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SHAPING LIVES WITH GOLD: INVESTIGATING FERTILITY CHOICES AND MAHR IN THE MENA CONTEXT

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Abstract

The influence of female economic independence within households on fertility decisions has been a subject of extensive research, yielding varying results across developed and developing nations. This study investigates the dynamic relationship between female economic independence and fertility choices, shedding light on the complex interplay of factors involved. Research has suggested that increased economic independence for women can expand their decision-making power within households, potentially leading to greater fertility options (Jennings & Pierotti, 2016). Moreover, addressing gender wage disparities can bolster women's capacity to choose larger family sizes (Siegel, 2017).

While the impact of women's participation in the labor force has been widely studied, there remains a dearth of research exploring alternative indicators capable of enhancing women's status within households. This paper aims to bridge this gap by examining the effects of various strategies aimed at augmenting women's independence within the family unit. Furthermore, it delves into the significance of women's empowerment in shaping broader economic development, drawing from insights in the field of intra-household decision-making (Pierre et al., 2018).

This comprehensive analysis offers a nuanced perspective on the intricate dynamics between female economic independence, fertility choices, and overall socio-economic progress. By exploring the multifaceted facets of women's empowerment within households, we strive to provide a deeper understanding of how these dynamics can shape the trajectory of economic development.

1. Introduction

Several studies have documented the effect of economic independence of female position within the household on fertility decisions, both in developed and developing countries and found different outcomes. Greater

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economic independence of the wife may increase her options within a household, thereby increasing her options for fertility (Jennings & Pierotti, 2016). Reducing the male-female wage gap increases women's choice of several children by improving the woman's intra-household bargaining power (Siegel, 2017). Several methods can be used to increase an individual's independence. While the participation of women in the labor force is the most extensively investigated, the investigation of the effects of alternative indicators that could boost the status of women within the household has been comparatively limited. Several extant literatures on intra-household decision-making have demonstrated that women's empowerment significantly impacts further economic development (Pierre et al., 2018).

The MENA region has seen a significant change in the role of women in economic life and politics. There are about 22 countries located in the MENA region that have improved women's status, especially in the gulf countries, where women have become more active in business, education, and public activities. The bride payment, which is a fundamental element of the marriage contract and coincides with women's right to have it at the time of marriage from their husbands, has not been examined empirically by economists in the case of the MENA region. The ancient civilizations of Egyptians, Mesopotamians, Hebrews, Aztecs, and Incas all used bride prices (Quale, 1988). The Muslim marriage contract differs from a standard western civil marriage license in terms of the bride price or what is called *Mahr*, which can be a sum of money or any other valuables such as gold that the husband gives or undertakes to give to the bride upon Marriage (Ambrus et al., 2010). More than 70% of the costs of marriage in MENA countries are paid by the groom and his family (Goodarzi, 2018). This study uses data from three countries in the MENA region, namely Egypt, Tunisia, and Algeria, and most of their population follows the Islamic religion. More importantly, Islamic law requires a form of a bride price to make any marriage valid (Rapoport, 2000; Quale, 1988). It is widespread in societies of the MENA region for the bride and her family to use money from the Mahr to help cover the bride-side contribution of furniture and other household items (Elbadawy, 2009).

In this paper, I use the number of children to indicate a female's bargaining power to see how it varies with Mahr payments. Two recent articles find ambiguous results in studying the impact of bride prices on women's fertility. Mbaye and Wagner (2017) found a significant effect with a negative sign on examining the relationship between bride price payments and fertility for women in the case of rural Senegal. In contrast, Lowes and Nunn (2018) found no evidence that a high bride price payment is linked with earlier marriage or higher fertility in the Democratic Republic of the Congo.

It is, therefore, important from a policy point of view to understand the effect of bride prices on women's bargaining power in each country through the lens of the traditions and institutions specific to that country's culture. I employed the instrumental Variable estimation technique to address the endogeneity of bride price payment. I use the average price of gold at the time of marriage as a source of exogenous variation to proxy for bride price payment since the price of gold provides information on how much gold the bride can receive from the groom at the time of marriage. I assume that the groom's side will react to a high gold price at the time of marriage and estimate its effect on fertility decisions inside the marriage. Because the price of gold is established worldwide outside of the MENA region, it allows for reasonable exogenous fluctuation in the groom's and bride's first payments.

Since the groom or groom's family is responsible for paying the amount of gold at a given price of gold, the amount of gold does provide if the bride price is low or high and would affect the psychology of the couple. This paper contributes to a better understanding of the impact of bride price payment by examining the link between the bride price value and fertility rate in the MENA region. Moreover, I conduct a detailed heterogeneity analysis

by exploring various variables through which the (*Mahr*) influences fertility decisions, such as education, age, and urbanization. Due to the absence of empirical studies of bride price payments for the MENA countries, this paper is the first empirical study to analyze such a relationship by using a unique dataset of married couples consisting of 54,800 observations. This paper's main result confirms that a high bride price paid by the groom is associated with less bargaining power for women by giving more birth. These results are robust to conditioning on a variety of socio-demographic, temporal, and spatial parameters.

2. **Related Literature**

Based on the theoretical literature, several factors are essential in changing fertility preferences, such as access to information, control of resources, and participation in decision-making (Hindin, 2000). Also, education and social media access can help empower women and positively impact the ideal family size. Other essential factors critical in household decisions about reproduction and overall fertility levels are culture, religious beliefs, and gender relations (Atake & Gnakou, 2019). According to the literature that studies the association between women's empowerment and fertility preferences in the MENA (the Middle East and North Africa) and SSA (SubSaharan African) countries, there are three dimensions of a woman's empowerment. One dimension is the sociocultural dimension which contains education achievement and access to information. The second dimension focuses on economic participation as the ownership status and sustainable income. The third dimension focuses on the familial dimension and contains factors such as age and participation in household decisions.

Horne et al. (2013) and Kaye et al. (2005) find evidence that bride price payment strengthens normative constraints on women's reproductive autonomy and limits their fertility preferences to their partners in Ghana. Zhang and Chan (1999) find that the bride price does not affect the bargaining position within Marriage in Taiwan. A related contribution is the case study of Mbaye and Wagner (2017), who found that the higher bride price payments decrease the fertility rate for women in rural Senegal. Recent literature by Lowes and Nunn (2018) found evidence that women who receive more wealth at the time of marriage are less likely to accept domestic violence and are happier. These contradictory empirical findings may be attributed to the fact that bride price has a different influence over variety in the norms and social institutions of countries and cultures. The study contributes to the existing literature by employing a large sample of three essential countries in the MENA region, namely Egypt, Algeria, and Tunisia, to better understand the impact of bride price payment on the fertility rate.

On the other hand, Suran et al. (2004) find the opposite outcome in explaining the bequest theory. That is, married women who paid dowry at marriage have a higher probability of reporting domestic violence than those who did not. This paper concentrates on studying the bride price variable's mechanism rather than the dowery variable since it is the fundamental tool of marital payments and understanding marriage practices in the MENA region. Several studies, such as (Mincer, 1963; Becker, 1981; Willis, 1973), find a strong relationship between women's salary and time allocation for raising children. That is, an improvement in females' salaries increases the opportunity cost of time allocation for raising children, encouraging women to engage in the labor market. In other words, female employment has a negative impact on the fertility rate.

Similarly, Phan (2016) examined the link between women's empowerment and fertility preferences of women in four Southeast Asian countries and found that women's empowerment factors are one of the keys to women's fertility preferences, including the ideal number of children and their preference for sons.

Two types of instruments for dowry and bride price payments are used by Zhang (1999), which are regional grain yield shocks to have an important influence on household wealth accumulation and sibling sex composition to likely affects the savings available for marital payments. However, these instruments are not appropriate for this

study since their sample of surveyed households is in rural areas where livelihoods have long depended on farming. In contrast, this study used a random sample between rural and urban areas.

The second instrument used by them is the sibling sex composition of the bride and groom, which is not an essential determinant of a household's wealth, and it has been approved by (Rajan et al., 2018) that wealth or sibling sex composition and education are not associated with the fertility. Average gold price is used as an instrument for bride price values when estimating the effect of pre-marital endowments on the decision of fertility rate in this study. There is more information about this type of instrument in the identification section.

3. **Data & Descriptive Statistics**

3.1 Data

The study is based on micro-level data on Egypt and Tunisia from the 1998 integrated labor market panel survey (ILMPS)[2]. Based on a nationally representative household sample, the survey provides data for 54,832 households. The ILMPS is a data set that integrates and harmonizes data and variables from five rounds of the Egypt labor market panel survey (in years 1988, 1998, 2006, 2012, and 2018), two rounds of the Jordan labor market panel survey (2010 and 2016), and the 2014 Tunisia labor market panel survey. It contains created, compatible variables that are harmonized (to the extent possible) across all rounds. The questionnaire was carefully designed to understand marriage practices in MENA countries comprehensively. In the data collection, three separate questionnaires were used to collect information from the selected sample: the household survey, the women's survey, and the men's survey. This paper uses data from the women's questionnaire, which was used to collect information from all cases, and I restrict the sample to married individuals at the time of the survey. These women were asked questions about themselves and their children born on topics including but not limited to education, bride price, wealth, health, marriage, occupation and husband's background characteristics, childhood mortality, and domestic violence. The survey collects data on bride price payments to capture women's empowerment effect. Women have been asked about the value of the bride price (*Mahr*) given.

3.2 Dependent variable

I measure the fertility rate by using the number of children at the time of the survey. It is a continuous variable of all births reported in a woman's history. In the sample, women were asked about the number of births they gave, and most had only 4. The global fertility rate declined from 3.2 births per woman in 1990 to 2.5 in 2019 (United Nations, 2020). Also, the fertility rate declined in Northern Africa and Western Asia over the same period (from 4.4 to 2.9). In addition, the highest proportion of women who reported having more children than their ideal number was found in Egypt (42%), followed by Jordan (31%) and Tunisia (13%). This dependent variable type has been used widely in the literature and linked with women's empowerment (see Jejeebhoy & Sathar, 2001; Seetha, 2020). The robustness of the result is conducted by employing different types of dependent variables, including a survey question asking women whether the husband is justified to beat his wife when she burns food and whether women are afraid of disagreeing with the husband or other males in the household.

3.3 Descriptive Statistics

The summary statistics for all the variables used in the empirical models are shown in Table 1. Table 1 shows that the average fertility rate is four children. The average age of the sample mothers and fathers is 30 and 37, respectively. The proportion of literate men (.56 %) exceeds the proportion of women who are literate (.37 %) by

[2] Integrated Labor Market Panel Surveys, V4.0 OAMDI, 2019. Labor Market Panel Surveys (LMPS), http://erf.org.eg/data-portal/. Version 4.0 of Licensed Data Files; ILMPS. Egypt: Economic Research Forum (ERF).

19 percentage points. Around six household members live in a typical household. On average, the age of the wife and husband at first marriage is 20.8 and 26.4, respectively. I differentiate between households who do live in urban and rural areas to control for influential geography. Fifty percent of the household live in urban areas. To capture the household characteristics, I use ownership status at the time of the marriage, showing that only 22 percent own their house. Women's well-being and empowerment would improve if the husband were related to the wife by blood (Institute for Women's Policy Research, 2015). In the sample, 6% of wives are related to their husbands.

4. Identification & Empirical Specification

Identification

Different methodological approaches have been used to analyze bridal payments. Most literature presents descriptive statistics based on data collected from household surveys and specifically from women's questionnaires on topics including but not limited to education, bride price, wealth, health, marriage, occupation and husband's background characteristics, childhood mortality, and domestic violence (Zhang & Chan, 1999; Horne et al., 2013; Kaye et al., 2005; Mbaye & Wagner, 2017; Bishai & Grossbard, 2010; Gaspart & Platteau, 2010; Ashraf et al.,
2016). Instrumental variables for bride price to control for both simultaneity and omitted variables in the case of China, namely the deviation from the trend in provincial per capita grain yield in the year immediately preceding marriage, the sibling sex composition of the bridegroom, and parental education to reflect savings available at the time of marriage (Zhang & Chan, 1999; Brown, 2009).

The methodology in this study differs from (Lowes & Nunn, 2018) in dealing with bridal payments as an exogenous variable ignoring several issues that may arise, such as omitted variables. Hence, their identification strategy is thus subject to endogeneity problems. (Zhang & Chan 1999) used two types of instruments for dowry and bride price payments in the case of China, which are regional grain yield shocks to have an important influence on household wealth accumulation and sibling sex composition to likely affects the savings available for marital payments. However, these instruments are not appropriate to be used in the case of our sample since their sample of surveyed households is only in rural areas where livelihoods have long depended on farming. Therefore, I implement a two-stage estimation strategy in which the deflated average gold price at the time of marriage is used as an instrument for bridal payments when estimating the effect of pre-marital endowments on the decision of fertility rate in our sample.

Empirical Specification

Following (Becker, 1981; McElroy and Horney, 1981), I use the number of births given by the wife as the dependent variable **Y** and **BP** as the independent variable reflecting the average bridal payment during the first marriage; to see each couple in the dataset of observations was above or below the average bride price for the year they were married. Specifically, I apply the bridal payments **ln**(**BP**+**1**) logarithm to account for any payment equal to 0 and incorporate the control variables to construct the following fixed effect model:

$$\mathbf{Y}\ whtc = \boldsymbol{\alpha} + \boldsymbol{\beta 1}\ \mathrm{Ln}\ (BP)whtc + \mathbf{Z1}\ \boldsymbol{\beta 2}\ whtc + \boldsymbol{\delta} t + \boldsymbol{\gamma} c + \boldsymbol{\mathcal{E}}\ whtr \qquad (1)$$

The subscript **w** denotes wife, **h** household, **t** year, and **c** country. **Z** is a vector of demographic and explanatory variables, including differences in the husband and wife's age and differences in education levels, as well as household characteristics, including ownership status at the time of the marriage and whether the husband is related to the spouse. The reason behind adding these vectors of variables is that the groom's and bride's characteristics would play a vital role if the bride's wealth were paid to attract a better bride or if the bird's family demanded it. Finally, I control for the fixed effect to account for survey FE, δ, and location FE, **γ**, to reflect

women's bridal payment differences at the country level. Since many of the younger women are not completed their fertility, I include age-fixed effects in the regression models to compare women of the same age.

Marriage payments are unlikely to be exogenous in equation (1) since any unobserved characteristic of the female that affects these payments may also affect her decision to have a certain number of children. In addition, females with very likable personalities may receive higher wealth from their spouses and have a better household position than those with unsavory characters. In either case, using ordinary least squares (OLS) to estimate equation (1) would produce biased and inconsistent estimators. The bridal payments may thus be estimated by:

BP *whtc* = **α2** + **Z1** δ1 + **Z2** δ2 + + **δ***t* + **γ***c* + **Ɛ** 2 **(**2**)**

The instrumental variable is represented by **Z2**, which explains **BP** and should be independent of **Y**. Several channels could potentially affect intra-household bargaining, and bridal payments at the time of marriage are one of these channels. I use the average deflated price of gold at the time of marriage as a source of exogenous variation to reflect the bridal payments. Since the gold price is set internationally, this exogenous shock affects household wealth accumulation and households' ability to make transfers linked with marriage. Plus, it provides plausibly exogenous variation in the initial endowment of the bride and groom. Figure.1 presents the average deflated trend of the price of gold at the time of marriage. Since gold is an integral part of the Mahr basket, the unusually high price of gold at the time of marriage and an economic slowdown has negatively affected the wedding season demand.

Table 2 presents first-stage estimates for the determinants of bride price. Column 1 shows the determinants of bride price, including exogenous shocks to gold prices, and controlling for the characteristics of the wife CW and husband CH respectively by using age, age of the spouse at marriage, and a binary variable equal to 1 if the spouse is literate. Also, I consider household characteristics, CHH, by controlling the type of ownership status at marriage to proxy for the wealth and whether a husband is related to his wife or not, column 2 including the squared for some variables to see a nonlinear relationship. The results of the first stage estimation in Table 2 are consistent with the second scenario with a fixed Mahr basket. That is, a high average price of gold at the time of marriage increases the value of the bridal payments if the amount of these payments. The coefficient of the gold price is highly significant. It indicates that, on average, a 1% increase in average gold price at the time of marriage is associated with a 0.6 % improvement in the bridal payments.

5. Empirical Results

5.1 Main result

Table 3 presents the ordinary least squares and the IV regression results investigating the relationship between the average price of bridal payments at the time of marriage and fertility decision proxied by the number of children. The fertility decision is measured by the number of children as a continuous variable. Column 1 presents the bivariate estimates conditions on year fixed effects, survey fixed effects, and characteristics of both couples. Column 2 additionally conditions contemporaneous age and its square, the woman's age at her current marriage, and its square.

I find that a higher average of price payments at the time of marriage increases the predicted probability of giving more children by the married women within the household with an estimated coefficient of 0.15 in column 2. That is, at the mean bride price of 4084, a woman gives birth to about .015 children more if the average bride price increase by 10%. The result is consistent with previous studies; such payment is considered one of the critical factors associated with domestic violence and reduces women's bargaining power options within the household (Kaye et al., 2005; Bishai & Grossbard, 2010; Gaspart & Platteau, 2010; Ashraf et al., 2016). From the IV estimation, the coefficient linked with bride price payment remains significant and positive in all

specifications and highly significant at 1% in Table 3, columns 3-4. The coefficient is 0.09 in column 4 and indicates that increases in the average bride's wealth by %10 are associated with about 0.009 more birth given by married women in the MENA region.

The pattern of predictors on other controls is informative and presented in full in Columns 1-4 of Table 3 Although the education variable for both males and females are insignificant in explaining the variation of the outcome, they appear with the correct sign. The result shows that the younger wife at the time of marriage has given less birth at the survey date. It seems that related spouses are more likely to have more children compared to non-related families. The binary variable of ownership status at marriage appears with a negative sign, and it is statically significant to explain the variation of our outcome. Also, both co-efficient of the IV estimation are higher than the co-efficient of the OLS estimation.

5.2 Robustness Check

Instead of using the primary outcome variable of fertility decision to see the impact of bride price payments increase, I alternatively tried to employ different types of dependent variables. Women can shop without permission, whether the husband is justified to beat his wife when she burns food, and women are afraid to disagree with the husband or other males in the household. I present the results in Tables 4-6. The statistical significance of the estimates of the correlation between the different outcome coefficients implies that there is evidence that women in the MENA countries lose their autonomy in the case of receiving the full Mahr basket. Table 4 shows the estimated result of the bride price and shopping without getting permission. The coefficient associated with bride price payments remains significant and negative, suggesting that married women classified in shopping without getting approval are more likely to influence by increasing the bride price payments relative to those classified in shopping with getting a permit. Having a related household (within blood relations) increases the rate of doing shopping without getting permission by 0.8 ppts. Table 5 provides the estimated result of bride price payments and whether women fear disagreeing with their husbands or other males. The coefficient associated with bride price payments remains significant and positive in both specifications.

It indicates that married women who receive a high rate of bride price payments are more likely to be afraid of disagreeing with their husbands or other males in the household. Tale 6 shows that married women who justify their husband beating them when they burn food rises by.008 ppts as pride price payments increase.

By using alternative methods of coding, the measure of women's bargaining power. Firstly, I created an ordinal measure of women's bargaining power equal to the above three outcome variables of intra-household bargaining to the respondent is exposed to. This is an index (0,3) which is 0 if women's bargaining power does not change in the household and gradually adds 1 for a non-zero response to each of the 3 questions mentioned above. Table 7 provides the result of the IV estimation, and the coefficient linked with bride price payment remains significant and positive in column 4. It indicates that married women are more likely to face domestic violence by lowering their bargaining power with an estimated coefficient of -0.12.

Another robustness check is conducted in this study by using the oil price as an alternative to the gold price. Historically, fertility tends to decline during the fluctuation of oil prices (Sobotka, 2011). Since gold and oil prices have correlated positively in the previous 50 years (Shahbaz et al.,2017), I used the average price of crude oil adjusted for inflation at the time of marriage to examine if the effect is an artifact of unobservable market fluctuations. Table 8 provides evidence that a higher average of price payments at the time of marriage increases the predicted probability of giving more children by the married women within the household, with an estimated coefficient of 0.53 in column 2. The result is similar to the main result in Table 6, with a slight difference in the

coefficient magnitude. It suggests that increases in the average bride's wealth by %10 are associated with about 0.053 more birth given by married women in the MENA region.

5.3 Heterogeneity Analysis

I conduct a detailed heterogeneity analysis by exploring different variables over which the (*Mahr*) influences the fertility decisions, such as religion, education level, year of marriage, and the location of the household. Table 9 provides the heterogeneity estimation of the average bride price and fertility rate to compare different groups. The result in Table 9 shows that, under the high average value of the bride's wealth, married women characterized as rural, less educated, poorest, unemployed, and aged at first marriage between 21-35 years are more likely to give more birth compared to the contradictory groups.

The result indicates that non-educated married women are more likely to give birth than educated women as the payments of (*Mahr*) increased. It has been proven (Lundberg & Pollak, 1993) that education is vital in improving women's bargaining power within their households since it gives them knowledge, skills, and resources to make life choices that enhance their welfare. Due to access to services and infrastructure, more opportunities are available to engage in paid employment and enjoy a relaxation of sociocultural restrictions; urban women generally are better off compared to women living in rural areas (Institute for Women's Policy Research, 2015). Table 9 distinguishes between urban and rural women to see how they respond to a change in the bride price wealth (*Mahr*). The coefficient associated with average bride price payments indicates that rural married women would be less bargaining power by giving more birth as the value of the average bride price increases. *Mahr* dynamics can be further differed by analyzing the nature of the marriage, namely age at first marriage. The coefficient associated with married women aged at first marriage between 21-35 years average would be less bargaining power by giving more birth as the value of the average bride price increases.

5. Conclusion

In many Arab countries, the bride's wealth system has a long history and is still ingrained in the culture there. This marriage payment system dramatically impacts women's position and bargaining power. Such payments are essential in the marriage market institution even as countries and regions develop. This paper has examined the mechanism of average bride price payments and its impact on the intra-household bargaining of panel survey data on Egypt, Jordan, and Tunisia. The dataset used in this study covered five rounds of the Egypt Labor Market Survey (1988, 1998, 2006,2012, and 2018), two rounds of the Jordan labor market survey (2010 and 2016), and the 2014 Tunisia Labor Market survey. I contribute to the existing literature by providing a better understanding of the impact of average bride price payment on the fertility decision by using two crucial instruments: the average price of gold and oil. Due to the absence of empirical studies of bride price payments for the MENA countries, this paper is the first empirical study, based on reviewing the existing literature, that concentrates on analyzing such a relationship in this area.

This study shows that the price of gold at the time of marriage is a source of exogenous variation in the initial endowment of the bride at the time of marriage. The persistent precision of the estimates adds to the existing literature by showing that *Mahr* practices continue to be widespread in the MENA region, and on average, a *Mahr* basket is likely to contain a high amount of gold along with cash. This paper's main result confirms that an increase in the average price payments paid by the groom is associated with many births by married women. These findings provide significant empirical support for the theoretical literature that links resource control to marital outcomes. Moreover, based on the robustness of these findings, it is plausible that the bride price will lead women to lose their autonomy, and these results are compatible with anthropological literature.

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Appendix

Table 1. Descriptive Statistics

	Mean	**Std.Dev.**	**Min**	**Max**
Number of Children	3.90	1.97	0	17
Gold Price at time of Marriage	1075.80	451.27	294.12	1668.86
Bride Price (Mahr)	2152.39	5527.41	0	90000
Average Bride Price grouped by the first year of marriage (Mahr)	4083.98	831.17	106.14	5581.44
Characteristics of the wife				
Age of the wife	30.88	8.38	15	75
Age of the wife at Marriage	20.84	4.17	7	52
Literacy of the wife **Characteristics of the husband**	0.37	0.48	0	1
Age of the husband	37.14	16.39	16	82
Age of the husband at Marriage	26.40	4.86	14	73
Literacy of the husband **Characteristics of the Household**	0.56	0.49	0	1
Ownership status at marriage Husband **related to wife**	0.22 0.06	0.41 0.24	0 0	1 1

Table 2. Results of First Stage IV Regressions Dependent Variable: Average Bride Price Payment

Variable	**FSLS (1)**	**FSLS (2)**
Log of Gold Price	.214 (.002) ***	.626 (.002) ***
Age of the wife	-.0140 (.0043) ***	-0.0107 (.0225)
The age of the wife squared		0.0003 (0.0003)
Age of the wife at Marriage	-0.0105 (0.007)	-0.0101 (0.041)
Age of the wife at marriage squared		.0014 (0.0009)
Wife's education	-1.366 (5.566)	-0.344 (5.566)
Age of the husband	-.1032 (0.1169)	-0.0824 (0.1175)
The age of the husband squared		0.0048 (.0244)
Age of the husband at Marriage	-0.0119 (0.0021)	-.0780 (.0451) *
Literacy of the husband	.7438 (5.565)	.7329 (5.566)
Ownership status at Marriage	-0.204 (.0414) ***	-.2051 (.0413) ***
Husband related to wife	0.5531 (0.0850) ***	0.2032 (0.0609) ***
Country dummies	Yes	Yes
Year dummies	Yes	Yes
Constant	421.059 (19.888) ***	420.807 (19.904) ***
Observations	54,832	54,832
F- test	471.22	392.96
R^2	0.224	0.224

Note: 1- The F test has normal distribution N (0,1) and tests the null hypothesis of the insignificance of the estimated parameters against the alternative hypothesis of the significance of the estimated parameters.

2- *** and *denote significance at 1 and 10 % significance levels, respectively.

3- The figure in parenthesis below the coefficient estimates are standard errors.

Table 3. OLS and Instrumental Regression of Bride Price and Fertility Rate

Variable	**Dependent Variable: Number of Children**			
	OLS(1)	**OLS(2)**	**IV(3)**	**IV(4)**
Log of Average Bride Price	.110 (.016)***	.111 (.014)***	0.110 (.020) ***	0.090 (.020) ***
Age of the wife	0.162 (0.001) ***	0.398 (0.015) ***	0.187 (0.001) ***	0.299 (0.008) ***

The age of the wife squared		-.0041 (.0002) ***		-0.0015 (0.0001) ***
Age of the wife at Marriage	-0.162 (0.002) ***	-0.251 (0.016) ***	-0.1990 (0.0026) ***	-0.410 (0.003) ***
Age of the wife at marriage squared		0.010 (0.005) *		0.021 (0.004) ***
Wife's education	-1.200 (1.195)	-1.148 (1.180)	-1.110 (2.123)	-1.006 (2.226)
Age of the husband	0.016 (0.025)	.032 (.025)	0.0025 (0.0446) *	0.013 (0.046)
The age of the husband squared		- 0.001 (0.001)		- 0.001 (0.001)
Age of the husband at Marriage	-0.013 (0.005) **	-0.026 (0.002) ***	-0.012 (0.003) ***	-0.010 (0.001) ***
Literacy of the husband	-1.112 (1.194)	-1.064 (1.180)	-1.018 (2.123	-1.423 (2.537)
Ownership status at marriage	-.002 (0.008)	-.001 (0.008)	-0.179 (0.017) ***	-0.141 (0.016) ***
Husband related to wife	.085 (0.016) ***	0.086 (0.016) ***	0.0746 (0.0234) ***	0.142 (0.028) ***
Country dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Constant	.942 (0.102) ***	-1.311 (0.218)	-.336 (0.119) ***	-2.195 (.271) ***
Observations	54,832	54,832	54,832	54,832
Wald chi2(2)	.	.	23646.42	21690.42
F- test	1058.11	924.32	.	.
R^2	0.512	0.524	0.530	0.484

Note: 1- The F test has normal distribution N (0,1) and tests the null hypothesis of the insignificance of the estimated parameters against the alternative hypothesis of the significance of the estimated parameters.

2- *** and *denote significance at 1 and 10 % significance levels, respectively.

3- The figure in parenthesis below the coefficient estimates are standard errors.

4- Instrument Variable: The Gold Price at the time of marriage (log).

Table 4. Estimation Result of Average Bride Price and if a married women Shopping Without Getting Permission

Variable	**Dependent Variable: Shopping Without Getting Permission (0,1)**			
	OLS(1)	**OLS(2)**	**IV(3)**	**IV(4)**
Log of Average Bride Price	-0.0051 (0.0006)***	-0.0061 (0.0006)***	-0.001 (0.0060)***	-0.0012 (0.0007)*
Wife's Characteristics	Controlled	Controlled	Controlled	Controlled
Husband's Characteristics	Controlled	Controlled	Controlled	Controlled
Household's Characteristics	Controlled	Controlled	Controlled	Controlled
Country dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Constant	0.255 (0.006) ***	0.285 (0.006) ***	.097 (0.058) *	.180 (0.057) ***
Observations	54,832	54,832	54,721	54,721

F – test	55.22	58.56	62.67	182.46
R^2	0.002	0.008	0.017	0.086

Note: 1- The F test has normal distribution N (0,1) and tests the null hypothesis of the insignificance of the estimated parameters against the alternative hypothesis of the significance of the estimated parameters.

2- *** and *denote significance at 1 and 10 % significance levels, respectively.

3- The figure in parenthesis below the coefficient estimates are standard errors. 4-

Instrument Variable: The Gold Price at time of marriage (log)

Table 5. Estimation Result of Average Bride Price and Whether Women are Afraid of Disagree. With Husband or Other Males in HH

Dependent variable: whether women are afraid of disagreeing with the husband or other males in HH (0,1)				
Variable	**OLS(1)**	**OLS(2)**	**IV(3)**	**IV(4)**
Log of Average Bride Price	.0047 (.0009) ***	.0041 (.0009) ****	.0440 (.008) ***	.0356 (.008) ***
Wife's Characteristics	Controlled	Controlled	Controlled	Controlled
Husband's Characteristics	Controlled	Controlled	Controlled	Controlled
Household's Characteristics	Controlled	Controlled	Controlled	Controlled
Country dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Constant	0.447 (0.009) ***	0.412 (0.012) ***	.0422 (0.034) *	.101 (0.105)
Observations	54,832	54,832	54,721	54,721
F – test	8.16	10.34	7.13	6.03
R^2	0.000	0.001	0.015	0.016

Note: 1- The F test has normal distribution N (0,1) and tests the null hypothesis of the insignificance of the estimated parameters against the alternative hypothesis of the significance of the estimated parameters.

2- *** and *denote significance at 1 and 10 % significance levels, respectively.

3- The figure in parenthesis below the coefficient estimates are standard errors.

4- Instrument Variable: The Gold Price at the time of marriage (log).

Table 6. Estimation Result of Average Bride Price and Husband Justify Beat His Wife When She Burns the Food

Dependent Variable: Spouse justifies beating his wife when she burns food				
Variable	**OLS(1)**	**OLS(2)**	**IV(3)**	**IV(4)**
Log of Average Bride Price	.0001 (.0005)	.0009 (.0005) *	.0081 (.0009) ***	.0074 (.0009) ***
Wife's Characteristics	Controlled	Controlled	Controlled	Controlled
Husband's Characteristics	Controlled	Controlled	Controlled	Controlled
Household's Characteristics	Controlled	Controlled	Controlled	Controlled
Country dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Constant	0.068 (0.004) ***	0.041 (0.006) ***	.052 (0.030) *	.115 (0.109)
Observations	54,832	54,832	54,721	54,721
F – test	0.05	21.20	7.98	6.06
R^2	0.000	0.002	0.015	0.016

Note: 1- The F test has normal distribution N (0,1) and tests the null hypothesis of the insignificance of the estimated parameters against the alternative hypothesis of the significance of the estimated parameters.

2- *** and *denote significance at 1 and 10 % significance levels, respectively.

3- The figure in parenthesis below the coefficient estimates are standard errors.

4- Instrument Variable: The Gold Price at the time of marriage (log).

Table 7. Estimation Result of Alternative Ways of coding women's bargaining power.

Dependent Variable: women's bargaining power (0-3)				
Variable	**OLS (1)**	**OLS (2)**	**IV (3)**	**IV (4)**
Log of Average Bride Price	-.274 (.008) ***	-.301 (.008) ***	-.059 (.024) **	-.123 (.034) ***
Age of the wife	-.004 (.0007) ***	-.004 (.002)***	-.028 (.001)***	-.017 (.001)***
The age of the wife squared		-.0007 (.0002)		-.0001 (.0001)
Age of the wife at marriage	-.0001 (.0004)	-.0001 (.0005)	-.0007 (.0014)	-.0141 (.0110)
Age of the wife at marriage squared		.0003 (.0028)		.0003 (.0022)
Wife's education	-.0541 (.0025) ***	-.0592 (.0020) ***	-.0540 (.0085) ***	-.0532 (.0082) ***
Age of the husband	.001 (.0015)	-.002 (.002)	-.0012 (.0061)	-.0004 (.0060)
The age of the husband squared		.0011 (.0160)		.0014 (.0141)
Age of the husband at marriage	-.0132 (.0241)	-.0140 (.0254)	-.0164 (.0401)	-.0180 (.0351)
Literacy of the husband	-.0017 (.0168)	-.0042 (.0110)	-.0015 (.015)	-.0080 (.0151)
Ownership status at marriage	-.0085 (.005)	-.0042 (.0025)	-.0019 (.0024)	-.0030 (.0024)
Husband related to wife	-.0065 (.002)	-.0038 (.0070)	-.0031 (.0080)	-.0038 (.007)
Country dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Constant	3.03 (0.092) ***	3.29 (0.090) ***	.825 (0.260)***	1.57 (0.391)
Observations	54,832	54,832	54,832	54,832
F – test / Wald	816.30	850.86	733.42	728.38
R^2	0.05	0.07	0.14	0.13

Note: 1- The F test has normal distribution N (0,1) and tests the null hypothesis of the insignificance of the estimated parameters against the alternative hypothesis of the significance of the estimated parameters.

2- *** and *denote significance at 1 and 10 % significance, respectively.

3- The figure in parenthesis below the coefficient estimates are standard errors.

4- Instrument Variable: The Gold Price at the time of Marriage (log).

5- The dependent variable is a count from 0 to 3.

Table 8. Effect of price of bride's wealth on number of children when introduces oil price as IV

Variable	IV (1)	IV (2)
Log of Average Bride Price	.867 (.063)***	.531 (.041)***
Age of the wife	-.166 (.004)***	-.147 (.002)***
The age of the wife squared		
Age of the wife at marriage	-.0003 (.0010)	-.0003 (.0011)
Age of the wife at marriage squared		
Wife's education	-.0254 (.0063) ***	-.0224 (.0068) ***
Age of the husband	-.0025 (.0085)	-.0021 (.0080)
The age of the husband squared		
Age of the husband at marriage	-.0120 (.0352)	-.0119 (.0358)
Literacy of the husband	-.0020 (.005)	-.0020 (.005)
Ownership status at marriage	-.0021 (.0022)	-.0017 (.0020)
Husband related to wife	-.0029 (.0012)	-.0024 (.0012)
Country dummies	Yes	Yes
Year dummies	Yes	Yes
Constant	8.930 (0.657)***	5.808 (0.440)***
Observations	54,832	54,832
Wald	1827.52	1124.52
R^2	0.23	0.326

Note: 1- The F test has normal distribution N (0,1) and tests the null hypothesis of the insignificance of the estimated parameters against the alternative hypothesis of the significance of the estimated parameters.

2- *** and *denote significance at 1 and 10 % significance, respectively.

3- The figure in parenthesis below the coefficient estimates are standard errors.

4- Instrument Variable: The average price of oil at the time of Marriage (adjusted for inflation).

Table 9. The heterogeneity impact of average bride price on the number of children

Dependent Variable : Number of Children			
Group	**Categories**	**OLS (1)**	**IV (2)**
Religion	Muslim	.067 (.020)***	.535 (.050) ***
	Christian	.204 (.080) **	.040 (.180) **
Country	Jordan	.181 (.042) ***	.664 (.073) **
	Tunisia	.100 (.077)	.752 (.132) ***
	Egypt	.300 (.017) ***	.249 (.028) ***
Work Status	Employed	-.294 (.02) ***	-.136 (.045) ***
	Unemployed	.160 (.093) **	.610 (.041) ***
	Out of work	.247 (021) ***	.529 (.036) ***
Location of Household	Rural	.145 (.021) ***	.569 (.054) ***
	Urban	.049 (.023) **	.032 (.001) **
Wealth quintile	Poorest	.266 (.043) ***	.799 (.101) **
	Poorer	.316 (.039) ***	.443 (.090) **
	Middle	.266 (.039) ***	.163 (.006) ***
	Richer	.324 (.036) ***	.134 (.005) ***
	Richest	.200 (.039) ***	.451 (.077) ***
Years of Schooling	No Schooling	.075 (.040) *	.540 (.100) ***
	< 5 years	.073 (.034) **	.524 (.084) ***
	6-10 years	.009 (.01) *	.152 (.044) **

	>10	.029 (.01)	.132 (.002) ***
Age At First Marriage	< 20 years	.278 (.029) ***	.552 (.062) ***
	21-35 years	.168 (.016) ***	.694 (.243) **
	>36 years	.192 (.077) **	.021 (.010) **
Characteristics of the wife		Yes	Yes
Characteristics of the groom		Yes	Yes
Characteristics of the household		Yes	Yes
Country dummies		Yes	Yes
Year dummies		Yes	Yes
Observations		54,832	54,832

Figure 1. *Average Price of Gold Series Internationally from Dec 1960 to Dec 2018.*