Socio-Political Upheavals and Marriage Payments: Evidence from Egypt's Arab Spring*

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Abstract

This paper examines the impact of socio-political uncertainty on marriage markets, focusing on two underexplored Muslim marital payments, prompt dower—payable by husbands at marriage —and deferred dower—payable upon divorce or widowhood. Using the Egyptian Arab Spring uprisings (2011-2014) as a case study, I analyze how exposure to violent protests influenced these mandatory payments. I hypothesize that violence and regime changes disrupt traditional marriage arrangements by heightening uncertainty and shifting perceptions of risks associated with marriage, especially for women. I combine individual data from the Egypt Labour Market Panel Survey with protest intensity measured through the number of deaths from protests. I employ both a difference-in-differences approach and an event-study, to compare women married before and after 2011, exploiting geographic variation in exposure to protest violence. The results reveal that while prompt dower is not affected, increased exposure to deadly protests increases promised deferred dower. This suggests that socio-political insecurity and high death toll led to greater demand for financial protection against widowhood.

JEL codes: J12, J16, D74, O15.

Keywords: Marriage markets, Muslim marital payments, Egyptian Arab Spring, Insurance.

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(DRAFT)

1 Introduction

The economic literature, since Becker (1973, 1974, 1991) has recognized marriage as key to understanding the functioning of markets and resource allocation within households. Also acknowledged is marriage's key role in economic outcomes such as consumption, production, human capital formation, and other long-term inter-generational investments, notably for women (Hou 2011, Reggio 2011, Ashraf et al. 2010). This is particularly true for women in the Middle East North African (MENA) countries, where substantial gender gaps remain[1] (Hamon and Ingoldsby 2003, Anukriti and Dasgupta 2017, Hartwell et al. 2018, WEF 2021). Moreover, many countries in the MENA region witnessed a sudden and violent wave of social uprisings, collectively known as the Arab Spring. These uprisings led to heightened insecurity, exacerbated the vulnerability of women (Woodrow Wilson International Center for Scholars, 2012), and disrupted family dynamics (Hendy, 2015). In turn, these changes might have significantly impacted marriage markets in the region.

Marriages in the MENA region are deeply rooted in cultural, religious, and family traditions, often involving payment of Muslim dowers. 90% of Egyptian marriages involve a substantial practice of these payments, that are lawfully and religiously binding (Salem 2011, Salem 2018, ERF and CAPMAS 2019). The Islamic dowers differ substantially from other marital payments in developing countries, such as dowry or bride price. Unlike the one-off transfers exchanged between the families of the spouses, the mandatory Muslim dowers are provided directly to the bride in two separate installments: a prompt dower—in the form of money or possessions—at the time of marriage and a deferred dower—an amount payable upon divorce or widowhood (Wani, 2001). Hotte and Lambert (2023) show that ownership over marital transfers and the structure of marriage contracts are key determinants of married women's outcomes and welfare. Due to their nature and ownership, the prompt and deferred dowers are central to mitigate women's vulnerability during periods of economic or social uncertainty. This is especially relevant when women cease employment upon marriage and rely heavily on husbands for financial security (Assaad et al. 2018, Pratt 2021). Prompt and deferred dowers become key for financial security. Surprisingly, these payments and their implications remain under-explored in the marriage market literature. An interesting question is therefore: Can Muslim marital payments play a role in reducing women's vulnerability in times of uncertainty?

In this paper, I investigate how exposure to violence and insecurity affects the prompt and deferred dowers. I exploit the Arab Spring uprisings that took place in Egypt, from January 2011 to June 2014, and that triggered heavy sentiment of insecurity in the country, with a thousand deaths and more than 6,000 injured, mostly men. Egypt can be considered as an archetypal MENA country. It is one of the most prominent countries of the region and has one of the world's highest

[1] http://www.weforum.org/docs/WEF_GGGR_2021.pdf

marriage rates (Scott et al., 2015).[2] Moreover, Egypt is predominantly Muslim[3] and its marriage patterns are very similar to those prevailing throughout MENA (Singerman, 2007).

The Egyptian Arab Spring was marked by significant violence and acute social tension that may notably have altered wives-to-be's need for insurance. Exposure to violence during protests is likely to have been strongly associated with fear and perceived risk of widowhood. Widowhood often results in significant welfare loss for women due to deeply rooted socio-economic norms and institutional structures. Moreover, societal attitudes discourage remarriage, leaving widowed women with limited access to property and means to rebuild their lives (Sundkvist, 2022). In this context, the deferred dower—a contractual financial obligation—can serve as a critical financial safeguard, reducing reliance on extended family or informal networks for basic survival. In the absence of robust welfare systems to support widows (Sundkvist, 2022), deferred dower represents one of the few resources a widow can control, offering a vital buffer against poverty and economic vulnerability.[4]

I use a novel dataset from the Egypt Labor Market Panel Survey (2006, 2012, 2018), which I harmonized and merged, on marital payments and women's marriage outcomes. I measure exposure to the violence of protests using the number of protest-related deaths. I assume that potential changes following the Arab Spring were heterogeneous and depended on degree of exposure to violence. I exploit this geographical heterogeneity to conduct a double-difference analysis relying on data on demonstrators killed during the protests, available per governorate and district from the Statistical Database of the Egyptian Revolution. While this exposure proxy is not exogenous, the placebo test run on women married before the start of the revolution confirms that the number of deaths during protests does not predict differences in marriage outcomes prior to 2011. Additionally, I run an event study with a continuous treatment to explore the dynamics of changes occurring throughout the uprisings and the longer-run effects on marriage markets (Callaway et al., 2024).

I find that, while prompt dower remains unaffected, greater exposure to violent protests increases the deferred dower, both on the intensive–in deflated Egyptian pounds—and extensive—in probability of being promised a non-token dower—margins. Findings suggest that these changes to the marriage market occurred after the coup d'état of July 2013. During this period of power vacuum, insecurity peaked with a very high death toll and a substantial social divide between pro- and anti- Muslim Brotherhood protests. This could explain the increasing demand by women for insurance against widowhood through the promise of a higher deferred dower.

These findings highlight the role of perceived widowhood risk and insecurity during marriage negotiations. The event study shows that the effect is significant 2 years after the governorate reaches higher than median levels of exposure, measured in protest-related deaths. This period also corresponds to the mean pre-marriage negotiation time between informal engagement and formal marriage. Additionally, the increase in deferred dower is short-term, highlighting that these changes did not stem from long-term changes in preferences for and attitudes towards the

[2] 70% of women are married before age 26 (ERF & CAPMAS, 2019).

[3] 90% of the population is Sunni Muslim, while 10% is Christian, according to the *Office of International Religious Freedom's 2019 Report on International Religious Freedom: Egypt.*

[4] Egypt's Dar Al-Ifta: https://www.dar-alifta.org/en/fatwa/details/6096/the-deferred-dowry-after-a-husbands-death.

Muslim mandatory payments.

Suggestive evidence indicates that the increase in deferred dower is not driven by the economic hardships triggered by the revolution. To explore this, I examine how exposure to the economic consequences of protests impacts marital payments. I perform two types of heterogeneity analysis based on variations in exposure across employment sectors, differentiating between the public sector—where workers saw an increase in minimum wage in July 2011—and the private sector—where workers were more vulnerable to the economic slowdown. I find that the deferred dower remains higher in areas where protests involved more violence, even when less exposed to the economic shock.

Moreover, the effects found on the deferred dower are not due to delays in marriages and cannot be fully explained by changes in the compositions of marriages. Exposure to violence during protests did increase the probability of consanguinity marriages and decreases women's age at first marriage[5] and women's educational attainment at marriage. Yet, when I control for these spousal characteristics, deferred dower continues to increase with exposure to Arab Spring violence. These findings underline the rising need for insurance and the altered trade-offs for parents of spouses driven by higher social tension and violent climate.

The contribution of this paper is twofold. First, it contributes to the strand of literature studying the consequences of conflicts on women's short-term and long-term outcomes. In general, there is no clear-cut conclusion on the direction and magnitude of the impact of conflicts on women's marriage outcomes such as age at marriage, fertility or labor force participation (Shemyakina 2006, Jayaraman et al. 2009, Saing and Kazianga 2020). The findings seem to be context-specific and depend on the type of conflicts—armed conflict, genocide or bombing—and on the scope of the study—short-term or long-term. Nor is there any consensus, in the Egyptian context, on the impacts of exposure to the Arab Spring on women's outcomes, despite frequent recourse to the same data on exposure to the Egyptian Arab Spring, namely The Egyptian Revolution Database. Short-term, Bargain et al. (2019) find[6] that local intensity of protests and women's participation have a positive impact on women's intra-household bargaining power. On the other hand, (Ferhat et al., 2022) show[7] that greater intensity of exposure decreases age at marriage for women in rural areas and leads to their earlier entry into motherhood, which could engender negative empowerment outcomes for these women. Similarly, no obvious conclusions can be drawn on the impact of the Egyptian Arab Spring on women's labor market participation. While (El-Mallakh et al., 2018) find[8] a positive impact on female labor force participation rates (El-Mallakh et al., 2018), Hendy (2015) documents a negative impact on women's status in the labor market with an increase in unemployment rates[9] (Hendy, 2015). In this paper, I examine the effects of violent protests on marital payments documenting the link between violence shocks and marital payments. Sociopolitical uncertainty affect these payments by altering perceived risks associated with marriage. I

[5] This corresponds to the findings of Ferhat et al. (2022).

[6] They use The Egyptian Revolution Database, distance to Cairo and the 2008 and 2014 Egyptian Demographic and Health Surveys.

[7] They use The Egyptian Revolution Database and The Egypt Labor Market Panel Survey 2018.

[8] They use The Egyptian Revolution Database and the 2006 and 2012 Egypt Labor Market Panel Survey data.

[9] She uses the Egypt Labor Market Panel Survey 2012, including three data points: 1998, 2006, and 2012.

find that exposure to violent protests increased deferred dower promised to women married after 2011. This hints to the potential use of the deferred dower as an insurance against vulnerability in times of conflict.

Second, this paper contributes to the debates on the impacts of shocks on marital payments. Shocks impact marriage markets differently depending on the types of marital payments that are practiced (Ashraf et al. 2020; Corno et al. 2020). In bride price communities, a negative income shock leads families to marry their daughters earlier to obtain the bride price and reduce the number of household members (Corno and Voena 2023, Corno et al. 2020). Thus, brides' families use the bride price as a coping mechanism to smooth their consumption over time, in a situation where income is volatile and access to credit markets very limited (Corno and Voena 2023, Corno et al. 2020). Corno et al. (2020) find that age at marriage responds to short-term changes in aggregate economic conditions in India and Sub-Saharan Africa and that type of marriage payment practiced (bride price or dowry) determines the sign of this response. However, many factors other than age at marriage can condition bride price at marriage: education (Ashraf et al. 2020, Deng et al. 2023), husband's wealth, competition between men on the marriage market or the nature of the contractual payments (Hudson & Matfess, 2017). There has been limited discussion on Muslim mandatory payments and the interactions between these payments. I explore the influence of a socio-political shock on both payments, the prompt and the deferred dower, distinctly. I also examine the role of the deferred dower and its relationship with perceived widowhood risks. This payment, often neglected in marriage market literature, is a crucial component of Muslim marriages, particularly in MENA countries. Examining the interplay between mandatory payments and the structure of the deferred dower provides valuable insights into the functioning of Muslim marriage markets. This understanding is crucial for comprehending how exposure to shocks can affect marriage outcomes.

This paper is structured as follows. Section 2 contextualizes the research by discussing the theoretical framework and key characteristics of the Egyptian marriage market. Section 3 offers a detailed overview of the dataset and the empirical setting in which the analysis is conducted. Section 4 outlines the empirical strategy employed to assess the relationship between socio-political shocks and marital payments. Section 5 presents the primary results of the analysis and documents the insurance mechanism stemmed by violence exposure. Section 6 rules out other alternative mechanisms that may explain the findings. Section 7 discusses robustness checks and supplementary results to validate the analysis. Section 8 concludes with a summary of the key findings and implications for future research.

2 Conceptual Framework

The Egyptian marriage market and marital payments

The MENA marriage market, and more particularly the Egyptian market, clearly differs from those addressed in research on family economics in high-income countries or in developing countries elsewhere. However, its specific features have received very little attention, despite the economic implications for the region (Anderson et al., 2020).

First, the matching and selection process in Egypt often takes the form of arranged mate selection and traditional norms dictate intra-household gender roles, household specialization, and spousal interactions, as in many other Muslim countries (Anukriti and Dasgupta 2017, Shyamal et al. 2020). For instance, "patrilocality" and concerns for women's "purity" place women at a disadvantage in marriage relationships, and this exacerbates stigmatization around female celibacy (Seema, 2015). Female chastity determines a bride's desirability in a context of arranged and religious marriages. A small probability of virginity loss can considerably reduce brides' desirability (Desai & Andrist, 2010). Socially sanctioned sexual relations and childbearing accentuate the pressure for "waithood" regarding marriage and celibacy (Hoodfar 1997, Rashad et al. 2005, Dhillon et al. 2009, El Feki 2013). These factors result in early marriages for women, aimed at preserving and attesting to daughters' purity. They also reinforce parents' role in preventing daughters from having direct contact with the opposite sex (Edlund & Lagerlof, 2004). This may also have major repercussions on female educational attainments (Salem, 2011). In addition, it could impede their access to labor markets post-marriage, as women often cease work upon marriage (Amin and Al-Bassusi 2004, Seema 2015).

Furthermore, Egyptian families often select spouses based on a set of predefined characteristics or preferences that can influence marital payments (Anukriti & Dasgupta, 2017). These include characteristics of the spouse herself/himself, such as education or job stability, as well as family characteristics, such as wealth, reputation or social status (Binzel and Assaad 2008, Salem 2011, Wu and Zhang 2021). These characteristics signal, for instance, the groom's capacity to take care of his spouse financially, or his ability to take on the financial commitments entailed by marriage (Mensch et al. 2005, Singerman 2007, Binzel and Assaad 2008, Assaad and Krafft 2015). Marriage market practices in the region mean that assortative preferences and behaviors can be expected from the spouses' families, with very limited social and religious diversity in matches (Goode 1970, Cherlin 2012, (Wu & Zhang, 2021)). The society's predominant religiosity and traditional social norms, in both rural and urban households, largely explains the low rates of mixed marriages (Salem 2011, Wu and Zhang 2021). Moreover, consanguineous marriages are common in the Middle East, reinforcing assortativeness and homogamy (Anukriti & Dasgupta, 2017). These marriages often involve lengthy prenuptial negotiations to determine the transfers of resources, as well as detailed and formal marriage contracts stipulating marriage dissolution procedure and costs in addition to transfers of resources, notably the prompt and deferred dowers (Salem, 2011). The first payment reflecting both a bride's desirability and the husband's financial capacity and social status is the prompt dower, decided pre-marriage and paid exclusively to the bride upon

religious marriage (Wani, 2001).[10] This payment is considered theoretically as financial compensation for the bride's economic inactivity and for her investment in non-market household production.

The second key payment is the Islamic deferred dower, the part of the dower promised by the husband in the event of repudiation or his decease. The amount of the deferred dower is also agreed upon before marriage and often acts as insurance for the bride against widowhood. In Egypt, it is easier for women to access the deferred dower following widowhood than following repudiation or divorce (Moors, 1996). Although, in principle, the deferred dower is a financial commitment from the husband in the event that he seeks divorce,[11] not all divorcees manage to receive their deferred dower. Women need to apply to a religious jurisdiction and are pressured to waive their right to the deferred dower during divorce settlements (Moors, 1996). Additionally, women seeking divorce lose their financial rights and therefore need to repay the prompt dower and often have no choice other than to return to their parents' house.[12] In fact, very few women divorce in Egypt. For instance, in the 2018 ELMPS wave, less than 2 percent of women are divorced (ERF & CAPMAS, 2019).

In practice, in Egypt, deferred dower functions as financial protection against widowhood (Moors, 1996). This is particularly true when inheritance rights for women are restricted. According to the Egyptian Dar Al-Ifta —the Islamic advisory, judicial and governmental body— a widow with no children receives $\frac{1}{4}$ of husband's estate and a widow with children receives only $\frac{1}{8}$. On the other hand, the deferred dower is considered as a debt owed by the husband to his wife on his death, and is paid before the estate is distributed. The deferred dower can therefore be used to compensate for the long-established rules of inheritance that disadvantage women, providing additional financial security.

Thus, the nature of the deferred dower links it tightly to the perceived probability of widowhood and the inheritance rights of women. In the Appendix section 9.1, I develop a simple matching model that shows how the deferred dower is dependent on the risk of widowhood and that analyses the interplay between the prompt and deferred dower. The links between these dowers, exposure to violence, and the demand for insurance will be further explored in this paper.

Theoretical Background

Section 9.1 in the Appendix describes a preliminary theoretical framework that models the relationship between perceived widowhood risk, the economic constraint of marriage, and the prompt and deferred dower. This model differs from the traditional matching market models by modeling the two installments of the dowers and looking at the impact of widowhood risks.

Most of the literature on marriage payments in the marriage market builds on the pioneering work of Becker (1991) and his analysis of transfers at the time of marriage. In Becker's theoretical model, men and women possess varying characteristics, including potential income. Marriage is considered as a joint venture that improves productivity in the household and the market. Indi-

[10] The bride can receive it at the time of marriage or it can be postponed until requested by the wife at any time during the marriage.

[11] Husbands do not require wives' approval for the divorce to be proclaimed legally (Salem, 2011), yet divorce can still be costly for them due to their financial commitment.

[12] Divorce is also costly for women in social terms, due to stigmatization and social pressure (Salem, 2011).

viduals would maximize their utility by optimally mating with the person that makes them better off than if they mated with anyone else or remained single. This model predicts positive assortative matching in terms of quality of groom and bride and complementarity of husbands and wives at equilibrium to maximize aggregate output. Up-front compensatory transfers emerge when the rule of division of marital surplus within the marriage is inflexible, meaning when the household commodities are difficult to divide, such as housing and children. This inflexibility makes the share of surplus of each spouse different from that under the market solution, and transfers are used to restore efficiency in the division of output. More specifically, a bride price, paid by the groom's family to the bride's family, emerges when the wife's share of family income is below her shadow price in the marriage market. This could also arise from social norms or an implicit imbalance of power within the household. Becker's model predicts therefore that marriage payments should be common.

While this theoretical framework helps explain the impact of competition on the marriage market, on the magnitude of bride prices or on the shift from bride price to dowry, it does not provide explanations for the coexistence of different types of dowers and how they react to shocks (Anderson 2007, Anderson et al. 2020). In the literature, the few papers that have theoretically explored this issue have linked the coexistence of dowers to lack of ability to commit. Zhang and Chan (1999) consider dowry and bride price as complementary instruments for the enforcement of efficient marital contracts. Similarly, Nunn (2005) developed an evolutionary model where dowry serves as a commitment device for men, encouraging them to remain married, and can coexist with a bride price. Gaspart and Platteau (2010) developed a sequential game model where bride price is determined by strategic decision-making between the parents of the bride, the bride herself, and the groom in a context where arranged marriages are predominant and divorce is possible. Gaspart and Platteau (2010)'s model offers a first theoretical reflection on how uncertainty during pre-nuptial negotiations impacts marital payments and strategic interactions.

However, while these models have focused on bride price and to a lesser extent on prompt dower, only one model tackles the specific case of deferred dower. Ambrus et al. (2010) provide a model where deferred dower acts as a contract that internalizes the social costs of divorce for women and constitute a barrier to husbands from exiting marriage. They show that laws influencing the costs of polygamy and divorce have direct impacts on dowry trends in Bangladesh. Yet, the context in Bangladesh differs from the Egyptian context, as the distinction between prompt and deferred dower is almost inexistent and marriage contracts almost universally and automatically specify payment of the dower only in case of divorce (Ambrus et al., 2010).

In this paper, I will consider both the prompt and deferred dower as commitment and compensatory mechanisms. Typically, the prompt dower, paid upfront by the husband to the wife, can be an equilibrium outcome when the husband cannot credibly commit to the provision of resources in future periods, especially in contexts where men have the bread-winning role. Additionally, the deferred dower is used by married women as a complementary insurance against widowhood, principally because widowhood is associated with a lasting reduction in women's welfare (van de Walle, 2013).

The preliminary matching market, presented in Appendix section 9.1, models marriage as a Nash

bargaining problem. This framework suggests that the prompt dower at equilibrium depends on the surpluses of the bride and groom and on the bargaining power of each. A higher bargaining power for women essentially allows them to claim a larger share of the surplus generated from the marriage, which manifests as a higher prompt dower. While the optimal deferred dower depends on the perceived risks of widowhood, man's assets, his valuation of keeping assets and his preference for leaving a deferred dower. A higher preference for asset retention reduces the deferred dower, while a greater preference for providing a deferred dower increases it.

The Egyptian Revolution and the Dowers

I utilize the Arab Spring uprisings in Egypt, spanning from January 2011 to June 2014, to examine how exposure to violent protests influences marriage markets and Muslim marital payments. The Egyptian Arab Spring began on January 25, 2011, date of the yearly "Police day" celebrations. Inspired by the Tunisian Jasmine revolution, which started in 2010, youth activists and up to a thousand civilians rallied against Mubarak's government by taking to the streets in several Egyptian cities at the same time. Protests intensified with the death of 28-year-old Khalid Said following an encounter with the Egyptian police in Alexandria. Protesters gathered around major public spaces such as "Tahreer square" in the capital city, Cairo.

This wave of protests lasted more than 2 years and represents one of the biggest revolutionary movements in recent years. The Egyptian Arab Spring can be divided into four main periods, starting with the first 18 days of the revolution that led to Hosni Moubarak's resignation, after 30 years in power, on February 11, 2011 (January 25, 2011 to February 11, 2011). The mass protests that occurred in this first phase were intense and pivotal, characterized by brutal clashes and widespread civil unrest. The second phase saw the first military council (February 11, 2011 to June 30, 2012), followed by the Islamist regime of Mohammed Morsi, the first democratically elected president of Egypt and the candidate of the Muslim Brotherhood party (June 30, 2012 to July 3, 2013). The fourth and final phase of the revolution was a transitory phase featuring the second military regime, and lasted from the military's removal of President Mohamed Morsi on July 3, 2013 to the election of Abdel Fattah El-Sissi in June 2014. This last phase was marked by political turmoil and some of the most intense and deadly episodes of violence during Egypt's modern history.

The people-led political mobilization was triggered by difficult economic conditions but spread gradually to encompass other social demands, such as more liberty and social justice, although not women's rights specifically (Costello et al., 2015). These changes in the public sphere can also be linked to changes in the marriage markets through multiple mechanisms, making the impacts of the Egyptian revolution on women's marriage outcomes particularly relevant. The uprisings involved a heavy death toll of a thousand deaths, largely young men, and very violent repression that left more than 6,000 individuals injured. As discussed previously, this violence fostered a climate of uncertainty and instability, significantly influencing perceptions of future prospects for the unmarried, both men and women. Additionally, it heightened concerns regarding the risks associated with marriage during such a turbulent period. The aim of this paper is to explore how Egypt's marriage market responded to the violence, particularly by examining shifts in the use and

the amounts of prompt and deferred dowers.

Preliminary results from the model described in section 9.1 indicate that during periods of uncertainty, an increase in perceived widowhood risk may lead women to request a higher deferred dower. Thus, the first channel to investigate is the insurance channel: deferred dower increases with exposure to violence due to heightened insecurity, which increases the perceived risk of widowhood. In this context, increased risk refers to greater likelihood of becoming a widow sooner and of facing economic hardship as a widow.
The model also suggests that there may be a compensatory mechanism operating between different types of marital payments. If prompt and deferred dower are considered as substitute commitment devices, an increase in the promised deferred dower as insurance for women in times of uncertainty may be associated with lower payments at the time of marriage. This is particularly relevant in a context of economic uncertainty that can reduce men's financial capacity and/or willingness to pay for marriage, potentially leading to a decrease in prompt dower payments. I will empirically examine this economic shock channel, specifically to investigate the hypothesis of men's impoverishment or change in willingness to pay.
Finally, variations in prompt and deferred dowers may reflect shifts in marriage composition and changes in spouse characteristics on the marriage market, such as women's age at marriage, girls' educational attainment, or the age gap between partners. The model I present enables me to explore the relationship between matching outcomes and marital payments or to identify its nature. Actually, changes in dowers could impact spouses' characteristics by influencing parents' decisions to educate daughters (Ashraf et al., 2020) or adjust marriage timing to manage consumption (Corno & Voena, 2023). Yet, changes in selection of spouses and matching outcomes may also drive the changes in dowers themselves. Therefore, I will provide preliminary evidence on the links between spouse characteristics, matching patterns, and marital payments to clarify these mechanisms.

3 Data

The Egyptian Labor Market Panel Survey (ELMPS) Data

Combining ELMPS waves. For data on marital payments and marriage outcomes, my main database consists of the three waves of the Egypt Labor Market Panel Survey data of 2006, 2012, and 2018 (OAMDI 2016, ERF and CAPMAS 2013 and ERF and CAPMAS 2019). I merged these three waves by harmonizing their variables and cleaning them. The merge gives an unbalanced panel of 39 847 women and a panel of 11 429 women common to the three waves of ELMPS. The ELMPS data are part of five waves of a longitudinal nationally-representative data survey (1988, 1998, 2006, 2012, and 2018) carried out by The Economic Research Forum (ERF) in cooperation with Egypt's Central Agency for Public Mobilization and Statistics (CAPMAS). On top of providing information on individual characteristics and preferences, household and parental characteristics, this database gives access to individual questionnaires on gender role attitudes and contributions of each spouse to the marriage process and to the household.[13] It also enables women's location during the revolution to be determined, since ELMPS data provides information on place of residence at birth, current place of residence, and residential mobility history.

Selection. The final working sample of the combined ELMPS respondents for this dissertation comprises 18,873 female respondents out of the 19,802 married women in our database.[14] Of the 16,962 married women who were questioned about their marital payments[15], 5,043 reported amounts for their prompt dower and 4,870 for their deferred dower. To these, I added the information on marital payments elicited from husbands reporting these payments when both spouses were interviewed, yielding 13,344 observations on deferred dower and 12,493 observations on prompt dower.[16] Additionally, to avoid missing observations bias, I replace the missing values by -5 and 0 in the main specification.[17]

Marriage Outcomes and Descriptive Statistics. Table 1 presents some descriptive statistics for married female respondents according to whether they were married before or after the start of the Egyptian revolution. The last column also gives us the difference between the two samples and its significance. Table 1 shows that average age at marriage is slightly lower for women married before 2011 relative to those married after. In our sample, 70% of the cohort is married by age 26 and less than 3% of women are married before age 15 (Ferhat et al. 2022, Salem 2011). Similarly, the percentage of women marrying before age 18 or giving birth before that age is lower for women married after 2011. Additionally, I look at the differences between prompt and de-

[13] The main modules of the data-set are Labor Force, Unemployment, Enterprises, Migration and Remittances, Education, Social Protection, Earnings, Empowerment, and Job Dynamics.

[14] To avoid recall biases, I use another restricted sample of women married after the year 2000 and a sample of women married at most 12 years before the survey year (e.g. 2000 if interviewed in 2012 or 2006 if interviewed in 2018). The sample size reduces respectively to 10,491 and to 11,385 married women.

[15] In the ELMPS wave of 2006, only individuals ever married and aged between 16 and 49 were asked about their marriage costs and marital payments. In the ELMPS wave of 2012, only individuals ever married and aged between 18 and 39 were asked about their marriage costs and marital payments. For the 2018 ELMPS wave, individuals ever married and aged between 16 and 59 were asked about their marriage costs and marital payments.

[16] The husband being the one who pays the price, he is most likely to remember it accurately (Ashraf et al., 2020).

[17] I also test by replacing the missing values with 0 and by removing these missing values. Findings are consistent. Results are available upon request.

ferred dowers in these samples. I deflate these payments using Consumer Price Index (CPI) with year 2010 as a base year (WorldBank, 2023). The mandatory Muslim payment seem to be lower for women marrying after 2011. However, the difference in deflated prompt and deferred dowers between the two samples are not statistically significant.

Figure 5 and 6 show respectively the trend in amounts of prompt dower and deferred dower on average over the period 2000-2018. Both figures highlight the flexible nature of these payments that are influenced by socio-economic conditions. While prompt dower peaked in real terms in 2012—reaching its highest level—and in 2015, it stagnated before 2009. It seems that the financial crisis of 2008-2009 might have impacted slightly average prompt dower.[18]. Yet, the different phases of the revolution have accentuated prompt dower's volatility. For deferred dower, there appears to be a gradual negative trend that accentuates around the revolution period from 2011 to 2015 before increasing slightly in 2016. This trend of families opting for more manageable amounts is not surprising given the rising costs of living and the modernization of the country (UNDP, 2021).

Thus, the revolution period seems to matter for marital payments, making it even more important to investigate how exposure to these uprisings impacted marriage markets in the country. Moreover, both prompt and deferred dowers change significantly in real terms from one year to another. This highlights the need to consider year of marriage, in addition to cohort of birth, in estimations.

Table 1: Descriptive Statistics on Women's Marriage Outcomes

	Total	Married Before 2011	Married After 2011	Difference (2)-(3)
Av. Female age at 1st marriage	20.86	20.55	21.73	-1.173
				(0.0785)
Perc. of women married before 18yo	26.00	29.08	15.01	14.04
				(0.0074)
Perc. of women who gave birth before 18yo	1.852	3.896	2.579	1.330
				(0.0032)
Perc. of Women Who Have Worked	9.626	16.75	7.512	9.210
				(0.0062)
Prompt Dower	9621.5	12672.7	8603.9	3970.6
				(7265.2)
Deferred Dower	5976.7	8805.3	5024.3	3779.3
				(297.6)
Percentage of Couples Living with in-Laws	6.649	13.21	13.45	-0.186
				(0.0058)
Perc. of Blood-related Marriages	14.04	28.89	25.19	3.689
				(0.0077)
No of observations	39628	15402	4343	

Standard errors in parentheses

[18] Yet in a paradoxical manner with an increase of average deflated prompt dower.

The Egyptian Revolution Database

Incident Data. The ELMPS individual database was combined with the Egyptian Revolution Database "Wikithawra"[19], a database that lists those arrested, injured or killed during all phases of the Egyptian revolution. This database was compiled by the Egyptian Center for Economic and Social Rights over the period from January 2011 to December 2014, based on data from the Student Observatory and the Freedom of Thought and Expression Foundation as well as press releases. Detailed information on the location of each incident is given, along with the date of the event.

In my baseline analysis, I use information on individuals killed during protests, since there is less likelihood of misreporting deaths than injuries.[20] Additionally, the data on arrests and injuries from Wikithawra are incomplete. I therefore only use this information in a robustness check to ensure that my results are robust to different proxies for exposure. I further cleaned this comprehensive data on number of deaths by removing any that were anonymous, considering only deaths of identified individuals, so as to avoid misreporting and accuracy issues.

Proxy for Local Protest Intensity. To measure the salience of protest-related violence, in the main regression I use the number of deaths at governorate level. In a robustness check, I use different definitions of exposure intensity.

The baseline perimeter is the governorate, to ensure accurate location of incidents reported in Wikithawra data. It is easier to accurately locate deaths within governorates, because no geolocalized GPS points nor exact addresses were reported.[21] Moreover, the choice of governorate-level analysis also reflects the fact that people did not necessarily demonstrate in their own districts, especially in large cities where certain squares were major meeting points (e.g. Tahrir Square in Cairo). However, I provide sensitivity analysis using district-level incidents. To avoid any contamination from bordering conflicts or terrorism movements, I restrict the sample of households to those living in governorates with nonconflicted frontiers, notably by removing the Sinai Peninsula and the Libyan border governorates. These governorates are not densely populated and represent less than 3% of the total Egyptian population in 2006 (CAPMAS, 2017).[22]

Heterogeneity of exposure. The following graph in Figure 1 and map in Figure 2 give a visual representation of the Wikithawra data. As shown in Figure 1, all governorates were impacted by the violence of the Arab Spring, with at least 1 death, but exposure intensity varies widely. [23] The map in Figure 2 shows the geographical distribution of the event across governorates in Egypt (Ferhat et al., 2022). The red parts are the governorates with the highest proportion of deaths with respect to population density.

[19] Wikithawra is an independent website dedicated to documenting all the Egyptian Arab Spring's incidents (see https://wikithawra.wordpress.com, in Arabic).

[20] In a similar vein, (El-Mallakh et al., 2018), (Bargain et al., 2019) and (Ferhat et al., 2022) use number of deaths at governorate level as a proxy for protest intensity.

[21] Street names or squares were often given as locations, but could stretch from one district to another within the same governorate.

[22] Women located in these regions and present in the survey represent less than 1 percent of the ELMPS sample.

[23] No governorate has zero deaths during protests.

Figure 1: Number of protest-related deaths per 1000 inhabitants by governorate

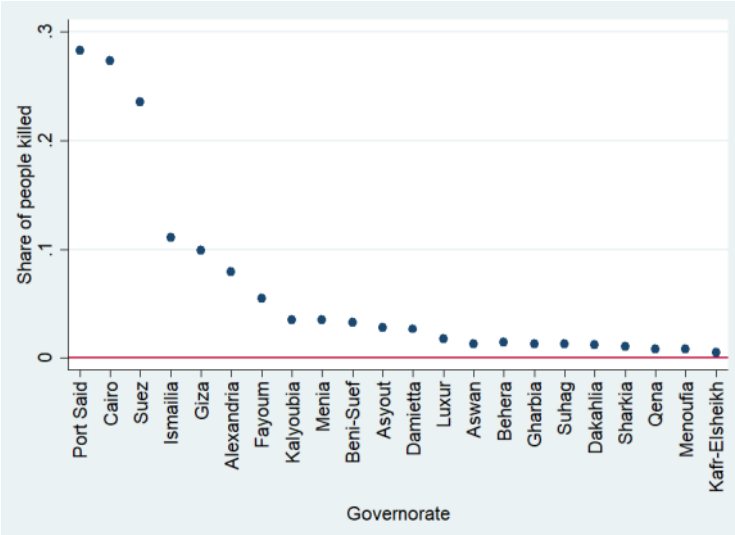
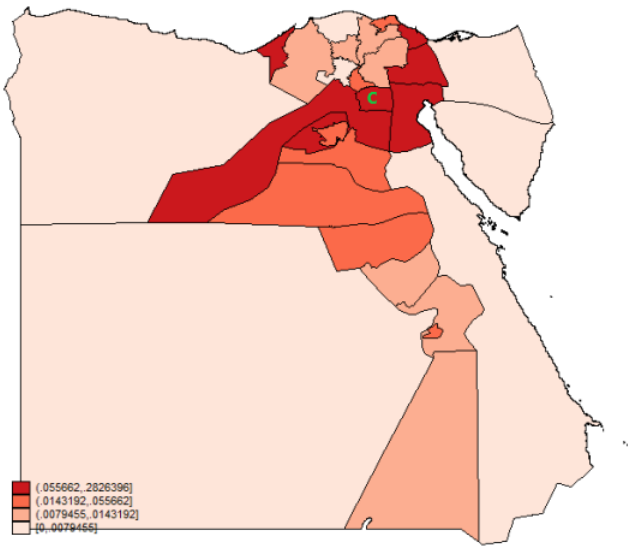


Figure 2: Geographic distribution of protest-related deaths per 1000 inhabitants by governorate



Note: The map presents the number of people killed for 1000 individuals by governorate.
Source: Egyptian revolution database

4 Methodology

4.1 Main estimation: The effect of exposure on marriage outcomes

I exploit the geographical heterogeneity in protest intensity and time variation allowed by ELMPS data to conduct a difference-in-difference analysis and estimate this equation using OLS:

$$y_{ik} = \alpha_0 + \alpha_1 POST_i + \alpha_2 (POST_i \times Exposure_k) + \alpha_3 YearB_i + \alpha_4 District_i + \alpha_5 X_i + \epsilon_{ik}. \quad (1)$$

y_{ik} is the outcome of married woman i from governorate k. Our two main outcomes of interest are marital payments, notably the prompt dower and the deferred dower both on the intensive–amounts—and extensive—probability of promising—margins. Reported marriage payments are deflated using the Consumer Price Index at year of marriage, and are evaluated in 2010 Egyptian Pounds (WorldBank, 2023). To limit potential outliers, I remove the 1% upper values and logarithm forms are used in the regressions.[24] I will also look at the impact of exposure to revolution-related violence on other marriage characteristics, notably the probability of marrying a blood relative, female age at first marriage, spousal age gap, probability of marrying, probability of social and religious mixed marriages, probability of divorce, and probability of not marrying. This should clarify how heterogeneity of exposure affected marital payments in the Egyptian context.
$POST_i$ is a dummy equal to 1 if woman i is married after 2011, 0 if married before. $Exposure_k$ is the proxy for intensity of exposure to the Arab Spring in governorate k, representd in the main specification by number of deaths per governorate. Of particular interest is the interaction component $POST_i \times Exposure_k$ accounting for the potential divergence between groups trends in marital payments and types of matches due to differing trends in characteristics of observables, even in the absence of treatment.
$YearB_i$ is a year of birth fixed effect. $District_i$ is a district fixed effect. I will use both district of residence fixed effects, referring to the district of residence in 2011 at the start of the revolution, and the district of birth fixed effect. I will also test the sensitivity of my results to adding a year of survey fixed effect and controlling for potential endogeneity linked to the year when the interviews were conducted.
X_i is a vector of control variables[25] that includes mother's and father's highest education, an urban dummy equal to 1 if the respondent was living in a city during the Egyptian revolution and a wealth index serving as a proxy indicator for household wealth level.[26] The prompt and deferred dowers reported are those of the first marriage. Finally, ϵ_{ik} is the error term clustered at the governorate of residence during the revolution level times year of first marriage.

[24] This means that I add one to the reported amounts of prompt and deferred dowers in order to account for zero values in the logarithmic transformation.

[25] These control variables are borrowed from the literature on the drivers of bride price in particular (Corno & Voena, 2023), (Corno et al., 2020) and (Ashraf et al., 2020).

[26] The wealth index is constructed using Principal Component Analysis (PCA) and includes key variables such as ownership of durable goods, household amenities and number of rooms. Further details on variable selection and weighting are available upon request.

4.2 Disaggregated exposure: Instability and the need for insurance

To determine whether the findings relate to specific periods of the revolution, which lasted from 2011 to 2014, the incidents that occurred need to be disaggregated to more granular time periods. Three main sub-periods can be identified, in line with the dynamics of the revolution. The first was the pre-Muslim brotherhood period, from January 2025 to the election of Morsi in February 2012. The second was the Muslim brotherhood regime period, when the Constitution of 2012 was adopted and which lasted from Morsi's election to the coup-d'état in July 2013. Last came the post-Muslim brotherhood period of instability and polarization between pro-Muslim brotherhood protesters and anti-Muslim brotherhood protesters, which started with the coup-d'état and ended with the election of Abdel Fattah al-Sissi in June 2014.
Using the month-level granularity offered by the ELMPS data, I compute three periods of marriages corresponding to the three periods above. Additionally, instead of using the sum of the number of deaths at governorate level over the period 2011-2014 as an exposure measure, I use the death counts by period. This allows me to modify the main regression to run a difference-in-differences regression accounting for each of the periods separately:

$$y_{ik} = \beta_0 + \beta_1 PreMB_i + \beta_2 MB_i + \beta_3 PostMB_i + \beta_4 Post2014_i$$
$$+\beta_5(PreMB_i \times ExposurePreMB_k) + \beta_6(MB_i \times ExposureMB_k) + \beta_7(PostMB_i \times ExposurePostMB_k)$$
$$+ \beta_8 YearB_i + \beta_9 District_i + \beta_{10} X_i + \zeta_{ik}. \quad (2)$$

y_{ik} is the outcome of married woman i from governorate k. $PreMB_i$ is a dummy equal to 1 if woman i is married between January 2011 and February 2012, 0 otherwise. MB_i is a dummy equal to 1 if woman i is married between February 2012 and July 2013, 0 otherwise. $PostMB_i$ is a dummy equal to 1 if woman i is married between July 2013 and June 2014, 0 otherwise.
$ExposurePreMB_k$, $ExposureMB_k$ and $ExposurePostMB_k$ are proxies for intensity of exposure to the Arab Spring in governorate k for each of the three periods, respectively: pre-Muslim Brotherhood revolution, Muslim Brotherhood regime, and post-Muslim Brotherhood. In the main specification, I use the sum of the number of deaths per governorate for each period. The interaction terms $PreMB_i \times ExposurePreMB_k$, $MB_i \times ExposureMB_k$ and $PostMB_i \times ExposurePostMB_k$ reveal how the temporal heterogeneity of the revolution and timing of exposure intensity play a role in determining the changes, and which periods had the strongest impact.
$YearB_i$ is a year of birth fixed effect. $District_i$ is a district fixed effect.I also use both district of residence fixed effects, as well as the district of birth fixed effect. X_i is the same vector of control variables as in the previous regression that includes mother's and father's highest education, an urban dummy, and the wealth index. Finally, ζ_{ik} is the error term clustered at governorate of residence during the revolution level times year of first marriage.

4.3 Event-Study with continuous treatment

I also run an event study à la (Callaway et al., 2024) using the continuous treatment and length of exposure to violence. This method enables me to use the temporal heterogeneity of the Arab Spring over the different periods of the Egyptian Revolution to account for the dynamics of protests and their magnitudes across governorates and time. Some governorates were more heavily exposed during some of the protest periods.[27]

In this event study, for a given group g—governorate—and time t, let $ATT^o(g,t) = E[ATT(g,t,D)|G = g, D > 0]$ be the ATT for that group in a given point, with D—number of deaths—the intensity of exposure to violence during the revolution.

Then, $ATT^{es}(e) = E[ATT^o(c, G+e)|G+e \in [2,T], D > 0]$ denotes the average treatment effect among those exposed to treatment for e periods, conditional on being treated for that number of periods: $D > 0$ and $G + e \in [2,T]$).

In my set-up, I focus on the mean deferred dower at governorate level for each year of marriage. Year of first exposure is the year when this governorate experienced more deaths per number of inhabitants than the median. A governorate may therefore be exposed immediately in 2011 or starting from 2012 or 2013, but may never be exposed if number of deaths did not reach the median level in any of the periods. The control group is thus composed of those governorates not yet treated in each of the periods and for the period after 2013, of those never treated.

This event study also allows to look at parallel trends prior to 2011, between 2000 and 2011, in order to show that there were no time-varying unobservables that would affect the outcome trends of the two groups differently (Bertrand et al., 2004).

[27] For example, El Fayoum was more severely hit in period 1, while Port Said was mainly exposed in period 2.

5 Results

5.1 Main Result: Exposure to violence and Muslim Marital Payments

By running the main regression described above (equation 1) on Log-deflated deferred dower, I find that intensive exposure to violent protests during the revolution significantly increases the Log-deflated deferred dower of women married after 2011. Table 2 presents the results of my main baseline regression and shows that an increase of 1 percentage point in exposure to revolutionary violence increases the Log-deflated deferred dower of women married after 2011 by 5.6 percent. This table also shows that the probability of being promised a positive non-token deferred dower also increases with exposure to violent protests for women married post-2011. Moreover, using district of residence at the time of the revolution fixed effects or district of birth fixed effects does not affect results. Similarly, Table A1 in Appendix shows that using year of marriage fixed effects instead of year of birth fixed effects yields the same results both at the extensive and intensive margins.

Table 2: Impacts of Arab Spring Exposure on Deferred Dower

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
POST×Number of Deaths	0.569***	0.525***	0.0514***	0.0722***
	(0.114)	(0.116)	(0.0147)	(0.0180)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18872	15517
Mean Outcome	3.639	4.086	0.600	0.632

Notes: Standard errors are in parentheses and clustered at governorate times year of first marriage.

Results are for 1000 inhabitants. Amounts of deferred dower are in Log and deflated using CPI 2010.

Probability refers to the probability of being promised a strictly positive deferred dower. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

However, examining the impact of exposure on Log-deflated prompt dower or on the probability of obtaining a non-token prompt dower for women married after 2011 reveals no significant effect at governorate level, as shown in Table 3. This result holds when replacing year of birth fixed effects with year of marriage fixed effects (See Appendix Table A2).

Table 3: Impacts of Arab Spring Exposure on Prompt Dower

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
POST×Number of Deaths	-0.0604	-0.0159	0.0152	0.0219
	(0.115)	(0.139)	(0.0222)	(0.0294)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18872	15517
Mean Outcome	0.157	0.312	0.250	0.262

Standard errors are in parentheses and clustered at governorate times year of first marriage.

Results are for 1000 inhabitants. Amounts of prompt dower are in Log and deflated using CPI 2010.

Probability refers to the probability of being promised a strictly positive dower. * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Therefore, while deferred dower increases with higher exposure to violent protests, prompt dower is not affected. This can be explained by the climate of high insecurity and the increasing risk of widowhood. While deferred dower is an insurance for the future against widowhood, prompt dower is a direct payment that does not seem to be used as a coping mechanism by brides. Additionally, to further explore the relationship between exposure to violence and deferred dower, I investigate how access to media outlets impacts the deferred dower promised to women married post-2011. Media, and especially internet and social media, played an key role in the Arab Spring uprisings by relaying information from the ground hour by hour, contributing to the increase in the sense of insecurity (Khondker, 2011). At the time, the primary news sources were television and social media (OAMDI, 2019). Access to TV and internet can therefore intensify public visibility of protests and exposure to their violence, which should be reflected in your results.
I find similar effects on the deferred dower when I take into account the variables "owning a TV" or "having internet access". Tables A3 and A4 in the Appendix show that ownership of a TV or access to internet increase the effect of exposure to violent protest on the deferred dower.[28] These findings highlight the role of salience of violence and insecurity on women's demand for higher protection against widowhood.

5.2 Temporal Heterogeneity: Disaggregated impact of insecurity

The increase in deferred dower with greater exposure to violence may heighten the demand for insurance. Women could be seeking better insurance against widowhood in a period of extreme uncertainty. Bargain et al. (2019) show that exposure to protests increased women's intra-household decision-making in the short term, using DHS data (2008 and 2014). A temporary change in fe-

[28] The magnitudes of coefficients are reinforced.

male bargaining power could explain changes in negotiations pre-marriage, with women negotiating a higher deferred dower.

During this period, there were moments of greater or lesser socio-political uncertainty depending on the successive governments. If the mechanism at play is insurance driven by perceived insecurity, we should observe a different effect on the deferred dower across the different periods.[29] Therefore, I examine here the impact of temporal heterogeneity of exposure to violence on deferred dower.

Results on the disaggregated effects show that the periods with the highest number of deaths are associated with higher deferred dower at both intensive and extensive margins. Table 4 presents the result of this difference-in-differences analysis. It seems that the increases in deferred dower for the most exposed women mainly stem from the pre-election period and from the post-Muslim Brotherhood period running from the coup d'état to the election of al-Sissi. This result remains consistent when substituting year of birth fixed effects with year of marriage fixed effects (refer to Appendix Table A5).

Additionally, it does not seem to be the Muslim Brotherhood period that drives these results on Islamic dowers, despite involving the most significant return to traditional values and religious affiliation. Therefore, the increase in deferred dower does not appear to be linked to this isolated intensification of restrictive norms.

The two military regime periods were marked by strong conflict and violent protests. In particular, the period following the coup-d'état and before al-Sissi's election appears to have been decisive in terms of probability of being promised a positive deferred dower for those women most exposed to violence. This period was characterized by societal division within protests: while Muslim brotherhood supporters opposed the coup-d'état and denounced western interference in Egyptian politics, those against the Muslim brotherhood regime applauded the Egyptian army. Uncertainty peaked in this phase of the revolution, with a substantial drop in security.

Table 4: Temporal Heterogeneity: Deferred Dower

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
$PreMB_i \times ExposurePreMB_k$	1.55**	1.70**	0.106	0.158
	(0.574)	(0.596)	(0.099)	(0.092)
$MB_i \times ExposureMB_k$	34.80*	26.80	2.870	2.990
	(0.0143)	(0.0205)	(1.940)	(2.250)
$PostMB_i \times ExposurePostMB_k$	1.03**	0.985*	0.133**	0.179**
	(0.350)	(0.482)	(0.046)	(0.063)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes

[29] The data available does not enable me to test the hypothesis of an increase in perceived widowhood risk. Nor can I differentiate between higher risk of widowhood and risk of increased poverty in widowhood.

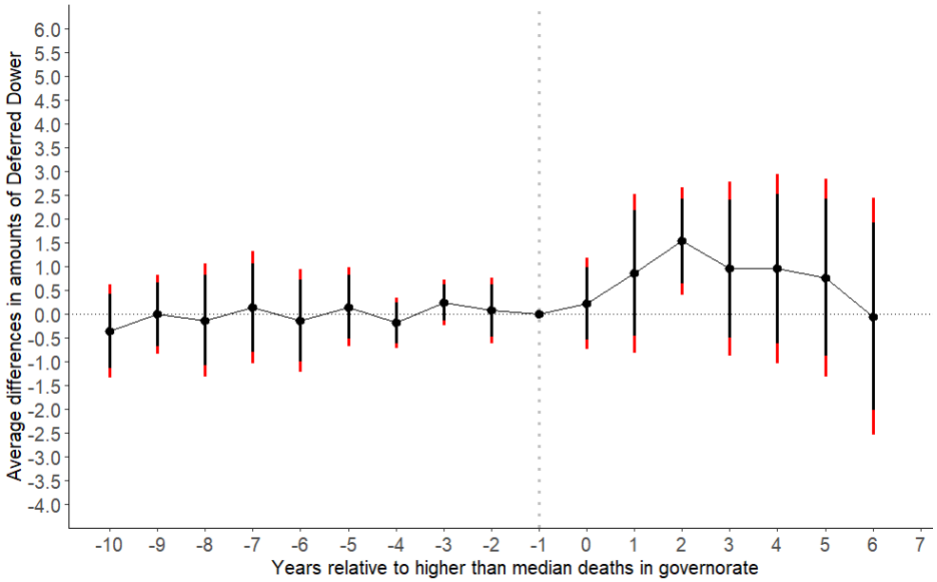
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18803	15485	18802	15484
Mean Outcome	3.639	4.086	0.600	0.632

Standard errors are in parentheses and clustered at governorate times year of first marriage.

Results are for 1000 inhabitants. Amounts of deferred dower are in Log and deflated using CPI 2010.

Probability refers to the probability of being promised a strictly positive dower. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Figure 3: Event Study Estimates: Amounts of Deferred Dower



Note: Red bars report 95 percent confidence intervals.

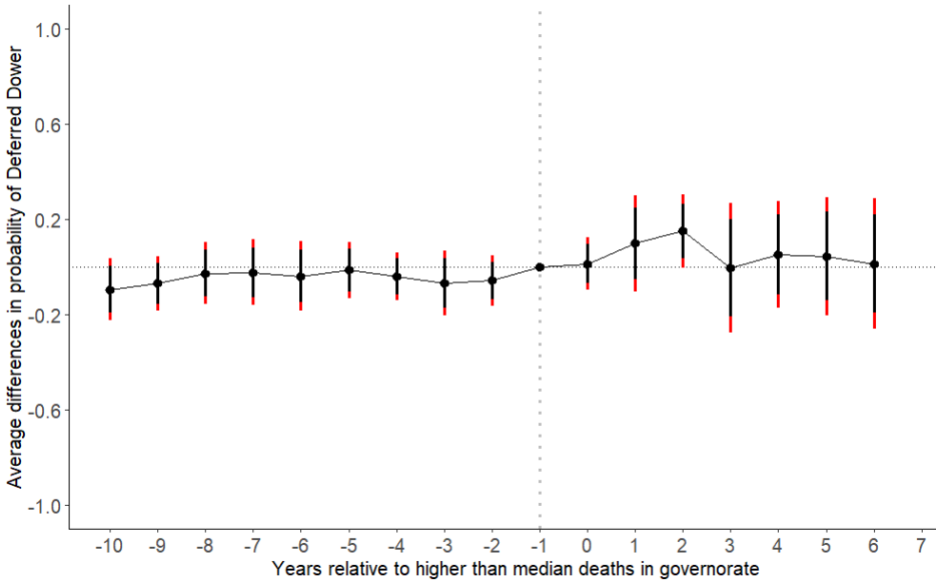
5.3 Continuous Event Study: The Short term Effects of Exposure

The nature of the revolution suggests potential normative changes in long-term preferences of spouses and in social norms governing marital relations. Such cultural changes would structurally modify marital payments and shape their trends. On the one hand, if the uprisings were empowering for women in the long-term, greater exposure to these protests would increase their bargaining power in pre-marital relations and therefore increase theirs marriage transfers in a lasting way. On the other hand, if the sense of insecurity is driving the effect on deferred dower, then it should not persist in the medium to long term.

Figure 3 shows the results of the estimation per exposure period for mean amounts of deflated deferred dowers at governorate level. The trends exhibit no significant differences in amounts of deferred dowers pre-2011 (the first exposure year), further validating the parallel trend assumption. Deferred dower seems to increase in the most exposed governorates after first exposure, reaching a significant difference 2 years later. This period of 2 years corresponds to the mean average time taken by spouses and their families for negotiations between informal engagement and formal marriage. The effects on the amounts of deferred dower appear to be short-term and no feedback effects are found after 2 periods of exposure. These short-term effects of exposure on the increase in deferred dower rule out the hypothesis of a change in structural preferences or a modification of the socio-cultural norms determining marital payments. Similarly, if the mechanism was linked to the economic constraints caused by the revolution, the process of normalization would be much slower and influenced by broader factors, not just the government in power. The rapid return to previous levels of deferred dower after the protests' end reinforces the insurance mechanism.

Similarly, it can be seen from the extensive margin shown in Figure 4 that the probability of being promised a non-token deferred dower increases in the most exposed areas after the first

Figure 4: Event Study Estimates: Probability of being promised Deferred Dower



Note: Red bars report 95 percent confidence intervals.

exposure to violent protests. However, this increase becomes significant only 2 years later and on average resumes past trends after these two periods.

6 Alternative Mechanisms

6.1 The Economic Constraint: Heterogeneous Exposure to the Economic Shock

The Egyptian revolution started with increased frustration, especially among Egypt's youth, over high unemployment rates and the slow pace of economic reform. Any holistic study of the impact of exposure to the Egyptian Arab Spring therefore needs to consider the economic shock that this revolution accentuated, on top of political changes and violence. In particular, these economic constraints might have affected men's capacity to pay for marriage altering marital payments.

An interesting question is whether the increased deferred dower was compensated for by husbands paying less at the time of marriage. Results on prompt dower are statistically insignificant. However, there might have been a decrease in other payments such as "Shabka"—jewelry for the bride—or the contribution by the husband and his family to "Gihaz"—Wedding gifts for the bride—the "Afsh"—furniture and electrical appliances purchased for the newlyweds—and housing.[30] When baseline estimations are run on these payments, only two yield significant estimates: Shabka and the Housing share.[31] Table A6 shows the results for the amounts paid at marriage for these two payments. A decrease in payments by husbands and their families at marriage, may also be consistent with a stronger compensatory mechanism. It now remains to be determined whether these changes are due to the economic conditions constraining men at marriage.

In Egypt, the massive protests succeeded in improving working conditions for public sector workers, whose minimum wage rose in July 2011[32] and job stability improved[33] (Assaad & Krafft, 2015). Therefore, while public sector workers experienced a positive shock during the Egyptian revolution, private sector workers were more exposed to deteriorating working conditions and economic hardships. These differences in exposure can have different consequences on women's outcomes. Dovis et al. (2021) show that when the economic shock is positive—for public workers—there was a reduction in the domestic workload of girls.

I use two proxies for heterogenous exposure to the economic downside of the revolution. First, using the Labor Force data enabled me to determine the share of public sector jobs per governorate. Second, I computed the sector of activity for fathers of the groom. Relying on these indicators as proxies for economic shock exposure demonstrates the consistency of results across grooms whose fathers work in either the private or the public sector (see Table A7 in Appendix), as well as across varying degrees of public sector significance in governorates (see Table A8). When exposure to violent protests increases, the promised deferred dower increases, both in likelihood and in value, even in areas and for husbands that were less exposed to the uprisings' economic shock.

[30] Along with the prompt dower, these payments constitute the sole bride price practiced in Egypt (Deng et al., 2023). Housing constitute the biggest part of the bride price in Egypt.

[31] The results for Gihaz and Afsh are available upon request.

[32] This was the first rise in minimum wage in Egypt since 1984, from 35EGP (around 6.5US$) to 700EGP per month (around 110US$).

[33] Workers reported a shift from temporary contracts to permanent ones in Egypt Labor Market Panel surveys.

6.2 Marriage Market Changes and Composition Effects

The uprisings of the Egyptian Arab Spring could have impacted marriage markets through changes in marriage rates, spousal characteristics and types of matches. These changes could represent an alternative mechanism fully accounting for the observed results on the deferred dower. Therefore, to better understand the changes in deferred dower, one needs to investigate the changes taking place in the marriage market.

First, violence exposure can alter marriage rates through delays in marriages in the most exposed areas. I find no effect on pre-nuptial negotiation times for marriage contracts—between informal engagement and formal marriage. Second, I look at the impact on marriage rates. I find that exposure has no significant differential effects on the probability of ever marrying or currently being married, nor on the probability of remarrying or remaining single.[34]

Similarly, changes in deferred dowers could have led to more marriage terminations through divorce or widowhood. I use the ELMPS data to test for changes in marriage terminations.[35] Table A9 in Appendix presents the results for this estimation on the full sample. Here, the variable *ever divorced* also comprises the women who have remarried since their separation from their first marriage.[36] I find that exposure to higher numbers of deaths slightly increases the probability of a woman divorcing and/or of losing her husband. This result is hard to interpret, as divorce and widowhood are considered jointly. However, using the 2018 wave, where the two are separated, I find no significant effect of exposure on the probability of divorcing nor on the probability of losing their husbands for women married post-2011.[37]

I now turn to changes occurring in types of marriage and the characteristics of matches. Firstly, I examine the education of women marrying post-2011 in areas more exposed to violence.[38] Table A10 shows that greater exposure lowers the education level of women married after 2011 by 1.4 percent.[39]

The effect on education may be driven either by the insurance mechanism or the economic shock modifying parents' capacity to educated daughters. Thereby, I conduct a test using father's education level as a proxy for the exposure to the economic shock. The results presented in Appendix Table A11 show that deferred dower is significantly and positively impacted by exposure regardless of father's educational attainment, at both the extensive and the intensive margins. Additionally, educational attainment of daughters are not fully driven by exposure to the economic shock.[40] These results support the insurance channel.

Secondly, exposure to violence seems to alter the probability of marrying a blood relative. Table A12 shows the results of the same regression (equation 1) on this probability. I find that more

[34] Results are available upon request.

[35] The dataset makes no distinction between divorce and widowhood in the 2006 and 2012 waves, only in the 2018 wave.

[36] Except for 2018 data, it is not possible to disentangle divorced women from widows; similarly, in the remarried category, women whose previous husbands died cannot be separated from those who divorced.

[37] Results are available upon request.

[38] A change in education can be the cause or the result of higher deferred dower. Further exploring the relationship between bride's education and Muslim mandatory payments is key.

[39] The education of husbands and non-married women was also dropping. Results are available upon request.

[40] When using married women's education level as an outcome, results continue to show a significant and negative relation with exposure, across fathers' education levels. Results available upon request.

intensive exposure increases the probability of consanguineous marriages for women marrying after 2011.[41]

Furthermore, to study the influence of exposure intensity on spousal and match characteristics, notably on female age at first marriage and on marriage probability, the main estimation needs to be modified. I replace the dichotomous variable equal to 1 if the woman is married after 2011 by a binary exposure to treatment according to birth cohort. This dummy is equal to 1 if the woman is of marrying age in January 2011, i.e., between 15 and 26 years old. I choose the 15 to 26 age group because less than 3% of our sample get married before age 15, while by age 26, around 70% of the cohort is married. This gives:

$$z_{ik} = \lambda_0 + \lambda_1 AgeMarPOST_i + \lambda_2 (AgeMarPOST_i \times Exposure_k) + \lambda_3 YearB_i + \lambda_4 District_i + \lambda_5 M_i + \zeta_{ik}. \quad (3)$$

z_{ik} is the outcome of woman i from governorate k. This new estimation applies to woman's age at first marriage, probability of ever marrying, and probability of remaining single. $AgeMarPOST_i$ is equal to 1 if woman i was between 15 and 26 years old in January 2011, 0 if woman i was at least 30 years old (usually, women are already married by that age). $Exposure_k$ is the proxy for exposure intensity to the Arab Spring in governorate k, represented by number of deaths per governorate. $YearB_i$ is a year of birth fixed effect. $District_i$ is a district fixed effect. As with the previous estimation, this district fixed effect is determined on the basis of either the district of residence in 2011 or of birth. M_i is also a vector of control variables that groups mother's and father's highest education, an urban dummy equal to 1 if the respondent was living in a city during the Egyptian revolution and a wealth index. Finally, ζ_{ik} is the error term clustered at the governorate times year of first marriage level.

Findings on age at first marriage indicate that substantial exposure to violent protests is associated with earlier marriage for women.[42] Table A13 shows that an increase in intensity of exposure decreases age at first marriage for women marrying after 2011.[43] Nonetheless, a key issue when investigating marital outcomes is that of censoring: marital outcomes are observed for women of different ages, which means that some women may not yet be married at the time of observation. To overcome this problem, I use a linear model where I look at specific ages to estimate the impact of exposure to protests on age at first marriage (Guirkinger et al., 2022). I find that compared to less heavily exposed governorates, the female cohorts of 1986 (aged 25 in 2011), 1988 (aged 23), and 1994 (aged 17) in the most exposed governorates had a higher probability of getting married. Notably, I find a significant increase in the probability of marrying at age 19 for those women most exposed.[44]

[41] While there is some evidence of a lower expected bride price for females marrying blood-relatives compared to those marrying outside the family, no studies have examined the relationship between consanguineous marriages and deferred dowers(Badaruddoza and Afzal 1995, Do et al. 2013, Anukriti and Dasgupta 2017).

[42] This finding confirms the findings of Ferhat et al. (2022).

[43] Although theoretically, a decrease in age at marriage is linked with an increased bride price, no causal link has yet been established with deferred dower (Corno et al. 2020, Corno and Voena 2023).

[44] Results are available upon request.

Finally, increased exposure to the intensity of protests did not impact the probability of ever marrying, of remaining single, or of being currently married for women of marriageable age when the revolution started (aged between 15 and 26).[45] The absence of impact on the probability of marrying suggests that despite the uncertainty generated by the Egyptian revolution, marriages were still taking place and were not significantly postponed.

Therefore, findings suggest that there were no delays in marriages, no changes in marriage probabilities and slight to no changes in marriage termination probabilities. Yet, spousal characteristics at marriage seem to have been altered by exposure. To understand whether these composition effects affected deferred dower, I run a couple of tests. Including these endogenous characteristics as controls in the main specifications reveals that the effect on deferred dower remains. In addition, results on deferred dower hold across different types of brides, such as across education categories, for young brides and older brides, as well as for blood-relative and non-consanguineous marriages.

These tests shows that the effect of violence on deferred dower cannot be fully explained by changes in selection and matching characteristics. In fact, marrying daughters earlier or to a blood relative can also be considered as alternative insurance mechanisms in times of insecurity and social tension. However, the relationship between brides' characteristics and Muslim marital payments, notably deferred dower, warrants particular attention and needs to be further investigated.

[45] Results are available upon request.

7 Robustness Checks

To ensure that my findings are robust across various model specifications and to reinforce the validity of my results, I perform several robustness checks and sensitivity analyses.
First, to confirm that exposure to the Egyptian Arab Spring is indeed an exogenous shock, I run a placebo test for my main outcomes. Table A14 in the Appendix shows that exposure measured by number of deaths per governorate does not predict the deferred dower and the prompt dower of women married before the beginning of the revolution in 2011.
I also look at how the proxy affects key determinants of the dowers, namely women's educational attainments and probability of marrying a blood relative. Appendix table A15 illustrates that these variables are not affected by the number of deaths per governorate before 2011.
The event study results also show that the pre-trends further validate the main proxy for exposure intensity used in this paper.

Second, I change the proxy used in my main specification to a normalized intensity considering governorate sizes. To obtain a measure of deaths per number of inhabitants, I sum the cleaned number of deaths at governorate level and normalize by the aggregate population size of the governorate using Census information (CAPMAS, 2017):

$$Normalized\_Intensity = \frac{Deaths\_perGovernorate}{Governorate\_Population\_Size} \quad (4)$$

Table A16 shows the results both on the amounts of deferred dower and on the probability of promising a deferred dower. These results remain positive and significant, whereas I find no effect on prompt dower, neither on the amounts involved nor on the probability of receiving a positive prompt dower. Similarly, results continue to hold for female education, which declines with exposure, and for consanguinity, which rises with exposure when normalized number of deaths is used as a proxy for exposure.[46]

Additionally, I account for non-linearity by using the log of the number of deaths as a proxy of exposure. Therefore the interaction of interest becomes: POST×log(1+ Number of deaths). Table A17 demonstrates that the results for deferred dower remain significant and positive despite lower significance and magnitude. Results for prompt dower remain negative but not statistically significant. Results also hold for education, which decreases with increasing exposure, but not for the probability of consanguineous marriage.[47]

Moreover, to ensure that the results hold at a more granular geographical level, I use the number of protest-related deaths at district level for a sensitivity analysis. I keep my district fixed effects and cluster my error term at district of residence level times year of first marriage. Table A18 in the Appendix show that exposure to violence continues to impact positively deferred dower and does

[46] The results for education and consanguinity are available upon request.
[47] The results for prompt dower, education, and consanguinity are available upon request.

not affect prompt dower.[48] Deferred dower seems to remain significantly and positively impacted by exposure to deaths during protests both at the extensive and intensive margins In addition, at the district level, education also remains negatively and significantly associated with exposure, however kinship marriages results become insignificant at the district level.[49]

Finally, I also test the sensitivity of my results to removing the observations from Cairo, the Egyptian capital and political and economic hub of the country. Table A19 presents the results from running the baseline estimation on deferred dower but excluding Cairo. While the result on the intensive margin of deferred dower remains positive and significant, the probability of husbands committing to a non-null deferred dower is not significantly associated with exposure to violent protests for women married after 2011. Similarly, exposure intensity does not significantly affect consanguinity or women's education when Cairo is excluded.[50] The effect on amounts of deferred dower does not seem to be driven by the capital city.

Additionally, I conduct a heterogeneity analysis that distinguishes between urban and rural areas, given that protests mainly took place in urban areas. Table A20 shows the results of the triple interaction between protest-related violence and marrying post-2011 in urban areas. Results show that greater exposure still increases the deferred dower, on both the extensive and the intensive margins.

Similarly, results hold in rural areas as shown in Table A21.[51] The effect is even stronger in the most exposed rural areas, in terms both of amounts of deferred dower and of probability of being promised a strictly positive deferred dower.

[48] These results for prompt and deferred also hold when error terms are clustered at the district level and when using district of residence fixed effects.

[49] Results for female education level and consanguinity are available upon request.

[50] The results for education and consanguinity are available upon request.

[51] Results also hold when considering separately the sample of urban areas only or rural areas only.

8 Conclusion

This paper demonstrates that increased exposure to violence during the Egyptian Arab Spring protests led to a higher deferred dower promised to women married after 2011, particularly in the aftermath of the coup d'état that ousted President Morsi. These findings suggest that deferred dower may be considered as an insurance mechanism by women who fear widowhood, especially in times of insecurity and uncertainty.

This research explores the interplay between political uncertainty, marriage markets, and marital payments, indicating that shocks can differentially affect marriage outcomes by altering specific payments. From a policy perspective, it also highlights the role that deferred dower can play in reducing the vulnerability of women against widowhood. Thereby, the practice of deferred dower is shaped by inheritance laws and limited access to wealth for women.

Additionally, heightened exposure to violence is associated with an increase in consanguineous marriages, which may be perceived as less risky. Female educational attainment and age at first marriage also decrease in areas more exposed to violence, further exacerbating women's demand for insurance. Yet, no causal evidence shows the link between prompt and deferred dower and bride's characteristics. Future studies should investigate this relationship as it is crucial to better understand how changes in martial payments impact the vulnerability of women to shocks.

Changes in deferred dower practices and their influence on married women's intra-household decision-making represent an important area for in-depth examination. Receiving the deferred dower directly can significantly enhance bride's sense of empowerment (Brown 2003, Anderson 2007, Dawsey and Bookwalter 2016, Hotte and Lambert 2023). It affects resource allocation and decision-making authority post-marriage, revealing each party's outside options and potential benefits from marital dissolution (Anderson 2007, Salem 2011, Anderson et al. 2020). An increase in deferred dower may enhance women's bargaining power and financial security through better exit options. On the other hand, it may lead to diminished cooperation within households, prompting men to resort to violence to assert their preferences, rather than resorting to divorce. This dual effect of deferred dower on intra-household dynamics merits further investigation.

References

Ambrus, A., Field, E., & Torero, M. (2010). Muslim family law, prenuptial agreements, and the emergence of dowry in bangladesh. *The Quarterly Journal of Economics*, *125*(3), 1349–1397.

Amin, S., & Al-Bassusi, N. (2004). Education, wage work and marriage: Perspectives of egyptian working women. *Journal of Marriage and the Family*, *66*, 1287–1299.

Anderson, S. (2007). The economics of dowry and brideprice. *Journal of Economic Perspectives*, *21*(4), 151–174.

Anderson, S., Bidner, C., & Sadania, C. (2020). Unbundled gender norms and marital institutions. *CEPR Discussion Paper - DP18278*.

Anukriti, S., & Dasgupta, S. (2017). Marriage markets in developing countries. *Institute of Labor Economics IZA*, *10556*.

Ashraf, N., Karlan, D., & Yin, W. (2010). Female empowerment: Impact of a commitment savings product in the philippines. *World Development*, *38*(3), 333–344.

Ashraf, N., Bau, N., Nunn, N., & Voena, A. (2020). Bride price and female education. *Journal of Political Economy*, *128*(2), 591–641.

Assaad, R., & Krafft, C. (2015). An empirical analysis of the economics of marriage in egypt, morocco, and tunisia. *In C. Monga J. Y. Lin (Eds.), The Oxford Handbook of Africa and Economics: Policies and Practices, Oxford, UK: Oxford University Press*, *2*(4), 577–607.

Assaad, R., Hendy, R., Lassassi, M., & Yassin, S. (2018). Explaining the mena paradox: Rising educational attainment, yet stagnant female labor force participation. *Institute of Labour Economics, IZA Discussion Papers, No. 11385*.

Badaruddoza & Afzal, M. (1995). Effects of inbreeding on marriage payment in north india. *Journal of biosocial science*, *27*, 333–337.

Bargain, O., Boutin, D., & Champeaux, H. (2019). Women's political participation and intrahousehold empowerment: Evidence from the egyptian arab spring. *Journal of Development Economics*, *141*, 1023–1079.

Becker, G. (1973). A theory of marriage: Part i. *Journal of Political Economy*, *81*(4), 813–846.

Becker, G. (1974). A theory of marriage: Part ii. *Journal of Political Economy*, *82*(2), S11–S26.

Becker, G. (1991). A treatise on the family. *Harvard University Press*.

Bertrand, M., Duflo, E., & Mullainathan, S. (2004). How much should we trust differencesin-differences estimates? *Quarterly journal of economics*, *119*(1), 249–275.

Binzel, C., & Assaad, R. (2008). Pathways to marriage in egypt: How young men's marriage trajectories are constrained by their labor market experiences. *Economic Research Forum Paper*.

Brown, P. (2003). Dowry and intrahousehold bargaining: Evidence from china. *William Davidson Institute Working Paper 608*.

Callaway, B., Goodman-Bacon, A., & Sant'Anna, P. H. C. (2024). Event studies with a continuous treatment. *AEA Papers and Proceedings*, *114*.

CAPMAS. (2017). Egyptian census (2006 and 2010). *Central Agency for Public Mobilization and Statistics, https://www.capmas.gov.eg/*.

Cherlin, A. J. (2012). Goode's world revolution and family patterns: A reconsideration at fifty years. *Population and Development Review*, *38*(4), 577–607.

Corno, L., Hildebrandt, N., & Voena, A. (2020). Age of marriage, weather shocks, and the direction of marriage payments. *Econometrica*, *88*(3), 879–915.

Corno, L., & Voena, A. (2023). Child marriage as informal insurance: Empirical evidence and policy simulations. *Journal of Development Economics*, *162*, 1030–1047.

Costello, M., Jenkins, J. C., & Aly, H. (2015). Bread, justice, or opportunity? the determinants of the arab awakening protests. *World Development*, *67*, 90–100.

Dawsey, A., & Bookwalter, J. (2016). Determinants of intra-household gender bias: Evidence from timor-leste: Determinants of intra-household gender bias. *Journal of international development*, *28*(6), 938–952.

Deng, J., Elmallakh, N. Y. L. W., Flabbi, L., & Gatti, R. V. (2023). Returns to education in the marriage market : Bride price and school reform in egypt. *The World Bank*, *10288*.

Desai, S., & Andrist, L. (2010). Gender scripts and age at marriage in india. *Demography*, *47*(3), 667–687.

Dhillon, N., Dyer, P., & Yousef, T. (2009). Generation in waiting: An overview of school to work and family formation transitions. *In Generation in Waiting: The Unfulfilled Promise of Young People in the Middle East. Washington, DC: The Brookings Institution*, 11–38.

Do, Q.-T., Iyer, S., & Joshi, S. (2013). The economics of consanguineous marriages. *The Review of Economics and Statistics*, *95*(3), 904–918.

Dovis, M., Augier, P., & Sadania, C. (2021). Labor market shocks and youths' time allocation in egypt: Where does women's empowerment come in? *Economic Development and Cultural Change*, *69*, 1501–1540.

Edlund, L., & Lagerlof, N.-P. (2004). Implications of marriage institutions for redistribution and growth. *Mimeo*.

El Feki, S. (2013). Sex and the citadel: Intimate life in a changing arab world. *New York, NY: Pantheon*.

El-Mallakh, N., Maurel, M., & Speciale, B. (2018). Arab spring protests and women's labor market outcomes: Evidence from the egyptian revolution. *Journal of Comparative Economics*, *46*(2), 656–682.

ERF & CAPMAS. (2013). Economic research forum and central agency for public mobilization statistics. "egypt labor market panel survey, elmps (2012)", version 3.0 of the licensed data files (novembre, 2013). *Provided by the Economic Research Forum, ERF Data Portal*.

ERF & CAPMAS. (2019). Economic research forum and central agency for public mobilization statistics. "egypt labor market panel survey, elmps (2018)", version 2.0 of the licensed data files (october, 2019). *Provided by the Economic Research Forum, ERF Data Portal*.

Ferhat, S., Hotte, R., & Verwimp, P. (2022). Entry into marriage, motherhood and the arab spring: Evidence from egypt. *Universite Libre de Bruxelles*, *2022-16*.

Gaspart, F., & Platteau, J. (2010). Strategic behavior and marriage payments: Theory and evidence from senegal. *Economic Development and Cultural Change*, *59*(1), 149–185.

Goode, W. (1970). World revolution and family patterns. *Free Press, New York*.

Guirkinger, C., Platteau, J.-P., & Wahhaj, Z. (2022). Behind the veil of cultural persistence: Marriage and divorce in a migrant community. *CEPR Discussion Paper No. DP16347*.

Hamon, ., R.R, & Ingoldsby, B. (2003). Mate selection across cultures. *Thousand Oaks: Sage Publications*.

Hartwell, C., Sidlo, K., & Beaumont, K. (2018). Women's empowerment in the mediterranean region. *European Committee of the Regions, https://data.europa.eu/doi/10.2863/878975*.

Hendy, R. (2015). Women's participation in the egyptian labor market: 1998-2012. *Economic Research Forum, 907*.

Hoodfar, H. (1997). Between marriage and the market: Intimate politics and survival in cairo. *Berkeley, CA: University of California Press*.

Hotte, R., & Lambert, S. (2023). Marriage payments and wives' welfare: All you need is love. *Journal of Development Economics, 164*, 103141.

Hou, X. (2011). Women's decision making power and human development: Evidence from pakistan. *Emerging Markets Economics: Environmental Social Aspects eJournal*.

Hudson, V. M., & Matfess, H. (2017). In plain sight: The neglected linkage between brideprice and violent conflict. *International Security, 42*(1), 7–40.

Jayaraman, A., Gebreselassie, T., & Chandrasekhar, S. (2009). Effect of conflict on age at marriage and age at first birth in rwanda. *Population Research and Policy Review, 28*(5), 551–567.

Khondker, H. H. (2011). Role of the new media in the arab spring. *Globalizations, 8*(5), 675–679.

Mensch, B., Singh, S., & Castelrine, J. (2005). Trends in the timing of first marriage among men and women in the developing world. *Population Council Policy Research Division, Working Papers, 202*.

Moors, A. (1996). Repudiation and widowhood: The deferred dower. In *Women, property and islam: Palestinian experiences, 1920–1990* (pp. 127–150). Cambridge University Press.

Nunn, N. (2005). A model explaining simultaneous payments of dowry and brideprice. *Unpublished paper. http://www.econ.ubc.ca/nnunn/dowries.pdf*.

OAMDI. (2016). Labor market panel surveys (lmps). version 4.2 of licensed data files; elmps 2006. *Egypt: Economic Research Forum (ERF), http://erf.org.eg/data-portal/*.

OAMDI. (2019). Harmonized survey of young people in egypt (hsype). *Egypt: Economic Research Forum (ERF), http://erf.org.eg/data-portal/., Version 2.0 of Licensed Data Files; SYPE 2014-Population Council*.

Pratt, N. (2021). Popular culture, gender, and revolution in egypt. *Journal of Middle East Women's Studies, 17*(1), 137–146.

Rashad, H., Osman, M., & Roudi-Fahimi, F. (2005). Marriage in the arab world. *Washington, DC: Population Reference Bureau*.

Reggio, I. (2011). The influence of the mother's power on her child's labor in mexico. *Journal of Development Economics, 96*(1), 95–105.

Saing, C. H., & Kazianga, H. (2020). The long-term impacts of violent conflicts on human capital: Us bombing and, education, earnings, health, fertility and marriage in cambodia. *The Journal of Development Studies, 56*(5), 874–889.

Salem, R. (2011). Women's economic resources and bargaining in marriage: Does egyptian women's status depend on earnings or marriage payments? *Population Council, Gender and Work in the MENA Region, 18*.

Salem, R. (2018). Matrimonial expenditures and egyptian women's power within marriage. *Journal of Family Issues, 39*(9), 2615–2638.

Scott, M. E., Wilcox, B. W., Ryberg, R., & DeRose, L. (2015). *World family map 2015: Mapping family change and child well-being outcomes*.

Seema, J. (2015). The roots of gender inequality in developing countries. *Annual Review of Economics*.

Shemyakina, O. (2006). The effect of armed conflict on accumulation of schooling: Results from tajikistan. *Households in Conflict Network HiCN Working Papers, 12*.

Shyamal, C., Debdulal, M., & Prabal, R. (2020). Natural shocks and marriage markets: Fluctuations in mehr and dowry in muslim marriages. *European Economic Review, 128*.

Singerman, D. (2007). The economic imperatives of marriage: Emerging practices and identities among youth in the middle east. *Middle East Youth Initiative Working Paper No. 6*.

Sundkvist, E. (2022). Navigating human rights, feminism, and history: Egyptian feminist activists' demands for constitutional equality, 2012–2014. *Social Politics: International Studies in Gender, State Society, 30*(1), 47–68.

UNDP. (2021). Egypt human development report 2021. development, a right for all: Egypt's pathways and prospects. *UNDP and the Ministry of Planning and Economic Development of Egypt*.

van de Walle, D. (2013). Lasting welfare effects of widowhood in mali. *World Development, 51*, 1–19.

Wani, A. (2001). Muslim women's right to "mahr": An appraisal of the statutory laws in muslim countries. *Journal of the Indian Law Institute, 43*(3), 388–409.

WEF. (2021). Global gender gap report 2021, gggr 2021. *World Economic Forum, weforum.org*.

Woodrow Wilson International Center for Scholars. (2012). Reflections on women in the arab spring. *Middle East Program, Women's Voices from Around the World, In Celebration of International Women's Day*.

WorldBank. (2023). Consumer price index (2010 = 100) - egypt, arab republic. *The World Bank data portal*.

Wu, J., & Zhang, H. (2021). Preference evolution in different matching markets. *European Economic Review, 137*(100).

Zhang, J., & Chan, W. (1999). Dowry and wife's welfare: A theoretical and empirical analysis. *Journal of Political Economy, 107*(4), 786–808.

9 Appendix

9.1 Theoretical Model - *Preliminary*

I now describe a theoretical framework that helps us understand the relationship between perceived widowhood risk, the economic constraint of marriage and the prompt and deferred dower.

9.1.1 Setup

The model is a matching model with two agents: men and women. Men are either searching for a partner or married and women are either searching for a partner, married, or widowed.
Men and women are matched randomly in each period. Men are matched with women at probability q^m and women with men at probability q^w. When single, men have a search cost s^m and women a search cost s^w. This search cost is a psychological cost of being single.
The decision to marry requires the husband's commitment to the two Muslim marital payments: prompt and deferred dowers. Let d_p be the prompt dower, the part of the dower paid by the husband to his wife at the time of marriage, and d_d the deferred dower, paid to the wife upon widowhood.
Widowhood occurs with probability σ_w each period for married agents. In the event of widowhood, women receive the deferred dower and use it for consumption over the next periods. Men have a preference over leaving their wives a deferred dower in the event of widowhood, captured by the function γ.
To simplify the model, I exclude the possibility of divorce, given that divorce remains uncommon in Egypt, particularly for the period of my study.[52] Additionally, divorced women often do not receive the deferred dower payment ((Moors, 1996)). I also assume that neither men nor women can remarry.
Additionally, men own assets denoted p from which they derive utility by keeping them or leaving them to their heirs. Let η be a function representing the man's valuation of his assets p. When married, this η will depend negatively on the deferred dower left to his wife, d_d.

9.1.2 Men's Value Functions

First, men's value function when searching is denoted M^s and when married M^m. The value function when single is given by:

$$M_t^s = \eta(p) + \beta E[q_{t+1}^m M_{t+1}^m + (1 - q_{t+1}^m) M_{t+1}^s] - s^m \quad (5)$$

where β is the discount factor of the expected utility from future periods.
The value function when married under a marriage contract with deferred dower d_d is given by:

$$M_t^m = \eta(p - d_d) + \beta E[\sigma_w \gamma(d_d) + (1 - \sigma_w) M_{t+1}^m]. \quad (6)$$

[52] The divorce rate in Egypt was reported to be 1.9 per 1,000 individuals in 2010 and despite a notable increase in 2017, it reached approximately 2.1 per 1,000 individuals (CAPMAS, 2017).

with γ representing a function of men's preference for leaving a deferred dower to their wives. Here, a man would agree to marry if the surplus from marriage $S_t^m = M_t^m - M_t^s$ is higher than the prompt dower that needs to be paid.

$$S_t^m > d_p \tag{7}$$

9.1.3 Women's Value Functions

Let us denote W^s women's value function when searching, W^m when married and W^w when widowed. The value function when single is given by:

$$W_t^s = \beta E[\, q_{t+1}^w (W_{t+1}^m + d_p) + (1 - q_{t+1}^w) W_{t+1}^s \,] - s^w \tag{8}$$

The value function when married under a marriage contract with deferred dower d_d is given by:

$$W_t^m = \beta E[\, \sigma_w (W_{t+1}^w) + (1 - \sigma_w) W_{t+1}^m \,]. \tag{9}$$

Finally, the value function when widowed is given by:

$$W_t^w = c_t d_d + \beta (1 - c_t) \cdot d_d. \tag{10}$$

with c_t the share of the deferred dower consumed each period.
Here a woman agrees to marry even when the surplus from marriage S_t^w is negative $W_t^m < W_t^s$ because she receives the prompt dower, which can compensate for this loss.

$$S_t^w > -d_p \tag{11}$$

9.1.4 The Nash Bargaining Problem

Marriage is modeled as a contract that solves the following Nash bargaining problem where the goal is to maximize the product of the surpluses of both parties:

$$\max_{d_d, d_p} \quad (S_t^m - d_p)^\alpha (S_t^w + d_p)^{(1-\alpha)} \tag{12}$$

with α representing the bargaining weight of women and $(1 - \alpha)$ the bargaining power of men. I assume in this model that $\alpha > 0$ to avoid a situation where the man extracts all the surplus and $d_p = 0$, since d_p is just a transfer. Moreover, α is strictly inferior to 1.
The solution to the bargaining problem determines the allocation of dowers d_p and d_d. The First Order Condition (FOC) when maximizing according to d_p and using logs is given by:

$$S_t^w + d_p = \frac{(1-\alpha)}{\alpha} (S_t^m - d_p) \tag{13}$$

This leads to:

$$d_p \cdot \frac{1}{\alpha} = \frac{(1-\alpha)}{\alpha} S_t^m - S_t^w \tag{14}$$

By isolating d_p, we obtain:

$$d_p^N = (1-\alpha)S_t^m - \alpha S_t^w \tag{15}$$

On the other hand, the FOC when maximizing relative to d_d and using logs is given by:

$$(\eta'(p) + \beta E[\sigma_w \gamma'(d_d)])\,\alpha \frac{1}{S_t^m - d_p} + (\beta E\sigma_w (W_t^w)')(1-\alpha)\frac{1}{S_t^w + d_p} = 0 \tag{16}$$

This gives:

$$\eta'(p) + \beta E[\sigma_w \gamma'(d_d)] + \beta E\sigma_w (W_t^w)' = 0 \tag{17}$$

If η is a CRR function and γ is a concave function and W_t^w a linear function, then we find:

$$(p-d_d)^{-\eta(p)} = \beta E\sigma_w (\gamma'(d_d) + (W_t^w)') \tag{18}$$

Finally, we find:

$$d_d^N = p - [\beta E\sigma_w(\gamma'(d_d) + (W_t^w)']^{\frac{-1}{\eta(p)}} \tag{19}$$

Therefore, if $\beta E\sigma_w(\cdot) > 0$ than $d_d^N \leq p$. We also find that d_d is a concave function, where σ_w is a linear in function of p.

PREDICTION *A violence shock increasing the expected probability of widowhood $E\sigma_w$, ceteris paribus, would increase the equilibrium deferred dower, d_d^N.*

9.2 Figures

Figure 5: Average Prompt Dower per Marriage year (in constant EGP)

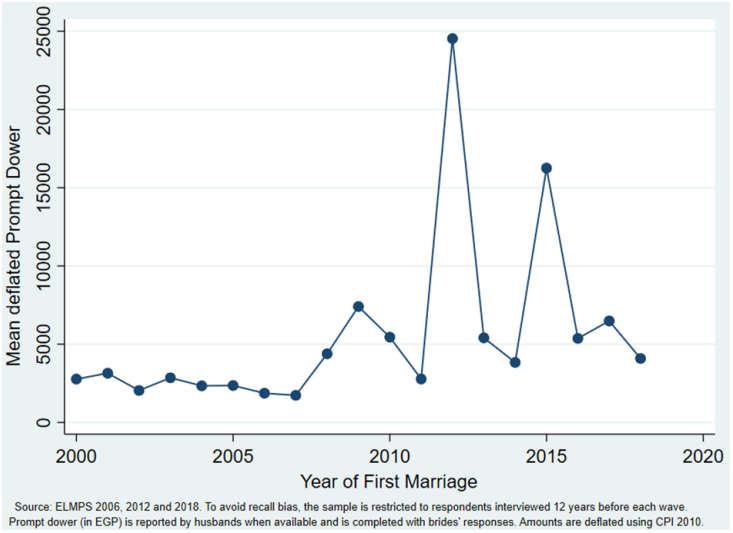
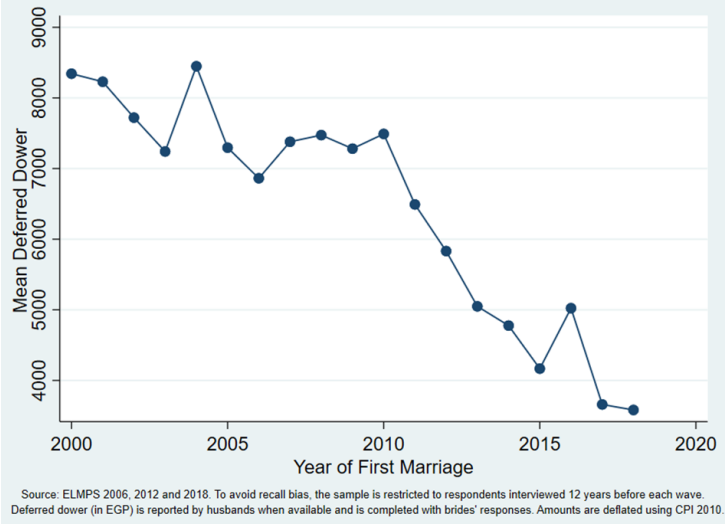


Figure 6: Average Deferred Dower per Marriage year (in constant EGP)



9.3 Tables

9.3.1 Main Results: Using Year of Marriage Fixed Effects

Table A1: Impacts of Arab Spring Exposure on Deferred Dower

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
POST×Number of Deaths	0.546***	0.442***	0.0553**	0.0686**
	(0.133)	(0.132)	(0.0203)	(0.0258)
District of Residence FE	Yes	No	Yes	No
Year of 1st Marriage FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18872	15517
Mean Outcome	3.639	4.086	0.600	0.632

Notes: Standard errors are in parentheses and clustered at governorate times year of first marriage.

Results are for 1000 inhabitants. Amounts of deferred dower are in Log and deflated using CPI 2010.

Probability refers to the probability of being promised a strictly positive deferred dower. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A2: Impacts of Arab Spring Exposure on Prompt Dower

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
POST×Number of Deaths	-0.0860	-0.0610	0.0165	0.0188
	(0.116)	(0.145)	(0.0254)	(0.0329)
District of Residence FE	Yes	No	Yes	No
Year of 1st Marriage FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18872	15517
Mean Outcome	0.157	0.312	0.250	0.262

Standard errors are in parentheses and clustered at governorate times year of first marriage.

Results are for 1000 inhabitants. Amounts of prompt dower are in Log and deflated using CPI 2010.

Probability refers to the probability of being promised a strictly positive dower. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

9.3.2 Additional Results

Table A3: Deferred Dower: Triple interaction with Owning a TV

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
Deaths×POST×TV	0.578***	0.499***	0.052**	0.069***
	(0.122)	(0.114)	(0.00002)	(0.00002)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18872	15517
Mean Outcome	3.639	4.086	0.600	0.632

Standard errors are in parentheses are clustered at Gov of residence times Year of 1st marriage.

Results are for 1000 inhabitants. All Amounts are in Log and deflated using CPI 2010. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A4: Deferred Dower: Triple interaction with Internet Access

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
Deaths×POST×Internet	0.605***	0.608***	0.035	0.054*
	(0.139)	(0.148)	(0.028)	(0.027)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18872	15517
Mean Outcome	3.639	4.086	0.600	0.632

Standard errors are in parentheses are clustered at Gov of residence times Year of 1st marriage.

Results are for 1000 inhabitants. All Amounts are in Log and deflated using CPI 2010. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

9.3.3 Temporal Heterogeneity: Using Year of Marriage Fixed Effects

Table A5: Temporal Heterogeneity: Deferred Dower

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
$PreMB_i \times ExposurePreMB_k$	1.660*	1.790**	0.177	0.225
	(0.687)	(0.668)	(0.145)	(0.128)
$MB_i \times ExposureMB_k$	26.40*	17.00	2.420	1.600
	(11.10)	(17.60)	(1.740)	(2.070)
$PostMB_i \times ExposurePostMB_k$	1.230***	1.050*	0.119**	0.144*
	(0.323)	(0.500)	(0.0452)	(0.0685)
District of Residence FE	Yes	No	Yes	No
Year of 1st Marriage FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18803	15485	18802	15484
Mean Outcome	3.639	4.086	0.600	0.632

Standard errors are in parentheses and clustered at governorate times year of first marriage.

Results are for 1000 inhabitants. Amounts of deferred dower are in Log and deflated using CPI 2010.

Probability refers to the probability of being promised a strictly positive dower. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

9.3.4 Exposure to the Economic Shock

Table A6: Impacts of Exposure to Violent Protests on Other Marital Payments

	Jewelry		**Housing**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
POST×Number of Deaths	-0.200*	-0.100	-0.300***	-0.400***
	(0.080)	(0.100)	(0.070)	(0.060)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18873	15518
Mean Outcome	5.015	5.417	7.767	8.712

Notes: Standard errors are in parentheses and clustered at governorate times year of first marriage.

Results are for 1000 inhabitants. All Amounts are in Log and deflated using CPI 2010.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A7: Deferred Dower: Triple interaction with the employment sector of the father of the groom

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
Deaths×POST×Public Sector	0.523***	0.551***	0.049*	0.076**
	(0.138)	(0.154)	(0.019)	(0.023)
Deaths×POST×Private Sector	0.639***	0.412**	0.053**	0.050*
	(0.126)	(0.144)	(0.019)	(0.021)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	16444	13590	16443	13589
Mean Outcome	4.209	4.651	0.640	0.672

Standard errors are in parentheses are clustered at Gov of residence times Year of 1st marriage.

All Amounts are in Log and deflated using CPI 2010. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A8: Deferred Dower: Triple interaction with Share of Public Employment

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
Deaths×POST×Public Share	4.700***	4.340***	0.432***	0.612***
	(0.936)	(0.950)	(0.121)	(0.153)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18872	15517
Mean Outcome	3.639	4.087	0.600	0.632

Standard errors are in parentheses are clustered at Gov of residence times Year of 1st marriage.

Results are for 1000 inhabitants. All Amounts are in Log and deflated using CPI 2010. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

9.3.5 Composition Effects

Table A9: Impacts of Arab Spring Exposure on Divorces and Widowhood

	Marriage Termination	
Variables	Residence FE	Birth FE
POST×Number of Deaths	0.025*	0.033*
	(0.010)	(0.015)
District of Residence FE	Yes	No
Year of Birth FE	Yes	Yes
Individual and Parental Controls	Yes	Yes
District of Birth FE	No	Yes
No of Observations	17987	14645
Mean Outcome	0.189	0.215

Standard errors are in parentheses and clustered at governorate times year of first marriage.

Results are for 1000 inhabitants. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A10: Impact of Arab Spring Exposure on Female Education

	Education	
Variables	Residence FE	Birth FE
POST×Number of Deaths	-0.137***	-0.147***
	(0.030)	(0.032)
District of Residence FE	Yes	No
Year of Birth FE	Yes	Yes
Individual and Parental Controls	Yes	Yes
District of Birth FE	No	Yes
No of Observations	13804	11407
Mean Outcome	2.747	2.750

Notes: Standard errors are in parentheses and clustered at governorate times year of first marriage.

Results are for 1000 inhabitants. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A11: Deferred Dower: Triple Interaction with Father's Education

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
Deaths×POST×Father Educ	0.182***	0.169***	0.014*	0.021**
	(0.038)	(0.037)	(0.005)	(0.006)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18872	15517
Mean Outcome	3.635	4.074	0.599	0.631

Standard errors are in parentheses are clustered at Gov of residence times Year of 1st marriage.

Results are for 1000 inhabitants. All amounts are deflated using CPI 2010. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A12: Impact of Arab Spring Exposure on Probability of Consanguineous Marriage

	Consanguinity	
Variables	Residence FE	Birth FE
POST×Number of Deaths	0.024	0.055**
	(0.017)	(0.020)
District of Residence FE	Yes	No
Year of Birth FE	Yes	Yes
Individual and Parental Controls	Yes	Yes
District of Birth FE	No	Yes
No of Observations	15944	12618
Mean Outcome	0.330	0.340

Standard errors are in parentheses and clustered at governorate times year of first marriage.

Results are for 1000 inhabitants. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A13: Additional Results for impact of Arab Spring Exposure on Female Age at First Marriage

	Age at 1st Marriage	
Variables	Residence FE	Birth FE
AgeMarPOST × Deaths	-8.762***	-7.848***
	(2.288)	(2.200)
District of Residence FE	Yes	Yes
Year of Birth FE	Yes	Yes
Individual and Parental Controls	Yes	Yes
District of Birth FE	No	Yes
No of Observations	16334	13921
Mean Outcome	20.915	20.830

Standard errors are in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

9.3.6 Robustness Checks

Table A14: Placebo Test on Dowers using Women Married Before 2011

	Deferred Dower		**Prompt Dower**	
Variables	Amounts	Probability	Amounts	Probability
Number of Deaths	0.001	-0.001	-0.002	-0.0003
	(17.61)	(10.71)	(5.379)	(42.01)
District of Residence FE	Yes	Yes	Yes	Yes
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	No	No	No
No of Observations	15028	15027	15028	15027

Standard errors are in parentheses and clustered at Governorate times year of first marriage.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All amounts are deflated using CPI 2010.

Table A15: Placebo Test using Women Married before 2011

	Consanguinity		**Education**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
Number of Deaths	-0.0002	-0.000001	-0.0004	-0.00004
	(1.191)	(0.00001)	(10.35)	(0.00002)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	12108	10700	10363	9614

Standard errors are in parentheses and clustered at Governorate times year of first marriage.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A16: Deferred Dower using Normalized Exposure

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
Normalized Deaths × POST	6.099***	5.824***	0.542***	0.790***
	(1.160)	(1.250)	(0.142)	(0.182)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18872	15517
Mean Outcome	3.639	4.086	0.600	0.632

Standard errors are in parentheses and are clustered at Governorate times year of first marriage

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All amounts are deflated using CPI 2010.

Table A17: Deferred Dower using Log Exposure

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
Log exposure	0.555***	0.543***	0.056***	0.066***
	(0.092)	(0.103)	(0.012)	(0.013)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18872	15517
Mean Outcome	3.639	4.086	0.600	0.632

Standard errors are in parentheses and clustered at governorate times year of first marriage.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All amounts are deflated using CPI 2010.

Table A18: District level Results for Deferred and Prompt Dowers

	Deferred Dower		**Prompt Dower**	
Variables	Amounts	Probability	Amounts	Probability
POST×Number of Deaths	5.300*	0.001*	-2.950	-0.160
	(2.390)	(0.0003)	(0.002)	(0.0003)
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	Yes	Yes	Yes	Yes
No of Observations	15517	15516	15517	15516
Mean Outcome	4.086	0.632	0.313	0.262

Standard errors are in parentheses are clustered at district times year of marriage.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All amounts are deflated using CPI 2010.

Table A19: Deferred Dower excluding Cairo Governorate

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
POST×Number of Deaths	0.002*	0.003*	0.0002	0.0003
	(0.001)	(0.001)	(0.0001)	(0.0001)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	17266	14025	17265	14024
Mean Outcome	3.639	4.086	0.600	0.632

Standard errors are in parentheses and clustered at governorate times year of first marriage.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All amounts are deflated using CPI 2010.

Table A20: Deferred Dower: Triple Interaction with Urban Dummy

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
Deaths×POST×Urban	0.408***	0.396***	0.034**	0.055***
	(0.101)	(0.103)	(0.013)	(0.014)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18872	15517
Mean Outcome	3.639	4.086	0.600	0.632

Standard errors are in parentheses are clustered at Gov of residence times Year of 1st marriage.

Results are for 1000 inhabitants. All amounts are deflated using CPI 2010. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A21: Deferred Dower: Triple Interaction with Rural Dummy

	Amounts		**Probability**	
Variables	Residence FE	Birth FE	Residence FE	Birth FE
Deaths×POST×Rural	4.481***	4.427***	0.500***	0.569***
	(0.874)	(1.222)	(0.138)	(0.161)
District of Residence FE	Yes	No	Yes	No
Year of Birth FE	Yes	Yes	Yes	Yes
Individual and Parental Controls	Yes	Yes	Yes	Yes
District of Birth FE	No	Yes	No	Yes
No of Observations	18873	15518	18872	15517
Mean Outcome	3.639	4.086	0.600	0.632

Standard errors are in parentheses are clustered at Gov of residence times Year of 1st marriage.

Results are for 1000 inhabitants. All amounts are deflated using CPI 2010. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.