks is an important aspect. However, the number of hours the husband spends with his friends as well as the trust the husband has in the surrounding community do not seem to have a significant impact on his respective wife's marital happiness.

6.3 Data

This section defines the sample for the current analysis. The focus in this analysis is still on the self-reported marital happiness. Therefore, the sample of interest is still the same as in the previous chapter (5), and is partly comprised of the married females aged between 15 and 29. However, the focus in this essay on both the wives and the respective husbands and therefore the married wives between the ages of 15 and 29 are only selected if their husbands are available in the sample as well. Therefore, 2407 couples, with married females between the ages of 15 and 29 and their husbands are selected for the preliminary analysis.

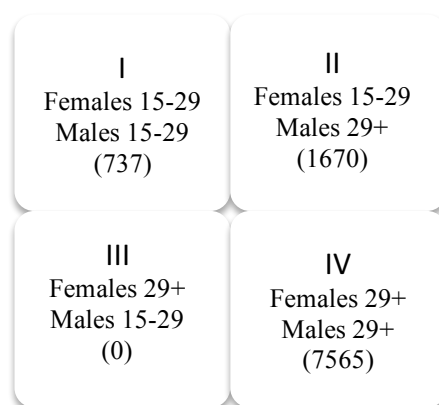
As already noted, the survey provides general household information for females of all ages. However, given the sample selected for the basic model (the final specification of the model in chapter 5), an age restriction on the wives takes place, selecting a sample of couples with the wives between the ages of 15 and 29 years giving rise to a total of 2407 couples.

More detailed information is available for females between the ages of 15 and 29 with the females of marriageable age able to decide on their marital happiness among other personal evaluations. Among the 2407 married couples, there is a different arrangement of spouses based on their ages. Using the unique person and household IDs and the spouse code, 30% of the selected couples have both the husband and the wife

within the same age range of 15 to 29. Figure 6.1 below shows the distribution of ages of married couples as per the general household survey.

Detailed information, however, was only available for males of similar ages, 15-29. Therefore, no detailed information is available for males in group III below and information on the husbands are only available for group IV⁴⁰ (not a very common group in the Egyptian society and therefore zero observations are found in this group). Groups I and II together accordingly provide the pooled sample, where the 15-29 females are either married to males of the same age group (15-29) (I) or to older males (29+) (II).

Figure 6.1: Defining the four groups of married females



Out of the pooled sample, (I and II), 70% of wives are married to older husbands forming one early constraint for the current analysis. This category includes females in their late 20s married to males in their early 30s, as well as females of any age between 15 and 29 married to males who are many years older. The three groups (the pooled and the two separate samples) are tested for structural differences. This test is necessary to make sure the sample selected is sufficiently representative of all females.

⁴⁰ Figure 6.1 shows none of the older females are married to younger males. This is not a very common phenomenon and if exists it does in very special situations and conditions that are very rare to be easily detected for interviews.

6.4 Methodology

Prior to estimating the model with the characteristics of the husbands taken into consideration, we examine the representativeness of the sample selected for analysis. As previously noted, the couples sample in the survey comprises 2407 couples, 722 of them have both the husband and the wife within the same age range of 15-29 and 539 of them have responses to the main dependent variable used.

This sample is selected for use due to the rich availability of variables pertaining to both the husbands and the wives being within the age range of concern for the survey. Moreover, couples with the husbands and the wives within the age range of 15-29 are generally defined as young couples. If either or both spouses are outside the age group of 15-29, the couples are not classified as young couples. Therefore, data availability, and given the samples used throughout this thesis to date, it is more suitable to use the 539 couples between the ages of 15-29 years old for analysis.

However, this is not sufficient reason by itself to support the use of this sample. Empirically, it needs more support to ensure that the selected sample at hand is a representative sample of female wives thus allowing any conclusions drawn to be generalised to the female population represented within this survey.

The final regression model from chapter five is estimated for three different sub-samples: once for the pooled sample of wives with husbands aged 15 years and over; using the sub-sample of wives whose husbands are within the age range of 15-29; and finally using the remaining sub-sample of wives whose husbands are older than 29 years old. The results, sign and significance, are compared across the three models. Additionally, a Chow test of structural difference is used to offer conclusions regarding the three models.

Given the ordinal nature of the dependant variable, the self-reported marital happiness of young Egyptian wives, an ordered probit model is again used for the estimation of the basic model (model 4 of chapter 5, table 5.8 p. 119) across the different groups. However, prior to model estimation, t-tests are conducted to determine if there are differences in the mean self-reported marital happiness levels across the groups of females married to either young or older husbands. The missing observations on a number of

variables reduced the sample size to 2248, 688 and 1566 respectively for the three respective sub-samples described above.

Table 6.2 below shows the frequency distribution of the dependent variable for the three groups of females. An independent t-test was run on a sample of 2248 married females between the ages of 15 and 29 to determine if there were differences in the self-reported marital happiness based on the age group of the husband (15-29 or above 29). The first group of females are married to males within the age group of 15 to 29, consisted of 682 observations. The second group of females are married to males older than the age of 29, with the sub-sample consisting of 1566 observations. The results reveal that both groups of females exhibit relatively similar self-reported marital happiness levels, where $t(2246) = -2.058$ and $p = 0.039$. Therefore, at the 5% level of significance, it can be concluded that the average self-reported marital happiness is statistically different across the groups. Table E.2 further shows the distribution of mean marital happiness across the different groups and within the groups across the different variables. It is concluded that the mean self-reported marital happiness differs within the groups of wives, however no significant difference between the groups has been detected.

Table 6.1: Frequency distribution of marital happiness for the three groups

	Pooled	Husbands below the age of 29	Husbands above the age of 29
Mean	0.92	0.95	0.9
St. deviation	0.51	0.5	0.51
N	2248	682	1566

Table 6.2 below reports the results of the ordered probit model for the three sub-samples (the pooled sample and the sub-samples of younger vs older husbands). Based on the model coefficients, a Likelihood Ratio Chow test is computed to determine if there are any statistical differences in estimated effects across the sub-samples. The Chow test with a value of 0.65 does not reject the null hypothesis of equality between the three models, and therefore no statistical evidence of structural difference is found.

Despite the results of the t-tests of the similarity in the mean values of the dependant variables, but the Chow test results show that the estimated effects of the explanatory variables on the wives' marital happiness is similar across the three samples. Given this lack of a systematic process governing the separation of the samples, one sample could be used to represent the overall sample of wives. In this context, the subsample of both husbands and wives within the age range of 15 and 29 will be selected for the forthcoming analysis. Therefore, given data availability and the representativeness of the subsample, and robustness to different age groups, sub-group I is selected for the empirical analysis.

An ordered probit approach will be applied, given the ordinal nature of the dependent variable. The modelling of the wives' 3-points self-reported marital happiness will follow the same approach as in chapter five of the thesis. However, the explanatory variables used in the current model involves the previously agreed upon final list of wives' characteristics (used in model 4 of table 5.8 p.119) in addition to economic and institutional variables pertaining to the husbands.

Table 6.2: Basic ordered probit model (three groups)

Variable	Pooled sample	Husband below 29	Husband above 29
Urban	-0.18*** (0.06)	-0.24** (0.11)	-0.17** (0.07)
Greater Cairo	-0.15** (0.07)	-0.3** (0.14)	-0.09 (0.09)
Wives 20-24 years	0.12 (0.13)	0.19 (0.16)	0.1 (0.23)
Wives 25-29 years	-0.02 (0.14)	0.01 (0.19)	-0.01 (0.23)
Years since marriage	-0.02** (0.01)	-0.03 (0.03)	-0.02 (0.01)
Children	-0.006 (0.17)	0.12 (0.26)	-0.04 (0.25)
Living arrangements			
<i>Living with in-laws</i>	-0.16*** (0.06)	-0.2* (0.12)	-0.16** (0.08)
Nature of kinship			

<i>First cousin</i>	0.04 (0.07)	0.15 (0.13)	-0.01 (0.08)
<i>Distant relative</i>	-0.05 (0.08)	-0.26* (0.15)	0.02 (0.09)
Wife asset index	0.15*** (0.04)	0.23*** (0.08)	0.12*** (0.04)
Wife education			
<i>Less than secondary</i>	0.03 (0.08)	0.01 (0.15)	0.04 (0.09)
<i>Secondary</i>	0.25*** (0.08)	0.15 (0.15)	0.29*** (0.09)
<i>Post-secondary</i>	0.39*** (0.12)	0.14 (0.22)	0.49*** (0.14)
Time from engagement to marriage			
<i>Less than 6 months</i>	-0.01 (0.08)	-0.15 (0.15)	0.043 (0.09)
<i>6 months to 1 year</i>	-0.02 (0.08)	-0.1 (0.16)	-0.004 (0.1)
<i>1-2 years</i>	0.08 (0.07)	0.13 (0.13)	0.04 (0.08)
Wife Veil			
<i>Niqab</i>	0.09 (0.09)	0.19 (0.18)	0.05 (0.11)
<i>Neither hijab nor niqab (whether muslim or not)</i>	0.3** (0.16)	0.68** (0.31)	0.17 (0.19)
Frequency of visit to mosque/church	0.12* (0.08)	0.16 (0.13)	0.12 (0.09)
Wife female friends	-0.04** (0.02)	-0.03 (0.03)	-0.04** (0.02)
Wife male friends	0.09 (0.09)	0.16 (0.18)	0.06 (0.1)
Wife trusting people	0.18** (0.09)	0.25 (0.17)	0.16 (0.1)
Wife discussing sexual relation with husband			
<i>Often discusses</i>	0.33*** (0.06)	0.45*** (0.12)	0.29*** (0.07)
<i>Discusses daily</i>	0.49*** (0.09)	0.4** (0.17)	0.55*** (0.1)
Household work and leisure			

Chores in the house	0.05 (0.05)	0.11 (0.07)	-0.01 (0.07)
Chores outside the house	-0.13*** (0.03)	-0.2*** (0.05)	-0.1*** (0.03)
Wife leisure time	0.008 (0.009)	0.01 (0.01)	0.001 (0.01)
Wife currently employed	-0.13 (0.1)	-0.39* (0.23)	-0.07 (0.11)
Wife financial autonomy	0.12* (0.07)	0.24** (0.12)	0.09 (0.08)
(Children) x (chores inside the house)	-0.07* (0.05)	-0.15** (0.06)	-0.02 (0.07)
(Employed) x (chores inside the house)	0.02 (0.02)	0.02 (0.03)	0.03 (0.03)
N	2248	682	1566
Log likelihood	-1548.18	-438.56	-1095.38
LR chi2(33)	239.44	111.13	152.26
R-squared	0.0718	0.1125	0.065
θ_0	-0.78 (0.23)	-0.76 (0.36)	-0.76 (0.36)
θ_1	1.69 (0.24)	1.88 (0.37)	1.69 (0.36)

*Note to table 6.2: SE in parentheses and below their relevant coefficients. Statistical significance level 10% *, 5% ** and 1%****

6.5 Summary statistics

This section defines and describes the explanatory variables used in the ordered probit model analysis. The basic model used for this analysis is the final specification of the estimated model in chapter 5 (model 4 of table 5.8 p. 119). Table 6.3 below provides the definitions of the independent variables⁴¹ and the summary statistics for the husbands' characteristics of the selected group.

The independent variables used in table 6.2 above are the same variables as in chapter 5. The variables are compiled into a list of demographic, human capital, marriage

⁴¹ Refer back to table 5.5 in chapter 5 p. for the definitions of the previously used and defined variables pertaining to the wives.

and relationships, religious, institutions and networks and economic variables for the wives. Being a subset of the sample used in the previous chapter (5), the use of one of the variables has changed. The living arrangements upon marriage has previously included the categories of wife's parents, husband parents and alone. However, the proportion in the category of wife's parents is negligible and therefore has been combined with the category husbands' parents. The new variable then captures living with any in-laws versus living alone.

A list of explanatory variables is selected pertaining to the husbands and used as explanatory variables in the model. The husbands' variables are grouped into labour market variables, social network, and time allocation variables.

Table 6.3: Variables definition and summary statistics

Variable	Definition	Mean (st. deviation)
Living arrangement		
<i>Living with in laws</i>	=1 if the couple are currently living with either the wife's or the husband's parents, and =0 otherwise	0.23
Husband age	The age in years.	26.58 (2.00)
Age difference	The age difference between the husband and wife in years.	3.493 (2.58)
HUSBANDS' WORKING CONDITIONS		
Husband's employment sector		
<i>Private sector</i>	=1 if currently employed in the private sector, and =0 otherwise.	0.72
<i>Not employed</i>	=1 if currently not employed (unemployed or out of labour force), and =0 otherwise.	0.07
<i>Public sector</i>	=1 if currently employed in the public sector, and =0 otherwise.	0.31
Commute time	The average time in hours per day on the commute to and from work.	0.64 (1.03)
Working hours	The daily working hours.	8.44

		(3.07)
Husband's earnings	Annual earnings in 1000 Egyptian pounds	7.55 (8.0)
HUSBANDS' SOCIAL NETWORKS		
Time spent with friends	The number of daily hours spent with friend.	0.32 (1.23)
Trusting people	=1 if the husband trusts people, and =0 otherwise.	0.06
HUSBANDS' TIME ALLOCATION		
Chores inside the house	The number of daily hours spent on domestic chores.	0.09 (0.45)
Chores outside the house	The number of daily hours spent on chores outside the house.	0.07 (0.29)
Leisure time	The number of daily hours spent on leisure activities.	5.83 (3.69)
Active leisure activities	The number of daily hours.	0.076 (0.41)
Passive leisure activities	The number of daily hours.	2.45 (1.95)
Social leisure activities	The number of daily hours.	3.31 (2.75)
N		539

Notes to table 6.3: (a) The mean column reports the sample proportion for binary variables and means for the continuous ones. (b) The standard deviations are only reported for the non-binary variables in the dataset and are reported in parenthesis

The labour market variables for the husband are captured using four main variables that could directly or indirectly impact the wives' marital happiness. Annual earnings, formed by transforming all the labour market earnings from daily, monthly, and quarterly into annual earnings in thousands of Egyptian pounds. The employment sector, commute time between the workplace and home as well as the number of working hours per day are also used to capture the labour market conditions of the husband.

As previously discussed, Egyptian society is known for being secretive when it comes to money, whether paid or received. Accordingly, annual earnings are considered a private matter and not easily shared with strangers. Therefore, a significant number of

missing values exist for this variable, and this is the main reason behind the drop in the number of observations reaching 539 observations.

A trade-off exists between sacrificing the missing observations and keeping such a vital variable, or sacrificing the variable and keeping the extra observations. Due to the significant role of this variable to the analysis, a decision was made to sacrifice 143 observations at the cost of keeping such a crucial variable for the analysis. However, prior to dropping these observations from the analysis, appropriate measures were taken to ensure the random selection of this group and no systematic difference between the dropped and the remaining observations are detected.

In addition to the labour market variables, and in agreement with the literature defining gaps for this topic, a time use variable for the husband is used as an explanatory variable for the self-reported marital happiness of wives. The great dispersion in the time allocation between wives and husbands is a factor to be taken into consideration. In this context, husbands spend an average 0.08 and 0.07 hours on household chores inside and outside the house, respectively. However, an average of 5 hours is spent on leisure activities. Breaking down leisure activities into active, passive and social activities, it can be seen that the bulk of the time is spent on social activities. Based on the definition of social activity, according to the previous chapter 5 (p.91), it is considered the only form of leisure activity that involves joint activities with the wife and the family. Active and passive leisure time activities comprise only individual or parallel activities.

Pearson's pairwise correlation between the wives' happiness and the main covariates pertaining to the husbands are presented in table 6.4 below. Wives marital happiness is not significantly correlated with any of the husbands' characteristics. This emphasises the previously stated hypothesis of the lack of a significant impact of the husbands' explanatory variables on the self-reported marital happiness of wives.

Table 6.4: Pearson's pairwise correlation coefficient of the wives' self-reported marital happiness and selected husbands' explanatory variables

Variables	Correlation
Age	-0.02
Age difference	0.04
Employment	0.02
Commute time	-0.01
Working hours	-0.006
Annual earnings	0.02
Time spent with friends	-0.01
Trust	-0.01
Leisure time	-0.01
Chores inside the household	-0.03
Chores outside the household	-0.04

Notes to table 6.4: (a) ***, **, * denotes statistical significance at the 0.01, 0.05 and 0.10 level respectively

The correlations and the summary statistics lay the foundation for an analysis of the role of the husbands' economic, institutional and time allocation variables on the happiness of their wives. Econometric analysis, in the next section, provides a further detailed analysis of such relationships using the ordered probit model and the sub-sample of young wives selected for analysis.

6.6 Results

The model at hand estimates the impact of husbands' characteristics, controlling for the wives' characteristics, on the wives' self-reported marital happiness. The sample used for analysis, is a subsample of wives within couples, where both the husbands and wives are within the age range of 15 to 29 years. Therefore, before estimating the impact of the husband characteristics, the basic model of females (model 4, table 5.8 p. 119) is re-estimated on the smaller sub-sample of observations to monitor the differences in the impact of the wives' characteristics first before moving to the analysis of the husband's impact.

Table 6.5: Determinants of The Marital Happiness of Wives by Wives' Characteristics: Standard Ordered Probit

Variable	Wives (15-29), husbands (15-29)
Urban	-0.13 (0.13)
Greater Cairo	-0.35** (0.15)
Wives 20-24 years	0.45** (0.2)
Wives 25-29 years	0.18 (0.23)
Years since marriage	-0.03 (0.03)
Children	0.25 (0.31)
Living arrangements	
<i>Living with in-laws</i>	-0.4*** (0.14)
Nature of kinship	
<i>First cousin</i>	0.177 (0.15)
<i>Distant relative</i>	-0.14 (0.18)
Wife asset index	0.23*** (0.09)
Wife education	
<i>Less than secondary</i>	-0.08 (0.18)
<i>Secondary</i>	0.02 (0.18)
<i>Post-secondary</i>	0.06 (0.26)
<i>Less than 6 months</i>	-0.03

	(0.18)
<i>6 months to 1 year</i>	-0.03 (0.18)
<i>1-2 years</i>	0.23 (0.15)
Wife Veil	
<i>Niqab</i>	0.07 (0.21)
<i>Neither hijab nor niqab (whether muslim or not)</i>	1.12*** (0.36)
Frequency of visit to mosque/church	0.19 (0.16)
Wife female friends	-0.03 (0.04)
Wife male friends	0.16 (0.18)
Wife trusting people	0.32* (0.19)
<i>Often discusses</i>	0.37*** (0.14)
<i>Discusses daily</i>	0.47** (0.19)
Wife currently employed	-0.9* (0.52)
Wife leisure time	0.008 (0.02)
Household work	
<i>Chores in the house</i>	0.11 (0.08)
<i>Chores outside the house</i>	-0.25*** (0.06)
Wife financial autonomy	0.29** (0.14)
Children x chores in	-0.14*

	(0.08)
Employed x chores in	0.08 (0.09)
N	539
Log likelihood	-326.07
LR chi2(31)	96.15
R-squared	0.1285
θ_0	-0.55 (0.43)
θ_1	2.24 (0.44)

*Note to table 6.5: SE in parentheses and below their relevant coefficients. Statistical significance level 10% *, 5% ** and 1%****

The results in table 6.5 above show the robustness of the key variables of interest to the removal of the subset of young females who are married to older husbands as well as the females who do not have their husbands in the sample. It can be seen that the main covariates of interest still exhibit the same sign and significance as the full model. Living with in-laws, chores outside the house and the interaction variable between having children and the number of hours spent on chores inside the house all play a significant role in reducing the self-reported marital happiness of young wives. On the other hand, the household wealth index, female trust level, and financial autonomy play a significant role in increasing the self-reported marital happiness of young wives.

Moreover, the variables reflecting the mutual discussions between the wife and the husband regarding their sexual relationship still play the biggest role in increasing the self-reported marital happiness of wives. Given the analysis of the role of the wives' happiness, and the robustness of the main covariates of interest to the changes in the sample in use, husbands characteristics are now added to the model, and the impact of these variables, controlling for the wives' characteristics, on the self-reported marital happiness of wives is analysed.

The impact of three main categories of husbands' characteristics, namely labour market characteristics, social networks and time allocation, on the wives are studied.

Results are reported in table 6.6 below. It can be concluded that generally, with very minor exceptions, none of the husbands' characteristics appear to matter for the marital happiness of the wives. The correlation analysis of the variables provided in table 6.4 above has already given us preliminary insights into the very weak relationship between the husband's characteristics and the respective wife's marital happiness. The empirical results are confirming this lack of relationship.

Table 6.6⁴² below presents the final model showing the husbands' characteristics, together with an interaction variable capturing the rural/urban impact of husbands' annual earnings. The empirical results reveal that none of the husbands' characteristics show any significant change in the wives' marital happiness. An exception is the heterogeneous impact of husbands' annual earnings, across urban and rural areas. Additionally, the estimated effects for wives' variables are robust throughout the addition of the husbands' characteristics. This result has been confirmed by a Chi-squared value of 12.86, which fails to reject the null hypothesis that the husbands' characteristics are jointly statistically insignificant.

Table 6.6: Ordered Probit models

Variable	Model 1	Model 2
Not employed	0.1 (0.363)	0.16 (0.366)
Public sector	0.13 (0.15)	0.16 (0.15)
Commute time	-0.05 (0.06)	-0.04 (0.06)
Working hours	0.005 (0.03)	0.002 (0.03)
Annual earnings	0.006 (0.01)	0.03* (0.01)
Time husband spends with friends	-0.08 (0.06)	-0.08 (0.06)
Husband trusting people	0.05	0.03

⁴² Table E.3 provide the impact and marginal effects for the final model

	(0.26)	(0.26)
Husband time spent on domestic chores	-0.19 (0.13)	-0.2* (0.13)
Husband time spent on chores outside the house	0.15 (0.2)	0.15 (0.2)
Husband time spent on active leisure activities	-0.21 (0.15)	-0.21 (0.15)
Husband time spent on passive leisure activities	-0.004 (0.03)	-0.005 (0.03)
Husband time spent on social leisure activities	0.05* (0.03)	0.05* (0.03)
(Urban) x (Husband earning)		-0.03* (0.019)
θ_0	-0.67 (0.48)	-0.47 (0.5)
θ_1	2.13 (0.49)	2.35 (0.51)
N	539	539
R-squared	0.13	0.14

*Note to table 6.6: SE in parentheses and below their relevant coefficients. Statistical significance level 10% *, 5% ** and 1%****

6.6.1 The husband's labour market outcomes

The estimated effects for the husband's labour market variables are insignificant (individually and collectively). The economic literature has not investigated such a direct relationship to date. However, the earnings of the husband are expected to improve the living standards of the household, and therefore to positively impact marital happiness of the wife. Financial security is considered a positive factor, especially for the wife, and therefore is expected to make her happier at marriage.

The results in model 1 above show an insignificant impact of the husbands' annual earnings on their wives' marital happiness. However, model 2 shows that only in rural areas do the husbands' annual earnings have a positive significant impact on the wives' happiness in marriage. Given the mean annual earnings of the husband, and the

continuous nature of the variable, a unit increase above the mean of 7.5 thousand Egyptian pounds has a significant impact on the wife's self-reported marital happiness. A one seventh increase in the annual earnings of a husband in the rural areas, increases the probability of a wife being in the 'very happy' category by 0.4 percentage points. Therefore, model 1 concludes that regardless of the husbands' labour market characteristics, no significant role in shaping the wives' marital happiness is found.

6.6.2 The husband's social network

Social networks have been explored using variables reflecting on the time spent with friends and trust in the surrounding networks. The impact of the number of husbands' friends on the wife's marital happiness have been tested, however with no meaningful conclusions. As suggested earlier, the time the husband spends with friends matters more for the wife than how many friends the husband has. Therefore, the number of friends for the husband has been replaced by the time spent with friends. The estimated impact of both variables (the number and time spent with friends) yield an insignificant impact on the wives' marital happiness.

6.6.3 The husband's time allocation

Given the patriarchal nature of the Egyptian society, the husbands' participation in the chores inside and outside the house is very low. Household chores are believed to be part of the job description of a wife. Therefore, the average number of hours per day spent by husbands on chores inside and outside the house is negligible (0.09 hours for domestic chores and 0.07 hours for out of the house chores). Looking beyond the average number of hours per day, 94.4% and 93.5% of husbands spend zero hours per day on domestic chores and out of the house chores, respectively.

However, controlling for the area of residency, as soon as the husband starts spending time on domestic chores, the marital happiness of the wives is negatively affected. A one-hour increase in the husband's domestic chores, reduces the probability of a wife being in the 'very happy' category by 2.2 percentage point.

The couples, with husbands' participation in the domestic chores, have children and live alone. The wife mostly has a secondary education, not employed and spends an average of 1-10 hours daily on domestic chores. Moreover, 83% of those wives make their own decision regarding the use of their own money. The husbands, on the other hand, are mostly employed in the private sector, however, 50% of them spend zero hours on commuting (and the other 50% spend 1-2 hours). This shows that those husbands either work from home or work very close to where they live. About 87% of them spend zero hours with friends, even though they have between 1-10 friends. Moreover, 97% of these husbands have no trust in the surrounding community.

The issue of leisure time, being insignificant in determining wives' happiness at marriage is explained by the breakdown of leisure time. Leisure time comprises active, passive and social activities, which are done individually, in parallel or together. Due to the broadness and collectiveness of the term, it appears to be insignificant. Active and passive leisure activities are forms of both individual and/or parallel activities; however, as previously discussed, social activities involve joint activities too. Social activities appear to positively and significantly impact wife's marital happiness. This result is expected, since the individual and the parallel activities, characterizing the active and passive leisure, involve each spouse spending their leisure time on their own, either totally individual or each one spending the time separately while being present in the same place. This emphasizes the fact the wives are more concerned with mutual relationships with the husband and this is what matters most for their marital happiness.

6.6.4 Robustness checks

Other variables have been used in the model estimation, results of which have not been reported, to ensure the robustness of the reported results. Husbands' education, education level difference between the husband and the wife, husbands' level of hygiene and husbands' religiosity were added to the model, separately and collectively. The included variables were neither significant in determining the level of self-reported marital happiness for wives, nor did they contribute to the overall significance or explanatory power of the different models reported above.

The results confirm the view that the happiness of a wife in her marriage comes from within. The wife's own view on things is what makes her happy in her marriage. On this note, it appears that what matters most for a wife is a mutual relationship with the husband. It doesn't matter whether the husband is rich or not, employed or not, spends time with his friends or not.

6.7 Conclusion

This chapter has provided more depth to the previous chapter 5 and has confirmed some of the received wisdom around marriage in Egyptian society. Investigating the wife's marital happiness is more conclusive when variables reflecting on the husband's characteristics are added to the model. This analysis uses a sample of wives, whose husbands are available in the survey and the matching between them happens. This matching between the husband and the wife allows studying the impact of the husband's characteristics on his own respective wife's marital happiness.

Using the same ordinal dependant variable from the previous chapter's analysis, an ordered probit model is used. The group of wives within the age of 15 and 29 are divided into two groups and CHOW test proves the validity and representativeness of the selected sample for analysis.

This chapter focussed attention on the impact of husbands' labour market outcomes, his social network and his time use on his respective wife's marital happiness. the analysis investigates the role for different labour market outcomes for the husband and concludes that husbands' annual earnings is the only outcome that matters. The analysis, however, concludes that the impact of husbands' annual earnings is more significant for the marital happiness of wives in the rural areas as opposed to the urban areas.

In addition, husbands' participation in the household chores inside and outside the house have no significant impact on the wife's marital happiness. similarly, husbands' time allocated to leisure activities have no significant impact on a wife's marital happiness. the analysis however shows an exception where husband's time allocated to social leisure activities has significant positive impact on wives' marital happiness.

A final focus is the social networks of the husband, represented as the number of hours the husband spends with his friends as well as the level of trust the husband has in

the surrounding community. The social network variables both have insignificant impact on the wives' marital happiness.

The findings of this paper concur with the hypothesized relationships that marital happiness for wives comes from how she views and evaluates her own life and relationship with the husband, more than any external factors originating from the husband's various activities.

Appendix E

Table E.1: Summary statistics across the three groups

Variable	Husbands < 29		
	Not selected for analysis	Selected for analysis	Total
	Mean (st. deviation)	Mean (st. deviation)	Mean (st. deviation)
Urban	0.2307 (0.4228)	0.4712 (0.4996)	0.4208 (0.494)
Greater Cairo	0.0489 (0.2165)	0.2152 (0.4113)	0.1803 (0.3847)
Wife age dummy			
<i>15-19 years</i>	0.1678 (0.375)	0.1131 (0.3171)	0.1246 (0.3305)
<i>20-24 years</i>	0.5454 (0.4997)	0.5603 (0.4968)	0.5572 (0.497)
<i>25-29 years</i>	0.2867 (0.4538)	0.3265 (0.4968)	0.3181 (0.4661)
Years since marriage	3.7692 (2.5638)	3.668 (2.4584)	3.689 (2.479)
Children	0.7272 (0.4469)	0.8107 (0.392)	0.7932 (0.4053)
Living arrangements			
<i>Living with in-laws</i>	0.3077 (0.4631)	0.2245 (0.4176)	0.2419 (0.4286)
<i>Living alone</i>	0.6923 (0.4631)	0.7718 (0.42)	0.7551 (0.4303)
Relationship to spouse			
<i>Not related</i>	0.5804	0.6586	0.6422

	(0.4952)	(0.4746)	(0.4797)
<i>First cousin</i>	0.2237 (0.4182)	0.2133 (0.41)	0.2155 (0.4115)
<i>Distant relative</i>	0.1958 (0.3982)	0.128 (0.334)	0.1422 (0.3495)
Wife asset index	-0.4728 (0.7055)	-0.2108 (0.8313)	-0.2657 (0.8131)
Wife education			
<i>No education</i>	0.2517 (0.4355)	0.176 (0.381)	0.1921 (0.3942)
<i>Less than secondary</i>	0.1958 (0.3982)	0.2634 (0.441)	0.2493 (0.4329)
<i>Secondary</i>	0.4825 (0.5014)	0.4118 (0.4926)	0.4267 (0.4949)
<i>Post-secondary</i>	0.0699 (0.2559)	0.1484 (0.3558)	0.1319 (0.3387)
Time from engagement to marriage			
<i>Less than 6 months</i>	0.2377 (0.4272)	0.2096 (0.4074)	0.2155 (0.4115)
<i>6 months to 1 year</i>	0.1608 (0.3686)	0.1688 (0.3749)	0.1671 (0.3733)
<i>1-2 years</i>	0.3286 (0.4713)	0.3655 (0.482)	0.3577 (0.4797)
<i>2+ years</i>	0.2727 (0.4469)	0.256 (0.4368)	0.2595 (0.4387)
Wife Veil			
<i>Hijab</i>	0.8951 (0.3075)	0.8868 (0.3171)	0.8885 (0.3149)
<i>Niqab</i>	0.0839 (0.2782)	0.0835 (0.2768)	0.0836 (0.2769)
<i>Neither hijab nor niqab (whether muslim or not)</i>	0.0209 (0.1438)	0.0297 (0.1698)	0.02786 (0.1647)
Frequency of visit to mosque/church	0.8391 (0.3686)	0.818 (0.386)	0.8225 (0.3823)

Wife female friends	2.0349 (1.6926)	2.011 (1.605)	2.0161 (1.6225)
Wife male friends	n.a.	0.0334 (0.2968)	0.02639 (0.2641)
Wife trusting people	0.0979 (0.2982)	0.0927 (0.2903)	0.0938 (0.2918)
Wife discussing sexual relation with husband			
<i>Never Discusses</i>	0.3496 (0.4785)	0.269 (0.444)	0.2859 (0.4521)
<i>Often discusses</i>	0.5454 (0.4996)	0.5844 (0.4933)	0.5762 (0.4945)
<i>Discusses daily</i>	0.1049 (0.3075)	0.1465 (0.354)	0.1378 (0.3449)
Wife household work and leisure			
Chores inside the house	5.3426 (3.0422)	6.0297 (3.349)	5.8856 (3.2975)
Chores outside the house	0.4965 (0.8125)	0.6122 (0.942)	0.5879 (0.9175)
Wife leisure time	5.5524 (2.9231)	6.141 (3.2467)	6.0176 (3.1885)
Wife currently employed	0.209 (0.1438)	0.0612 (0.2399)	0.0528 (0.2237)
Wife financial autonomy	0.7972 (0.4035)	0.7792 (0.415)	0.7829 (0.4125)
(Children) x (Chores inside the house)	4.5384 (3.7469)	5.499 (3.918)	5.2976 (3.8997)
(Employed) x (chores inside the house)	0.0769 (0.7128)	0.3117 (1.382)	0.2625 (1.2744)
N	143	539	682

Table E.2: Mean marital happiness between groups

Variable	Husbands below the age of 29	Husbands above the age of 29
	Mean	Mean
Urban	0.8682	0.8233
Chi2(1)	3.0316*	
Greater Cairo	0.8333	0.8195
Chi2(1)	0.112	
Wife age dummy		
<i>15-19 years</i>	0.8089	0.7647
Chi2(1)	0.2979	
<i>20-24 years</i>	0.3311	0.3383
Chi2(1)	0.0796	
<i>25-29 years</i>	0.8103	0.8008
Chi2(1)	0.1095	
Years since marriage		
<i>0-3 years</i>	0.8709	0.8758
Chi2(1)	0.0366	
<i>4-5 years</i>	0.82297	0.85519
Chi2(1)	1.0464	
<i>6-8 years</i>	0.8661	0.8086
Chi2(1)	2.0286	
<i>9+</i>	0.667	0.762
Chi2(1)	1.6723	
Children	0.8289	0.8139
Chi2(1)	0.6305	
Living arrangements		
<i>Wife parents</i>	0.667	0.667

<i>Husband</i>	0.7823	0.7493
<i>parents</i>		
Chi2(1)	0.7815	
<i>ALONE*</i>	0.8728	0.8422
Chi2(1)	2.6914*	
Relationship to spouse		
<i>Not related</i>	0.8513	0.8271
Chi2(1)	1.3795	
<i>First cousin</i>	0.8598	0.8033
Chi2(1)	2.2593	
<i>Distant relative</i>	0.8	0.7965
Chi2(1)	0.0052	
Wife education		
<i>No education *</i>	0.7554	0.7337
Chi2(1)	0.2369	
<i>Less than secondary</i>	0.81	0.7626
Chi2(1)	1.6025	
<i>Secondary</i>	0.881	0.8535
Chi2(1)	11.3533	
<i>Post-secondary</i>	0.9348	0.9256
Chi2(1)	0.0839	
Time from engagement to marriage		
<i>Less than 6 months</i>	0.8193	0.8118
Chi2(1)	0.0407	
<i>6 months to 1 year</i>	0.8099	0.8162
Chi2(1)	0.0217	
<i>1-2 years</i>	0.8697	0.8401

Chi2(1)	1.2366	
<i>2+ years</i>	0.8587	0.7947
Chi2(1)	3.4527*	
Veil		
<i>Hijab*</i>	0.8414	0.8144
Chi2(1)	2.2177	
<i>Niqab</i>	0.8793	0.8195
Chi2(1)	1.0609	
<i>Neither hijab nor niqab (whether muslim or not)</i>	0.3078	0.2667
Chi2(1)	0.1158	
Frequency of visit to mosque/church	0.8622	0.8305
Chi2(1)	3.1284*	
Wife female friends		
<i>0-1 friends</i>	0.8277	0.8406
Chi2(1)	0.2262	
<i>2 friends</i>	0.8927	0.8080
Chi2(1)	8.3403***	
<i>3 friends</i>	0.878	0.806
Chi2(1)	3.1605*	
<i>4+ friends</i>	0.7449	0.7936
Chi2(1)	0.8853	
Wife male friends		
<i>0 friends</i>	0.8465	0.8177
Chi2(1)	2.8367*	
<i>1+ friends</i>	0.8181	0.8571
Chi2(1)	0.0921	
Wife trusting people	0.8333	0.7908

Chi2(1)	0.5274	
Wife discussing sexual relation with husband		
<i>Never Discusses</i>	0.7922	0.7449
Chi2(1)	1.787	
<i>Often discusses</i>	0.8692	0.8444
Chi2(1)	1.3966	
<i>Discusses daily</i>	0.8614	0.8779
Chi2(1)	0.1688	
Wife currently employed	0.7692	0.7985
Chi2(1)	0.571	
Wife leisure time		
<i>0-3 hours</i>	0.8132	0.8133
Chi2(1)	0	
<i>4-5 hours</i>	0.8554	0.8008
Chi2(1)	2.42	
<i>6-7 hours</i>	0.8895	0.85
Chi2(1)	1.6377	
<i>8+ hours</i>	0.8269	0.8118
Chi2(1)	0.2012	
Chores in the house		
<i>0-4 hours</i>	0.8801	0.8453
Chi2(1)	1.7609	
<i>5-6 hours</i>	0.8293	0.811
Chi2(1)	0.2689	
<i>7-8 hours</i>	0.8321	0.7968
Chi2(1)	0.7651	
<i>9+ hours</i>	0.8169	0.8057

Chi2(1)	0.0846	
Chores outside the house		
<i>0 hours</i>	0.8584	0.8311
Chi2(1)	1.7118	
<i>2-5 hours</i>	0.8797	0.8086
Chi2(1)	4.0145**	
Wife financial autonomy	0.8531	0.8256
Chi2(1)	2.1575	
Husband age	0.846	0.8184
Chi2(1)	2.6683*	
Age difference		0.8184
<i>0-4 years</i>	0.8425	0.7906
Chi2(1)	2.9245*	
<i>5-7 years</i>	0.8542	0.83
Chi2(1)	0.5768	
<i>8-10 years</i>	0.8363	0.8239
Chi2(1)	0.0528	
<i>11+ years</i>	1	0.8157
Chi2(1)	0.9019	

Table E.3: Marginal and impact effects of the ordered probit model

Variable	Happiness		
	Not happy	Happy	Very happy
Urban	-0.017 (0.036)	0.007 (0.014)	0.01 (0.021)
Greater Cairo	0.083** (0.038)	-0.047* (0.027)	- 0.036*** (0.013)
20-24 years	-0.081** (0.041)	0.036* (0.022)	0.045** (0.022)
25-29 years	-0.031 (0.041)	0.011 (0.013)	0.019 (0.029)
Years since marriage	0.006 (0.006)	-0.002 (0.002)	-0.003 (0.003)
Children	0.035 (0.032)	-0.011 (0.007)	-0.025 (0.027)
Living arrangements			
<i>Living with in laws</i>	0.083** (0.036)	-0.047* (0.025)	- 0.037*** (0.012)
Nature of kinship			
<i>First cousin</i>	-0.031 (0.025)	0.01 (0.007)	0.021 (0.02)
<i>Distant relative</i>	0.041 (0.041)	-0.021 (0.025)	-0.019 (0.016)
Wife asset index	-0.045*** (0.017)	0.18** (0.009)	0.026*** (0.01)
Wife education			
<i>Less than secondary</i>	0.005 (0.036)	-0.002 (0.015)	-0.003 (0.02)
<i>Secondary</i>	-0.013	0.005	0.008

	(0.035)	(0.014)	(0.21)
<i>Post-secondary</i>	-0.024 (0.045)	0.008 (0.011)	0.016 (0.034)
Time from engagement to marriage			
Less than 6 months	0.001 (0.034)	-0.0007 (0.014)	-0.001 (0.019)
6 months to 1 year	0.005 (0.036)	-0.002 (0.016)	-0.003 (0.02)
1-2 years	-0.048* (0.028)	0.017* (0.01)	0.031 (0.02)
Wife Veil			
Niqab	-0.017 (0.036)	0.006 (0.01)	0.011 (0.026)
Neither hijab nor niqab (whether muslim or not)	-0.11*** (0.015)	- 0.194*** (0.127)	0.304** (0.134)
Frequency of visit to mosque/church	-0.039 (0.035)	0.019 (0.021)	0.019 (0.015)
Wife female friends	0.006 (0.007)	-0.002 (0.003)	-0.004 (0.004)
Wife male friends	-0.031 (0.035)	0.013 (0.015)	0.018 (0.021)
Wife trusting people	-0.051* (0.027)	0.008 (0.009)	0.043 (0.033)
Wife discussing sexual relation with husband			
Often discusses	-0.08*** (0.029)	0.037** (0.017)	0.043*** (0.015)
Discusses daily	-0.07*** (0.023)	0.003** (0.017)	0.071** (0.035)
Household work and leisure			

<i>Chores inside the house</i>	0.003 (0.004)	-0.001 (0.002)	-0.001 (0.002)
<i>Chores outside the house</i>	0.046*** (0.012)	-0.02** (0.076)	-0.03*** (0.008)
Wife leisure time	-0.001 (0.003)	0.0006 (0.001)	0.0008 (0.002)
Wife currently employed	0.11 (0.07)	-0.07** (0.057)	-0.04*** (0.014)
Wife financial autonomy	-0.065** (0.033)	0.034** (0.022)	0.029** (0.013)
Not employed	-0.027 (0.058)	0.008 (0.008)	0.019 (0.05)
Public sector	-0.029 (0.026)	0.009 (0.007)	0.019 (0.019)
Commute time	0.007 (0.011)	-0.003 (0.005)	-0.004 (0.006)
Working hours	-0.0004 (0.006)	0.0002 (0.002)	0.0002 (0.0033)
Annual earnings	-0.006* (0.003)	0.003* (0.002)	0.004* (0.002)
Time husband spends with friends	0.015 (0.011)	-0.006 (0.005)	-0.008 (0.006)
Husband trusting people	-0.006 (0.047)	0.002 (0.017)	0.003 (0.029)
Husband time spent on domestic chores	0.037 (0.024)	-0.015 (0.011)	-0.022 (0.014)
Husband time spent on chores outside the house	-0.028 (0.038)	0.011 (0.016)	0.016 (0.022)
Husband time spent on active	0.039 (0.028)	-0.016 (0.013)	-0.023 (0.017)

leisure activities			
Husband time spent on passive leisure activities	0.001 (0.006)	-0.0004 (0.002)	-0.0006 (0.003)
Husband time spent on social leisure activities	-0.009* (0.005)	0.004* (0.002)	0.0056* (0.003)
(Urban) x (Husband earning)	0.006* (0.004)	-0.0026 (0.0016)	-0.003 (0.002)

Chapter 7

Conclusion

Egyptian labour economists have associated the low participation of females in the labour market to the marriage market. However, no comprehensive study of the marriage market has taken place in Egyptian literature to date. What makes the marriage market attractive to females as opposed to the labour market is the key explanation to this observed imbalance.

The main objective of this thesis is to divert the attention of economists away from the labour market outcome of the females, to the parallel market absorbing the females and causing this observed imbalance. Using a comprehensive and representative survey of young people in Egypt (SYPE09), three main issues relevant to the economics of young women with respect to marriage are examined.

Chapter 4 analyses the determinants of the women valuation in the marriage market using a sample of married and unmarried females aged 15 and 29 years. A Heckman-two step model is used to assess the potential bias resulting from selection into marriage. The insignificance of selection allows the use of OLS model. Results are fairly similar (sign and significance) between the Heckman corrected OLS model and the uncorrected one. The results of this chapter show that circumcision is found to have a significant relationship with marriage prospects and insignificant one with marriage valuation, and therefore acting as a valid identifier in the probit selection model. Kinship marriages are found to have no relationship with the marriage valuation of women, and therefore no significant relationship with cost of jewellery. Limitation exist, however, in generalising to the overall transaction cost of marriage. the competitiveness in the marriage market has a significant relationship with the marriage valuation of young women. Finally, comparing returns to investments in education of females in the marriage market and the

labour market, conclude the high degree of comparability between the two markets. This final result is partially, not exclusively, providing an explanation to why female are indifferent between choosing the labour market and the marriage market. With the social pressure highlighting the importance of marriage for women and the limited labour market opportunities available to women they opt for the marriage market. This pattern continuing through the years is blamed for the upcoming of a new demographic baby boom which Egypt socially, politically and economically cannot afford at the meantime. Therefore, to control this demographic pressure, women need to be economically active, by making the labour market more attractive and rewarding to women compared to the marriage market.

Chapter 5 provides evidence on the determinants of female marital happiness. The empirical evidence in the second essay shows that non-economic variables play the most significant role in determining the marital happiness of young Egyptian females. Using an ordinal dependent variable reflecting on the marital happiness of wives, an ordered probit model is estimated, using demographic, institutional, economic and marriage related explanatory variables. The results of this chapter show that religiosity, measured through the Islamic formal attire and frequency of visits to worship places, have ambiguous impact on marital happiness on wives. Not wearing a veil or a niqab, as well as more frequent visits to mosques or churches, both improve marital happiness of women. Social trust in the surrounding community improves a young wife's marital happiness. Unlike the belief of sociology literature, living with parents or in-laws reduces the marital happiness of wives. Time allocation of wives between household chores inside and outside the house are in relation with wives' marital happiness. Household chores, inside and outside the house, reduce the marital happiness of wives. Wives however appear to place more emphasis on household chores inside the house, where they are willing to trade one hour of chores outside the house for extra 1.5 hours of chores inside the house, holding her level of marital happiness constant. Finally, chapter 5 concludes that despite the significant role of economic variables in explaining the determinants of wives' marital happiness, inter marital relationships and mutual discussions within the couple appear to more strongly explain wives' welfare. This final conclusion refers to the fairly limited role of economic variables in its ability to conclusively determine welfare of young wives.

Chapter 6 assumes the wives' demographic, social and economic determinants of marital happiness and extends the model to include husbands' economic determinants of their wives' marital happiness. Before adding the husbands' economic variables, the selected sample is subject to a number of tests to assure its representativeness of the entire sample of females. A CHOW test with a value of 0.65 concludes the lack of statistical evidence of structural difference. Selecting the appropriate sample, using ordered probit, the analysis of this model concludes three main findings. Husbands' labour market outcome has no significant impact on the wives' marital happiness, except for the heterogeneous impact of the husbands' annual earnings in rural areas. Moreover, time allocation of husband to household chores inside and outside the house have appeared to have no significant impact on wives' marital happiness. Only time allocated to joint leisure activities appear to significantly improve wives' marital happiness. Finally, social network of the husband, in the form of number of hours spent with friends and trust in the surrounding community appear to have no significant relationship with wives' marital happiness. This chapter concludes that the role of the husbands' characteristics is very limited in explaining the marital happiness of wives. The wife herself is in control of what makes her happy, and in that it appears that mutual relationship with the husband is the key.

Across the three essays of this thesis, common variables were used in the model to reach common conclusions on topics of interest for policy makers. Kinship marriage has been used as an explanatory variable in the three essays. However, results show the robustness of the insignificant impact of this variable on the different dependant variables.

These results, however, are inconclusive of the overall relationship between kinship marriages and overall cost of marriage. as previously discussed in chapters 2 and 4, the cost of jewellery is considered a cost of jewellery that is not debatable, avoidable or shared between the different families, of the bride and the group. Therefore, given its innate features, a lack of significant impact of kinship marriage does not automatically lead to the conclusion of lack of overall relationship. Therefore, for more conclusive results, the impact of kinship marriages on a different, negotiable or shared component, cost of marriage could either assert or reject this lack of relationship hypothesis. However, given the limited available data in the available household surveys in Egypt, and the high

attrition rates on sensitive matters like the different costs of jewellery, a consensus has not been reached.

Another socially accepted belief is the closer matching between the couples due to the elimination of any unobservable differences. Kinship marriages ensure the mating is based on similar financial and social background and minimizing the risks of conflict and disagreements. However, essays two and three further show an insignificant impact of these marriages on the wives' marital happiness. This emphasizes the popularity of these marriages for their own sake not for the role they play in reducing costs or improve happiness upon marriage.

Given the conclusions of this thesis, it can be seen that a higher value bride and happier wives are the ones who are not employed in the labour market. Even the educated females, who were considering employment in the labour market, have concluded that the expected returns to the investments in education is as rewarding in the marriage as well as the labour market.

Additionally, if the female participation in the labour market was risen up equal to that of the male, the GDP of Egypt would be expected to rise significantly. An imbalance in the Egyptian economy, with women getting into the marriage market as opposed to the labour market, is reflected by the low number of economically active women as opposed to the marriage rates of women. This has consequences in both markets. On the one hand, the demographic consequence of the oversupply of women to the marriage market and the limited access to the labour market has decreased the opportunity cost of having children and has thus given rise to the new baby boom. This new baby boom will soon make its way into education and the labour market. This will eventually exert new pressures on the Egyptian labour market. On the other hand, the economic inactivity of women is exerting a pressure on the economic growth of the country. Getting a larger proportion of the population to being productive and economically active is proved to have its consequences on the growth of the economy. Any attempt to get women more active in the economy will relieve the pressure demographically and economically.

Therefore, government policies need to be directed towards correcting for the mismatch in the jobs demand and supply for women. This explains the shift in the current

policy set up in Egypt with regards to female empowerment as well as encouragement to actively participate in the labour market.

There are limitations with respect to the data used in this thesis. The data lacks any information on the parents as long as the young females do not live with their parents at the time of the interview. With over 60% of the sampled females currently married, and over 65% of these married females living with their husbands away from in-laws and parents, the socio-economic indicators on the parents are lost. A further limitation relevant to the first essay is related to the selection of identifiers. The selection of variables with an impact on marriage probability but not the cost of jewellery involved the trial of many variables at hand. However, many of the variables tested were endogenous or irrelevant to the model.

The potential extension of the current research involves expansions on the three topics previously discussed. Given the very recent release of two labour market surveys namely the ELMPS2012 and the SYPE2013, with the two now providing a panel data following of the same individuals. This panel analysis will allow for the control of the unobservables especially with respect to marital happiness. However, in the SYPE13, if the individuals are now outside the 29 years threshold, they fall outside the range and therefore are not interviewed, and the ones who have passed the 15 years threshold have been added. The two surveys, were taken at a very special timing not only in terms of Egyptian demography, but also in terms of economic and political stability.

Using the same survey of young people SYPE09, the results could be extended to the males. Studying the determinants of male happiness in marriage as well as the simultaneous study of the impact of the male satisfaction on the females and vice-versa. Regarding the marriage cost variables, expanding the study to the different age groups and comparing the results attained for the current young people and the young people of the past. The year of the survey, 2009, represents the peak of the youth bulge and when the young people were at the peak of the hiring age and making their way into the labour market. The year 2011 represents an era where economic, social and political disturbances occurred not only in Egypt but across the whole Arab region. Therefore, testing the validity of the results at later periods of the young people life cycle will add to the depth of the analysis reported here.

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