MARITAL TRANSFERS AND WELFARE OF WOMEN

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Abstract:

Throughout history, marriage has often been accompanied by substantial exchange of wealth. The practice of dowry-giving, in particular, has shown considerable diversity across cultures and over time. In my earlier works, I suggested that dowry can be considered a pre-mortem bequest by a woman's parents to her at the time of her wedding, which can help establish her position and safeguard her welfare in the new conjugal household. This hypothesis is, however, not consistent with the dominant view in the Asian subcontinent, where inflating dowry is now considered a social evil responsible for the plights and even deaths of many women. Despite these apparently polar opposite views of dowry, some recent studies have suggested that dowry, as practiced in India today, is not a homogeneous transfer, but is instead a combination of different transactions serving different functions. In this paper, I use a survey data set from India to decompose the transfer into various components, and identify their effects on the status of the wife within the household. It is found that once the endogeneity of marital transfers has been accounted for, a larger transfer from the bride's parents to the bride will indeed enhance her decision-making role. This suggests an outright ban on dowry may not necessarily serve the interest of women in India.

1. Dowry in the Economics Literature

Transmission of wealth at marriage has a very long history in human civilization. Brideprice and dowry, in particular, have shown remarkable variation in form and in substance over time and across cultures. They have been analyzed extensively in anthropology and sociology, but it is only quite recently that economists have turned their attention to this interesting cultural institution. As with most topics related to the family, the first serious economic analysis of marital transfers can be attributed to Becker (1981). He suggests that households are formed in order to facilitate the efficient production of household commodities. With heterogeneity in the productivity of participants in the marriage market, the assignment of mates and distribution of marital output in an equilibrium are determined by market forces. However, if there is inflexibility in the division of the marital output, due to either cultural or social constraints or public good nature of many household commodities, then an upfront compensatory transfer must be made between the spouses (or their kin) in order to restore efficiency. Thus, if the wife's share of family resources is below her shadow price in the marriage market, then a brideprice will be paid by the groom's family to the bride or her family, while a transfer in reverse is called a dowry. In this model, therefore, bride price and dowry are two sides of the same coin, serving a single function and distinguishable only by the direction of transfer.

The Beckerian interpretation is adopted by most subsequent economic analyses of dowry and brideprice (e.g. Rao 1993, Tertilt 2001 and Anderson 2003). Nevertheless, it fails to explain why, in many cultures, both dowry and brideprice are often paid in the same marriage. It is also inconsistent with the literature in anthropology which identifies bride price and dowry as conceptually distinct transfers. In his survey of marital transactions in Africa and Eurasia, Goody (1973) asserts that "[d]owry can be seen as a type of pre-mortem inheritance to the bride, bridewealth as a transaction between the kin of the groom and the kin of the bride." They are, therefore, "very far from being mirror opposites. Indeed, the mirror opposite of bridewealth [brideprice] would be groomwealth [groomprice]." While the bride's control over her dowry can vary, there seems to be a consensus among anthropologists (e.g. Goody 1973, Tambiah 1973, Croll 1981, Chen 1985 and Ocko 1991; see also Botticini and Siow 2003 and Kaplan 1985 for historical surveys of dotal or dowry giving societies) that the dowry is generally considered as property of the bride, usually returnable in the case of no-fault divorce, even if it is sometimes managed by the husband as part of the household's assets.

Following this anthropological interpretation, I argued in two earlier papers (Zhang and Chan 1999, Suen, Chan and Zhang 2003) that while brideprice, whether positive or negative (in which case it becomes a groomprice), can be understood as the shadow price of a bride in the Beckerian sense, dowry is an intergenerational transfer from altruistic parents to their daughter to help establish her position in the new conjugal household. By endowing her with a certain amount of assets, the parents can enhance the daughter's bargaining position in the allocation of resources within her household, thereby safeguard her welfare. This is particularly important since virilocality, whereby the bride leaves her natal family to live in her husband's household, is the norm in most traditional cultures.

Botticini and Siow (2003) provide further justification for the efficiency of dowry as pre-mortem bequests for daughters by analyzing incentive for sons in virilocal societies. If sons continue to live with or close to their parents even after they are married, they have a comparative advantage in working with family assets relative to their sisters who leave the natal household at marriage.

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Equal post-mortem inheritance rights for all children would therefore weaken the incentive for sons to enhance family wealth. This is mitigated by the parents transferring to their daughters at their marriage while the sons stand to inherit the remaining family estate. Empirical support for the bequest hypothesis is found both in our analysis of Taiwanese data and in Brown's (2009) analysis of Chinese data, which show a positive relationship between various measures of a wife's status within the family and the amount of her dowry, as well as in historical evidence from Renaissance Tuscany (Botticini and Siow 2003).

Even though the bequest story of dowry is also consistent with Tambiah's (1963) and Edlund's (2006) observations in South Asia, it goes against the dominant view in the region, where dowry takes on extravagant proportions and is often considered a social evil, morally repulsive and legally banned. But while there is certainly no shortage of commentaries, there have only been a limited number of economic analyses of the issue in the South Asian context. Most existing studies focus on the phenomenon and the causes of dowry inflation (e.g. Anderson 2003, 2007a, 2007b, Arunachalam and Logan 2006, 2008, Edlund 2000, 2006, Maitra 2006, and Rao 1993, 2000). Bloch and Rao (2002) examine the threat of domestic violence as a bargaining instrument for extracting dowry in rural India, but a more direct critique of the bequest model is offered by Suran et.al (2004), who study the effect of dowry on domestic violence in rural Bangladesh. They found that "contrary to the bequest theory, married females who paid dowry at marriage have a higher likelihood of reporting domestic violence than those who did not," even though within the former group, the amount of the dowry appears to reduce the risk of violence. Methodological problems aside, their results raise a valid question: Is dowry really good for the bride?

The answer to the question may lie trivially in the definition of dowry. Dowry, according to Suran et.al is synonymous with groomprice. This is consistent with Becker's interpretation, but alien to the bequest theory or the traditional Indian concept of dowry as part of a woman's Stridhan, or female property. If dowry as given in South Asia today is indeed no more than a groomprice, then it would not be surprising if it fails to deliver to the bride the beneficial effects of a pre-mortem inheritance. That does not prove, however, that a dowry in the anthropological sense will not have such effects, whether in South Asia or elsewhere, and by whatever name it is referred to.

An argument over definition, by itself, offers few analytic insights. A concept may mean different things in different societies, and the attempt to determine how dowry should properly be defined can easily turn ethnocentric. But some recent studies suggest that there is greater complexity in the empirical nature of a dowry than is often appreciated. Botticini's (1999) analysis of dowry in Renaissance Italy finds that rather than being just a groomprice or just a bequest, a dowry can actually perform both functions at the same time, compensating for the spouses' attributes on the one hand, while enhancing the bride's welfare on the other. A different kind of heterogeneity is suggested by Arunachalam and Logan (2006). Assuming that the two motives of bequest are mutually exclusive within a marriage, they find robust empirical evidence from a Bangladesh data set that both are at work in the population. Although they as well as Anderson (2007a) find signs that bequest dowries have declined over time, the fact they are still being practiced and observed implies that even in South Asia, dowry is a heterogeneous concept with multiple functions and therefore has potentially multi-dimensional effects on women's welfare.

In this paper, I will try to empirically decompose dowry into its different components, taking into account the control that various individuals exercise over these resources, before analyzing the effects of these conceptually different transfers on the wife's welfare, using an Indian data set. In spite of limitations of the data, I find pervasive evidence that ownership of assets gifted by parents does allow Indian women a greater say in household decisions once the potential endogeneity of these transfers are accounted for, consistent with findings in other studies. This suggests that marital transfers of a similar nature have similar effects over time and across cultures if they are put in the proper perspective. It also raises potentially important issues on how women's welfare can best be protected in South Asia.

The remaining parts of the paper are organized as follows. The following section will introduce an empirical model of the effect of marital transfers on the welfare of women. This model will then be taken to the data, which will be described in section III, and analytical results are discussed in section IV. Section V concludes.

2. An Empirical Model of Dowry and Women's Welfare

In Zhang and Chan (1999) and Suen et al. (2003), we used a Nash-bargaining analytic framework to model allocation within a conjugal household. The bargaining power of each spouse is determined by his/her threat point, represented by each spouse's welfare either in divorce or in a "separate sphere" non-cooperative equilibrium (Lundberg and Pollak 1993). We show that, under intuitive assumptions, a transfer to the bride from her parents to her in the form of a dowry can shift the bride's threat point and enhance her bargaining position, resulting in higher welfare.

The content of the bequest theory of dowry can be summarized by the following empirical model:

$$y_i = \beta_0 + \beta_1 D_i + \beta_2 B_i + \beta_3 x_{1i} + \beta_4 x_{2i} + \varepsilon_i \tag{1}$$

where y_i = a measure of woman i's welfare or status within her conjugal family; D_i = woman i's dowry; B_i = groomprice paid to i's husband or his family or brideprice paid in the opposite direction; x_{1i} = a vector of personal characteristics of woman i and her husband and characteristics of their respective natal households; x_{2i} = a vector of variables capturing the general cultural characteristics of the community that may affect the status of women relative to men; and ε_i = an error term. If the bequest theory is true, then we would expect $\beta_1 > 0$ and $\beta_2 = 0$. Groomprice is the price that clears the marriage market; by itself, it does not shift the threat point of the spouses. It should, therefore, have no direct effect on intra-household allocation and relative decision power. Note

that, conceptually, dowry in this equation refers to assets that are intended to be gifts for the bride, or at least assets that she is supposed to retain control over.[1] Transfers destined for the groom or his family are more appropriately included in the groomprice.

Most empirical studies of the effect of dowry on women's welfare involve an estimation of some version of equation (1). In Suran, et al. (2004), the likelihood of experiencing domestic violence is regressed on two dummy variables indicating whether dowry was paid at the time of or subsequent to marriage. Coefficients on both dummies are positive and significant, suggesting that paying a dowry raises the probability of domestic violence against women. The problem with this direct estimation is that payment of a dowry, whether measured as a continuous or binary variable, is not likely to be exogenous. It is entirely possible that certain unobservable characteristics of the wife may affect both her dowry and her bargaining power within the family. A resourceful wife can use her intelligence to secure a larger share of the family's resources as well as greater influence in household decisions, creating a spurious causal relationship between dowry control and welfare. Groomprice may be similarly endogenous, as desirable but unobserved (to the econometrician) attributes of the husband may enhance both his price in the marriage market and his position within the family, holding dowry constant. Such endogeneity invalidates marital transfers as controls in the regression, and direct estimation would give biased and inconsistent results.

One solution to this omitted variable bias is to find instrumental variables for dowry and brideprice. Suppose variables z_i are correlated with B_i and D_i but independent of ε_i, the error term in equation (1). Then z_i, together with x_{1i} and x_{2i}, can be used to estimate B_i and D_i in a first-stage estimation:

$$D_i = \gamma_{10} + \gamma_{11} x_{1i} + \gamma_{12} x_{2i} + \gamma_{13} z_i + \nu_{1i}$$
$$B_i = \gamma_{20} + \gamma_{21} x_{1i} + \gamma_{22} x_{2i} + \gamma_{23} z_i + \nu_{2i} \qquad (2)$$

Where $E(\nu_{ji}|x_{1i}, x_{2i}, z_i) = 0$ for $j = 1,2$. The predicted values of D_i and B_i will be independent of ε_i and can then be used to estimate equation (1) in a second stage.

In Zhang and Chan (1999), we use parental education to instrument for the amount of the bride's dowry, but the exogeneity of these instruments is challenged by Brown (2009). In his own analysis of a Chinese data set, he points out that because of the lack of access to capital market by low-income rural families, household savings would be the primary source for marital payments. Therefore, these transfers would be sensitive to transitory shocks in income, as well as to anticipated major outlays such as the need to provide for the dowry of other unmarried daughters or brideprice of unmarried sons. He therefore suggests the following two instruments: (1) the deviation from trend in local per capita grain yield in the year immediately preceding the marriage; and (2) the sibling sex composition of the bride and groom. Both should be exogenous to the transfer decisions and therefore qualify as legitimate instruments. While data on local grain yield at a sufficiently disaggregated level may be difficult to find, sibling sex composition is more readily available in micro data sets, offering a ready solution to the endogeneity problem.[2]

Being cultural institutions, marital transfers are inevitably conditioned by social norms. How much each family pays depends as much on characteristics of the individuals or families involved in the match as on prevailing standards in the community. As such, information on these norms that is independent of the specifics of individual matches can also be potential instruments. We shall further discuss possible choices of these variables in our data set in the following section.

3. The Data Set

The analysis in the previous section suggests that to test the effect of marital transfers on women's welfare, we would need data that include information on marital transfers, demographics of the spouses and their natal families, measures of welfare of the wife in the conjugal family, and cultural norms of the community. This imposes a lot of demand on the data, particular since dowry has been legally banned in India since 1961 and cotemporary data sets with dowry information are few and far between. Neither the ICRISAT data used in Rao (1993) and Edlund (1999) nor the Matlab data in Suran et al. (2004) contain detailed enough information on dowry to allow the bequest component to be distinguished from the groomprice component. A recent large-scale study by the All India Democratic Women's Association (2003) offers even coarser information and is further limited by its non-rigorous sampling and survey strategies.

A data set that promises to deliver the required information comes from a 1995 survey of gender, marriage and kinship in the Indian states of Uttar Pradesh and Karnataka, covering five districts in each state.[3] Different questionnaires were administered to women of reproductive age and their husbands in 1,120 randomly selected households, offering a wide range of information on marriage, fertility, household division of labor, and relationship with parents in addition to the standard socio-economic variables. Included are a series of questions on the role of various family members on a number of domestic decisions, which can be broadly divided into three different categories:

1. General household decisions (e.g. what food to prepare for family meals; whether or the wife should work outside the home; and what guests to invite).

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[1] This definition corresponds to what Edlund (2006) would call "gross dowry." It will be adopted in the rest of the paper for the lack of a simpler alternative, even though it may be different from the contemporary Indian understanding of the term.

[2] It has been suggested that because siblings may affect the amount of dowry and groomprice, men may shop around for wives on the basis of observed number and gender of their siblings. Even in this case, as long as the latter variables impact only marital transfers and have no direct effect on intra-household decisions and allocation within the couple's family, they remain valid instruments. Also, results in Table 3 show that, empirically, the number and sex composition of the bride's siblings are not very good predictors of groomprice.

[3] The survey was conducted under the supervision of Sonalde Desai and Vijayendra Rao, under the aegis of the Institute for Social Studies Trust with a grant from the Rockefeller Foundation. Data collection was conducted by NCAER in 1995. See Rahman and Rao (2004), and Bloch et al., (2004) for more information about the survey and the data set.

2. Children-related issues (e.g., how many children to have; how much schooling to give the children; and to whom the children should be married to).

3. Financial decisions (e.g. whether to purchase or sell gold/silver jewelry; and whether the wife can make independent purchases).

Whether a greater role on any single one of these decisions signifies a higher status within the family is debatable. In fact, citing Kabeer (1999), Rahman and Rao argue that women's authority over such household decisions as cooking does not reflect their free agency if they favor male children during meals, thereby perpetuating a patriarchal system. Nevertheless, the ability to decide on a broad range of household issues can only be interpreted as a positive sign of their status, and justifies these decision-making powers as dependent variables in the estimation of equation (1).[4]

In the survey, both the husband and the wife were asked the same questions about these household decision powers. Like many domestic issues, there is a high degree of disagreement between the responses given by the spouses, particularly in Karnataka. This is noted in Rahman and Rao (2004), who choose to use only the wives' responses because they are "more complete" and "represents the best available source for information on women's view of their own welfare and agency." (P.246) In my analysis, I will adopt a similar strategy.

Perhaps one of the biggest advantages of this data set is its detailed information on marital transfers. Not only is there a breakdown into types (land, jewelry, or cash) and value of transfers from each family to the bride and the groom, but also information on who decides how these resources are to be used . The latter can be used to determine the extent to which the bride retains ownership over each type of gift from her parents. Thus, a gift of cash from her parents, the use of which the bride does not believe she has any control over, is probably intended to be a transfer to the groom and/or his family. Conversely, a gift of jewelry from her parents, the disposal of which the bride believes is her decision alone should probably be considered part of the pre-mortem bequest by her parents, or her stridhan. If the wife believes that, apart from herself, the husband or another family member also has some or a major say in the use of the gift, then I divide the value of the asset between them in accordance with the information given.[5] This allows us to partition each gift into dowry and groomprice components. The dowry components are summed across different types of gifts to give the bride's dowry. The remaining groomprice components are added to the value of gifts explicitly for the groom and his family for the total groomprice.[6]

This decomposition is important because in India, in the everyday use of the term or even in research studies on the issue, "dowry" can include both transfers (sometimes more, incorporating spending on lavish weddings, but also sometimes less, netting out payment made by the groom's family to the bride and/or her family), even if they are conceptually distinct. Whether this distinction is meaningful in reality is an empirical issue. It can perhaps be argued, as Suran et al. and Rahman and Rao did, that in a patriarchal system, the bride cannot be expected to retain property right over any gift from her parents even if it is not intended to be part of the groomprice. But if so, we can expect that to be reflected in the wife's assessment of her control over the gift. If the bride's parents make the transfer despite an expectation (assumed rationally shared by all parties) that she is not going to have any say over its use, then it is likely that the transfer is never intended to be her stridhan in the first place, and will be counted as groomprice in our calculation. On the other hand, if she believes she retains control, I do not see any reason why her response should not be taken as her unbiased estimate of her property right over the transfer, noisy as it may be. After all, some of her other equally subjective (and noisy) assessments, such as whether she has the most say in household decisions, are taken at face value both in this study and in Rahman and Rao. There is no particular reason why these data should be treated differently.

Suran et al. (2004) noted that marital transfers from the bride's family sometimes do not stop with the conclusion of the wedding. In some cases, an agreement is made between the parties for part of the dowry to be paid subsequently, e.g. after the harvest. Bloch and Rao (2002) also suggest that the bride can be the hostage in an extortionary game in which threats of violence is used to extract more dowry from the bride's family. While the data set contains information on gifts for the bride from her natal family subsequent tot her marriage, it is not obvious whether these transfers are part of her dowry or not, or whether they remains her property. I have therefore chosen to exclude subsequent gifts from my calculation of dowry. In any case, by Suran et al.'s account, this affects only 9.2% of their sample, and the average amount of these transfers is only around 5.5% of the average dowry at marriage. Nevertheless, to the extent that payment of dowry in instalments is likely to involve poorer families who have difficulty coming up with the full amount at the wedding, it should be noted that marital transfers can be underestimated for these families.

A woman's status within the household can be affected by a host of other personal, social and cultural variables apart from dowry, and the data set provides a rather impressive range of information that can help us control for these effects. Relevant variables include difference in age and in years of education between the two spouses, the education of their parents, and the presence of in-laws in the household. The year of marriage is used to control for cohort effects, while two dummies on the family's ownership of agricultural land and of a television set control for the wealth effect. Following Rahman and Rao, additional dummy variables for scheduled caste/tribe, the wife's practice of purdah or gunghat, and religion of the head of the household (Muslim = 1; 0 else) are

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[4] Rahman and Rao (2004) also use the wife's freedom of mobility to various destinations to measure women's agency. However, in the sample used in my analysis, there tends to be far greater variation in responses across than within districts. In fact, on a number of mobility questions, responses within certain districts are unanimous, resulting in significant reduction in the already small sample size. Consequently, I focus on the decision-making variables only.

[5] The wife is assigned 75% of the value of a gift from her parents if she believes herself to have a major say in its use, but also considers her husband or another family member to have some say. She gets 50% of the gift if she reports both she and another member have major say in its use. She gets the same split if she says she has some say over its use but doesn't report another member as having a major say; she gets only 25% if another member has a major say.

6 Other than land, jewelry and cash, any gift of livestock or household durables such as furniture and appliances brought by the bride to the conjugal household is considered part of the groomprice, partly because the questionnaire does not include questions on who has say over the use of these items, and partly because in India's patriarchal society, the husband is likely to have greater say over family public goods contributed by either spouse.

included. Community level dummy variables on customs regarding village exogamy (a preference for brides to marry outside their villages) and family endogamy (a preference for marriages between close relatives, particularly between cousins or between uncles and nieces), as well as a "marriage squeeze index" that measures the ratio of marriage-age men and women in the district, are also included in x_2 in equation (1). District dummies capture regional variations not accounted for by observable characteristics.

Despite the long list of control variables, one can never be sure that there are no omitted variables that are correlated with the regressors, particularly the marital transfers (dowry and groomprice). Fortunately, the data set includes full information on the number and gender of the spouses' siblings, which can be used as instruments for the transfers as discussed above. Unlike in Brown (2009), both dowry and groomprice are paid by the bride's family, so only information on the bride's siblings is used. Experimentation with the variables shows that, contrary to Brown's results, the difference in the number of brothers and sisters among older and younger siblings do not capture very well variation in dowry, while the total number of brothers and of sisters perform rather better. Further dividing brothers and sisters into older and younger siblings does not improve the results.

The data set also offers information on types and amounts of gifts included in brideprices and dowries customarily paid in the community as reported by female subjects. In particular, the average gift in cash to the bride is found to contribute significantly to the prediction of the groomprice. Since this gift amount applies to the community rather than specifically to the marriage of the respondent, it should be exogenous and can be used as an instrument in the estimation of equation (2).

There are more than 1800 observations in the data set. However, with long and complicated questionnaires touching on sensitive and very personal issues,[7] it is understandable that the number of usable observations decreases significantly in inverse proportion to our demand for details. In fact, according to the researchers who supervised the survey, data on marital transfers and expenditures from Uttar Pradesh are not reliable because interviewers in that state had not been adequately trained to administer those parts of the questionnaires. Therefore, following their advice, these observations are dropped from our analysis. Using only data from Karnataka, and focusing on currently married (at the time of the survey) women in their first marriage, our sample is reduced to around 760, among whom 662 report their year of marriage. Not all of these subjects provide complete information on marital transfers. In the end, there are only around 250 usable observations, depending on the exact variables included in equation (1).

This drastic reduction in sample size raises a possible selection problem. Table 1 compares average characteristics of the overall sample in Karnataka (excluding cases with missing year of marriage) to the sample used in our analysis. It can be seen that our sample is slightly better educated, but otherwise well-matched with the overall sample in observable characteristics. The most conspicuous differences are the under-representation of the district of Kolar, larger marital transfers (both actual and customary), and higher averages of the dependent variables in our sample. Kolar is rural and the poorest among the five districts included in the Karnataka survey. The problem may be due to greater reluctance of less educated and lower income subjects to share information, or to different training provided to interviewers in different districts and therefore different efficiency in eliciting responses. The differences in average dependent variables may reflect greater willingness of women who feel better about their own situation to disclose detailed information about themselves. Whatever the causes, it is not clear how this would impact our results, and one should be mindful of the potential selection bias and small sample problem in the interpretation of our findings.

The demographics in India also suggest a possible problem with our instruments. While the number of siblings of either sex can usually be considered exogenous to the bride's status within the conjugal family, the rather extreme imbalance in gender ratio in India today may indicate conscious or unconscious efforts at reducing the number of daughters in a patriarchal society in which dowries for daughters have become a heavy burden. This is vividly illustrated in Column 1 in Table 2. The number of women per 1000 men in India had declined continually over the past century, reaching a low of 927 in 1991.

Parents who either selectively abort unborn daughters or neglect born ones are less likely to give generous dowries or pay lavish groomprices for their daughters, and their attitude towards their daughters before and after their marriage may also affect the latter's bargaining positions relative to their husbands. In this case, the number of siblings of either gender is no longer exogenous and cannot be used as instruments. Nevertheless, gender imbalance varies significantly across states. Column 2 in Table 2 shows the population gender ratio in Karnataka over the years. The imbalance has been consistently less serious than the overall average in India, and has in fact been fairly stable at around 960 since the 1940s, which covers the period during which most women in our sample were born. In fact, Karnataka has been one of the better performing Indian states in this respect. Also, the statistics in Table 1 actually show that there are more daughters than sons in the wives' natal family in both the overall sample and the one used in our analysis. This may raise the question of representativeness of our sample, but it lowers the possibility of gender selection among the sampled families. Hence, if there is a potential problem with using the number of brothers and of sisters as instruments, it is likely to be less of a concern in our case.[8]

4. Results

One important aspect of this paper that differentiates it from other empirical works on dowry in India is our attempt at differentiating marital transfers made by the bride's family into groomprice and bequest dowry. The line between the two concepts can indeed be blurred in reality, but whether they have different effects can still be tested empirically. If there is no difference between the two, then β_1 should be equal to β_2 in equation (1).

To test this hypothesis and for subsequent analysis, I use binary variables on the wife's decision making power as dependent variables (see the Appendix for a list of the questions from which the variables are derived). Marital transfers are decomposed into groomprice and dowry as suggested in the previous section, and probit models of equation (1) are estimated. The results are displayed in Table 3. It can be seen that dowry has a consistent and often significant positive effect on the wife's role on most of the household decisions. By contrast, groomprice has little effect on her role, except perhaps when it comes to her children's education.

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[7] Each questionnaire for the two spouses is almost fifty pages long, with an additional shorter questionnaire for an elderly member of the household.
[8] Gender imbalance and selection is also a problem in China where Brown (2009) uses a similar strategy to instrument for dowry.

In all regressions other than the three in which the dowry effect is not significant, the hypothesis that dowry and groomprice have the same effect on household decisions (i.e. $\beta_1 = \beta_2$) is rejected at conventional levels of significance.

These results, therefore, suggest that the different components of a marital transfer can have different effects on women, with dowry giving them a boost, while groomprice has little effect, supporting our interpretation of the transfers. Nevertheless, even when the coefficients are significant, the magnitude of the effects is actually quite small if these estimates are to be trusted. For example, a 1000 rupee (in 1994 values) increase in dowry (no small amount, given that the average dowry in our sample is less than 6000 rupees) will increase by less than one percentage point the likelihood of the wife being the most important decision-maker on buying and selling of gold jewelry. When the sample average is around 35 percent, this is hardly a good investment if the parents' objective is to enhance their daughter's status.

The results in Table 3 may, however, be biased because of the potential endogeneity of marital transfers that are used as regressors. Hence, we introduce the bride's number of brothers and of sisters as well as community standard amount of cash dowry as instruments, as explained in the previous section. The results for the first-stage estimation of equation (2) are shown in Table 4. From the first column, it can be seen that the number of brothers and of sisters are good predictors of dowry, while customary cash dowry is less useful. Somewhat surprisingly, both the number of brothers and the number of sisters show the positive effects, despite expectations of a negative effect for the latter. Although lower in both significance and in magnitude, the sister effect is still marginally significant at the 10 percent level. One possibility is that wealthier parents can raise more children, and they can also afford larger dowries. To control for this wealth effect, I include as regressors dummy variables on the ownership of irrigated land by the spouses' natal families at the time of marriage, but the results are not much different. It is not obvious whether measurement error or noise in the data has contributed to these results, but given that the instruments are jointly significant at the 5 percent confidence level and based on our earlier discussion on the exogeneity of sibling sex composition, we shall continue to use these instruments in our later analysis.

The first-stage estimates for the groomprice equation in column 2 of Table 3 show rather different results. The overall goodness of fit is much lower, as the model explains less than 6 percent of the variation in groomprice; in fact, few of the independent variables are significant. In particular, it is not much affected by the number and sex composition of the bride's siblings, reflecting the fact that the price is determined in the market and by the characteristics of the individuals, with siblings having only an indirect effect through the family budget constraint. On the other hand, customary cash dowry has a very significant positive effect. This is consistent with the suggestion that the cash component of the marital transfer from the bride's family is likely to be part of the groomprice for the groom's family rather than a bequest dowry for the bride (Arunachalam and Logan 2006).

The re-estimated probit models with instrumented dowry (but without groomprice) are summarized in Table 5. The exogeneity of dowry is strongly rejected in all regressions on general household decisions (i.e., cooking, working, and inviting guests), but not rejected in a couple of decisions on children (number of children and their education), nor in three of the financial decisions (except for purchase of jewelry).

Focusing on the variable of interest, dowry is again shown to have a significant and positive effect on the wife's role in many aspects of household decisions, except on how many children to have, and on some financial decisions. When the effect is significant, the magnitude is much larger than previously estimated. A 1000 rupee increase in dowry now "buys" a 1.5 percentage point increase in the probability that the wife is the primary decision maker on buying and selling jewelry, or a 1.4 percentage point increase for decisions on inviting guests. While still not large in absolute terms, they corroborate our theory on the functions of marital transfers.

Table 5 also shows some interesting patterns despite ambiguity in the direction of some effects. The time trend appears to favor younger women, but Muslims and women of scheduled castes or tribes tend to fare worse. Those in communities where family endogamy is encouraged or where the gender ratio among marriage-age individuals is skewed against women also have diminished roles in household decisions. The former may be due to the fact that many of the marriages among relatives are between uncles and nieces, so that gender imbalance of power between the spouses is further exacerbated by kinship seniority, while the latter may be the result of reduced options and therefore lower bargaining power for women. Education levels of the wife's parents do not seem to enhance her bargaining and decision power, and may in fact work in the opposite direction. Her father-in-law's education also tends to work to the detriment of her familial role in decisions, but a better educated (and perhaps more reasonable) mother-in-law may actually help. Having parent(s)-in-law in the household, however, will diminish her status and power. A larger age gap also works against the wife in decisions on raising children and on general household issues. Nevertheless, she seems to have a greater say in cooking as age and education differences increase, probably reflecting greater role specialization as these characteristics diverge between the spouses. Greater wealth, as indicated by land and television ownership, has a rather substantial negative effect, reflecting the down side of marrying a well-endowed husband with a high threat point.

Most of these findings are still evident in Table 6, which shows results when groomprice is included in the IV probit models. In particular, the effect of dowry is always positive, while that of groomprice is small and never significant, consistent with the predictions of the bequest model. However, perhaps because of collinearity between the variables and reduced degrees of freedom, the dowry effect is significant only for cooking and guest invitation decisions, but not for the others. Adding one more endogenous regressor also creates convergence problems, and results are not available for four of the probit models. Comparing Tables 4 and 6, it can again be seen that the positive dowry effect tends to be larger in magnitude (though not in significance in some cases) once endogeneity is addressed. This is reminiscent of Brown's (2009) results in a similar exercise and suggests that dowry is more correlated with the negative unobservable attributes of the husband than with positive unobservables of the wife.

One can argue that we are inferring too much information from an inherently noisy data set. In particular, arbitrary rules are used in dividing and assigning property rights over marital transfers between the spouses, when in reality there can be much ambiguity in ownership. Our results will be more robust if we can relax some of our assumptions and give up some artificial precision in our accounting. One alternative is to use a binary variable to capture whether the wife believes she retains control over any part of her marital transfers. Because of its lower demand on the data, it is less likely to distort the situation in reality, and has the added benefit

of expanding the sample. In our sample, close to 60 percent of the women believe they had control over at least part of their dowry. Because virtually all of the marriages involve some groomprice, the variable is dropped from the model.

Table 7 displays the results for IV probit with a binary dowry variable.[9] Despite reduction in significance of some estimates, the general pattern from Table 5 remains. Overall, having some dowry under her control enhances drastically the chance that the wife has an effectively say on family affairs. The only significant reversal from previous results regards the decision over the purchase of jewelry, which now shows a negative dowry effect. Whether this reflects any substantive difference or just noise is difficult to ascertain.

5. Discussion and Policy Implications

Our analysis of the Karnataka data indicates that a transfer of wealth from parents to daughter at the time of her marriage has a positive effect on her status within her conjugal family, as long as property right is maintained. This is not exactly the first evidence supporting the bequest theory of dowry in India,[10] but it does address some of the conceptual and methodological problems in earlier studies. It also suggests that despite cultural differences, the incentives behind and effects of conceptually similar institutions are universal, cutting across geographic barriers and borders, even if the specific form of their manifestation varies in accordance with local conditions and constraints.

Nevertheless, the findings in this exercise must be taken as suggestive rather than conclusive. After all, we are working with a small, potentially selective sample, representative perhaps not even of the state of Karnataka, itself not representative of a socially and culturally diverse India, let alone the entire Asian subcontinent. It is always possible that a sample elsewhere will give very different results. The fact that the survey touches on sensitive issues and transactions banned under the Indian law, and relies entirely on subjective reports of subjects, further raises validity and reliability issues. While this study offers a glimpse of the mechanism behind marital transfers through our analytic lens, the underlying issues can be resolved only when better data sets are available. Greater efforts must be made in collecting data in a rigorous and scientific manner and in a larger scale, as the public debate on dowry in India should be informed by empirical evidence. An issue that touches the life of so many women and their families is too momentous to decide on rhetoric alone.

Even though our findings await further validation, they do offer important policy implications. If dowry indeed enhances women's status, it would be counterproductive to ban it outright, as it would only restrict the ability of parents to help establish their daughters in her new family, particularly when she is likely to be removed from her previous support network. Indeed, deliberations on the dowry prohibition act in India had included extensive consideration of exemption of stridhan from the legal restrictions, and recent contributions to the debate have included calls for a shift in strategy from prohibition to protection of property rights of women over either pre- or post-mortem inheritance.

While this approach appears to be consistent with our findings, I believe enforceable property rights for women are only a partial solution. Mandatory equal inheritance rights may be inefficient in virilocal society, as Botticini and Siow (2003) point out. But more to the point of this paper, protecting women's rights over their dowry would work only if it addresses the reason why women seem to have lost control of these rights. After all, dowry has been observed in many different cultures, and whatever social norms or legal institutions there are in existence have apparently been adequate in safeguarding women's rights in most cases, even in patriarchal societies. India itself has a long tradition of stridhan, but it is only in recent decades that dowry became a serious social problem. For property rights to be the real issue behind this problem, there must have been a sharp escalation of human greed that led to increased violation of established social norms, or the social norms protecting women's property rights must have fundamentally changed during this time. Despite many comments on the negative impact of rising consumerism and marketization in India, I find neither possibility very convincing. It has also been suggested that the increasing proportion of cash dowry (relative to the traditional transfer of household goods and livestock) contributes to the bride's loss of property rights (Sandanshiv and Mathew 1995), but that only begs the question of why marital transfers are increasingly monetized in the first place. Just because the groom's family prefers dowry in cash because it facilitates expropriation does not mean the bride's family have to consent, particularly if the dowry is intended for the bride and not the groom's family.

Established economic theories of dowry inflation in India offer a more credible explanation. According to Caldwell, Reddy and Caldwell (1983) and Rao (1993), it is a "marriage squeeze," resulting from population growth that creates a surplus of younger women in search of eligible older men, which causes dowry to rise. According to Anderson (2003,2007a), it is hypergamy, the demand by lower caste women and their families for higher social status, and the increase in economic heterogeneity resulting from economic development, that created the inflation in dowry. In both theories, men can extract rent through marriage by virtual of their ownership of a scarce commodity (limited supply of men in marriage squeeze, and limited supply of superior caste status in hypergamy). Dowry inflates not because parents want to bequest more to their daughters, but because they need to pay more for a groom or the status that comes with the marriage. In other words, it is the groomprice component of the marital transfer that has increased, mostly likely at the expense of the bequest component, as Anderson (2007) suggests. If this analysis is correct, then both dowry inflation and dowry monetization are the consequences of exogenous demographic or economic changes that generate rent-seeking opportunities for men, and a law protecting women's property rights over their dowry, even if effectively enforced, would have little real effect by itself. It would only cause the "dowry," currently inclusive of the groomprice, to shrink to the amount of the pre-mortem bequest, as willing partners in the marriage find other means of paying for the transaction.

If the root of the dowry problem can be traced to increasing demand for an inelastically supplied commodity (eligible, marriage-aged men or caste status), the government can try to cool demand through preference-shifting education or publicity campaigns.

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[9] Although Suran et al. (2004) also use a binary dowry variable as a regressor, our results are not comparable. Apart from the fact that there are no instruments in their analysis, their dowry variable includes also the groomprice component. Since our sample does not include any marriage without groomprice, their test cannot be replicated.

[10] Even Suran et al. (2004) find that among those who received dowry, a larger dowry is associated with enhanced welfare for women.

People will stop paying high groomprices if they can be convinced that higher caste status is not worth the extra cash, or that a young man with a civil service career does not necessarily promise a secure life for their daughter. Alternatively, the government can ban dowry and impose heavy penalty on offenders. Neither seemed to have worked in India, as the practice of dowry remains as prevalent as ever, almost fifty years after the first dowry prohibition act was passed.

One can also wait for emerging demographic and economic pressures to impose changes. A "marriage squeeze" cannot be sustained in the long run, as the gender imbalance will eventually result in a shortage of women and bring down groomprices. This is already happening in some marriages in which out-of-state women are "imported" to regions with extreme gender ratios. Economic development can also erode antiquated social orders and institutions when beneficiaries of new opportunities are determined more by ability than by inherited status. But there is no telling how fast these processes are going to work.

It is unimaginable that the current dowry problem can persist over the long run. Yet, as long as the imbalance between supply and demand in the marriage market remains, I am not optimistic that dowry inflation in India can be contained through government intervention in the short run. If, however, the objective is to protect women from dowry-related injustice and violence, then the potentially positive effects of bequest dowry on the welfare of women suggest another possibility. Much of the abuse of the dowry system can be attributed to the fact that marital transfers, whether dowry or groomprice, cannot be contracted upon because they are illegal. Enforcement of prior agreement depends on the good faith and concern for reputation of the parties involved. When this mechanism fails, there is no legal recourse for the aggrieved party. The bride and her family are particularly vulnerable because she can be literally held hostage in ex post bargaining, as discussed in Bloch et al. (2004). If dowry is decriminalized and marital transfers can be negotiated, contracted and accorded legal status, then not only can women enjoy the benefits of their dowry and better protection for their property rights, but opportunistic behaviors of the grooms and their family to extract further concessions can also be discouraged. There will be enforcement costs involved, and it may not be obvious whether this can be implemented more effectively than current policies, but given the gravity of the issue and the ineffectiveness of existing measures, I believe it is an option that is worth further study and consideration.

Table 1: Descriptive Statics

	Overall Karnataka	Sample in analysis
District dummies: Bidar	.1833	.1914
S. Kanara	.2015	.1641
Kodagu	.1712	.2852
Kolar	.2288	.0703
Mysore	.2152	.2891
Year of Marriage	1979.77	1980.43
Schedules Caste/Tribes (%)	38.67	33.33
Wife practices purdah/gunghat (%)	25.95	28.13
Muslims (%)	10.45	10.16
Marriage squeeze index	1.125	1.118
Community practiced endogamy (%)	24.85	23.23
Community practiced village exogamy (%)	63.77	64.17
Wife's age	31.50	30.58
Husband's age	38.66	38.12
Wife's education	2.534	3.461
Husband's education	3.914	4.594
Wife's father's education	1.158	1.609
Wife's mother's education	.5000	.8164
Husband's father's education	.6418	1.066
Husband's mother's education	.3285	.5391
Wife's number of brothers	2.148	2.167
Wife's number of sisters	2.067	2.213
Parent(s)-in-law in household	.2724	.3164
Family owns agricultural land	.6894	.6953
Family owns television	.1091	.1641
Groomprice (in 1994 values)	54721 (n=406)	67931
Dowry (in 1994 values)	6733 (n=420)	9093
Customary cash transfer (in 1994 values)	15316 (n=403)	18181

Table 1 (cont.): Descriptive Statistics

	Overall Karnataka	Sample in Analysis
Dependent Variables		
(1) Cooking decision	.6242	.7490
(2) Work decision	.2453	.2929
(3) Inviting guests	.3966	.4444
(4) No. of children	.4231	.5635
(5) Children's education	.3354	.3770
(6) Children's marriage	.3099	.3361

(7) Jewelry purchases	.2991	.3492
(8) Say in major expenditures	.4079	.5781
(9) Independent purchases	.1835	.2688
(10) Cash in hand	.3976	.5703
n	660	256

Refer to Appendix for an explanation of the dependent variables.

Table 2: Trends in Sex Ratio in India (Number of Women per 1000 Men)

Year	India	Karnataka
1901	972	983
1911	964	981
1921	955	969
1931	950	965
1941	945	960
1951	946	966
1961	941	959
1971	930	957
1981	934	963
1991	927	960
2001	933	964

Source: From indiabudget.nic.in/es2001-02/chapt2002/tab95.pdf.

Table 3: First Stage Regressions (OLS)

	Dowry	Groomprice
Total no. of brothers	2675.04**	8675.50
	(2.19)	(0.89)
Total no. of sisters	1852.78*	-1220.3
	(1.65)	(0.14)
Customary cash dowry	.0554	.8754***
	(1.59)	(3.27)
Year of marriage	-494.40**	-880.07
	(2.28)	(0.51)
Scheduled Castes/Tribes	-1810.76	2997.43
	(0.46)	(0.10)
Wife practice purdah/gunghat	-16162.39**	18645.71
	(2.13)	(0.31)
Muslim	19902.29***	6278.04
	(2.72)	(0.10)
Marriage Squeeze	55764.77*	-66050.31
	(1.77)	(0.27)
Family endogamy	13235.42**	7075.34
	(2.20)	(0.15)
Village exogamy	-4279.72	28173.14
	(0.83)	(0.71)
Wife's father's education	725.79	956.58
	(0.96)	(0.16)
Wife's mothers education	3690.72***	4372.55
	(3.01)	(0.45)
Husband's father's education	372.67	-1829.35
	(0.31)	(0.20)
Husband's mother's education	-3267.62**	7390.53
	(2.23)	(0.66)
Age difference between spouses	839.82	1850.43
	(1.57)	(0.44)
Difference in educational level	-1085.03*	11115.66**
	(1.86)	(2.47)

Table 3 (cont.): First Stage Regressions (OLS)

	Dowry	Groomprice
Parents-in-law resident in household	3786.16	23927.8
	(0.89)	(0.72)

Family owns agricultural land	8122.95*	21520.69
	(1.94)	(0.65)
Family owns TV	20803.63***	-2947.29
	(3.96)	(0.07)
Constant	-43570.29	90673.80
	(1.10)	(0.29)
n	253	243
Adjusted R^2	0.3308	0.0593
F(3, n - 24) instruments jointly zero	3.68**	3.75**

Regressions include district dummies (estimates not reported) and errors are clustered by district. Entry in each cell is the effect of a marginal change (or a change from 0 to 1 in the case of dummy variables) in the regressor on dowry and groomprice, respectively.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Same applies to all subsequent tables.

Absolute values of robust t statistics are in parentheses.

Table 4: Effect of Dowry and Groomprice on Women's Decision-Making Role within Family (Probit)

	(1)	(2)	(3)	(4)	(5)
Dowry (000 rupees)	.0035	.0016***	.0048**	.0002	.0017***
	(0.99)	(7.38)	(2.12)	(0.40)	(2.71)
Groomprice	-.0001	.0001	-.0000	-.0001	-.0003***
(000 rupees)	(1.02)	(1.44)	(0.35)	(0.58)	(3.06)
Year of marriage	-.0084**	.0020	.0032	.0137***	.0047
	(2.05)	(0.30)	(0.77)	(3.34)	(1.01)
Scheduled castes	-.0853	-.0886	-.2062***	-.1461	-.0882**
	(0.77)	(0.65)	(2.77)	(1.52)	(2.42)
Practice purdah	.2290*	-.1171*	-.0696	-.0892	.0623
or gunghat	(1.83)	(1.78)	(0.46)	(0.61)	(0.53)
Muslim	-.1958**	-.0370	-.0895	-.0763	.0229
	(2.52)	(0.61)	(0.73)	(1.44)	(0.17)
Marriage	-.3583	.2930	-.3755	-.1241	-.3638
squeeze index	(0.55)	(0.85)	(0.69)	(0.24)	(0.67)
Family endogamy	-.0797	-.2246***	.0086	-.4353***	.0635
	(1.38)	(3.02)	(0.11)	(4.37)	(0.48)
Village exogamy	-.1989***	.0196	.1044	.0068	.1084
	(5.23)	(0.48)	(0.64)	(0.10)	(0.82)
Wife's father's education	-.0004	-.0075	.0046	.0742***	-.0050
	(0.03)	(1.26)	(0.54)	(3.36)	(0.56)
Wife's mother's education	.0155	.0180	.0266*	-.0629	.0296*
	(0.79)	(0.86)	(1.71)	(1.62)	(1.87)
Husband's father's education	-.0404*	.0098	-.0730**	.0275	-.0420***
	(1.79)	(0.40)	(2.17)	(0.78)	(4.88)
Husband's mother's education	.0205	-.0407	-.0115	-.0301	.0107
	(0.85)	(0.66)	(0.46)	(0.50)	(0.63)
Age Difference	.0194***	-.0084	.0080	.0042	-.0031
	(3.58)	(0.75)	(1.16)	(0.49)	(0.65)
Education difference	.0096	-.0032	-.0048	-.0048	.0130
	(1.21)	(0.34)	(0.37)	(0.47)	(1.37)
Parents-in-law in household	-.2903***	-.0860**	-.2595***	.1858***	-.0461
	(4.64)	(2.23)	(5.91)	(2.70)	(0.76)
Family owns agricultural land	-.0016	-.0056	-.0796	.0130	-.0799
	(0.01)	(0.07)	(0.68)	(0.17)	(1.00)
Family owns TV	-.0749	-.1207	.0178	-.1566	-.1287
	(0.88)	(1.24)	(0.18)	(1.08)	(1.20)
n	281	268	282	282	274
Pseudo R^2	.3306	.2835	.2927	.2668	.3157

Table 4(Cont.): Effect of Dowry and Groomprice on Women's Decision-Making Role within Family (Probit)

	(6)	(7)	(8)	(9)	(10)
Dowry	.0020***	.0072***	.0025***	.0044***	.0030
(000 rupees)	(2.83)	(2.65)	(3.51)	(3.33)	(1.61)

Groomprice	.0000	-.0001	-.0001	.0001	.0002
(000 rupees)	(0.07)	(1.14)	(0.40)	(0.79)	(0.91)
Year of marriage	.0056	-.0005	-.0007	-.0048*	-.0040*
	(1.06)	(0.09)	(0.10)	(1.65)	(1.67)
Scheduled castes	-.1095**	-.1956***	-.0428	-.1578*	.0740
	(1.96)	(4.10)	(0.43)	(1.79)	(1.45)
Practice purdah	.0181	.0004	.2973**	.1599***	.4638***
or gunghat	(0.12)	(0.01)	(2.25)	(2.72)	(8.02)
Muslim	-.0394	-.0929*	-.2414	-.0399	-.3081*
	(1.05)	(1.78)	(1.44)	(0.30)	(1.66)
Marriage	-.1273	.5194	.1087	-.1992	1.169
squeeze index	(0.28)	(0.75)	(0.10)	(0.26)	(1.26)
Family endogamy	-.0459	.2817***	-.6467***	-.2497***	-.5294***
	(0.51)	(3.00)	(13.53)	(5.84)	(6.74)
Village exogamy	.1054	-.0522	-.0031	-.0081	.0955
	(1.48)	(0.95)	(0.05)	(0.32)	(0.96)
Wife's father's	.0127	-.0111	-.0054	-.0298***	-.0186
education	(0.90)	(0.65)	(0.20)	(2.98)	(0.85)
Wife's mother's	.0227*	-.0575	.0212	.0419**	.0657
education	(1.70)	(1.01)	(0.54)	(2.43)	(1.61)
Husband's father's	-.0674***	-.0012	.0497*	-.0121	.0095
education	(2.61)	(0.06)	(1.65)	(0.49)	(0.27)
Husband's mother's	.0255	.0507	-.0149	.0234	.0272
education	(1.52)	(0.97)	(0.43)	(1.19)	(0.60)
Age Difference	-.0090	.0063	-.0041	.0073	.0030
	(0.71)	(0.67)	(0.31)	(0.60)	(0.57)
Education difference	-.0129	-.0010	.0198	-.0161	.0181**
	(1.15)	(0.12)	(1.63)	(1.30)	(2.20)
Parents-in-law in	-.0231	.0027	-.2462**	-.0715	-.2046**
household	(0.32)	(0.02)	(2.48)	(0.96)	(2.07)
Family owns	-.1822**	-.1647***	.1134	.1217	.0990
agricultural land	(2.54)	(3.42)	(0.78)	(1.48)	(0.91)
Family owns TV	-.1317**	-.0936	-.2053	.0012	-.1397
	(2.19)	(1.01)	(0.83)	(0.01)	(0.61)
n	275	282	287	257	287
Pseudo R^2	.3050	.3016	.4744	.2926	.4850

See notes for table 3 and the Appendix for explanation. Robust z statistics are in parentheses.

Table 5: Effect of Dowry on Women's Decision-Making Role within Family (IV Probit)

	(1)	(2)	(3)	(4)	(5)
Dowry	.0116***	.0112***	.0143***	.0049	.0095***
(000 rupees)	(3.92)	(4.50)	(6.36)	(0.95)	(2.81)
Year of marriage	-.0014	.0052	.0044**	.0141***	.0058
	(0.33)	(1.56)	(2.08)	(2.96)	(1.42)
Scheduled castes	.0389	-.0091	-.1217	-.1262	-.0224
	(0.63)	(0.06)	(1.47)	(0.96)	(0.47)
Practice purdah	.1844	-.0424	.0314	-.1250	.0357
or gunghat	(1.05)	(0.21)	(0.14)	(0.65)	(0.11)
Muslim	-.0499	-.1440	-.2392	-.1217	-.0327
	(0.39)	(0.70)	(1.16)	(1.11)	(0.08)
Marriage squeeze index	-.9883	-.7040*	-1.298***	-.6009*	-1.113**
	(1.12)	(1.52)	(2.88)	(1.77)	(2.18)

Family endogamy	-.2639***	-.3099***	-.1892**	-.5198***	-.1124
	(3.68)	(6.85)	(1.97)	(6.04)	(0.91)
Village exogamy	-.1356**	.0771***	.1341*	-.0064	.1604**
	(2.01)	(2.78)	(1.95)	(0.09)	(2.14)
Wife's father's education	-.0093	-.0225**	-.0108	.0443	-.0189***
	(0.61)	(2.38)	(0.76)	(1.39)	(2.98)
Wife's mother's education	-.0102	-.0231	-.0197	-.0649**	.0048
	(0.50)	(0.92)	(1.44)	(2.54)	(0.17)
Husband's father's education	-.0303***	.0174	-.0562**	.0787*	-.0357***
	(2.74)	(0.58)	(2.32)	(1.74)	(2.56)
Husband's mother's education	.0409*	-.0049	.0276***	-.0563	.0243
	(1.66)	(0.09)	(2.99)	(0.84)	(0.99)
Age Difference	.0134*	-.0226*	-.0107	-.0003	-.0222***
	(1.88)	(1.85)	(1.04)	(0.01)	(5.52)
Education difference	.0158***	.0007	.0018	-.0011	.0086
	(2.90)	(0.08)	(0.16)	(0.10)	(0.98)
Parents-in-law in household	-.3043***	-.1045***	-.2057***	.1455*	-.0380
	(3.98)	(4.25)	(3.570)	(1.92)	(1.11)
Family owns agricultural land	-.0939**	-.1016**	-.1316	-.0493	-.1049**
	(2.23)	(2.51)	(1.41)	(0.46)	(2.35)
Family owns TV	-.2630**	-.2602*	-.2054***	-.2291	-.2481**
	(2.45)	(1.82)	(3.88)	(1.77)	(1.97)
n	248	236	249	249	241
Wald Test significance level	.0120	.0022	.0000	.2070	.1266

Table 5 (cont.): Effect of Dowry on Women's Decision-Making Role within Family (IV Probit)

	(6)	(7)	(8)	(9)	(10)
Dowry	.0083**	.0150*	.0069	.0047	.0164**
(000 rupees)	(2.00)	**	(0.49)	(0.47)	*
		(3.64)			(2.93)
Year of marriage	.0048	.0033	.0030	-.0041	.0075**
	(1.08)	(0.70)	(0.37)	(0.72)	*
					(6.04)
Scheduled castes	-.0757	-	-.0666	-.1686*	.0988*
	(0.73)	.1517***	(0.46)	(1.92)	(1.74)
		(7.82)			
Practice purdah	.0613	.1373	.2251	.2481*	.3838**
or gunghat	(0.53)	(1.44)	(1.09)	**	(1.99)
				(4.77)	
Muslim	-.1317*	-	-.3606	-	-.3980*
	(1.93)	.2580***	(1.62)	.1569***	(1.86)
		(2.79)		(4.51)	
Marriage	-.7836**	-.4184	-.4204	-.5121	-.5724
squeeze index	(2.11)	(0.70)	(0.22)	(0.41)	(0.86)
Family endogamy	-	.0921	-	-	-
	.1703***	(0.89)	.7352***	.2799***	.4773***
	(4.19)		(47.45)	(2.89)	(3.57)
Village exogamy	.1680**	.0067	-.0927	-.0576	.0601
	*	(0.13)	(1.54)	(1.07)	(0.57)
	(3.10)				
Wife's father's education	.0011	-.0212*	-.0172	-.0123	-.0162
	(0.13)	(1.71)	(0.52)	(0.69)	(1.14)

Wife's mother's education	-.0066 (0.27)	-.0779** (2.19)	.0028 (0.03)	.0292 (1.00)	-.0275 (0.78)
Husband's father's education	-.0532 (1.42)	.0070 (0.61)	.0572 (1.14)	-.0292 (1.09)	-.0067 (0.23)
Husband's mother's education	.0384*** (2.90)	.0683** (2.12)	-.0138 (0.19)	.0343* (1.15)	.0592** (2.15)
Age Difference	-.0309** (2.53)	.0000 (0.00)	.0054 (0.28)	.0125 (1.25)	-.0051 (0.48)
Education difference	-.0122 (0.99)	.0119 (0.98)	.0200 (1.31)	-.0028 (0.25)	.0266*** (4.11)
Parents-in-law in household	-.0330 (0.43)	-.0392 (0.63)	-.1891 (1.29)	-.0412 (0.43)	-.1072 (0.70)
Family owns agricultural land	-.2232*** (2.71)	-.2134*** (4.44)	.0497 (0.19)	.1700 (1.69)	-.0375 (0.45)
Family owns TV	-.2061*** (3.36)	-.2826*** (17.95)	-.3626** (1.99)	-.0500 (0.30)	-.3700*** (7.00)
n	242	249	253	236	253
Wald Test Significance level	.0147	.0012	.7858	.9742	.1346

See notes for table 3 and the Appendix for explanations. Robust z statistics are in parentheses.

Table 6: Effect of Dowry and Groomprice on Women's Decision-Making Role within Family (IV Probit)

	(1)	(3)	(4)	(5)	(6)	(7)
Dowry (000 rupees)	.0114*** (4.24)	.0124*** (6.48)	.0009 (0.26)	.0108 (1.16)	.0037 (0.37)	.0011 (0.16)
Groomprice (000 rupees)	-.0007 (0.48)	.0002 (0.32)	.0003 (0.81)	-.0006 (0.36)	.0002 (0.19)	.0014 (1.58)
Year of marriage	-.0031 (0.85)	.0028 (0.84)	.0134*** (2.60)	.0042 (1.23)	.0018 (0.42)	-.0013 (0.34)
Scheduled castes	.0181 (0.24)	-.1478** (2.10)	-.1596 (1.31)	-.0296 (0.47)	-.1010 (0.87)	-.1567 (1.42)
Practice purdah or gunghat	.2513 (1.57)	-.0085 (0.03)	-.1505 (0.95)	.1260 (0.32)	-.0717 (0.28)	-.1627 (1.50)
Muslim	-.2132 (1.32)	-.2044 (0.69)	-.1188 (1.12)	-.1116 (0.25)	.0283 (0.25)	.0280 (0.15)
Marriage squeeze index	-.8181 (1.42)	-1.169*** (2.65)	-.2353 (0.64)	-1.125* (1.88)	-.5564 (1.20)	.4074 (1.18)
Family endogamy	-.2274*** (3.01)	-.1394* (1.89)	-.4646*** (3.50)	-.1144 (0.90)	-.0835 (0.54)	.2399** (2.59)
Village exogamy	-.0991** (2.15)	.1400 (1.37)	-.0135 (0.14)	.1743*** (3.00)	.1662 (1.35)	-.0634 (0.81)
Wife's father's education	.0015 (0.10)	-.0026 (0.23)	.0781*** (2.77)	-.0129* (1.91)	.0134** (2.15)	-.0066 (0.49)
Wife's mother's education	-.0175 (0.94)	-.0062 (0.25)	-.0788* (1.85)	-.0060 (0.25)	.0159 (0.66)	-.0299 (0.76)
Husband's father's education	-.0345* (1.87)	-.0675*** (3.97)	.0830* (1.89)	-.0368*** (2.96)	-.0639** (2.01)	.0113 (0.75)
Husband's mother's education	.0504*** (6.09)	.01822** (0.64)	-.0772 (1.38)	.0339 (0.80)	.0229 (0.51)	.0074 (0.16)
Age Difference	.0128 (1.46)	-.0093 (1.02)	.0051 (0.32)	-.0216*** (5.38)	-.0302 (1.57)	.0056* (1.64)

Education difference	.0260	-.0054	-.0082	.0167*	-.0241	-.0220
	(1.44)	(0.44)	(0.50)	(0.61)	(0.87)	(0.85)
Parents-in-law in household	-.2636***	-.2331***	.1363*	-.0356	-.0374	-.0268
	(2.99)	(8.29)	(1.86)	(0.70)	(0.43)	(0.26)
Family owns agricultural land	-.1137**	-.1405	-.0464	-.1276**	-.2285**	-.1353
	(1.97)	(1.56)	(0.54)	(2.20)	(2.42)	(1.19)
Family owns TV	-.2631***	-.1727**	-.1916	-.2590	-.1599	-.0561
	(4.23)	(2.22)	(1.36)	(1.62)	(1.13)	(0.25)
n	238	239	239	231	232	239
Wald Test significance	.0000	.1709	.2559	.1865	.5597	.0044

See notes for table 3 and the Appendix for explanations. Robust z statistics are in parentheses.

Table 7: Effect of Dowry (Binary) on Women's Decision-Making Role within Family (IV Probit)

	(1)	(2)	(3)	(4)	(5)
Dowry (binary)	.7090 ***	.7485***	.6313**	-.3913	.5911***
	(11.84)	(7.77)	(2.40)	(0.25)	(2.81)
Year of marriage	-.0039	.0016	-.0014*	.0089	.0016
	(1.34)	(0.62)	(1.74)	(0.71)	(0.53)
Scheduled castes	.1212	.1637**	.0600	-.1768	.1150
	(1.46)	(1.96)	(0.33)	(0.59)	(1.15)
Practice purdah or gunghat	.1101	.1097	-.0326	-.2647**	.0335
	(1.22)	(0.70)	(0.19)	(2.09)	(0.16)
Muslim	.0275	-.0627	-.0475	.0769	.0386
	(1.11)	(1.40)	(1.25)	(1.54)	(0.18)
Marriage squeeze index	-.1708	-.2668	-.3663*	-.4210	-.2710
	(0.25)	(1.18)	(1.69)	(1.29)	(0.69)
Family endogamy	-.3568**	-.4227***	-.3544	-.3814	-.3319
	(2.02)	(3.08)	(1.16)	(0.42)	(1.64)
Village exogamy	-.0862	-.0786	.0237	-.0302	.0319
	(1.43)	(0.97)	(0.12)	(0.27)	(0.63)
Wife's father's education	-.0076	-.0043	-.0071	.0374**	-.0144
	(0.39)	(0.19)	(0.47)	(1.99)	(0.95)
Wife's mother's education	-.0024	-.0347	-.0052	-.0261	.0159
	(0.08)	(0.68)	(0.11)	(0.31)	(0.43)
Husband's father's education	.0053	.0232	-.0131	.0879	-.0032
	(0.33)	(1.07)	(0.33)	(0.92)	(0.12)
Husband's mother's education	.0111	.0119	-.0079	-.0741	-.0067
	(0.57)	(0.27)	(0.28)	(1.10)	(0.40)
Age Difference	.0119*	.0093*	.0045	.0041	-.0060
	(1.87)	(1.79)	(0.93)	(0.18)	(0.74)
Education difference	.0174	.0127	.0008	-.0103	.0096
	(1.39)	(1.22)	(0.03)	(0.44)	(0.99)
Parents-in-law in household	-.2624***	-.0538	-.1645	.1321	-.0518
	(3.48)	(0.80)	(1.27)	(0.89)	(0.79)
Family owns agricultural land	-.0976	-.0914	-.0943	.0088	-.0576*
	(1.59)	(1.56)	(1.21)	(0.04)	(1.22)
Family owns TV	-.0093	-.0024	.0905	-.0587	-.0484**
	(0.10)	(0.02)	(0.91)	(0.63)	(0.75)
n	294	278	295	295	287
Wald Test significance	.0000	.8129	.2707	.9187	.1548

Table 7 (Cont.): Effect of Dowry (Binary) on Women's Decision-Making Role within Family (IV Probit)

	(6)	(7)	(8)	(9)	(10)
Dowry (binary)	.4853	-.7509***	.5143	.3099	.7381***
	(0.88)	(17.35)	(0.28)	(0.69)	(10.33)
Year of marriage	.0013	-.0029*	-.0048	-.0079	.0009
	(0.25)	(1.73)	(0.24)	(1.28)	(0.27)
Scheduled castes	.0176	-.1960*	.0614	-.0617	.1906***
	(0.06)	(1.88)	(0.11)	(0.70)	(3.28)
Practice purdah	-.0172	-.1684**	.1146	.2081	.1592*
or gunghat	(0.05)	(2.09)	(0.55)	(2.20)	(1.70)
Muslim	-.0138	.0874	-.1850	-.1344	-.1045
	(0.10)	(1.04)	(0.82)	(1.14)	(0.84)
Marriage	.0854	.2614	-.3122	-.4322	-.0602
squeeze index	(0.19)	(0.78)	(0.32)	(0.73)	(0.15)
Family endogamy	-.3121	.4335**	-.7343***	-.3389*	-.4808
	(1.33)	(2.02)	(3.07)	(1.73)	(3.29)
Village exogamy	.0746	.0597	-.0708	-.0463	-.0584
	(0.53)	(0.90)	(0.36)	(0.53)	(0.86)
Wife's father's education	-.0042	.0026	-.0107	-.0088	-.0061
	(0.28)	(0.17)	(0.28)	(0.53)	(0.29)
Wife's mother's education	.0042	.0289	.0024	.0249***	-.0200
	(0.13)	(1.02)	(0.02)	(0.76)	(0.35)
Husband's father's	-.0089	-.0233	.0741	-.0111	.0245
education	(0.15)	(1.60)	(0.70)	(0.81)	(1.92)
Husband's mother's	.0008	-.0046	-.436	.0222*	.0078
education	(0.05)	(0.27)	(0.32)	(1.73)	(0.53)
Age Difference	-.0105**	-.0048	.0098	.0131	.0077
	(0.83)	(1.18)	(1.63)	(1.14)	(1.26)
Education difference	-.0051	-.0136*	.0113	-.0087**	.0136*
	(0.17)	(1.81)	(0.45)	(2.43)	(1.87)
Parents-in-law in household	-.0286	.0623	-.1478	-.0445	-.0692
	(0.23)	(1.10)	(0.61)	(0.56)	(1.06)
Family owns agricultural	-.1723***	.0772	-.0185	.1001	-.0611
land	(2.72)	(1.28)	(0.07)	(0.89)	(0.69)
Family owns TV	-.0509***	-.0082	-.0166	.0693	.0159
	(1.58)	(0.09)	(0.07)	(0.54)	(0.17)
n	288	295	299	274	299
Wald Test Significance	.5357	.0718	.8563	.5399	.2537

See notes for table 3 and the Appendix for explanations. Robust z statistics are in parentheses.

6.Appendix

The binary family decision dependent variables are derived from responses to the following questions (the number corresponds to column number in Tables 3-7).

-        Who in your family decides the following? (decision can be made by more than one person) Who of these has the greatest say in this decision?

        What food to prepare for family meals; (1)

        Whether or not (the respondent should) work outside the home; (2)

        Inviting guests to your home; (3)

        How many children to have; (4)

        How much schooling to give your children; (5)

        To whom to marry your children; (6)

        Whether to buy or sell gold/silver jewelry. (7)

-        Do you have a say in how the household's overall income is spent? (8)

-        If you wanted to buy yourself a (dress/sari), can you do it without consulting your husband or a senior member of your family? (9)

-        Do you get any cash in hand to spend on household expenditure? (10)

The dependent variable in each case is a dummy variable which equals 1if the wife is reported to be the family member with the greatest say in (1) to (7), or if the answer is yes for (8) to (10).

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