Individual and Household Determinants of Women's Autonomy: Recent Evidence from Egypt

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Individual and Household Determinants of Women's Autonomy: Recent Evidence from Egypt

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Abstract

This paper explores determinants of women's autonomy in Egypt around the time of the initial Arab Spring uprising in 2011.While previous research focuses on individual determinants, we examine individual, household, and community effects on women's autonomy. Using the 2006 and 2012 Egyptian Labor Market Panel Survey (ELMPS), multilevel models show that across all autonomy outcomes, household wealth and region are consistently associated with women's autonomy. In 2006 and 2012, women in rural and urban Upper Egypt have less autonomy compared to women in the Cairo region, and in 2012, characteristics of spouses, like education, are important determinants of women's autonomy.

1. Introduction

Women's autonomy is an important determinant of women's health and well being and, therefore, a focus of global development efforts (Rao et al., 2013, Malhotra and Schuler, 2005). It is also associated with lower fertility (Basu, 2002, Bloom et al., 2001, Upadhyay and Karasek, 2012), greater birth spacing (Upadhyay and Hindin, 2005, Feldman et al., 2009), greater contraceptive use (Do and Kurimoto, 2012, Govindasamy and Malhotra, 1996), lower ideal family size and fertility preferences (Mason and Smith, 2000, Hindin, 2000, El-Zeini, 2008), lower risk of unintended pregnancy (Lee-Rife, 2010), and increased access to maternal health care (Mistry et al., 2009). The large literature on women's autonomy and fertility shows that the two can be positively or negatively related, depending on the setting, the measure used, and the level of measurement (e.g., individual vs. community) (Upadhyay et al., 2014). These inconsistent findings point to the need to improve our understanding of how to measure women's autonomy and how autonomy is related to other aspects of women's lives.

Very few empirical studies simultaneously examine multiple aspects of women's lives associated with autonomy (Anderson and Eswaran, 2009, Rahman and Rao, 2004, Kantor, 2003). More often, studies are focused on one aspect of women's lives, like participation in economic activities, and how that affects autonomy. Single factors, like increased access to financial resources, have been proven insufficient to promote autonomy (Kantor, 2003). Women's autonomy should be considered within the larger context of women's lives (Moss, 2002). Without an understanding of how multiple aspects of women's lives are related to autonomy, promotion of autonomy as a pathway for greater health and wellbeing is difficult and likely to fail. Problematically, most research that uses autonomy to predict behavior identifies autonomy with relative measures such as earnings, education, or age gaps between husbands and wives.

These are indirect measures and they assume unspecified links to female autonomy. This study uses the 2006 and 2012 Egyptian Labor Market Panel Survey to examine multilevel individual and household determinants of multiple measures of female autonomy in Egypt at two different points in time.

2. Background

2.1 Defining Women's Autonomy

Women's autonomy is generally defined as freedom from external control or influences, the ability to formulate one's own strategic choices, the control of resources, and interpersonal control (Bloom et al., 2001, Dyson and Moore, 1983, Jejeebhoy, 1991). Autonomy can include things like participation in decision-making or a woman's ability to control her own income.

At least four strategies have been used in the literature to operationalize female autonomy. The first, household decision-making, was one of the earliest used and has formed the basis of many autonomy measures used in surveys (Dyson and Moore, 1983). One problem with these measures is that they often aggregate very different types and magnitudes of decisions, e.g., deciding what to cook with making decisions about children's schooling, health, or marriage. Nonetheless, multiple types of decisions, when aggregated, may provide useful insights on household decision-making processes (Malhotra, 2002). A second measure of autonomy, spatial mobility, arose in studies from South Asia where social norms associated with *purdah* typically prevent women from leaving their homes (Mumtaz and Salway, 2009). However, even in these societies, mobility can have different meanings because marginalized women (e.g., the very poor, widows) have to leave home to earn a living. So greater mobility may indicate either greater autonomy or a more marginal status, depending on social class. A third strategy for measuring autonomy is to examine financial control over personal assets (Anderson and

Eswaran, 2009). Women who have their own personal financial resources and/or a greater say in household finances are often more autonomous in other areas of life (Sabarwal et al., 2014). For example, research in Egypt on autonomy and use of contraceptives has found that decision-making, freedom of movement, and control in budgetary decisions are important dimensions of female autonomy (Rastogi and Nguyen, 2005, Govindasamy and Malhotra, 1996).

A fourth and distinct strategy attempts to use women's socioeconomic status as a proxy for autonomy. For example, studies have used educational attainment, employment, and working for pay as proxies for autonomy (Abadian, 1996, Woldemicael, 2009, Morgan and Niraula, 1995, Dyson and Moore, 1983, Dharmalingam and Morgan, 1996). Socioeconomic proxies, however, can be conceptually vague, misleading, and can make research on socioeconomic determinants of women's autonomy impossible (Balk, 1994, Govindasamy and Malhotra, 1996, Malhotra and Schuler, 2005). Women's education and autonomy can be linked in any number of ways. For example: (a) women and girls with less autonomy may not be allowed to continue in school, (b) school itself encourages autonomy by empowering women with knowledge and self-esteem, and/or (c) richer families are more likely to adopt "western" values and thus, expect women to get more education and encourage them to be more autonomous. Programs seeking to increase women's autonomy would take very different approaches depending on which of these pathways causally link education and autonomy.

In this paper, we use data from a recent national probability sample in Egypt, which contain direct measures of multiple dimensions of women's autonomy. We begin by reviewing the literature on individual and household determinants of autonomy, and then describe the Egyptian setting. We subsequently investigate the determinants of several dimensions of women's autonomy.

2.2 Individual Determinants of Female Autonomy

Women's autonomy is likely to vary with the characteristics at the individual, interpersonal, community, and macro political and societal level. Previous research in South Asian contexts suggests that several individual level factors, including age, age differences with husbands, and marital status are important determinants of autonomy (Gupta and Yesudian, 2006, Kishor, 2000, Rahman and Rao, 2004, Kantor, 2003). In the case of age, women may experience different levels of autonomy at different stages of the life course. Older women, past their reproductive years, typically have greater freedom of movement and control over household decisions (Rahman and Rao, 2004, Mahmud et al., 2012, Acharya et al., 2010). Family compositional factors like marriage and age differences between spouses are also likely to be important since women's personal control will be based on the attitudes of others in her household (Kantor, 2003, Rahman and Rao, 2004). The majority of studies of autonomy and reproductive behavior are of ever married or married women (Upadhyay et al., 2014). Married women have more control over personal assets and income (Kantor, 2003) than single women, but Rahman and Rao (2004) suggest that the degree of control may depend on the level of consanguinity between the spouses. Women who marry at a young age generally have fewer personal financial resources than their older counterparts, tend to be more dependent on their husbands, and have a lower social standing in the household (Abadian, 1996, Jensen and Thornton, 2003). Women waiting longer to marry may have more opportunity for education, employment, and greater choice in a spouse, which can enhance women's ability to negotiate and make decisions (Fargues, 2005, Niraula and Morgan, 1996). Women who are also closer in age to their husbands have more frequent communication and greater reproductive autonomy (Hogan et al., 1999).

While age and marital status are relevant to autonomy, education and employment are continuously cited as the most important individual determinants of autonomy (Jejeebhoy, 1995, Malhotra and Mather, 1997, Balk, 1994, Anderson and Eswaran, 2009, Al Riyami et al., 2004, Oropesa, 1997). Education and working prior to marriage may provide women with a greater sense of personal control, improved communication skills, and perhaps some independent assets (Murphy-Graham, 2010). However, more education by itself does not necessarily reduce gender inequality in control of resources within the household (Schultz, 1998). A woman's education, her mother's education, and her husband's education can all have independent effects on women's autonomy (Rahman and Rao, 2004). The impact of women's education on autonomy depends on the aspect of autonomy being examined. For example, education has been found to have an effect on women's decision-making, but no effect on mobility (Hussain and Smith, 1999). The autonomy literature is also inconclusive about how higher education for women's husbands affects autonomy. One body of research points to a husband's education leading to a more egalitarian relationship with his wife (Kishor, 1995). However, as a man gains higher educational status, it reinforces his gender role as the dominant partner and could suppress his wife's autonomy (Rodman, 1972).

Employment is also important because it may provide the potential for a woman to earn income of her own. The relationship between access to personal assets and autonomy is often examined in evaluation of micro credit programs and results vary. Having independent income or savings, may increase women's bargaining power and their ability to make decisions or have a voice in a household. Employment and control over personal assets has been associated with greater freedom of movement and decision-making (Acharya et al., 2010, Hashemi et al., 1996). Lack of financial assets severely limits women's choices by rendering them powerless to

negotiate better terms for themselves in their households (Anderson and Eswaran, 2009) and may make it impossible to leave. In contrast, women's access to financial assets may threaten a man's position within the household resulting in greater conflict, less control for the woman, and violence (Kabeer, 2001). Furthermore, employment has also been found to lead to greater autonomy only if most women in the community also work (Dharmalingam and Morgan, 1996).

2.3 Household and Regional Determinants of Women's Autonomy

While many studies focus on individual-level determinants of autonomy, only a few studies include household, community, or societal level predictors of autonomy (Mason and Smith, 2000, Jejeebhoy and Sathar, 2001). Upadhyay et al. (2014) argue that it is essential to understand multilevel influences from the family to community to macro sociopolitical forces on women's autonomy. Women do not live in a vacuum. They are autonomous or not relative to the other people or groups that intersect with their lives. Since the family or household is the fundamental setting in which women have (or lack) and exercise autonomy (Kishor, 2000), it is important to understand household determinants of autonomy. For women to be autonomous within the household, they must negotiate and exercise control over household decisions and relationships.

The limited research on household determinants of women's autonomy suggests that two characteristics -- whether the family is nuclear or extended and household wealth -- are important predictors. Research in highly patriarchal societies suggests that living with extended families reduces women's autonomy (Balk, 1994). Husbands and in-laws may control women's access to children, food, money, and health services and ultimate decision-making control (Moss, 2002). Larger household size is negatively associated with autonomy (Rammohan and Johar, 2009). Smaller households may enable or require women to participate more fully in the work force. On

the other hand, larger households may have alternative sources of household labor, which may give women more control over their daily activities (Heaton et al., 2005). The relationship between autonomy and household wealth is complex. In some cases, women in wealthier households have more resources to control and have greater autonomy (Rammohan and Johar, 2009), and in other cases, women in wealthier households are more isolated and have lower physical mobility (Rahman and Rao, 2004, Sathar and Kazi, 2000) to symbolize the fact that their families are of a higher social class and can afford seclusion for their female members.

Household attitudes and behavior cannot be divorced from the wider socioeconomic context in which they are situated. Communities are likely to hold strong norms and mores about women's roles and behaviors and can enforce normative behavior through mechanisms such as socialization, criticism/approval, shame and shunning, and giving or withholding social support. In urban areas, it is more acceptable for women to be less secluded and, therefore, to work outside the home. Thus, there is more opportunity for women to control resources and make autonomous decisions (Shapiro and Tambashe, 1991, Corroon et al., 2014). Women in urban areas also are more likely to have formal education, which has been shown to increase autonomous decision-making (Heaton et al., 2005). The effects of place also interact with those of household wealth: while rural women are often less autonomous than those in urban areas, women from wealthier households in rural areas are found to be more autonomous than women from poorer rural households (Senarath and Nalika Sepali Gunawardena, 2009).

Norms, including religious norms, are also important at larger geographic level (Dollar and Gatti, 1999, Jejeebhoy and Sathar, 2001, Hogan et al., 1999, Rammohan and Johar, 2009). For example, in India and Pakistan, Jejeebhoy and Sathar (2001) use region as a measure of the social system and to differentiate the more conservative non-egalitarian north with the south and

show consistently higher levels of autonomy among women in the south of the subcontinent. In Nepal, a country with a high level of gender stratification, the patterns of women's autonomy vary considerably across regions depending on the dominant norms and social systems (Acharya et al., 2010). In this study, we examine macro-level variation in autonomy and whether several household level variables determine women's autonomy.

2.4 Egypt

Egypt has the largest, most densely settled population among the Arab countries. Between 1980 and 2010, Egypt had one of the largest increases in educational achievement, compared to other countries in the Middle East and North Africa, with the average total years of schooling doubling during this period. However, it also had one of the highest unemployment rates (Campante and Chor, 2012). In the 2000s, the Mubarak government's deteriorating ability to provide basic services and the widespread nature of unemployment, poverty, and conspicuous consumption among the business elite alienated tens of millions of Egyptians. Fewer economic opportunities and higher unemployment led to dissatisfaction with the leadership and lack of opportunities for human development which, in turn, ultimately led to the January 25, 2011 uprising known as "the Egyptian Revolution of 2011" (Kuhn, 2012).

Since Mubarak was ousted on February 11, 2011, Egypt has continued to experience major upheavals, including an election and a coup d'etat. There are tensions and frequent violence among secular and religious groups. Which group ultimately rules Egypt has important implications for women's rights (el-Issawi, 2011). In an opinion poll of gender experts on women's rights worldwide in November 2013, Egypt was ranked as the worst country in the Arab world to be a woman, ranking below than Iraq and Afghanistan (Boros, 2013). Since the

ousting of Mubarak, there are tens of political parties with many women involved, but the successive ministerial cabinets have only included one female minister (Sholkamy, 2012).

An important question in transitional Egypt is whether women will have more or less control at all levels from the household to the macro political sphere. Family and the household context is the main source of social and financial support for most Egyptians (Yount and Khadr, 2008). Historically, Egypt is a patriarchal society and married men serve as heads of households and make decisions for the household and its members (Yount, 2005, Bier, 2011). However, young men and women in some parts of Egypt believe that household decisions should be shared (Mensch et al., 2003). Education is an important determinant of women's status in Egypt, but higher education is not always associated with changes in traditional gender attitudes (Mensch et al., 2003).

Women take on traditional roles in the household and outside labor force participation is infrequent for Egyptian women (El-Zanaty and Way, 2009). However, in rural areas, increased male emigration for work has led to greater female labor market participation (Binzel and Assaad, 2011). In both urban and rural areas, children reside with their parents until men have secured enough resources for marriage and women have gotten married. Norms for women including premarital virginity and marital fertility are tied to family honor (Rashad et al., 2005). Even after marriage, living close to a woman's birth family is not uncommon as women are expected to visit and assist their families. This proximity allows parents to provide social support, which may enhance women's influence in marital decisions (Yount, 2004).

After marriage, women's responsibilities and obligations are transferred from her natal family to her husband's family (Morsy, 1993, Singerman, 2006). In Egypt, dowries are a means of maintaining social status by allowing women's families to attract husbands of at least equal

social standing (Anderson, 2007, Amin and Lloyd, 2002). A dowry can increase the economic resources of the marital household as well as the wife's say in the use of household wealth and other household decisions (Srinivasan and Bedi, 2007). Endogamy is common in Egyptian society. Women are often married to cousins or other close relatives. By strengthening natal ties, a existing family relationship may increase women's autonomy within her marital family (Bhatti and Jeffery, 2012, Yount, 2004, Weinreb, 2008). Newly married couples often live with of the husband's family and intergenerational co-residence in extended family households is common (Yount, 2005). Investigation of the determinants of female autonomy before and after the Egyptian revolution uprisings will allow us to assess how much women's status is changing in a changing Egypt.

2.5 Research Questions and Hypotheses

We focus on the following research questions: (1) which individual and household level factors affect women's autonomy; (2) what are the relative contributions of household factors beyond individual factors in determining women's autonomy; and (3) do determinants of women's autonomy vary based on how autonomy is measured?

We hypothesize that characteristics of both the household and the individual woman or couple will have an important effect on women's autonomy. We also expect to find significant regional differences in autonomy because of the large differences in levels of economic development, education, and social conservatism in Upper and Lower Egypt and in urban and rural areas.

In addition, specific aspects of autonomy are likely to be influenced by particular types of characteristics. For example, we expect spousal characteristics like closeness in age and education will be associated with joint household decision-making and financial autonomy, but

not necessarily with whether women make decisions entirely on their own because spousal similarities in age and education are associated with more communication and access to resources. We expect that a woman's own age, education, and employment will explain mobility and financial autonomy, but not necessarily household decision-making. Household wealth would positively affect decision-making and financial autonomy because women would have more control over resources, but negatively affect mobility since women in wealthier households are often better able to remain secluded. We also expect that across all measures of autonomy, women in Upper Egypt will have less autonomy than women in Lower Egypt, because of the greater social conservatism in this region.

3. Methods

3.1.1 Data

The Egyptian Labor Market Panel Survey (ELMPS) is a nationally representative panel survey of households in Egypt undertaken by the Central Agency for Public Mobilization and Statistics, CAPMAS, and the Economic Research Forum. Data from the 2006 and 2012 ELMPS is well suited for this research because it was designed to study socioeconomic attributes of households and includes a large nationally representative sample of ever married women. The 2006 and 2012 data also bracket the recent period of unrest in Egypt, although the 2012 survey was conducted too soon after the 2011 revolution to observe much change. The data contains individual-level information about education, age, gender, and many other demographic variables as well as household-level information about assets and consumption. The ELMPS measures of autonomy include: (a) a set of questions on participation in household decision-making, (b) questions about a woman's ability to move around on her own (mobility), and (c) access to financial resources.

In 2006, 8,351 households in total with 37,140 individuals were included in the survey. The 2012 survey included 12,060 households and 49,186 individuals. All data were self-reported during a face-to-face interview conducted by a trained field interviewer (Assaad, 2009). The analytic sample is restricted to women in their childbearing years that are currently married, since relatively few women of these ages are not married. The 5,740 married women, ages 15 to 49, with data on spouses available comprise the 2006 sample for this study.[i] The 2012 analytic sample, defined in the same way, includes 7,620 women.[ii]

3.1.2 Community Definition

We use the term "community" to describe local geographical areas. Communities were operationalized as the ELMPS primary sampling unit (PSU). Administratively, Egypt is divided into 26 governorates grouped together as the Urban Governorates (Cairo, Alexandria, Port Said, Suez), Rural Governorates, and the governorates of Upper and Lower Egypt. Lower Egypt lies in the north and consists of the Nile delta, while Upper Egypt is the region south of the Nile Delta. Overall, the population of Egypt is more rural than urban, and Upper Egypt lags behind Lower Egypt in terms of most social and demographic indicators, including less schooling, higher rates of poverty, unemployment, and mortality. About 25% of the Egyptian population lives in Upper Egypt, and over ninety percent of the poorest villages are in Upper Egypt (Handoussa, 2008).

For the ELMPS, all villages in rural areas or urban quarters (shiyakhas) in cities were listed and assigned weights based on their population. The selected shiyakhas and villages are divided into primary sampling units of 1500 housing units in each, and then, one or more PSUs are selected from each village or shiyakha. Each of the 26 governorates is allocated a number of PSUs in the master sample that is proportionate to its size and its urban/rural distribution. The master sample contains 306 urban PSUs and 194 rural PSUs (Assaad, 2009). In 2006, there were

575 PSUs with an average of 11 observations per cluster. In 2012, there were 641 PSUs with an average of 12 observations per cluster.

3.2 Measures

3.2.1 Outcome: Autonomy

We use four measures of autonomy: individual household decision-making, joint household decision-making, mobility, and financial autonomy as reported by female respondents in the survey. For *household decision-making*, respondents were asked who in the family had final say on a series of decisions including: (a) making large household purchases, (b) making household purchases for daily needs, (c) visits to family, friends or relatives, (d) food that should be cooked each day, (e) getting medical treatment or advice for the woman herself, (f) buying clothes for herself, (g) taking child to the doctor, (h) sending children to school, (i) sending children to school on a daily basis, (j) buying clothes for children. Response categories include the respondent alone, husband, respondent and husband jointly, in-laws, respondent, husband, and in-laws or others. Items are recoded so that 6=respondent, 5=jointly by respondent and husband, 4=jointly by respondent, husband, and in-laws, 3=husband, 2=in laws, and 1=others. Since these response categories do not create an interval, two count variables capture household decision-making. A count of the number of times the respondent herself makes decisions, *individual household decision-making*, and a count of the number of times the respondent and somebody else within the household participate in decisions, *joint household decision-making*, capture the different ways a respondent has a say in household decisions. For both variables, counts range from 0 to 10 with a higher count indicating more participation on a greater number of household decisions.

We define *mobility* as a continuous measure, based on four items in the ELMPS assessing the respondents' ability to leave the house. For mobility, respondents were asked whether they could go to a local market, health center or home of relatives or friends in the neighborhood, and if they could take children to a health center. Responses were reverse coded and included 4=without permission, 3=just inform them, 2=need permission, and 1=cannot go alone so that higher scores indicated greater control in personal mobility decisions. All items were included as the principal components analysis indicated that they loaded on one factor and the reliability (α = .79) was higher when including all items. Items were averaged to creating a scale from 1 to 4 with higher responses indicating a higher amount of personal control in mobility decisions.

Financial autonomy is a dichotomous variable based on two items. Respondents were asked "do you have direct access to household money in your hand to use" and "do you personally have savings, own land, house, jewelry, or other valuables which you can sell or use as you please". The responses to these two questions were combined: those who responded 'yes' to one or both items are defined as having access to financial resources while those who responded 'no' on both do not.

2.2.2 Individual-Level Determinants

We include individual-level variables in our models, which have been identified in the literature as potential determinants of women's autonomy: age, age at marriage, value of dowry, total duration of marriage process, relationship to the husband, education, mother's education, having ever worked, and current work status. Woman's age is measured as age in years at the time of the interview. Age at marriage is dichotomized to indicate whether the respondent was married before age of 18 or at 18 years or older. The value of the dowry is a categorical measure indicating whether the respondent had no dowry or some dowry. We also include a category

reflecting non-response for this variable because a sizeable proportion of women did not give an answer. The total duration of the marriage process is the number of months between engagement and marriage. A woman's relationship to her husband is a categorical variable that captures whether the respondent is related to her husband or not. Again, we include a third category to capture women who did not respond.

Education is defined as the last grade completed. Responses were recoded as "0=No education", "1=Primary", "2=Preparatory", "3=General or Technical Secondary – 3 years", "4=Technical Secondary – 5 years", "5=Intermediate or higher". Mother's education is operationalized similarly with responses recoded as "0=No education", "1=Primary", and "2=Preparatory or higher". Having ever worked is a dichotomous variable indicating whether or not a woman has ever worked for pay. Current work status is whether the respondent is currently employed, unemployed, or retired. Past research suggests that more educated women, those with experience in the labor force, and those currently working are likely to be more autonomous.

3.2.3 Household Determinants

Household-level variables in our models include whether the woman was born in an urban area, region of residence, household wealth, and household size. We also include variables related to the women's spouses' characteristics including age, education, and current employment status. Residence at birth in an urban area is a dichotomous variable. Region is coded '0=greater Cairo', '1=Alexandria and Suez', '2=Urban Lower Egypt', 3=Rural Lower Egypt', '4=Urban Upper Egypt', and '5=Rural Upper Egypt'.

The household wealth index is estimated from asset variables using principal components analysis. Ownership of consumer items such as a TV or car as well as characteristics of the dwelling such as flooring and roofing and types of access to water and sanitation are used as

measures of poverty. For analytic purposes, we divided the household wealth scores into quintiles: poorest, poor, middle, rich, and richest. Household size is a continuous measure based on the number of inhabitants in a household.

3.3 Analytic Strategy

First, we examine the frequency distributions of the variables in the analysis for the samples of married women who are 15 to 49 in 2006 or 2012. We also examine the relationship of each independent variable with the dependent variable. The individual-level multivariate analysis first test the associations between the individual determinants and autonomy and then add the household determinants to produce the full models. We estimate multilevel statistical models, which control for the correlation among women resulting from clustering within PSU and enable tests for differences in the community effects for women with different socio-economic characteristics. We estimate four separate models, one for each of the dependent variables: individual household decision-making, joint household decision-making, mobility, and financial autonomy. In each model, the first level is the individual and the second level is the primary sampling unit (as a proxy for community). We use multilevel mixed effect ordinary least square models for decision-making and mobility, and logistic mixed effect multilevel models for financial autonomy. All models were estimated in STATA 13.

4. Results

4.1. Descriptive Analysis

Table 1 shows the individual descriptive characteristics for the 2006 and the 2012 ELMPS samples, restricted to married women 15-49. The 2006 sample includes of 5,740 women and the 2012 sample, 7,620 women. The characteristics of the two samples are similar with some variations. Women are in their early 30s and were married around age 21. About a third of

women who answered the question reported they had a dowry and about one third reporting on their relationship with their husband were related. Majority of respondent's mothers completed a primary education, and about half the respondents completed a secondary or technical secondary education. Two-thirds of the women never worked for pay. Compared to 2006, women in the 2012 sample were younger and less likely to have had a dowry, had one year more education, had a shorter duration from engagement to marriage, were slightly less likely to be currently employed, and slightly more likely to be out of the labor force.

[Table 1 here]

Table 2 shows the distributions of the household and spouse variables for the 2006 and 2012 samples of women. The household characteristics of the two samples are somewhat different. In 2012, there are more households in rural areas compared to more urban households in 2006. A third of households are in rural Lower Egypt in 2012 compared to a quarter in 2006. In 2006, a quarter of households are in Greater Cairo or Alexandria and the Suez Canal. However, in 2012 less than a fifth of households are in those regions. Household size is also considerably smaller in 2012. Those residing in larger households live with extended family.

Characteristics of the spouses are similar in 2006 and 2012. In both 2006 and 2012, the women's spouses are in their late 30s and have an average of a 7-year age difference with wives. Approximately half of the women's husbands have a secondary or higher education. Almost all the spouses have worked and are currently employed.

[Table 2 here]

4.2 Autonomy of Married Women in 2006 and 2012

Table 3 summarizes the outcome variables. The results are similar in both years, with some exceptions. Respondents have limited personal control in mobility decisions, with the

average score equivalent to a response between "need permission" and "just inform them", indicating that most women need permission to go outside of the home. However, there is still variation with scores ranging from 0 to 4. One change over the six year period is in access to financial resources: in 2006, only 22% of women report having access, while in 2012, 55% of women report having access.

In general, respondents have limited autonomy in household decisions, with the average score for respondents participating in household decisions equivalent to making only two to three decisions out of a total of 10. Nonetheless, there is still variation with scores covering the full range from 0 to 10. For respondents making household decisions along with someone else, the average score is slightly higher and equivalent to jointly making three to four decisions. Figure 1 shows the distribution of household decision-making in 2006 and in 2012. In both 2006 and 2012, a minority of married women make individual decisions: 24% and 32% report that they make no decisions by themselves. There is more variation in joint decision-making: 12% of women in 2006 and 2012 report jointly participating in three to four household decisions.

[Insert Table 3]

[Figure 1 here]

4.3 Results of Multivariate Analysis

Tables 4 and 5 shows results of models of individual and household determinants on married women's autonomy in 2006 and 2012. For the logit models, we present the odds ratios for each explanatory variable. Estimated values of the coefficients of the random effects and the intraclass correlations are shown below the coefficients and odds ratios. For the entire set of variables, collinearity diagnostics indicated a low variance inflation factor (VIF) of 1.86. The

highest VIF of 3.44 was for having ever worked and currently working, which is well below the maximum recommended value of 5.

The variance in autonomy is comprised of within group variation in each determinant (i.e., variation in education among individuals in the same PSU) and between group variation in each determinant (i.e., variation in education among the PSUs). The likelihood-ratio test comparing the multilevel models with a standard regression model confirms that a multilevel model is preferred. This is true across all the outcomes. The intraclass correlation coefficients (ICC) range between .09 and .22 suggesting that community membership is a determinant of women's autonomy.

4.3.1 Determinants of Women's Autonomy in 2006

For the individual characteristics, the results for individual decision-making and mobility are very similar to each other, while results for financial autonomy are different. For example, for each year increase in age, individual decision-making increases by 0.045 ($p<0.001$) and mobility increases significantly ($p<0.001$). However, age is not associated with joint decision-making or financial autonomy. Older age at marriage is also associated with less individual decision-making and lower mobility, all else held constant ($p<0.05$). Women's employment is of particular importance for financial autonomy: on average, those who are unemployed or retired have lower odds of financial autonomy compared to those who are employed ($p<0.001$). None of the individual level determinants are significantly associated with all four of the measures of women's autonomy.

By contrast, several household determinants are significantly associated with all measures of women's autonomy. Region is related most consistently to women's autonomy. The region variable is a combination of geographic location and the urban or rural composition of

that location. It shows that women in rural Upper Egypt consistently have less autonomy compared to women in Greater Cairo. As expected, women in rural Upper Egypt have significantly lower mobility, and on average, participate in one less individual and joint household decision compared to women in Greater Cairo ($p<0.001$). Women in both Alexandria & the Suez Canal and urban Upper Egypt also make fewer individual household decisions and have lower mobility as compared to women in Cairo ($p<0.001$). Region has a similar relationship with household decision-making and mobility, but for financial autonomy, results are different. Women in Lower Egypt have higher odds of being financial autonomous compared to women in the Greater Cairo ($p<0.05$), but there are no significant relationships between residence in Upper Egypt and financial autonomy.

Household wealth is significantly associated with all four measures of autonomy. Women in the higher income households are more likely to be financially autonomous compared to women in the poorest households. Women in both the poorer and middle wealth households have less mobility and more financial autonomy than the poorest households. Women in the richer households make fewer individual decisions, but participate more in joint decisions as compared to women in the poorest households, all else held constant ($p<0.001$). Women in the richest households participate in more joint decisions and fewer individual decisions and have less mobility and more financial autonomy compared to women in the poorest households ($p<0.001$).

Household size is also associated with all measures of autonomy. Women in larger households make fewer individual decisions, more joint decisions, have less mobility, and have lower odds of being financially autonomous ($p<0.05$). Those in larger households are almost always living with extended family. Like individual determinants, the effects of spousal characteristics are similar for decision-making and mobility: women with spouses who have an

intermediate or higher education make fewer individual decisions, more joint decisions, and have lower mobility ($p<0.01$).

[Table 4 Here]

4.3.2 Determinants of Women's Autonomy in 2012

As in 2006, in 2012, older age, younger age at marriage, and employment are associated with increased women's autonomy. However, the details of the 2012 results differ from those in 2006. In 2012, older age predicts greater individual and joint decision-making and mobility, but in contrast to 2006, age is also associated with more financial autonomy ($p<0.001$). In 2012, being 18 years or older at marriage is associated with less individual decision-making, all else held constant ($p<0.05$). However, age at marriage is not associated with mobility in 2012. Employment, which is significantly associated with financial autonomy in 2006, is only associated with mobility in 2012: compared to those who are employed, women who are retired report lower mobility on average ($p<0.001$). In contrast to 2006, in 2012, other characteristics of marriage are associated with women's autonomy. Women with dowry participate in more joint decision-making compared to women with no dowry ($p<0.001$), and women who are related to their husbands have less mobility and financial autonomy compared to those who are not related ($p<0.01$).

The relationships between household region and women's autonomy are different from those observed in 2006. In particular, the results Lower Egypt (the northern part of Egypt including Alexandria, a few other urban areas, and rural areas) have changed between 2006 and 2012. Women living in Lower Egypt, both urban and rural, participate in more joint decisions and have less financial autonomy compared to women in Greater Cairo ($p<0.01$). These women also make fewer individual decisions ($p<0.001$), which was not an association in 2006.

Household region is associated with mobility in the same way as observed in 2006: women in Alexandria and Suez Canal, and Upper Egypt having less mobility compared to those in Greater Cairo ($p<0.001$). In contrast to 2006, women in Upper Egypt have less financial autonomy compared to women in Greater Cairo in 2012 ($p<0.001$).

In 2012, household wealth is associated with women's autonomy in the same way as observed for 2006 with two main differences: household wealth is not associated with financial autonomy in 2012, and there are no observed differences for the poorer households compared to the poorest households. Unlike the 2006 results, household size is not associated with all measures of autonomy and only associated with less financial autonomy ($p<0.001$). Results for spousal education are the same as 2006.

[Table 5 Here]

5. Discussion

This study examines the determinants of women's autonomy in Egypt and what aspects of women's lives are associated women's autonomy for married women in of reproductive age during the turbulent period of recent Egyptian history, which preceded and followed the initial Arab Spring uprisings in 2011. Prior studies, conducted primarily in South Asia, have only looked at the influence of one determinant at a time at the individual level (Malhotra and Mather, 1997, Schuler et al., 1997). We examine multilevel determinants of multiple dimensions of women's autonomy contemporary Egypt.

With respect to the first aim of the study, several individual and household factors contribute to women's autonomy in 2006 and 2012. As expected, older women have greater autonomy regardless of the autonomy measure used. Contrary to expectation, older age at marriage is associated with less individual decision making and not significantly associated with

joint decision making (although the coefficient is large and positive). As in previous work, we found that employed women have greater financial autonomy (Anderson and Eswaran, 2009, Kantor, 2003). This is not surprising since they have direct access to a source of income. Labor force participation does not necessarily translate to female autonomy: not all women are about to convert access to resources into power within their households and communities (Kabeer, 1999).

Surprisingly, education is not a determinant of female autonomy in 2006 and 2012. This results is consistent with research showing that although Egyptian women have made educational gains, only labor force participation appears to change gender roles and attitudes (Mensch et al., 2003). Across all autonomy outcomes, household wealth and region are associated with women's autonomy. In both 2006 and 2012, autonomy -- operationalized as individual decision-making and mobility is lower among the wealthiest women compared to the poorest women. Unlike poor women, those in wealthier families are more likely to have household help take care of errands and other daily needs outside the household. In fact, in both 2006 and 2012, women in the top quintile of wealth participate more in joint decision making compared to the poorest women.

The 2006 and 2012, cross sectional comparisons show a few important regional changes in autonomy. In 2006, women in both rural and urban Lower Egypt participated in fewer joint decisions compared to women in Cairo. In 2006, the coefficients for individual decision-making in Lower Egypt were not significant. In 2012, married women in rural and urban Lower Egypt participated in more joint decisions and less individual decisions compared to women in Cairo. This indicates a shift in household decision dynamics in Lower Egypt. The governorates of Lower Egypt are generally more progressive towards women than those in Upper Egypt (Yount and Rashad, 2008). In Lower Egypt, this shift could indicate community level changes in views on women's roles in the household. Alternatively, the sample of women in 2012 is slightly

younger, and young people in Egypt believe in more egalitarian household dynamics (Mensch et al., 2003).

As expected, the women in both rural and urban Upper Egypt have less autonomy as compared to women in the Cairo area. Despite the measure of autonomy chosen, women in Upper Egypt have less autonomy compared to women in Lower Egypt in 2006 and 2012. This result is consistent with research that shows that women in Upper Egypt are significantly worse off across most women's health outcomes (Casterline et al., 2003, Yount and Li, 2010), although part of the reason for poor health may also be the greater poverty of Upper Egypt. In 2012, women in all regions participated in less individual decisions and had less access to financial resources compared to women in Cairo. This result and the rural/urban differences in autonomy -- with women in rural areas having less autonomy -- are also consistent with work that shows more patriarchal views in rural Egypt as compared to urban areas and centers (Yount et al., 2000). The lack of women's access to financial resources in Upper Egypt in 2012 may also be related to the economic downturn that Egypt experienced between 2006 and 2012. The governorates in Upper Egypt are the least developed, most impoverished with poor housing conditions, and have little access to social services. The gender differentials in education in Upper Egypt are also the highest in the country. The regional variation in autonomy suggests that these societal factors, while not directly tested in the models, are not conducive to promotion of autonomy. Given the lack of resources and access to services women experience in Upper Egypt, it is not surprising that they exercise little control in their lives compared to women in the rest of the country.

Our empirical work also reveals that in 2006, in general, characteristics of spouses were not associated with women's autonomy, but in 2012, attributes of spouses like age, education,

and current employment status are associated with several measures of women's autonomy. Women with more educated spouses make fewer individual decisions and are less mobile, but make more joint decisions compared to women with less educated spouses. Given the changing social conditions and increases in violence and sexual harassment of women after the uprising in 2011, families and women themselves who could afford to do so may have decided to restrict women's physical mobility for their own safety. The heightened climate of conservative ideology associated with some of the participating groups in the uprising (e.g., the Muslim Brotherhood) may also have led fathers, husbands, and families to clamp down on women's autonomy more generally.

Educational equality between spouses is may indicate more egalitarian relationships, but also a more egalitarian attitude on the part of families and communities. Consistent with this view, we found that when women and their husband both have an intermediate or higher education, joint decision-making is more common. Women who brought a dowry to their marriage, contributed household resources and therefore were more likely to participate in joint decision-making, although this result was significant only in 2012. This result aligns with other research that shows dowries allow women to practice more control within the marital household (Srinivasan and Bedi, 2007). Older women with an intermediate or higher education, who live in Lower Egypt as oppose to Cairo, whose husbands have an intermediate or higher education, who brought some dowry into the marriage (compared to none), and who live in the richer or richest households as opposed to the poorest households, participate in more joint decisions.

The findings indicate that community of residence is a determinant of autonomy and is significantly related to each measure of autonomy. This highlights the importance of the woman's geographical and social location in her level of control and ability to exercise power in

the household. The actual pathways for regional variation are still unclear because we were not able to consider other variables that might affect female autonomy like district-level rural development expenditure, community programs for women, activity of nongovernmental organizations, etc. Based on these results, we argue that the means of facilitating women's autonomy are more complex than many observers contend. To promote female autonomy, greater attention needs to be paid to how women operate in their communities and households and how social norms affect women and their families.

Although this study uses several measures of autonomy, there are other measures of women's personal control, like Rotter's locus of control scale, that are not available in the data (Ross and Mirowsky, 2013). Our measures of autonomy cannot capture all power dynamics within a married relationship. Having a final say in household decisions or more freedom of movement may have its own cost in other aspects of the married relationship. However, women's decision-making with others has been found to be associated with better women's mental health in Egypt (Yount et al., 2014). Additionally, while separating household decision-making into individual and joint decisions contextualizes who is making the decisions, the questions on household decision-making provide little insight into discussions women may have had with partners or others about those household decisions. Nonetheless, this study makes important contributions to our understanding of the determinants of women's autonomy by examining multiple dimensions of women's autonomy and an extensive set of characteristics of women's lives, households, communities, and regions in a very important and influential country and time period in which the role of women is hotly contested.

Improving women's autonomy is a global development priority. This study advances understanding of individual and household determinants of women's autonomy, highlighting the

importance of households and communities in determining women's autonomy for a large sample of women in Egypt. Understanding the relative contribution of individual, household, and community factors is important for researchers and policy makers. Women's autonomy is a process occurring in women's daily lives, but also a process occurring over time in society. The existence of regional variation in female autonomy highlights the need for strategies to improve women's autonomy to be geared not only towards individuals, but also to community norms. Study findings can contribute to interventions and policies on women's status in Egypt.

Endnotes

i. Of the 37,140 individuals in 2006, 49% or 18,555 are women, 9,937 are between the ages of 15 and 49, 6,609 are ever married, and 5,740 women are currently married with spouses in the ELMPS.

ii. In 2012, 50% of the sample or 24,703 are women, 12,594 are between the ages of 15 and 49, 8,902 are currently married, and 7,620 have data on spouses available in 2012.

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Tables

Table 1. Weighted Sample Descriptive Characteristics (Means (SD) or %) of Married Women Ages 15 to 49, 2006 and 2012 Egyptian Labor Market Panel Survey

	2006 N=5,740		2012 N=7,620	
Key Variables	N	% or Mean (SD)	N	% or Mean (SD)
INDIVIDUAL VARIABLES				
Current Age (years)				
15 – 19	253	4.41	282	3.7
20 – 24	1,119	19.49	1,615	21.19
25 – 29	1,211	21.1	2,026	26.59
30 – 34	933	16.25	1,482	19.45
35 – 39	826	14.39	963	12.64
40 – 44	804	14.01	655	8.6
45 – 49	594	10.35	597	7.83
Mean (SD)	5,740	32.0 (8.62)	7,620	30.7 (7.92)
Age at First Marriage				
Less than 18 years	1,262	21.99	1,359	17.83
18 years or older	4,478	78.01	6,261	82.17
Mean (SD)	5,740	20.7 (4.14)	7,620	21.0 (3.99)
Value of Dowry				
No Response	1,519	26.46	2,113	27.73
No Amount	2,318	40.38	3,859	50.64
Some Amount	1,903	33.15	1,648	21.63
Marriage Process Duration (Months)	5,740	14.3 (13.5)	7,620	11.2 (12.4)
Related to Husband				
No Response	-	-	1,277	16.76
No	4,012	69.9	4,455	58.46
Yes	1,728	30.1	1,888	24.78
Mother's Education				
None	78	1.36	133	1.75
Primary	4,496	78.33	6,012	78.9
Preparatory or Higher	1,166	20.31	1,475	19.36
Education				
None	2,140	37.28	2,086	27.38
Primary	435	7.58	590	7.74
Preparatory	307	5.35	518	6.8
Secondary	68	1.18	238	3.12
Technical Secondary	1,785	31.1	2,721	35.71
Intermediate or Higher	1,005	17.51	1,467	19.25
Years of Education	5,740	7.77 (5.73)	7,620	8.71 (5.29)
Ever Worked				
No	3,982	69.37	5,600	73.49
Yes	1,758	30.63	2,020	26.51
Currently Employed				
Employed	1,365	23.79	1,339	17.57
Unemployed	265	4.62	611	8.02
Out of Labor Force	4,110	71.59	5,670	74.41

Table 2. Weighted Household and Spouse Characteristics (Means (SE) or %) of Married Women Ages 15 to 49, 2006 and 2012 Egyptian Labor Market Panel Survey

	2006 N=5,740		2012 N=7,620	
Key Variables	N	% or Mean (SD)	N	% or Mean (SD)
HOUSEHOLD VARIABLES				
Current Setting				
Rural	2,731	47.58	4,365	57.28
Urban	3,009	52.42	3,255	42.72
Setting of Birth				
Rural	2,854	49.72	4,461	58.54
Urban	2,886	50.28	3,159	41.46
Region				
Greater Cairo	832	14.49	704	9.24
Alexandria & Suez Canal	600	10.45	609	7.99
Urban Lower	736	12.82	876	11.5
Urban Upper	841	14.65	1,083	14.21
Rural Lower	1,515	26.39	2,336	30.66
Rural Upper	1,216	21.18	2,012	26.4
Household Wealth Index				
Poorest	940	16.38	1,366	17.93
Poorer	1,187	20.68	1,624	21.31
Middle	1,248	21.74	1,705	22.38
Richer	1,206	21.01	1,623	21.3
Richest	1,159	20.19	1,302	17.09
Household Size	5,740	5.26 (2.62)	7,620	3.56 (1.93)
SPOUSE VARIABLES				
Husband's Age (years)				
15 – 19	11	0.19	12	0.16
20 – 24	239	4.16	338	4.44
25 – 29	878	15.3	1,472	19.32
30 – 34	1,116	19.44	1,710	22.44
35 – 39	921	16.05	1,394	18.29
40 – 44	879	15.31	1,006	13.2
45 – 49	778	13.55	791	10.38
50 or older	918	15.99	897	11.77
Mean (SD)	5,740	38.7 (9.76)	7,620	37.0 (9.30)
Difference in Age	5,740	6.87 (4.73)	7,620	6.53 (4.62)
Husband's Education				
None	1,722	30	1,740	22.83
Primary	656	11.43	863	11.33
Preparatory	311	5.42	431	5.66
Secondary	50	0.87	166	2.18
Technical Secondary	1,690	29.44	2,744	36.01
Intermediate or Higher	1,311	22.84	1,676	21.99
Years of Education	5,740	9.06 (5.49)	7,620	9.57 (4.91)
Difference in Years of Education	5,740	3.03 (3.36)	7,620	3.06 (3.35)
Husband Ever Worked				
No	22	0.38	21	0.28
Yes	5,718	99.62	7,599	99.72
Husband Employed				
Employed	5,501	95.84	7,313	95.97
Unemployed	60	1.05	138	1.81
Out of Labor Force	179	3.12	169	2.22

Table 3. Summary Statistics of Primary Study Scales and Outcome Variables, Married Women 15 to 49 years old at Wave II or Wave III, 2006 and 2012 Egyptian Labor Market Panel Survey

	2006 N=5,740				2012 N=7,620			
Key Scales	N	Range	Mode	Mean (SD)	N	Range	Mode	Mean (SD)
Household Decision-Making								
Individual Decision-Making	5,740	0 - 10	0.00	2.47 (2.23)	7,620	0 - 10	0.00	2.31 (2.33)
Joint Decision-Making	5,740	0 - 10	0.00	3.67 (2.63)	7,620	0 - 10	0.00	3.79 (2.82)
Mobility	5,740	0 - 4	2.00	2.06 (0.69)	7,620	0 - 4	2.00	2.40 (0.82)
Financial Autonomy	5,740	0 - 1	-	0.22 (0.41)	7,620	0 - 1	-	0.55 (0.50)

Table 4. Multilevel Ordinary Least Squares and Logistic Regression Models Predicting Women's Autonomy: Married Women Ages 15 to 49 at Wave II, 2006 Egyptian Labor Market Panel Survey N=5,740

	Individual Decision-Making		Joint Decision-Making		Mobility		Financial Autonomy	
	OLS						Logistic	
Key Variables	b	(SE)	b	(SE)	b	(SE)	OR	(SE)
Age (years)	0.045***	(0.01)	0.0062	(0.01)	0.0095***	(0.01)	0.99	(0.01)
Education (Ref=Primary)								
None	-0.042	(0.11)	-0.25	(0.14)	-0.065	(0.034)	0.71*	(0.12)
Preparatory	0.10	(0.15)	0.040	(0.18)	0.035	(0.047)	1.27	(0.27)
Secondary	-0.36	(0.27)	0.30	(0.33)	-0.19*	(0.084)	1.26	(0.43)
Technical Secondary	0.10	(0.11)	0.057	(0.14)	0.025	(0.035)	1.12	(0.18)
Intermediate or Higher	0.039	(0.14)	0.22	(0.17)	0.018	(0.043)	1.58*	(0.30)
Mother's Education (Ref=Primary)								
None	-0.060	(0.24)	0.21	(0.30)	-0.13	(0.077)	1.85*	(0.52)
Preparatory or Higher	-0.12	(0.075)	0.26**	(0.092)	-0.10***	(0.023)	0.93	(0.09)
Older than 18 at First Marriage	-0.16*	(0.073)	0.045	(0.090)	-0.058*	(0.023)	1.02	(0.12)
Dowry (Ref=None)								
No Response	0.11	(0.088)	-0.021	(0.10)	0.028	(0.028)	1.06	(0.13)
Some	0.13	(0.071)	-0.055	(0.086)	0.049*	(0.022)	0.83	(0.09)
Marriage Process Duration (months)	0.002	(0.002)	0.006*	(0.003)	0.000	(0.001)	1.00	(0.02)
Related to Husband	-0.016	(0.061)	0.030	(0.075)	-0.036	(0.019)	0.94	(0.08)
Ever Worked	0.089	(0.11)	0.28*	(0.13)	0.039	(0.034)	1.36*	(0.20)
Employment (Ref=Employed)								
Unemployed	-0.014	(0.17)	0.40	(0.21)	-0.060	(0.053)	0.34***	(0.08)
Retired	-0.081	(0.12)	-0.070	(0.15)	-0.083*	(0.037)	0.64**	(0.10)
Birth Setting: Urban	0.14	(0.087)	0.0060	(0.11)	0.028	(0.027)	0.96	(0.11)
Region (Ref=Greater Cairo)								
Alexandria & Suez Canal	-0.61***	(0.18)	0.21	(0.19)	-0.18**	(0.058)	1.32	(0.29)
Urban Lower	0.079	(0.17)	-0.96***	(0.18)	-0.043	(0.057)	1.58*	(0.34)
Urban Upper	-1.02***	(0.17)	-0.20	(0.18)	-0.37***	(0.057)	1.24	(0.26)
Rural Lower	0.14	(0.16)	-0.97***	(0.18)	-0.092	(0.053)	1.71*	(0.36)
Rural Upper	-1.02***	(0.18)	-0.73***	(0.19)	-0.39***	(0.058)	0.98	(0.24)
Household Wealth Index (Ref=Poorest)								
Poorer	-0.10	(0.091)	0.056	(0.11)	-0.061*	(0.029)	1.74**	(0.30)
Middle	-0.10	(0.097)	0.071	(0.12)	-0.079**	(0.030)	2.66***	(0.45)
Richer	-0.33**	(0.11)	0.29*	(0.13)	-0.11**	(0.033)	3.58***	(0.64)
Richest	-0.33**	(0.12)	0.42**	(0.14)	-0.14***	(0.037)	6.15***	(1.16)
Household Size	-0.053***	(0.012)	0.036*	(0.014)	0.0072*	(0.004)	0.91***	(0.02)
Husband's Age (years)	0.008	(0.006)	-0.021**	(0.007)	-0.0020	(0.002)	1.02*	(0.01)
Husband's Education (Ref=Primary)								
None	-0.022	(0.094)	-0.078	(0.12)	-0.031	(0.029)	0.86	(0.13)
Preparatory	-0.049	(0.14)	0.13	(0.17)	-0.068	(0.043)	0.84	(0.17)
Secondary	-0.11	(0.30)	-0.00011	(0.36)	-0.13	(0.092)	1.51	(0.55)
Technical Secondary	-0.086	(0.098)	0.13	(0.12)	-0.063*	(0.031)	0.89	(0.13)
Intermediate or Higher	-0.33**	(0.12)	0.32**	(0.14)	-0.11**	(0.036)	1.00	(0.16)
Husband's Employment (Ref=Employed)								
Unemployed	-0.15	(0.26)	0.15	(0.32)	0.034	(0.081)	0.73	(0.30)
Out of Labor Force	-0.051	(0.15)	-0.11	(0.19)	0.029	(0.048)	0.99	(0.22)
Variance at Level 1 (Individual Level)	1.94		2.41		0.61			
Variance of Region at Level 2 (PSU Level)	0.75		0.68		0.25		0.74	
ICC	0.19		0.13		0.19		0.22	

Notes: *p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses

Table 5. Multilevel Ordinary Least Squares and Logistic Regression Models Predicting Women's Autonomy: Married Women Ages 15 to 49 at Wave III, 2012 Egyptian Labor Market Panel Survey N=7,620

	Individual Decision-Making		Joint Decision-Making		Mobility		Financial Autonomy	
	OLS						Logistic	
Key Variables	b	(SE)	b	(SE)	b	(SE)	OR	(SE)
Age (years)	0.059***	(0.0072)	0.028**	(0.0091)	0.015***	(0.0026)	1.04***	(0.0079)
Education (Ref=Primary)								
None	-0.18	(0.10)	-0.028	(0.13)	-0.081*	(0.037)	0.98	(0.11)
Preparatory	0.062	(0.13)	-0.20	(0.16)	0.00077	(0.046)	0.94	(0.13)
Secondary	-0.019	(0.17)	0.17	(0.21)	-0.12	(0.061)	0.93	(0.17)
Technical Secondary	0.15	(0.10)	0.15	(0.13)	-0.014	(0.037)	1.15	(0.12)
Intermediate or Higher	-0.099	(0.13)	0.34*	(0.16)	-0.080	(0.045)	1.27	(0.17)
Mother's Education (Ref=Primary)								
None	-0.33	(0.20)	0.27	(0.26)	-0.11	(0.073)	1.08	(0.24)
Preparatory or Higher	0.0090	(0.071)	-0.023	(0.090)	-0.036	(0.025)	1.22**	(0.092)
Older than 18 at First Marriage	-0.17*	(0.072)	-0.060	(0.091)	-0.048	(0.026)	0.88	(0.066)
Dowry (Ref=None)								
No Response	-0.12	(0.091)	0.25*	(0.11)	0.0024	(0.032)	0.95	(0.090)
Some	-0.11	(0.070)	0.30***	(0.087)	0.023	(0.025)	1.00	(0.073)
Marriage Process Duration (months)	0.0010	(0.0023)	0.0017	(0.0029)	0.00066	(0.001)	1.00	(0.0024)
Related to Husband (Ref=No)								
No Response	-0.68***	(0.14)	-0.39*	(0.17)	-0.27***	(0.048)	1.29	(0.18)
Yes	0.0044	(0.061)	-0.0056	(0.078)	-0.069**	(0.022)	0.84**	(0.054)
Ever Worked	0.23**	(0.090)	0.062	(0.11)	0.056	(0.032)	1.35**	(0.13)
Employment (Ref=Employed)								
Unemployed	0.19	(0.13)	-0.19	(0.17)	-0.029	(0.047)	0.78	(0.11)
Retired	-0.10	(0.11)	0.013	(0.13)	-0.13***	(0.038)	0.81	(0.093)
Birth Setting: Urban	0.22*	(0.093)	-0.0059	(0.12)	0.018	(0.033)	1.41***	(0.14)
Region (Ref=Greater Cairo)								
Alexandria & Suez Canal	-0.30	(0.17)	0.13	(0.19)	-0.32***	(0.061)	0.75	(0.13)
Urban Lower	-0.56***	(0.16)	0.39*	(0.18)	0.043	(0.057)	0.73*	(0.12)
Urban Upper	-1.35***	(0.16)	0.030	(0.18)	-0.24***	(0.057)	0.28***	(0.045)
Rural Lower	-0.63***	(0.16)	0.55**	(0.18)	0.027	(0.056)	0.62**	(0.099)
Rural Upper	-1.20***	(0.17)	-0.36	(0.19)	-0.25***	(0.058)	0.40***	(0.067)
Household Wealth Index (Ref=Poorest)								
Poorer	-0.14	(0.081)	0.11	(0.10)	-0.040	(0.029)	0.87	(0.073)
Middle	-0.28***	(0.085)	0.39***	(0.11)	-0.044	(0.031)	0.94	(0.083)
Richer	-0.29**	(0.093)	0.47***	(0.12)	-0.093**	(0.033)	0.93	(0.091)
Richest	-0.28*	(0.11)	0.60***	(0.14)	-0.16***	(0.039)	0.88	(0.10)
Household Size	0.018	(0.017)	-0.027	(0.021)	0.0061	(0.0060)	0.90***	(0.016)
Husband's Age (years)	0.013*	(0.0052)	-0.0046	(0.0066)	0.0039*	(0.0019)	0.99*	(0.0054)
Husband's Education (Ref=Primary)								
None	0.034	(0.092)	-0.040	(0.12)	-0.014	(0.033)	0.96	(0.092)
Preparatory	-0.027	(0.13)	0.25	(0.16)	0.040	(0.045)	1.19	(0.16)
Secondary	-0.40*	(0.18)	-0.033	(0.23)	-0.068	(0.066)	0.61**	(0.12)
Technical Secondary	-0.24**	(0.087)	0.20	(0.11)	-0.072*	(0.031)	0.81*	(0.074)
Intermediate or Higher	-0.37***	(0.11)	0.29*	(0.13)	-0.12**	(0.038)	0.82	(0.092)
Husband's Employment (Ref=Employed)								
Unemployed	-0.14	(0.18)	0.12	(0.23)	-0.11	(0.066)	0.49***	(0.097)
Out of Labor Force	0.064	(0.17)	-0.56**	(0.21)	-0.16**	(0.060)	0.90	(0.16)
Variance at Level 1 (Individual Level)	2.08		2.65		0.74			
Variance of Region at Level 2 (PSU Level)	0.78		0.74		0.27		0.44	
ICC	0.15		0.09		0.14		0.18	

Notes: *p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses

Figures

Figure 1. Distribution of Household Decisions for Married Women in 2006 and 2012