

Evolution of Mehr and Dowry among Muslims in Bangladesh: Evidence from Natural Experiments^{*}

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Abstract: In this paper, we exploit a natural experiment to explain the fluctuations in the value of mehr and dowry observed since 1960s in Muslim marriages in Bangladesh. We show that these fluctuations are explained by the Green Revolution (GR) in the 1960s, the Independence War (IW) in 1971 and the famine in 1974. The positive income shock due to the GR increased the values of both dowry and mehr. However, the specific technologies adopted due to the GR also increased the demand for, and consequently the shadow price of, female labor within the household, which exerted downward pressure on the value of dowry. Therefore, the net effect on dowry was ambiguous. In contrast, the negative income effect of the war and famine had decreased the values of both dowry and mehr, and their values remained at lower levels in the absence of further shocks. Using two unique household survey datasets, we find support for our hypotheses. There were some important legal changes in Bangladesh to restrict polygamy and curb the practice of dowry that coincided with the GR and famine. To show that these legal changes have no effect on the values of dowry and mehr, we exploit another natural experiment from the Indian state of West Bengal that experienced similar economic shocks but no legal changes. These results have important implications in that natural shocks may influence the evolution of social institutions in eminent ways.

JEL Codes: J12, O13, Z12

Keywords: Dowry, Mehr, Muslim Family Law, Natural Shocks, Bangladesh, West Bengal

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I. Introduction

In this paper, we attempt to explain how well-established social institutions such as mehr and dowry may have evolved through natural shocks in Bangladesh. Muslim marriage contract, according to Islamic law, requires specifying a mehr, a monetary payment from husband to wife to be paid before the marriage is consummated (Bianquis 1996, Carroll 1986). Dowry is the opposite as it is a payment from wife to husband during marriage, and is a common practice among Muslims (and non-Muslims) in Bangladesh and neighboring countries. Despite being forbidden by law in India since 1961, in Pakistan since 1976, and in Bangladesh since 1980, dowry persists in all three settings (see Rao 1993 for India, Anderson 2003 for Pakistan, and Esteve-Volart 2004 for Bangladesh). However, both mehr and dowry experienced large fluctuations, especially in Bangladesh since 1960s (see Section III). In this paper, we provide exogenous shocks as explanations for these fluctuations.

Bangladesh had experienced three major economic (and political) shocks since 1960s: the introduction of new technology in agriculture (Green Revolution, GR), war of independence (IW), and famine. We hypothesize that the positive income shocks due to new technology adoption favorably affected the values of both dowry and mehr. However, the specific technologies adopted due to GR also increased the demand for, and consequently the shadow price of, female labor within the household, which exerted downward pressure on the value of dowry. Therefore, the net effect on dowry was ambiguous. In contrast, the negative income shocks of the war and famine had decreased the values of both dowry and mehr, and their values remained at lower levels in the absence of any further shocks.

The past literature on marriage market transactions in Bangladesh and elsewhere in South Asia focused mostly on dowry because of a rising participation accompanied by substantial dowry inflation (Rao 1993, Anderson 2003). In Bangladesh, it is often claimed that the incidence of dowry has substantially increased (Esteve-Volart 2004) as well the amount of dowry being paid (Amin and Cain 1997).¹ Though there is no systematic data gathering process on dowry related violence and death, it is estimated that more than 200 women are being killed every year in Bangladesh due to dowry related violence (http://khabarsouthasia.com/en_GB/articles/apwi/articles/features/2012/02/15/feature-02). Similarly, Sekhri and Storeygard (2014) report that in India on an average 12.1 women die per district per year due to dowry, and the trend, if anything, is increasing over time.

¹ Amin and Cain (1997) found a rise in the real amount of dowry being paid albeit their finding is based on two villages in northern Bangladesh.

Hence, dowry remains an important challenge for policy makers and academicians alike. However, mehr is also an important economic aspect of Muslim marriages and enshrined in Islam but has not received enough attention in the marriage market literature. Although dowry and mehr are two separate transactions independent of each other, both can be influenced by common factors such as natural shocks. The shocks mentioned earlier provide us a natural experiment in the context of Bangladesh to explain the movements of the values of dowry and mehr.

We analyze two household survey datasets collected in 2004-2005 and 2010-2011. We also extend our analysis by combining the two datasets. Our identification relies on the pre-post comparisons of the causal effect of natural shocks on mehr and dowry. We document that the value of mehr increased significantly during the GR (1961-1970) from the previous period; although there was no significant decline in the IW-famine (1971-74) period from the GR level, it declined significantly in the post-famine (post-1974) period. Lastly, it declined in the post-famine period from the IW-famine period. The value of dowry did not change in the GR period from its previous level but otherwise followed a trend similar to that of mehr.

It is important to mention that there were legal changes in Bangladesh during 1960-2000 to restrict polygamy and curb the practice of dowry. Two of these legal changes that coincided with the GR and the famine are the Muslim Family Law Ordinance of 1961, and the Registration of Muslim Marriages and Divorces Act of 1974, respectively. To show that the changes in the value of mehr and dowry were due only to the natural shocks and not due to the legal changes, we exploit a second natural experiment by analyzing a third dataset from the Indian state of West Bengal bordering Bangladesh. West Bengal also experienced similar economic shocks, especially the GR, but there were no such legal changes there. We find similar effects of the GR shocks both in Bangladesh and West Bengal that lead us to rule out the alternative explanation of the effects of the legal changes. The later findings are also consistent with the existing literature. Esteve-Volart (2004) used a rural household survey conducted in one sub-district of Bangladesh (Matlab Health and Socio Economic Survey) and found no effect of the Registration of Muslim Marriages and Divorces Act of 1974 on the amount of dowry in Muslims marriages in the post-1974 period (her Table 5).

In marriage market, sorting on attributes, such as age, education, income etc., that lead to assortative matching patterns are well recognized in theory (Bekcer 1973) and empirical evidence support such patterns (Hitsch et al., 2010). In Bangladesh and elsewhere in South Asia, marriage is often

an important economic decision arranged by parents rather than by prospective spouses (Rosenzweig and Stark 1989, Banerjee et al 2013). We contribute to that strand of literature and find that standard marriage market characteristics such as income and education matter in sorting in families, which are consistent with both theoretical and empirical literature.

The rest of the paper proceeds as follows. Section II describes the economic and political shocks that Bangladesh had experienced since the 1960s, and their likely impacts on the values of mehr and dowry. Section III discusses the datasets and some key descriptive statistics. The identification and estimation strategy are explained in Section IV. Section V presents the results. Section VI shows that legal changes were ineffective in influencing the values of mehr and dowry. Finally, Section VII concludes.

II. Natural shocks and their likely effects on the trends in dowry and mehr

In this section, we hypothesize that the observed trends in dowry and mehr can be explained by three exogenous economic (and political) shocks that took place in Bangladesh: i) the introduction of new water-fertilizer-seed technology in the 1960s popularly known as the Green Revolution (GR), ii) the War of Independence in 1971, and iii) the famine in 1974. We provide a less formal but intuitive explanation of how these exogenous aggregate shocks impacted the values of mehr and dowry in Bangladesh.

We broadly define GR as indicating the increase in agricultural productivity associated with the adoption of several new agricultural technologies. Beginning in 1959, the then East Pakistan government introduced, in several stages, various new agricultural technologies combined with policies favorable to the sector. The government introduced chemical fertilizer (Hossain et al. 1994) and mechanized irrigation in 1959 at a heavily subsidized rate under the “Grow More Food” program (Falcon and Gotsch 1970). However, these inputs became readily available among farmers in the early 1960s. As an example, the distribution of chemical fertilizer increased, on average, by 35.5% per year during the 1961-70 period (Khan, 1972, Table 5.8, p. 50).

Not surprisingly, during the 1961-70 period, Pakistan (both East and West) experienced, for the first time, unprecedented growth in agriculture and rural private investment owing to the introduction of new agricultural technologies. The annual agricultural growth rate nearly tripled, increasing from 1.2 percent to 3.2 percent. In Bangladesh (then East Pakistan), the agricultural sector grew on average at 3

percent per annum over this period. Rice, which contributed 70 percent of the value added of all crops, grew at 3.4 percent per annum, and *Boro* rice, which primarily utilized modern inputs, notably grew at 6.2 percent per annum (Falcon and Gotsch, 1970, Table 9.12, p.293, Table 9.13, p.295). Major factors that contributed to this rapid growth were mechanized irrigation, chemical fertilizer, pesticides, improved local seed varieties, and a shift to the “Japanese Method” of rice culture, which involved a series of labor-intensive operations (Falcon and Gotsch 1970, pp. 270, 288-298). We consider 1961 as the start-date of the Green Revolution, as this is the earliest period of documented increase in agricultural productivity, although our results, presented in Section V, are largely robust to the choice of alternative start-dates; for example, 1967, when the high yielding variety (HYV) seeds were introduced (David and Otsuka 1994).

The second major event was the Independence War (IW), which broke out abruptly in March 1971 and ended in December 1971 with the birth of a new country (East Pakistan became Bangladesh) at a cost of between 2 and 3 million civilian lives (Riedel 2011). Approximately 10 million refugees who took refuge in neighboring India during the IW completed their resettlement in Bangladesh only by the end of 1973. In addition, the war devastated the economy; GDP declined by 5.6% in 1971 and by 15% in 1972 (Appendix Figure I.B). This was clearly a large negative income shock.

Soon after the war and resettlement of refugees, the country was hit by another major negative shock, this time a devastating famine in 1974 that disproportionately affected the rural population. GDP declined by more than 5 percent in 1975 after the famine. The combined effect of the IW and famine was a negative income shock during the 1971-74 period that may have persisted for quite some time because GDP returned to its pre-war level only in 1977 (Appendix Figure I.A).²

The first event, a permanent positive income shock resulting from the adoption of new agricultural technologies, would have shifted the demand curve for grooms outward, increasing the equilibrium value of dowry. Higher income would have increased the ability of brides’ families to pay dowry. Given that the supply of brides is fixed (being unmarried, for marriage-age girls, is socially stigmatized and not observed in the data), an increased ability to pay dowry translates into an increased willingness to pay dowry. However, there is a counter-balancing effect to the positive income shock. Higher agricultural production increased the demand for labor, especially post-harvest labor, which in

² The severity of the effect of the famine among households cannot be judged simply by the fall in GDP. For a discussion, see the seminal work of Amartya Sen (1981) on the causes and consequences of the 1974 famine.

Bangladesh is typically supplied by women within households. Post-harvest activities, such as drying, sorting, storing, milling and processing, which are performed manually, are highly labor-intensive and traditionally performed by women. Pre-planting activities such as seed selection and germination are often performed by women as well. This higher labor demand would have increased the shadow price of female labor, exerting downward pressure on the demand for dowry. Therefore, the net effect on dowry is ambiguous depending on the relative magnitudes of the two opposing effects.

In contrast, the increased demand for female labor would have resulted in a higher price for brides in the form of mehr. One may question the effect on mehr because in the Indian sub-continent, mehr, unlike dowry, is a deferred payment conditional on divorce. However, given that the deferred mehr has been an accepted norm, one can think of a demand function for female labor where current demand is expressed in future prices. In addition, the positive income shock would also have increased the ability of grooms to pay mehr. The combined effect of increased income and higher demand for female labor would be reflected in a higher equilibrium value of mehr.

The next two events, the IW and famine, are both negative income shocks that would have lowered the values of both mehr and dowry. The mechanism in these cases is thus opposite to that of the positive income shocks described above. Furthermore, the IW had a profound effect on socio-cultural and psychological characteristics of the people of Bangladesh, as it created a new secular country distinct from Pakistan, which had been founded on the basis of religion.³ This effect may be non-trivial, especially for young males who fought for the country's independence; a large portion of this group was also of marriage age. Such an effect might have further decreased the demand for dowry and maintained it at a persistently lower level.

To summarize, the positive income shocks due to the GR would have increased the value of mehr, while its effect on dowry is indeterminate. The combined negative income shocks (and socio-psychological effects) associated with the IW and famine would have decreased the values of both dowry and mehr in the post-famine (post-1974) period from its previous levels. It is also expected that the negative shocks associated with the IW would have also decreased the values of dowry and mehr in the 1971-74 period from the GR levels albeit this interim period may be too short to realize the effects. Lastly, depending on the persistence of the previous shocks and the absence of any further shock, both

³ In 1947, the Indian subcontinent was divided into India and Pakistan based on majority populations of Hindus and Muslims in India and Pakistan, respectively.

dowry and mehr would have stabilized during the post-famine period at lower levels. We therefore characterize our sample period based on the above three exogenous economic (and political) shocks: i) the Green Revolution (1961-1970), ii) IW and famine (1971-74), and iii) post-famine (post-1974) tranquil period.

III. Data and descriptive statistics

We have utilized three household survey data sets: two from Bangladesh and another from the Indian state of West Bengal bordering Bangladesh. Survey modules on marriage, divorce, mehr and dowry are identical in all three datasets. The first survey was administered to 1,820 households in 91 villages across all major geographical regions of Bangladesh in December 2010–January 2011. These households were drawn from an existing survey commissioned by Palli Karma Shahayak Foundation (PKSF) and conducted by the Bangladesh Institute of Development Studies (BIDS) in 1997-98. After employing the cleaning steps described below, the sample contains 1,981 marriages in 1,457 households.

The second data set was collected in December 2004—January 2005 for Bangladesh Rural Urban Linkage Survey (BRULS) by the International Food Policy Research Institute (IFPRI). It was a follow-up study to the 2000 Household Income and Expenditure Survey (HIES) conducted by the Bangladesh Bureau of Statistics (BBS). In HIES 2000, the BBS surveyed 1,360 rural households drawn from 68 villages (mouzas) in 16 districts of the Rajshahi Division. In 2004, BRULS re-surveyed 1,271 households from the existing sample (6.5 percent attrition) and also added 200 new households from 10 new villages in the same Division thus totaling a sample of 1471 households from 78 villages. After employing the same cleaning steps, the sample contains 1,367 marriages in 865 households.

The third data set is a household data collected from 2,000 households from the Indian State of West Bengal. The households were drawn from 100 villages from six districts in West Bengal. All these districts (Cooch Behar, Malda, Murshidabad, Nadia, North Dinajpur, South Dinajpur) are adjacent to Bangladesh (Appendix Figures A.II & A.III), and most of them share borders with Bangladesh. The survey was commissioned by the Indian Statistical Institute (ISI), Delhi and was conducted by National Field Service of India (NFSI) in December 2014 – January 2015.

The following steps are taken to retain our working sample: i) only Muslims households are included (by discarding all non-Muslim households); ii) only households members between 18 and 65

years of age are included; iii) only first marriages are included; iv) only relationships involving household heads, spouses or sons/daughters are included; and v) missing values of dowry and mehr are deleted. In both Bangladesh datasets, real values of dowry and mehr have been calculated using the price deflator reported in the online Appendix in Ambrus et al. (2010). For the West Bengal data, the consumer price index published by the Ministry of Statistics and Programme Implementation has been used to calculate the real values of dowry and mehr.

Figure 1 shows the trends in dowry and mehr observed in PKSF data where their real mean values by year are displayed. For ease of exposition, the three natural shocks discussed in Section II, green revolution (GR), the war of independence (IW), and famine of 1974 (Fam), are marked along the horizontal axis. It is evident that both dowry and mehr fluctuated considerably from the 1950s through the 1970s and then both stabilized from the 1980s. We attribute these large fluctuations in earlier periods to small number of observations because of the survivorship bias that we discuss at the end of this section. However, some patterns can be observed from the graph. Both dowry and mehr values were larger in the pre-famine than in the post-famine period. Although both secularly increased since mid-1980s with the increase in mehr being more pronounced, they did not revert to their pre-famine levels.

[Insert Figure I and Table I about here]

Table I presents the descriptive statistics of the real values of dowry and mehr and other variables used in the analysis. This trend is clearer than that observed in Figure I. The real value of mehr substantially increased from an average of 18,009 taka in the pre-GR period to 56,759 taka in the GR period followed by another increase to 65,113 and 59,328 taka in the IW-famine and post-famine period, respectively. A similar trend is observed in the case of the value of dowry as well. The BRULS and West Bengal data also depict similar trends (Appendix Figures A.IV and A.V, and Appendix Tables A1 and A2). It is important to mention that values of dowry and mehr among Muslims are substantially lower in West Bengal than in Bangladesh even after adjusting for the exchange rate. This difference, although an interesting topic on its own right, is beyond the scope of the current investigation.

In terms of bride and groom attributes, average year of schooling of the brides increases over time. For example, in the PKSF data, it increased to 3.98 in the post-famine period from 0.78 in the pre-

GR period. Bride's age at marriage also increased over the same time period (from 13.5 to 16.5), while that for grooms remained almost unchanged.

The survivorship bias⁴ leaves small number of observations in earlier periods. It is more acute in the BRULS than in the PKSF data. In the BRULS survey, the percentages of observations in the pre-GR, GR, IW-famine and post-famine periods are 0.59%, 3.29%, 2.64%, and 93.49%, respectively. In contrast, the respective numbers in the PKSF data are 4.04%, 9.19%, 5%, and 81.78%. One explanation is that the rural northwestern region in Bangladesh, where the BRULS was conducted, has historically been the poorest region in the country, with the highest incidence of poverty and the shortest life expectancy.⁵ Therefore, the number of surviving married individuals who married in earlier periods is smaller in the BRULS dataset. In contrast, the new survey covers all of Bangladesh, thereby reducing survivorship bias in the sample. In the West Bengal data, the percentages of observations in the pre-GR, GR and post-GR periods are 1.5%, 6.7%, and 91.8%, respectively.

IV. Estimation strategy

To test the impact of the natural shocks on the values of dowry and mehr discussed in Section II, we estimate the following two equations:

$$\ln M_{iyr} = \alpha^M + \beta^M \mu_y + \delta^M X_{iyr}^M + \varepsilon_{iyr}^M \quad (1)$$

$$\ln D_{iyr} = \alpha^D + \beta^D \mu_y + \delta^D X_{iyr}^D + \varepsilon_{iyr}^D \quad (2)$$

⁴ The concept of survivorship bias is often used in the finance and public health literatures. In finance, it refers to a tendency for failed companies to be excluded from performance studies (for example, Brown et al., 1992). In public health, it refers to a tendency to exclude information on dead persons that is vital in estimating the treatment effects of public health interventions (for example, Liu et al., 2010). In our case, only a small fraction of individuals who married in earlier periods were alive during the survey.

⁵ In 2005, the extreme poverty rate (defined as the percentage of individuals who cannot consume 2,100 calories per day, even if they spend their entire incomes on food purchases) was 25 percent nationwide but 35 percent in the northwestern region (BBS 2005). Because life expectancy and income are highly correlated, it is likely that surviving members came from relatively well-off households and hence had commanded high levels of mehr and dowry that may not represent national averages.

where $\ln M_{iyr}$ and $\ln D_{iyr}$ are the logarithm of the real values of mehr and dowry,⁶ respectively, for an individual i married in year y in region r , and μ_y is a vector of three dummy variables for four time intervals and are the same in both equations: i) pre-GR, ii) GR (1961-1970), iii) IW-famine (1971-1974), and iv) post-famine (post-1974). Given the exogeneity of the shocks, our identification relies entirely on the pre-post comparisons. To find out the effect of a particular shock, we compare the values of both mehr and dowry after the shock with the respective values in the previous period: the GR values with the pre-GR values; the IW-famine values with the GR values, and the post-famine values with the IW-famine values. Equations (1) and (2) are estimated independently because mehr and dowry are two distinct marriage market transactions. Although some common factors, such as the natural shocks considered in this paper, might impact on the patterns of the values of both mehr and dowry, these two transactions are independent of each other.⁷

Both the vector \mathbf{X}^M and \mathbf{X}^D include an indicator of relationship to the household head (specifically, whether the woman is the daughter-in-law as opposed to the daughter or wife of the household head), a polynomial of the marriage year up to order three (to capture the non-linearity in the trend of the values of mehr and dowry), and the regional (district) dummies. They also include a set of attributes of brides and grooms: age and education differences between the bride and the groom, two dummies for relative wealth of the bride's and groom's families⁸ at the time of marriage, and an indicator of whether the groom chose the bride or the marriage was arranged by the families. When mehr is the dependent variable, \mathbf{X}^M includes the bride's education and age in the regression. Similarly, in the case of dowry, \mathbf{X}^D includes the groom's education and age in the regression.⁹

In the marriage market literature since Becker (1973), it is widely recognized that brides and grooms have preferences for certain attributes and that such preferences can lead to the emergence of

⁶ As the steps outlined to select the working sample retain only positive values of dowry and mehr, logarithmic transformation does not decrease the sample size in our analysis. Such transformation is also very useful in accounting for heteroskedasticity.

⁷ See Ambrus et al. (2010) who also estimated the mehr and dowry equations independently.

⁸ Relative wealth is categorized into three groups, depending on whether the bride's family was i) economically richer, ii) poorer, and iii) equal relative to the groom's family.

⁹ Other attributes such as skin tone and height (Banerjee et al. 2013) are not controlled for in the regression as such data were not collected; the caste system is absent among Muslims.

marriage-related payments. Moreover, the nature and direction of such payments are often affected by socio-economic factors (Anderson 2003). Empirical evidence pertaining to both developed (Hitsch et al. 2010) and developing countries (Rao 1993, Edlund 2000, Anderson 2004) usually supports the existence of preferences regarding spousal attributes. One might argue that bride and groom attributes are endogenous. However, our main focus is on the β^M and β^D coefficients, which compare average values of mehr and dowry, respectively, in different periods. Given that the relevant economic and political events are completely exogenous, the estimated β^M and β^D coefficients will be unbiased even without controlling for bride and groom attributes. In all estimations, the standard errors are clustered at the household level.

We apply our main empirical estimation strategy to PKSF and BRULS data as well as to a combined data set constructed by merging these two data sets. Merging the two datasets is justified as the information used in the analysis is the year of marriage and the values of mehr and dowry paid or specified as part of the marriage, which are independent of the timing of the survey. The same is true of bride and groom attributes at the time of marriage.

V. Results

In the following, we first present the results separately for the PKSF and BRULS data and then the same after merging them to exploit an even larger sample size.

V.A Results from the PKSF (2010) data

The regression results are presented in Table II. The (log) value of mehr and dowry are estimated relative to the pre-GR period, which is the base category in the regression. The values in the subsequent periods relative to their previous period are reported at the bottom of the table. Column 1 presents the results for mehr, excluding the attributes of bride and groom. The value of mehr increased significantly during the GR from the previous period (the coefficient is 0.672 with a t -value of 1.987); although it did not significantly decline in the IW-famine period from the GR level, it declined significantly in the post-famine period (the coefficient is -1.163 with a t -value of -3.631). Lastly, it declined in the post-famine period from the IW-famine period (the coefficient is -0.899 with a t -value of -3.336). These results are robust to controlling for bride and groom attributes (column 2). The value of dowry did not change in the GR period from its previous level but otherwise followed a trend similar to that of mehr, although

with slightly lower statistical significance (columns 3 and 4).¹⁰ These results strongly support our hypotheses that mehr increased due to the positive GR shocks, and both dowry and mehr decreased due to the combined negative shocks of the war and famine.

[Insert Table II about here]

V.B Results from the BRULS (2004) data

The regression results are presented in Table III. Column 1 presents the results for mehr when bride and groom attributes are excluded from the regression. The value of mehr increased during the GR from the pre-GR period, but the difference is not statistically significant. It decreased in the post-famine period relative to the GR period, but the difference is again not statistically significant. However, the value of mehr decreased significantly in the post-famine period relative to the IW-famine period (the coefficient is -0.634 with a *t*-value of -1.806), a result that is qualitatively similar when the bride and groom attributes are included (column 2). The value of dowry followed a very similar trend. Comparing the results with PKSF data, the main difference is that the change in mehr in the GR period is insignificant. However, in contrast to the value of mehr, the value of dowry significantly decreased in the post-famine period from its GR level; the coefficient (*t*-value) is -0.730 (-1.864) when bride and groom attributes are excluded and -0.834 (-2.218) when these attributes are included (columns 3 and 4). Again, the overall results provide qualified support for our hypotheses. It is important to mention that the survivorship bias is more acute in the BRULS than the PKSF data because of the smaller sample in earlier periods (discussed in Section III); there are only 8 observations in the pre-GR period. This may be a reason for the statistical insignificance of the estimated coefficient of mehr for the GR period.

[Insert Table III about here]

V.C Results from the merged (PKSF + BRULS) data

Our final exercise is to merge the PKSF and BRULS datasets to take advantage of an even larger sample size. One caveat, however, should be noted. The PKSF dataset represents all major geographical

¹⁰ The results are robust if cross-equation correlation is taken into account by SUR estimation.

regions of the country, while the BRULS dataset represents only the northwestern region. As a result, the merged dataset places a relatively larger weight on the northwestern region.

The regression results are presented in Table IV. The results for mehr both without and with inclusion of the bride and groom attributes are presented in columns 1 and 2, respectively. The corresponding results for dowry are presented in columns 3 and 4, respectively. All of these results are similar to those obtained using the PKSF data and with higher levels of statistical significance. To summarize, the results indicate that the value of mehr first increased during the GR period and then declined during both the IW-famine and post-famine periods. However, only the decline in the latter period is statistically significant, probably owing to the time lag required for the effect of the shock to become manifested. Dowry, on the other hand, did not change during the GR period but otherwise followed a trend similar to that of mehr.

[Insert Table IV about here]

Although our focus is on the β^M and β^D coefficients, we briefly discuss below the estimated coefficients of brides' and grooms' attributes. The results presented in Tables II-IV also show that the bride and groom attributes affect the values of mehr and dowry. Education levels of brides and grooms increase the values of mehr and dowry, respectively. Their education difference (groom's education less bride's education) decreases the value of mehr and increases that of dowry. These results are robust in all datasets. Mehr decreases with the age of the bride, while dowry increases with the age of the groom. Both mehr and dowry increase with age difference (groom's age less bride's age). The groom receives less dowry when he chooses his bride than when the bride is chosen by his family and relatives. These results are pronounced in the PKSF and merged datasets. Although these results may not reflect true causality of the bride and groom attributes because of possible endogeneity, they are strongly aligned with that part of the marriage market literature that seeks to explain marriage-related payments in Bangladesh (Esteve-Volrat 2004, Arunachalam and Logan 2006) and other parts of South Asia (Rao, 1993, Anderson 2004, Dalmia and Lawrence 2005).

VI. Natural shocks or legal changes?

Natural shocks in the period considered coincided with two legal changes that were aimed at restricting polygamy among Muslims and curb the practice of dowry. In the following, we first briefly

discuss the legal changes in Bangladesh and then show that these have no effect on the values of dowry and mehr.

In Bangladesh, between 1961 and 2004, there were five legal amendments to, and case law developments in, Muslim family laws governing marriage, dowry and divorce: i) the Muslim Family Law Ordinance (MFLO) of 1961; ii) the Registration of Muslim Marriages and Divorces Act (MMDA) of 1974; iii) the Dowry Prohibition Act of 1980 and Dowry Prohibition (Amendment) Ordinances of 1982, 1984 and 1986; iv) Case Law Development in 1990 (*Rustom Ali v. Jamila Khatun*) and a Supreme Court verdict in 1998; and v) the Women and Children Repression Prevention Act of 2000.

Briefly, the main objective of the MFLO was to restrict polygamy and arbitrary divorce. The main mechanism by which it was to achieve its desired effect was the requirement that, in cases of divorce, a husband obtains the first wife's consent and written permission of local government authorities of the second wife's residence. The MFLO became effective in Bangladesh (then East Pakistan) in 1963 (http://bdlaws.minlaw.gov.bd/print_sections_all.php?id=305, accessed February 29, 2012). The main objective of the MMDA was to further restrict polygamy and arbitrary divorce by making a marriage registrar widely available (http://bdlaws.minlaw.gov.bd/print_sections_all.php?id=476, accessed February 29, 2012).

The main objective of the Dowry Prohibition Act and subsequent amendments in the 1980s was to reduce dowries by making both the giving and receiving of dowries illegal (http://bdlaws.minlaw.gov.bd/sections_detail.php?id=607§ions_id=10780&vol=22, accessed February 29, 2012). Anti-dowry laws were further strengthened by the Women and Children Repression Prevention Act of 2000, which mandated imposition of the maximum possible punishment for dowry related violence and death.

The two case law developments of 1990 and 1998 went against the *Maliki*¹¹ interpretations of alimony obligations specified in the MFLO. In 1990, in *Rustom Ali v. Jamila Khatun*, 43 DLR (1991) 301, the High Court ruled that a former wife may not claim alimony unless the parties have a previously established agreement. In 1998, the Supreme Court upheld the 1990 ruling on alimony.

Therefore, the first two legal changes—the MFLO in 1961 and the MMDA in 1974—coincided with the GR and the famine, respectively. Recently, Ambrus, Field and Torero (2010, *The Quarterly*

¹¹ *Maliki* is one of four prominent schools of religious law within Sunni Islam, the dominant interpretation among the Muslims in Bangladesh.

Journal of Economics) (henceforth, AFT) argued that these legal changes, especially the MFLO and MMDA, influenced the value of mehr and dowry. AFT formulated a model that predicts that the MFLO would increase equilibrium levels of both dowry and mehr by imposing financial barriers to men in abandoning their wives without formal divorce and that the MMDA (under certain assumptions) would decrease equilibrium levels of both dowry and mehr by strengthening the enforcement of alimony payments, thereby increasing the contract-independent costs of divorce. Their empirical results, based on the same BRLUS data that we also use in this paper, found support for both the hypothesis that levels of dowry and mehr increased after 1963¹² when legal barriers to polygamy were enacted and the hypothesis that these payments decreased after 1974 when marriage registrars became widely available.¹³ They considered the two case law developments of 1990 and 1998 in their empirical estimation but found no impact of them on dowry or mehr.¹⁴ It is important to note that they did not consider the other two legal reforms in 1980 and 2000 in their empirical estimation, although they mentioned them (p. 1356, last paragraph).

VI.A Evidence from the Indian state of West Bengal: Another natural experiment

In order to distinguish the effects of economic shocks from legal changes, we exploit another natural experiment using the data from the Indian state of West Bengal. The (united) Bengal was partitioned by the British in 1947 into two regions—the eastern region as a part of Pakistan (East Pakistan, also known as East Bengal, now Bangladesh) and the western region as a part of India as West Bengal. Both Bangladesh and West Bengal are very similar in many respects including economic conditions,¹⁵ but there were no such legal changes in West Bengal as being a part of India. The GR was

¹² AFT used 1963 instead of 1961 for MFLO, as the law, according to them, was implemented in Bangladesh (the then West Pakistan) in 1963.

¹³ Information on marriage registration was not collected in the BRULS data. Therefore, availability of marriage registrars cannot be empirically established from the data. In the PKSF dataset that contains marriage registration information, it is found that between 1972 and 1974, 73% of Muslim marriages were registered. In contrast, 69% of Muslim marriages were registered between 1975 and 1977, suggesting no apparent association between the MMDA in 1974 and the marriage registrations.

¹⁴ AFT did not explain why the case law developments of 1990 and 1998 had no effects on dowry and mehr.

¹⁵ See, for instance, Banerjee et al., 2002, that takes agriculture sector of Bangladesh as a valid counter-factual for West-Bengal in the absence of a legal reform (tenancy reform), and utilizes it a difference-in-difference setting.

introduced both in Bangladesh (Pakistan) and India almost at the same time. Therefore, if the values of mehr and dowry in West Bengal exhibits similar patterns as in Bangladesh in the GR period, we can conclude the ineffective of legal changes in Bangladesh.

We cannot compare the effect of the second legal change and the famine although our sample districts in West Bengal border the northwestern Bangladesh from where the BRULS samples were drawn. It is worth noting that West Bengal suffered indirectly from the 1971 war as about 1.5 million refugees from Bangladesh took shelter in bordering Indian regions, but there was no direct damage of war in West Bengal. Similarly, the effects of 1974 famine were mostly confined within Bangladesh. There may be indirect effects in the bordering Indian districts of the devastating flood in 1974 that was one of the reasons for the famine in Bangladesh but no famine or extreme hunger in these West Bengal districts were reported. There may be economic hardship in these districts in early 1970s but the year 1974 is no different from another year. Therefore, we expect no significant changes in dowry and mehr in 1974 and after in West Bengal.

We choose the following cut-off periods: i) pre-GR (pre-1961), ii) GR (1961-1974), and iii) post-1974. The 1974 cut-off is chosen to compare the effect of legal changes that occurred in Bangladesh. We expect, based on our arguments in Section II, that mehr would have increased in the 1961-1974 period relative to the pre-GR period, while the effect on dowry would be ambiguous. In the absence of any further shocks, the values of dowry and mehr would have stabilized and therefore no significant changes are expected in the post-1974 period.

[Insert Table V here]

The results are presented in Table V. Columns (1) and (2) present the results for mehr without and with controlling for the brides' and grooms' attributes, respectively. In both specifications, the value of mehr increased significantly in the 1961-1974 period, but there were no significant change in post-1974 period relative to the 1961-1974 period. On the other hand, there were no significant changes in the value of dowry in either 1961-1974 or post-1974 period. Both results strongly support our arguments for natural shocks as the sole explanation for the changes in the values of mehr and dowry.

VI.B Replication of AFT using the BRULS data

To verify further our argument of the effect of natural shocks, we carefully replicate the estimation by AFT since these authors reported to find the effect of legal changes. Since we have obtained a different result from the same BRULS dataset, it is imperative to discuss first any difference in the utilization of data. AFT employed a different (and extensive) data cleaning procedure than we have done and mentioned in Section III.¹⁶ In the following, we show that the AFT results do not hold after modest changes in their empirical specification (choice of controls), or using alternative data cleaning procedure.

AFT estimated the same equations as (1) and (2) with the exceptions that the values of dowry and mehr were not expressed in logarithm and the attributes of the brides and grooms were excluded. The identifying assumption in AFT is that the legal changes in 1963 and 1974 did not coincide with any other changes that may have influenced dowry and mehr. In addition, they divided the entire period into seven equal (eight year) sub-periods, and included these sub-period dummies as additional controls. The inclusion of these dummies in the regression is not explained, except when they briefly note that these dummies account for non-linearity in the trends of dowry and mehr. However, the trend in the values of dowry and mehr displayed in Figure II does not justify their inclusion. One plausible reason for including the period dummies would be to account for the business cycles that repeat every eight years on average in the USA (see Baxter and King, 1999, for the business cycle pattern in the USA). However, the trend in GDP in Bangladesh contradicts these cycles, as shown in Appendix Figures I.A-I.B. The coefficients of these dummies provide estimates of the average value of dowry or mehr in each sub-period relative to the base category. Similarly, the dummies for the legal changes also provide estimates of the average value of dowry or mehr in the respective periods (relative to the base category). Given

¹⁶ AFT has made available their cleaned data and STATA estimation code in <http://sites.duke.edu/ericafield/data/> (accessed March 19, 2014). However, their cleaning procedure is much more extensive than they stated in their QJE paper (their cleaning code in STATA has become available to us through the QJE; see the next footnote). (We also received an acknowledgement from them through the QJE that a small perturbation in the cleaning procedure changes their results.) Hence, our results using the BRULS data are, unless otherwise mentioned, based on our own cleaning process discussed in Section III.

that these two sets of dummies substantially overlap with one another, it is not clear about what the dummies for legal changes capture.

We now replicate the AFT benchmark results (AFT Table II, p.1384) along with two additional sets of results: excluding the eight-year sub-period dummies, and including the attributes of brides and grooms. *Here we use cleaned data made available by AFT* (<http://sites.duke.edu/ericafield/data/>, accessed March 19, 2014). Despite minor differences in magnitudes, we can replicate their benchmark results in Table VI (columns 1 and 2). The two legal changes, MFLO and MMDA are represented by post-1963 and post-1974, respectively. Post-1990 and post-1998 represent two other legal changes. As found in AFT, the first two legal changes had statistically significant impact on both mehr and dowry.

[Insert Table VI about here]

We verify whether the conclusion in AFT would hold after excluding the eight-year sub-period dummies. The results for mehr and dowry are presented in columns (3) and (4), respectively. However, AFT's main results no longer hold; the magnitude of the coefficient of the MFLO (the first legal change) is much smaller and not statistically significant in the case of the value of mehr. Similarly the magnitude of the coefficient of the MMDA (the second legal change) is also much smaller and not statistically significant in the case of the value of dowry. For the second robustness check, we control for the bride and groom characteristics. Results are reported in columns 5 and 6. Once again, AFT's main results no longer hold.

We now replicate the benchmark estimation in AFT, using our merged dataset, to determine whether AFT's results qualitatively hold in a larger and more representative sample. To be consistent with AFT, we retain marriages from the PKSF dataset only through 2004. The results are presented in Appendix Table A3. Columns 1 and 2 exactly replicate the specification in Table II in AFT, including their sub-period dummies. Columns 3 and 4 exclude the sub-period dummies, for reasons discussed earlier. Once again, we find no impact of any legal changes on the values of mehr or dowry. To summarize, we find that AFT results are not robust to alternative data cleaning, modest changes in specification, or using alternative data.

Difference in the data cleaning is a non-trivial issue and requires more rigorous examination. We therefore investigate whether our explanation of the role of natural shocks holds in *the BRULS data cleaned by AFT*. The results are presented in Table VII. It is worth mentioning that the sample size in

the dowry equation decreases by about 30% after taking logarithm.¹⁷ The results show that they are qualitatively very similar to those obtained using (our cleaned) BRULS (and also PKSF) data reported in Tables II-IV. Although the value of mehr in the GR period relative to the pre-GR period is negative, it remains statistically insignificant as before.

[Insert Table VII about here]

The ineffectiveness of legal changes is consistent with findings reported elsewhere in the literature. The literature on marriage market transactions in Bangladesh and elsewhere in South Asia have focused primarily on dowry, ignoring mehr. Despite being forbidden by law in India since 1961, in Pakistan since 1976, and in Bangladesh since 1980, dowry persists in all three countries (see Rao 1993 for India, Anderson 2003 for Pakistan, and Esteve-Volart 2004 for Bangladesh). However, these South Asian experiences are not the first instances of the ineffectiveness of laws prohibiting dowry; laws were also imposed to limit such payments in the fifteenth and early sixteenth centuries in Europe but were largely ineffective (Anderson 2007).

In contrast, mehr is enshrined in Islam and is accordingly regulated by Islamic personal law. However, as observed in Amin and Cain (1995), mehr in Bangladesh is seldom significant because payment is conditional on the termination of marriage, and divorce and remarriage prospects are minimal in Bangladesh. In the BRULS data, of 3,337 women who have married, only 0.78% subsequently divorced. While this could be an equilibrium outcome, given the high exit barrier posed by mehr, divorced women in Bangladesh and other South Asian countries are socially stigmatized, and single working women are not accorded a status equal to that of married women (Dreze and Sen 1995, Esteve-Volrat 2004). In such a society, where remarriage of both women and men is strongly discouraged and hence not a preferred option, changes in laws governing marriage and divorce are unlikely to have any impact.

Following the arguments of legal changes, both dowry and mehr should have increased since the first legal change in 1961 and decreased since the second legal change in 1974. In contrast, we have argued that dowry and mehr should have decreased since 1971 due to the IW and the rate of decline

¹⁷ One important assumption made in the data cleaning by AFT involves changing the values of dowry and mehr recorded in the survey, which cannot be verified. On the other hand, our data cleaning does not involve any change in the recorded values of dowry and mehr.

should accelerate in 1974 due to the famine. The data supports our arguments. Moreover, the important legal changes in the 1980s and 1990s to prohibit the practice of dowry were not coincided with any economic shock. As evident in the data, the value of dowry (and mehr) was stable since 1980, thus suggesting the ineffectiveness of these legal changes. If the legal change in 1974 indeed reduced dowry (and mehr), the subsequent changes in laws (or new laws) in 1980s and 1990s were not necessary to introduce.

VII. Concluding Remarks

In this paper, we have explained the evolutions of mehr and dowry, two important social institutions of Muslim marriages in Bangladesh, in terms of exogenous economic (and political) shocks. In the 1960s, modern agricultural technologies, commonly identified under the rubric of Green Revolution, were introduced, boosting the incomes of rural households. This positive income shocks had positive effects on both mehr and dowry values due to increased aggregate demand but also had a negative effect on dowry because of the rising shadow price of female labor. In contrast, the economy was devastated by the Independence War in 1971, and the country also experienced a famine in 1974 that primarily affected rural households. These negative income shocks were responsible for fall in the values of mehr and dowry. Depending on the persistence of the negative income shock and the absence of any further shocks, dowry and mehr were expected to stabilize at lower levels.

Analyzing two unique household survey datasets, we have documented that the pattern of the fluctuations in the values of mehr and dowry can be explained by the above natural shocks. There were legal changes during 1960-2000 to prohibit polygamy and to curb the practice of dowry that coincided with the economics shocks. We have exploited another natural experiment using the data from the Indian state of West Bengal, which experienced similar economic shocks but no legal changes, to show that alternative explanations based on legal changes are invalid.

It is important to note that, although agricultural productivity also increased in the post-1980 period, there have been no sharp changes in the values of dowry and mehr that may correspond to this development. This increase in productivity represents a continuation of a process that began with the GR, with periodic interruptions caused by the negative shocks discussed in this study. Since the post-1980 period, the non-agricultural sector has been the main driver of steady income growth, which has been confined primarily to urban areas. Both surveys were conducted only among rural households, which may explain the relatively steady values of dowry and mehr observed during this period.

One important implication of our results is that natural exogenous shocks that affect household income can powerfully affect the evolution of major social institutions such as dowry and mehr.

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Figures and Tables

Figure I- Mean Real Value of Mehr and Dowry by Year of Marriage – PKSF (2010) data

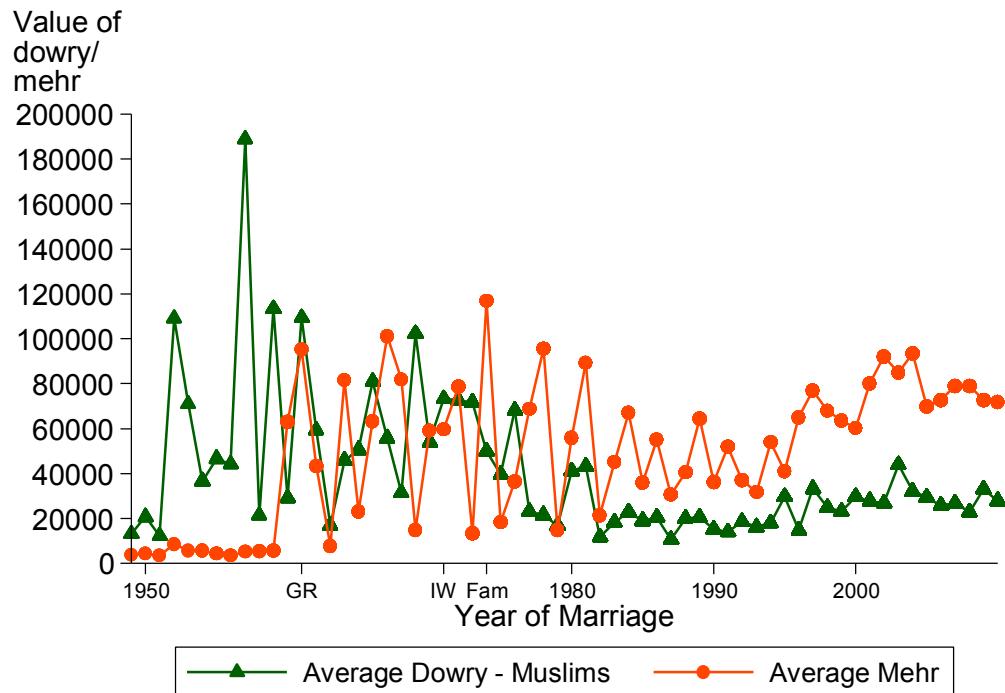


Table I: Summary Statistics – PKSF (2010) Data

	All marriages over period	Regime I Marriages (before 1961)	Regime II Marriages (1961-1970)	Regime III Marriages (1971-1974)	Regime IV Marriages (1975-2010)
	(1)	(2)	(3)	(4)	(5)
Value of mehr	57712.865 2372.78	18009.451 11629.072	56759.742 11330.143	65112.773 14784.868	59328.39 2370.902
Value of dowry	31642.026 1615.99	54256.62 12496.895	58591.527 8700.909	67704.356 14992.95	25293.787 1267.562
Education, bride	3.503 0.085	0.775 0.208	1.412 0.19	1.778 0.274	3.978 0.096
Education, groom	3.653 0.09	1.625 0.336	2.181 0.268	2.404 0.371	3.994 0.1
Age at marriage, bride	16.09 0.068	13.475 0.391	14.434 0.201	14.717 0.289	16.489 0.071
Age at marriage, groom	23.996 0.108	23.887 0.616	24.335 0.413	23.707 0.513	23.981 0.116
Bride's family richer	0.311 0.01	0.212 0.046	0.28 0.033	0.374 0.049	0.316 0.012
Groom's family richer	0.234 0.01	0.313 0.052	0.231 0.031	0.172 0.038	0.235 0.011
N (All female)	1981	80	182	99	1620

Figures in parentheses are standard errors.

Table II: Impact of exogenous shocks on the real values of mehr and dowry (PKSF 2010 data)—base category: pre-GR (pre-1961)

	Log of Mehr (1)	Log of Mehr (2)	Log of Dowry (3)	Log of Dowry (4)
GR (1961-1970)	0.672** (1.987)	0.589* (1.783)	0.130 (0.469)	0.058 (0.209)
IW-famine (1971-1974)	0.408 (0.867)	0.310 (0.674)	0.308 (0.841)	0.204 (0.565)
Post-famine (post-1974)	-0.491 (-0.848)	-0.460 (-0.819)	-0.300 (-0.720)	-0.339 (-0.825)
Bride's education at marriage		0.146*** (7.677)		
Education difference		-0.055*** (-2.647)		0.037*** (2.607)
Bride's age at marriage		-0.038* (-1.832)		
Age difference		0.005 (0.228)		-0.006 (-0.484)
Groom's family was richer at time of marriage		0.164 (1.352)		0.050 (0.691)
Bride's family was richer at time of marriage		0.059 (0.492)		0.025 (0.369)
Who choose bride (1=bride/groom; 0=otherwise)		0.003 (0.015)		-0.231* (-1.772)
Groom's education at marriage				0.090*** (8.933)
Groom's age at marriage				0.025** (2.103)
Number of observations	1,981	1,981	1,981	1,981
R-squared	0.182	0.214	0.212	0.255
IW-famine relative to GR	-0.264 (-0.978)	-0.279 (-1.044)	0.178 (0.809)	0.146 (0.683)
Post-famine relative to GR	-1.163*** (-3.631)	-1.049*** (-3.374)	-0.431* (-1.909)	-0.397* (-1.793)
Post-famine relative to IW-famine	-0.899*** (-3.336)	-0.770*** (-2.905)	-0.609*** (-3.123)	-0.543*** (-2.862)

Robust t-statistics in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table III: Impact of exogenous shocks on the real values of mehr and dowry (BRULS 2004 data)—base category: pre-GR (pre-1961)

	Log of mehr		Log of dowry	
	-1	-2	-3	-4
GR (1961-1970)	1.540 (1.257)	1.245 (0.981)	1.076 (0.883)	0.491 (0.406)
IW-famine (1971-1974)	1.625 (1.228)	1.212 (0.895)	1.042 (0.797)	0.361 (0.280)
Post-famine (post-1974)	0.991 (0.686)	0.557 (0.383)	0.346 (0.245)	-0.344 (-0.250)
Bride's education at marriage		0.097*** (9.933)		
Groom's education at marriage				0.117*** (12.991)
Education difference		-0.045*** (-3.639)		0.042*** (3.710)
Squared education difference		-0.001 (-0.280)		0.001 (0.608)
Bride's age at marriage		0.003 (0.229)		
Groom's age at marriage				0.003 (0.223)
Age difference		-0.002 (-0.106)		0.013 (0.655)
Squared age difference		-0.000 (-0.224)		-0.000 (-0.214)
Who choose bride (1=bride himself; 0=otherwise)		0.164 (0.955)		-0.266 (-1.566)
Whose family richer at time of marriage (1=groom; 0=otherwise)		0.012 (0.153)		0.048 (0.717)
Whose family richer at time of marriage (1=bride; 0=otherwise)		0.034 (0.434)		0.099 (1.473)
Observations	1,367	1,364	1,367	1,364
R-squared	0.136	0.205	0.110	0.244
IW-famine relative to GR	0.086 (0.198)	-0.034 (-0.078)	-0.034 (-0.097)	-0.130 (-0.366)
Post-famine relative to GR	-0.549 (-1.187)	-0.688 (-1.523)	-0.730* (-1.864)	-0.834** (-2.218)
Post-famine relative to IW-famine	-0.634* (-1.806)	-0.655* (-1.889)	-0.696** (-2.441)	-0.704** (-2.504)

Robust t-statistics in parentheses; *** p<0.01, ** p<0.05, * p<0.1. All regressions control for dummies for relationship with the household head, dummies for regions, and a constant.

Table IV. Impact of exogenous shocks on the real values of mehr and dowry (PKSF + BRULS data)—base category: pre-GR (pre-1961)

	Log of Mehr (1)	Log of Mehr (2)	Log of Dowry (3)	Log of Dowry (4)
GR (1961-1970)	1.036*** (3.244)	0.877*** (2.823)	0.255 (0.913)	0.112 (0.418)
IW-famine (1971-1974)	0.946** (2.240)	0.766* (1.871)	0.353 (1.010)	0.179 (0.533)
Post-famine (post-1974)	0.235 (0.465)	0.120 (0.246)	-0.369 (-0.938)	-0.481 (-1.280)
Bride's education at marriage		0.126*** (11.598)		
Groom's education at marriage				0.099*** (14.077)
Education difference		-0.053*** (-3.779)		0.034*** (3.695)
Squared education difference			-0.000 (-0.112)	-0.000 (-0.252)
Bride's age at marriage		-0.038*** (-2.844)		
Groom's age at marriage				0.025*** (3.249)
Age difference		0.040*** (6.897)		0.020*** (5.110)
Squared age difference			0.000 (0.560)	-0.001 (-1.597)
Who choose bride (1=bride himself; 0=otherwise)		0.077 (0.470)		-0.241** (-2.281)
Whose family richer at time of marriage (1=groom; 0=otherwise)		0.102 (1.299)		0.066 (1.287)
Whose family richer at time of marriage (1=bride; 0=otherwise)		0.067 (0.859)		0.055 (1.131)
Observations	3,348	3,345	3,348	3,345
R-squared	0.209	0.253	0.158	0.233
IW-famine relative to GR	-0.089 (-0.383)	-0.112 (-0.492)	0.097 (0.509)	0.066 (0.359)
Post-famine relative to GR	-0.800*** (-2.992)	-0.757*** (-2.973)	-0.624*** (-3.207)	-0.593*** (-3.177)
Post-famine relative to IW-famine	-0.711*** (-3.236)	-0.646*** (-3.021)	-0.721*** (-4.367)	-0.660*** (-4.147)

Robust t-statistics are in parentheses; *** p<0.01, ** p<0.05, * p<0.1. All regressions control for the dummies for relationship with the household head, dummies for the regions, and a constant.

Table V: Impact of exogenous shocks on the real values of mehr and dowry in West Bengal (pre-GR is the base category)

	Log of Mehr (1)	Log of Mehr (2)	Log of Dowry (3)	Log of Dowry (4)
GR (1961-1974)	1.608** (2.141)	1.308* (1.709)	0.228 (0.109)	-0.361 (-0.176)
Post-1974	1.757** (2.022)	1.342 (1.532)	-0.812 (-0.345)	-1.347 (-0.586)
Bride's education at marriage		0.076*** (5.371)		
Education difference		-0.042*** (-2.723)		0.105*** (2.954)
Bride's age at marriage		0.017 (1.017)		
Age difference		-0.023 (-1.100)		-0.083* (-1.669)
Bride's family was richer at time of marriage		0.168 (1.383)		0.403 (1.630)
Groom's family was richer at time of marriage		-0.093 (-0.784)		0.347 (1.366)
Who choose bride (1=bride/groom; 0=otherwise)		-0.113 (-0.647)		-2.576*** (-5.849)
Groom's education at marriage				0.194*** (6.709)
Groom's age at marriage				-0.134*** (-4.123)
Number of observations	1,158	1,158	1,186	1,186
R-squared	0.202	0.235	0.131	0.214
Post-1974 relative to GR	0.149 (0.455)	0.033 (0.105)	-1.039 (-1.268)	-0.986 (-1.237)

Robust t-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

Other controls include relationship with the household head, education difference square, age difference square,

Table VI: Impact of legal changes on the real values of mehr and dowry (BRULS data cleaned by AFT)

	(1) Value of mehr	(2) Value of dowry	(3) Value of mehr	(4) Value of dowry	(5) Value of mehr	(6) Value of dowry
Married post-1963	114,849.754*** (3.824)	18,213.205** (2.037)	34,515.820 (1.051)	18,732.050** (2.421)	33,751.357 (1.037)	18,618.318** (2.390)
Married post-1974	-85,571.043*** (-3.932)	-14,834.380* (-1.853)	-63,312.803*** (-3.340)	-7,301.049 (-1.301)	-61,322.529*** (-3.264)	-6,977.549 (-1.239)
Married post-1990	12,418.632* (1.662)	5,782.053 (1.373)	12,955.633 (1.575)	5,772.283* (1.913)	13,626.434 (1.626)	5,885.806* (1.941)
Married post-1998	42,639.008 (1.218)	13,874.051 (1.460)	33,743.861* (1.665)	17,998.046*** (3.117)	29,165.960 (1.530)	17,364.569*** (3.068)
Year of marriage	-3,194.735** (-2.077)	453.963 (0.632)	-1,491.513* (-1.961)	-217.231 (-0.919)	-1,932.312** (-2.361)	-283.507 (-1.187)
How old was at the time of first marriage?					3,966.032** (2.525)	586.026 (1.530)
Age difference between spouses					-3.337 (-0.005)	18.174 (0.061)
Bride's family wealthier than groom's					5,214.613 (0.782)	1,431.618 (0.588)
7 Eight year dummies included?	Yes	Yes	No	No	No	No
Bride & groom's characteristics included?	No	No	No	No	Yes	Yes
Observations	1,367	1,367	1,367	1,367	1,367	1,367
R-squared	0.099	0.034	0.087	0.031	0.095	0.033

Figures in parentheses are robust t-values clustered at the household level. *** p<0.01, ** p<0.05, * p<0.1. Columns 1 & 2 use exact specification of AFT and their data. In columns 3 to 6, the seven eight-year dummies have been dropped. In columns 5 & 6, three characteristics (how old was at the time of first marriage, age difference between spouses, bride family wealthier than groom's) found in AFT data & used as dependent variables in their analysis (AFT Table III, columns 4 to 6) are added.

Table VII: Impact of exogenous shocks on the real values of mehr and dowry (BRULS data cleaned by AFT)—base category: pre-GR (pre-1961)

	Log of mehr (1)	Log of dowry (2)
GR (1961-1970)	-0.024 (-0.064)	-0.038 (-0.066)
IW-famine (1971-1974)	-0.026 (-0.063)	-0.719 (-1.217)
Post-famine (post-1974)	-0.600 (-1.543)	-1.925*** (-3.326)
Observations	1,367	915
R-squared	0.097	0.091
IW-famine relative to GR	-0.002 (-0.009)	-0.681** (-2.340)
Post-famine relative to GR	-0.576*** (-2.760)	-1.887*** (-7.427)
Post-famine relative to IW-famine	-0.573** (-2.393)	-1.206*** (-4.841)

Figures in parentheses are robust t-values clustered at the household level. *** p<0.01, ** p<0.05, * p<0.1.

Appendix

Figure A.I.A: GDP of Bangladesh (in million Taka)

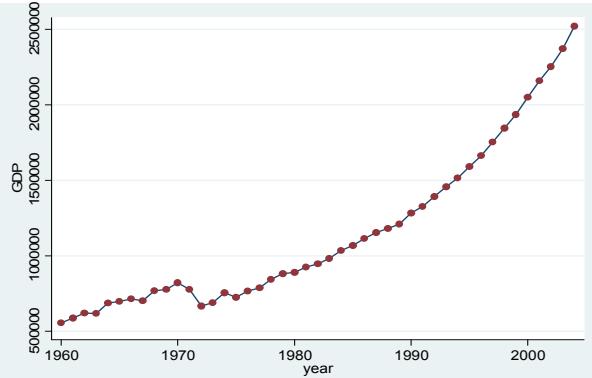
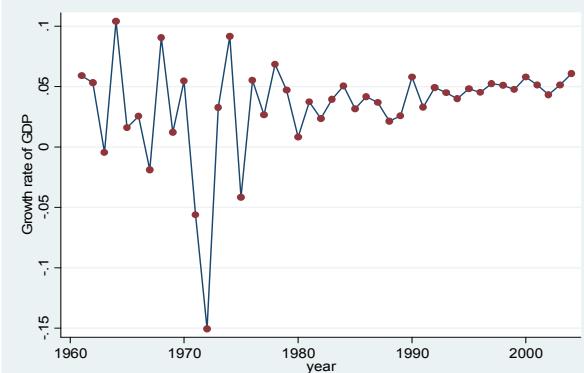


Figure A.I.B: Growth rate of GDP of Bangladesh



Source: World Development Indicators, World Bank (2013)

Figure A.II: Data Collection Regions in Bangladesh and West Bengal of India

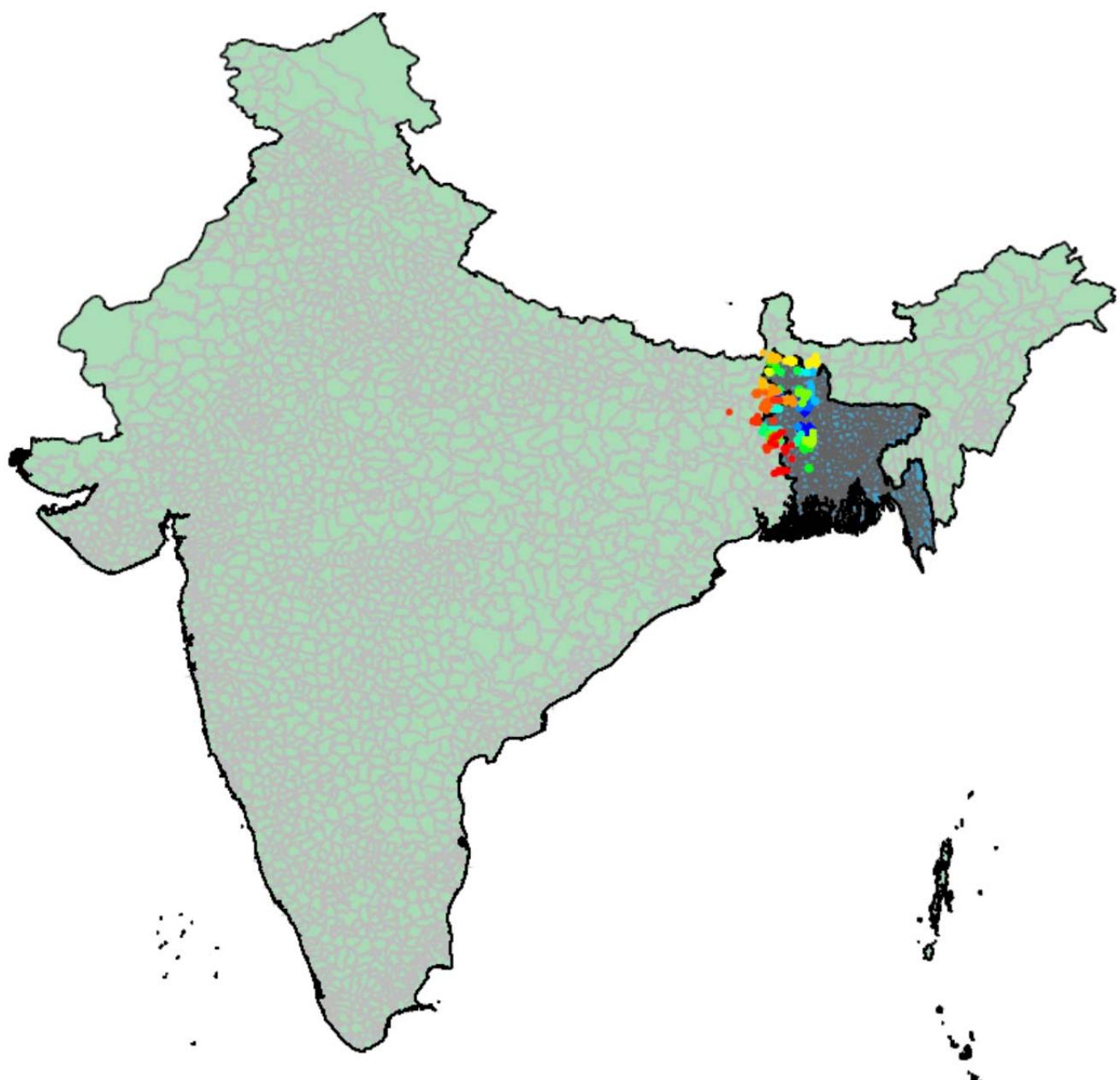


Figure A.III:

Study Villages of Bangladesh and West Bengal

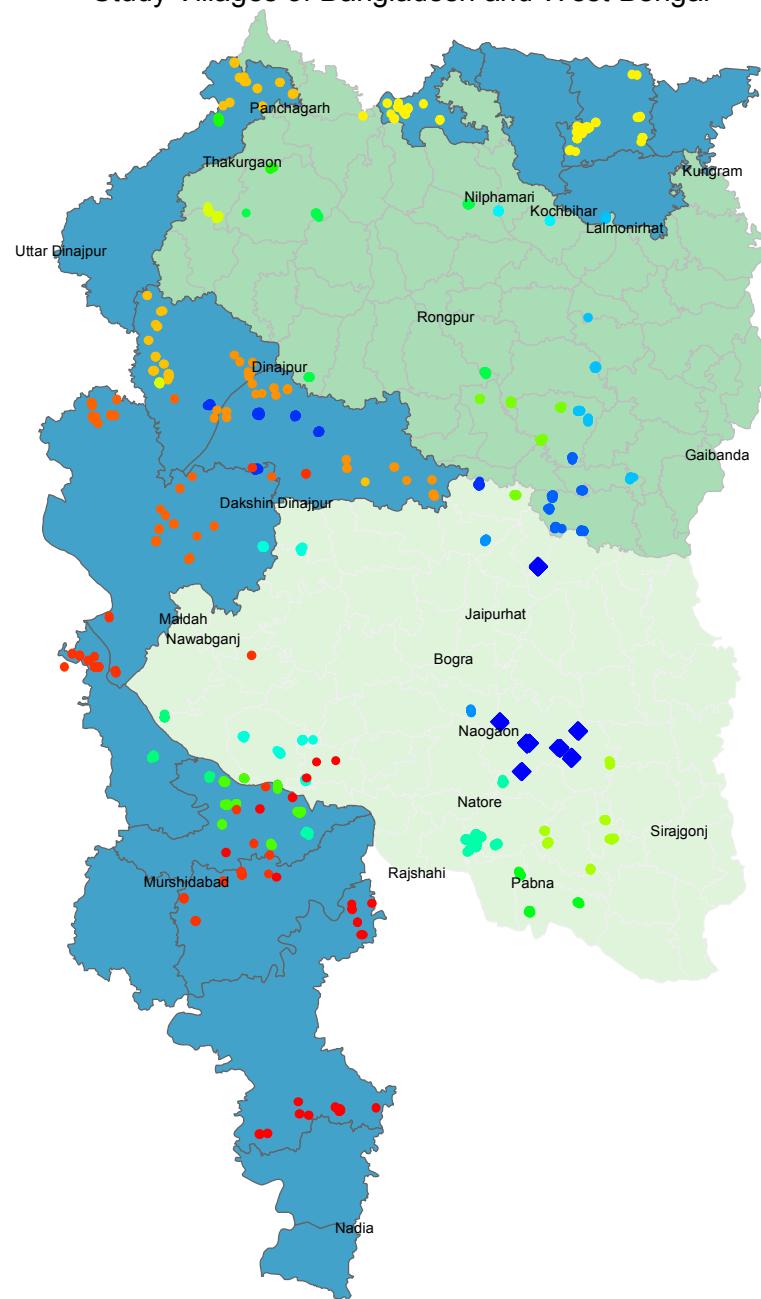


Figure A.IV- Mean Real Value of Mehr and Dowry by Year of Marriage – BRULS (2004) data

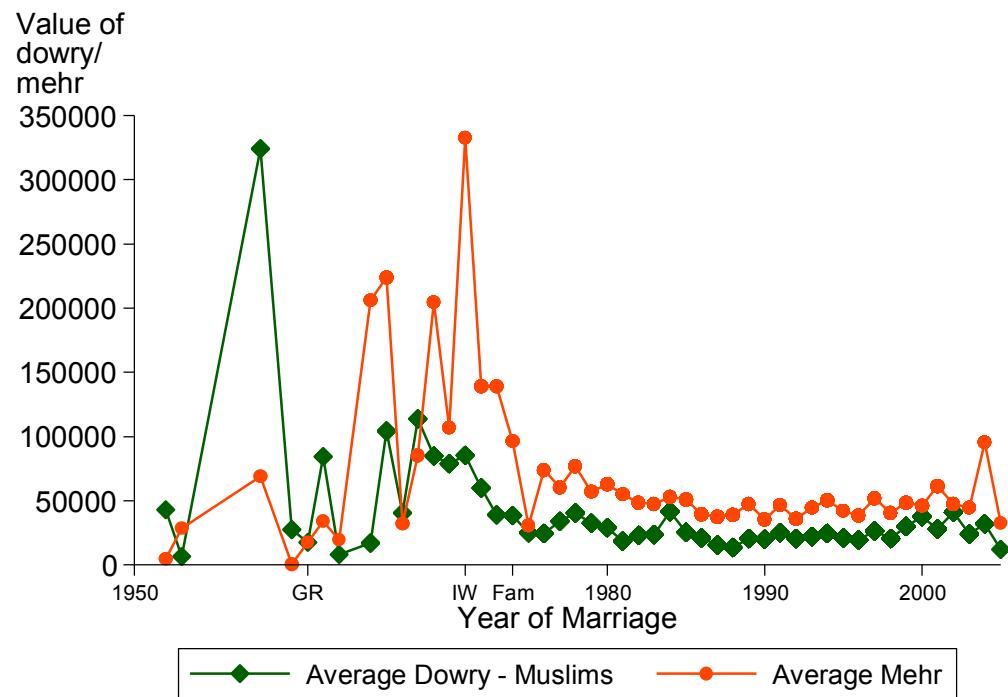


Figure A.V- Mean Real Value of Mehr and Dowry by Year of Marriage – West Bengal data

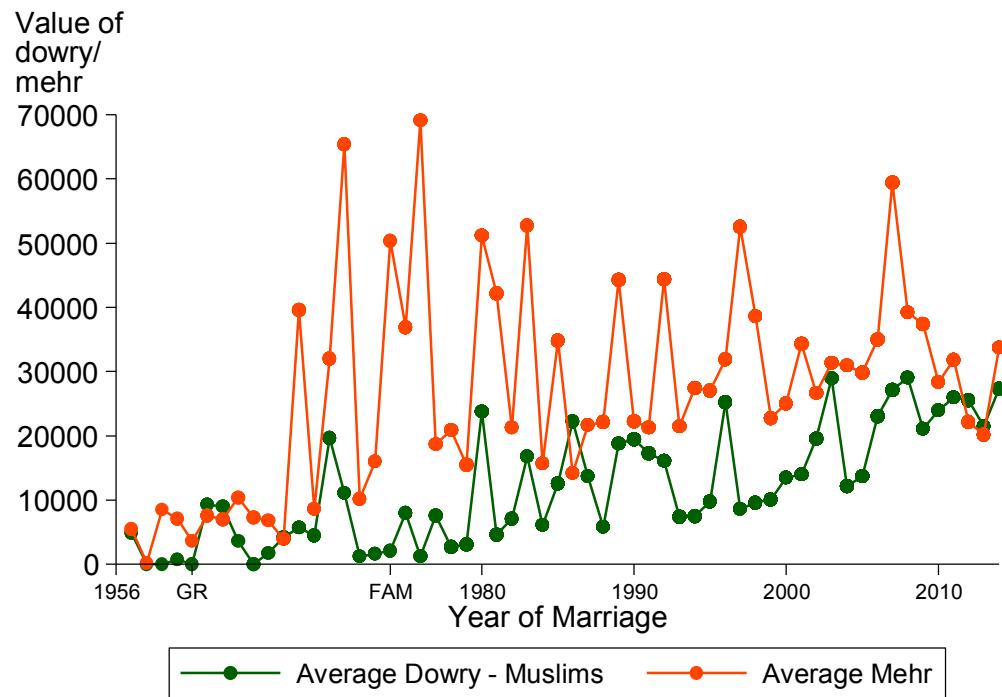


Table A1: Summary Statistics – BRULS (2004-5) data

	All marriages over period	Regime I Marriages (before 1961)	Regime II Marriages (1961-1970)	Regime III Marriages (1971-1974)	Regime IV Marriages (1975-2004)
	(1)	(2)	(3)	(4)	(5)
Value of mehr	61919.289 3886.66	367000 342000	198000 52750.591	165000 34551.887	52308.083 2773.05
Value of dowry	34858.564 3168.355	350000 214000	144000 50939.506	95996.739 41849.592	27308.567 2114.088
Education, bride	3.113 0.102	1.125 0.743	1.289 0.389	1.694 0.521	3.23 0.106
Education, groom	3.754 0.107	3.429 1.478	2.733 0.522	2.889 0.65	3.817 0.111
Age at marriage, bride	15.739 0.075	12.375 1.117	13.822 0.364	14.528 0.45	15.862 0.076
Age at marriage, groom	22.636 0.108	21.75 0.861	22.622 0.564	22.306 0.701	22.652 0.112
Bride's family richer	0.345 0.013	0.5 0.189	0.356 0.072	0.222 0.07	0.347 0.013
Groom's family richer	0.296 0.012	0.5 0.189	0.356 0.072	0.333 0.08	0.292 0.013
N (All female)	1367	8	45	36	1278

Figures in parentheses are standard errors.

* Because deleting missing values of dowry and mehr leaves only positive values, all marriages

Table A2: Summary Statistics – West Bengal data (2014-15)

	All marriages over period	Regime I Marriages (before 1961)	Regime II Marriages (1961-1974)	Regime III Marriages (1975-2015)
Value of mehr (in Ruppee)	31,101.72 (2,018.03)	3,802.83 (1,952.55)	22,633.80 (6,787.37)	31,817.04 (2,114.24)
Value of dowry (in Ruppee)	31,101.72 (803.92)	1,973.87 (1,318.95)	6,675.55 (1,834.84)	15,991.39 (853.66)
Education, bride (in years of schooling)	3.64 (0.12)	0.16 (0.16)	0.89 (0.23)	3.90 (0.12)
Education, groom (in years of schooling)	3.68 (0.12)	0.32 (0.23)	2.11 (0.35)	3.85 (0.13)
Age at marriage, bride (in years)	16.50 (0.10)	12.74 (0.70)	14.14 (0.30)	16.74 (0.10)
Age at marriage, groom (in years)	23.18 (0.14)	23.42 (1.28)	21.65 (0.40)	23.29 (0.15)
Bride's family richer (yes=1, 0 otherwise)	0.36 (0.01)	0.42 (0.12)	0.33 (0.05)	0.36 (0.01)
Groom's family richer (yes =1, 0 otherwise)	0.37 (0.01)	0.26 (0.10)	0.34 (0.05)	0.37 (0.01)
N (All female)	1242	19	83	1140

Numbers in parentheses are standard errors.

Table A3: Impact of legal changes on the real values of mehr and dowry (PKSF + BRULS data—alternative specification)

	Value of mehr (1)	Value of dowry (2)	Value of mehr (3)	Value of dowry (4)
Post-1963	-11,834.074 (-0.251)	-18,108.566 (-0.878)	48,888.485 (1.598)	14,882.168 (0.747)
Post-1974	-58,680.678 (-1.024)	-30,113.342 (-1.310)	8,404.666 (0.253)	-27,002.876 (-1.519)
Post-1990	-47,682.420 (-0.835)	-25,948.558 (-1.065)	9,473.199 (0.262)	-20,175.854 (-1.081)
Post-1998	-29,380.522 (-0.506)	-12,113.438 (-0.479)	33,173.322 (0.837)	-1,931.228 (-0.097)
Observations	2,996	2,996	2,996	2,996
R-squared	0.077	0.069	0.064	0.058

Robust t-statistics are in parentheses; *** p<0.01, ** p<0.05, * p<0.1. All regressions control for dummies for relationship with household head, marriage year, dummies for regions, seven 8-year period dummies, and a constant. Columns (3) and (4) do not include seven 8-year period dummies.