

Wedding Celebrations as Conspicuous Consumption:
Signaling Social Status in Rural India

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Wedding Celebrations as Signals of Social Status in Rural South India

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Abstract

We examine the determinants of expenditures on wedding celebrations by rural Indian families. We develop a status signaling model of wedding celebrations where the size of the celebration signals the quality of the new groom's family and thus the enhanced social status of the bride's family. Predictions from the model are tested with survey data from South India using a natural experiment derived from variations in norms of village exogamy – when daughters have to marry grooms from another village - to identify the availability of information on the groom's family to the bride's village. The econometric results are consistent with a status signaling interpretation.

1. Introduction

A daughter's marriage is the most costly event in the life of an Indian family, often driving parents into severe debt at interest rates of over 200 per cent. These expenses, which amount to more than six times a family's annual income, can force a family into destitution and bonded labor especially when there are several daughters to be married. The economic burden of a daughter's marriage has been identified as a major cause of gender discrimination (Miller, 1981) and domestic violence (Bloch and Rao, 2002) in the Indian sub-continent. A large proportion of marriage costs are in the form of dowries - transfers made from the bride's family to the groom's. The rest of the money is spent by the bride's family in celebrating the wedding. To an outsider these weddings can seem extremely lavish, especially in contrast with the extreme poverty of rural Indian life, with large numbers of people invited for feasts and ceremonies that can go on for several days. Such celebrations are, of course, not unique to India but are of special relevance in very poor societies where the money spent on weddings can be particularly wasteful given its high opportunity cost. While there is a large economics literature on marriage markets following the work of Becker (1990), and a rapidly expanding literature on dowries¹, wedding celebrations are driven by different considerations and have not been addressed at all by economists, or much by other social scientists.

Our investigation of wedding celebration expenses is based on a combination of survey data from a random sample of 800 households spread across five districts in rural Karnataka State in Southern India, and qualitative open-ended interviews with 100

¹ See Rao (1993), Zhang and Chan (1999), Edlund (2000), Rao (2000), Botticini and Siow (2000), Fafchamps and Quisumbing (2002), Anderson (forthcoming).

households from two of the villages canvassed in the sample survey. Our in-depth interviews indicated that dowries were largely driven by competition for scarce men and by the quality of grooms. However, marriage celebrations were driven by different criteria that had more to do with symbolic display than transfers, with the bride's family primarily responsible for paying for the wedding, just as they were responsible for paying the dowry. The size of the celebration was usually justified as being forced by norms in the community that are usually determined by observing the scale of other recent weddings in the community.

In addition, however, to what was considered a minimally acceptable wedding, many families tended to have particularly lavish celebrations influenced less by norms in the village than by patterns in cities with celebrations by poor families imitating the more extravagant patterns common in richer families. Take the case of a wedding of a small agriculturist with 2 acres of land that we observed. His teenage daughter was marrying a young man who had finished his BA and had a job as a low level clerk in the city. The father of the bride was obviously rather pleased at the match he had arranged. We were shown pictures of the wedding that indicated a lavish celebration. The groom was dressed in a crisp gray suit, the bride in a silk saree. A large number of guests, including a local politician had been invited, the newlyweds were driven away at the end of the ceremony in a large white Ambassador car. When asked why he had spent so much money of a wedding which was obviously well beyond his means, the father said that his daughter had married into a "good family" and he wanted to have a "show." It should be noted that the son-in-law's father was a relatively wealthy landowner from another village. Such clear distinctions between the motives driving dowries, which our

respondents said were about “purchasing” desirable grooms, and wedding celebrations, which they indicated were of more symbolic value, were expressed by most of the individuals with whom we had in-depth interviews².

Clearly, wedding celebrations have a lot to do with social status and prestige. What does status mean in this context and how does it matter? Anthropologists have long believed that Indian concepts of individuality differ markedly from the Western. An Indian is defined not just by his or her own accomplishments and character, but also by their circle of acquaintances and friends – how many important people they know, and the status and respect accorded to them by their social group. Mines (1994), in a study of a South India community, shows that men will often describe themselves to a stranger not simply by providing information about who they are and what they do, but by listing all their prominent acquaintances. In our own fieldwork, one village leader described himself to us in a similar manner, “I am not a big man, but my father was a freedom fighter and my daughter is married to a big family in Patilur village (about 100 miles away). They have lots of land and her father-in-law is a big Congress politician in the area.” Thus, the village leader’s sense of self seemed to be derived from the “big men” to whom he was related.

Furthermore, mobility within a village is often achieved by imitating the behaviors of families of higher social orders (Srinivas, 1989). A great deal of effort and expense is devoted to the presentation of external attributes. Household decisions are often made with an emphasis on how one’s family will be viewed by others: What will others say?

² Our findings on the differences between the factors driving dowries and wedding celebrations are similar to those of Srinivas (1989) based upon his seminal study of a Karnataka village. Roulet (1996), in a study of a North Indian village in Bihar, also emphasizes the prestige motive underlying marriage expenses.

What will they think? For the parents of a daughter, marriage is potentially the most important source of mobility since marrying into a “good family” can greatly enhance how a family is viewed by its peers, and a prestigious match is an occasion for great celebration and status displays. This, more than anything, explains why some weddings are particularly lavish. Status is a value in itself. While it may also generate some secondary benefits like greater access to networks and information, families clearly gain direct Utility from simply moving up the social ladder and being associated by marriage with a prestigious, wealthy pedigree³. Thus, when a family marries into a rich family it is in their interest to demonstrate this to the rest of the village, particularly if the rest of the village does not know the new in-laws. The most effective way of signaling a family’s newfound affinity-derived status is to have as lavish a wedding as they can possibly afford. On the flip side, if a family marries a poor local family – well known to everyone in the village, this may also be an occasion for celebration - but lavish displays are no longer necessary since not much can be gained by signaling.

To better understand the nature of marriage expenditures in India, it might help to outline the basic nature of Indian marriage markets: Marriage is restricted to endogamous groups, i.e.: people are only permitted to marry within a well-defined set of families who make up their sub-caste. A second feature of the marriage market is that it is patrilocal⁴ - brides leave their parents’ home to live with their husbands. A third is that marriages are arranged for both grooms and brides by their parents. Finally it is important to note that

³ For a discussion of this in the context of village festivals see (Rao, 2001b). Rao (2001a) provides a comparative analysis of festivals and marriage celebrations showing how such “wasteful” expenditures both play a very important role in rural life, but are driven by very different economic and cultural incentives.

⁴ Sometimes also called virilocal.

marriage is considered final and, while there are cases of separation, divorce is not an option. Some of these features have become less restrictive in educated urban circles, but they continue to be a defining aspect of village life.

There is a considerable amount of variation between sub-castes in their kinship patterns (Karve, 1965). While most prohibit marriage outside the sub-caste, the size of the group can vary a great deal. Some communities in Southern India prefer marriage within a circle of close relatives, usually between a man and the daughter of his elder sister, or between the children of brothers⁵. Such consanguineous marriages are getting rarer because suitable grooms are difficult to find. Another characteristic of Indian kinship systems is the variation in their prohibition against marrying partners who belong to the same village. In the language of the kinship studies such communities who marry outside their own village are called "village exogamous." In the northern districts of Karnataka a majority of communities are village exogamous, while in the southern districts the majority do not prohibit this and, in fact, strongly prefer it⁶. Such norms are prescribed by the customs of the community and are exogenous to the choices of households who may suffer social sanctions by violating them.

Getting one's daughter married, within these constraints, is considered an Indian parent's primary duty and to have an older unmarried daughter is a tremendous misfortune with large social and economic costs. The costs of getting a daughter

⁵ The study of kinship systems was, till a few years ago, central to Indian anthropology. While there is a general consensus that there are differences between North and South India, there is a considerable debate about the extent and cultural significance of these differences (Dumont 1994, Rahman and Rao 2002).

⁶ In our survey almost 80 per cent of households from northern Karnataka districts (Bidar, South Kanara) prohibited marriage between partners in the same village compared to 35 per cent of households from south Karnataka (Kodagu, Mysore). The one exception to this was Kolar district where 85 per cent could not marry in the same village.

married, however, have been steadily rising in real terms across the Indian sub-continent. In Karnataka State dowries have been increasing substantially for several decades (Epstien, 1973). Now dowries⁷ in this community average six times the annual income of a family, an amount that is consistent with findings from other samples⁸. One possible reason for the rise in dowries is that grooms are scarce. Population growth may have resulted in a surplus of women from large younger cohorts attempting to match with men from smaller older cohorts (Caldwell, Reddy and Caldwell 1988, Rao 1993, Bhat and Halli 1999). Our respondents provided us with explanations that were consistent with this saying that they were willing to pay (and demand) such high dowries because that there was a shortage of eligible males.

Marriage celebrations, however, follow a different pattern. They are large, averaging about four months income, though much smaller than the dowry. In about 25 per cent of the cases, the bride's family reported spending nothing on marriage celebrations which is indicative of a small function restricted to immediate family members, or of rare cases (more common in the past) where the groom's family celebrated the wedding. Excluding these families, marriage expenses average over 5,000 rupees which is about a third of the annual income of an average family. While the celebration costs are small relative to the dowry, they still represent a major burden for families at a time when substantial resources have to be spent on the dowry.

⁷ The term “dowry” has been used in a number of different ways in the literature. We will employ it to mean a groom-price, a payment in cash and/or kind directly made from a bride’s family to a groom’s. We will call the reverse transaction a brideprice. Most marriages involve two sided transfers, so what we will refer to as a dowry is the net value of the transfers from the bride's family to the grooms.

⁸ This ratio excludes those bride-households that received brideprices, since these data retrospective. The mean dowry of 1596 rupees reported in table 1 averages across dowries and brideprices.

Clearly, if wedding celebrations are a signal of status, weddings between partners who belong to the same village do not present an opportunity to communicate any new information given the rather good knowledge about other local households that prevails in most rural Indian communities. When the bride's family is marrying into a family from another village, however, the quality of the match is unknown to the village of the bride's family and this change in status can be signaled to the village by the size of the wedding celebration. This is suggested by the fact that the average distance from the wife's home village, for families that practice village exogamy, in the sample analyzed in this paper is 34 kilometers which can be considerable in a society where roads and public transportation are very poor. Additionally, while families themselves are quite careful about obtaining reasonably good information on their prospective in-laws, the new in-laws are often quite unknown to the other families in the village. Therefore, variations in village exogamy provide a natural experiment that allows us to test if wedding celebrations are driven by signaling motives.

There is a long tradition in economics of studying social status and conspicuous consumption that dates at least as far back as Veblen (1899). The modern literature on the subject is sparse but interest in it was revived by Frank (1985, 1986) and Basu (1989). Their work has been extended by Ireland (1994) and Bagwell and Bernheim (1996) who develop models of conspicuous consumption as a signal of wealth. Corneo and Olivier (1997) further extend this to allow for bandwagon and snob effects, and Glazer and Konrad (1996) apply the idea to provide an explanation for charity. To our knowledge, however, there the empirical counterpart to this theoretical literature is less extensive.

Thus, our paper can also be viewed as a contribution towards the empirical examination of conspicuous expenditures.

The processes by which dowries and marriage expenses are determined are somewhat different. Dowries are almost always the result of direct negotiations between the families of the bride and the groom, though there is clear sense of what a reasonable dowry is for any given match which is a function of the marriage market. Wedding celebrations are also, to a degree, the result of negotiations between the two families but to a much lesser extent than the dowry. A bride's family often spends well beyond the level expected by the groom's family as a result of its own set of incentives.

Based on our ethnographic findings, we follow a “participatory econometrics⁹” approach and develop two theoretical models in Section 2, one that assumes that dowries and marriage expenses are simultaneously determined and a second that treats them as separate decisions, dowries are determined on the basis of hedonic marriage market equilibrium while the bride's family chooses wedding celebration expenses once dowry negotiations have been concluded. Predictions from both these models are tested, and the econometric methodology employed follows in Section 3 where we also describe the survey data. Results from the econometric analysis are presented in Section 4 which concludes the paper.

⁹Where grounded, contextualized findings from qualitative work are used to develop theoretical models sensitive to the cultural context. Predictions from these models are tested for their generalizability with survey data from representative samples. See Rao (1997) and Rao (2002) for detailed explanations of this approach.

2. Theoretical Model

We distinguish between two types of payments made by the bride's family: the dowry D transferred to the groom's family and an amount C spent on marriage celebration in the bride's community. At first glance, the separation of the total marriage expenditures between dowry and marriage celebration may seem artificial, but we strongly believe that in the cultural context we consider, these expenditures should be distinguished in the theoretical model. Firstly, the two expenditures are generally directed at different targets. Dowries are paid to the husband's family whereas marriage celebrations are largely spent on the bride's community. Secondly, the two types of expenses have different social purposes. Dowries are meant to buy the right to enter the groom's family whereas marriage celebrations mostly serve to enhance the status of the bride's family in her community. Furthermore, as status depends in great part on the standing of the groom's family, marriage celebrations are used as a way to signal the quality of the groom's family to the community.¹⁰ Finally, the two levels of expenditures are usually determined in very different ways. Wedding expenditures are freely chosen by the bride's family, but the amount of the dowry reflects a given market price, enforced by community and social norms.

¹⁰ Often dowries are not perfectly observable in the community, and hence cannot be used as perfect signals of the groom's quality. Clearly, rumors may circulate about the amount of the dowry paid, but the exact amount of the dowry is not usually public information. There are at least two reasons why dowries are not publicly observed. Firstly, they are illegal and hence are usually not publicly announced. Secondly, there are clear incentive problems in the revelation of dowries. Bride's families have an incentive to underreport the amount paid, as high dowries may imply that the bride is of poor quality.

We now turn to a formal description of the model. We denote by Y_h and Y_w the premarital wealth of the husband's and wife's family and by x_h and x_w a vector of human capital and social characteristics of the two families. We let $z_h=(Y_h,x_h)$ and $z_w=(Y_w,x_w)$. The post marital wealth of the wife's family can be decomposed as

$$I_w = Y_w - D - C .$$

In addition to her income, the bride's family gains utility from the social status conferred to her by the quality of the husband.¹¹ We suppose that the quality of the husband is directly observed by other members of the bride's community with probability π . With probability $(1-\pi)$, villagers receive no prior information about the groom's quality, and can only observe it at the time of the wedding. Specifically, we suppose that the probability that the community learns the quality of the groom is an increasing function of the marriage celebrations expenditures, $p(C)$ where $p(0)=0$, $p'>0$, $p''<0$ and p goes to 1 as C goes to infinity.

Hence, we write the utility of the wife's family as

$$U=u(Y_w-D)-C) +(\pi+(1-\pi)p(C))v(z_h). \quad (1)$$

¹¹ In our model, brides' families do not derive direct utility from the husband's quality, but only indirect utility through social status. This is of course a simplifying assumption, as the husband's quality should also affect the magnitude of the marriage surplus. We have chosen not to model explicitly the formation of a marriage surplus and its division between the two families. However, it should be noted that if the wife's family's income was increasing in the husband's quality, the main qualitative findings of the model would be preserved, as brides marrying husbands of higher quality would have an increased incentive to spend money on the marriage celebrations.

Where u and v are both strictly increasing and concave.¹²

A well-known interpretation of the dowry in our cultural context is that it represents a hedonic price schedule, expressing for any match (z_h, z_w) the expected payment from the wife's to the husband's family (see Rao (1993)). The dowry is also affected by global marriage market conditions denoted m , where a higher value of m implies that the marriage market is more favorable to the men. As in Rao (1993), we thus define a hedonic dowry function:

$$D = D(z_h, z_w, m), \quad (2)$$

which is increasing in z_h and m , and decreasing in z_w . We consider two different variants of the model. In model I, we suppose that the bride's family chooses *endogenously* the quality of the groom. In model II, we assume that the quality of the groom is *exogenously* given.

Model I. Suppose that the bride's family chooses simultaneously the dowry and marriage celebration expenses. The dowry is used to purchase the quality of the husband, and

¹²

This formulation supposes that when the villagers do not observe the quality of the husband at all (an event which occurs with probability $(1-\pi)(1-p(C))$), the wife's family does not obtain any status utility. It is justified by the fact that when the groom's quality is not revealed, villagers believe that it is extremely low. If villagers had different beliefs on the quality of husbands, wives of husbands of low quality would have an incentive to conceal their husband's quality. We could construct an alternative (but more complicated) model where villagers hold arbitrary beliefs on the quality of grooms, and marriage expenditures directly enter the status utility. This alternative model would give rise to similar predictions.

marriage celebrations to signal this quality to the community. Inverting the hedonic dowry function, we can define the husband's quality z_h as an increasing function of the dowry and the wife's quality and a decreasing function of the marriage market conditions,

$$z_h = f(z_w, D, m). \quad (3)$$

Replacing in the wife's utility, we obtain:

$$U = u(Y_w - D - C) + (\pi + (1 - \pi)p(C))v(f(z_w, D, m)). \quad (4)$$

Differentiating equation (4) with respect to C and D , we get

$$U'(Y_w - D - C) = (1 - \pi)p'(C) v(f(z_w, D, m)). \quad (5)$$

$$U'(Y_w - D - C) = (\pi + (1 - \pi)p(C))v'(f(z_w, D, m)) \frac{\partial f}{\partial D}. \quad (6)$$

In equations (5) and (6), the left-hand side represents the marginal cost of spending an additional dollar on dowries and marriage expenditures, and the right hand side the marginal benefit. At the optimum, the marginal benefit of spending an additional dollar on marriage expenses and on dowries must be equal. As can be seen from equation (4), the marginal benefit of marriage expenditures results from an increase in the probability that the husband's quality is known. On the other hand, the marginal benefit of the dowry results from an increase in the quality of the groom.

The system of equations (5) and (6) determines simultaneously the values of the endogenous variables C and D as a function of the parameters z_w , π and m .

In the Appendix, we show that when the function f is additively separable and

$U'' + (1-\pi)p'v' \partial f / \partial D < 0$, the following comparative statics are obtained:

Model 1 Comparative Statics

Exogenous variable	Effect on marriage celebrations	Effect on dowry
Bride's wealth	+	?
Bride's characteristics	+	-
Village exogamy	+	-
Marriage market conditions	-	+

Notwithstanding the difficulties due to the fact that marriage celebrations and dowries are simultaneously determined in the model, the comparative statics can easily be interpreted.

An increase in the bride's wealth at the same time reduces the marginal utility of income and increases the quality of the husband. These two effects affect the dowry in opposite ways: a reduction in the marginal utility of income increases the dowry, but an increase in the husband's quality reduces the dowry, so that the total effect on the dowry is indeterminate. However, both effects concur to increase marriage market celebrations, as the bride's family is willing to spend more for higher quality husbands and when its marginal utility of income is lower. An increase in the bride's characteristics makes it easier to marry men of better quality, implying that the dowry is reduced and the marriage

celebration expenditures are increased. Conversely, when marriage market conditions are more favorable to men, the wife's family needs to spend more to purchase a high quality husband, and the dowry is increased while marriage celebration costs are reduced.

Finally, when the husband comes from a different same village from the wife, information about the husband's quality is more difficult to obtain by the villagers. This implies that marriage expenditures are increased and the dowry reduced, as the marginal effect of an increase in the husband's quality on the social status of the bride's family is lower.

Model II. When the match between the bride and the groom is exogenous, the bride's family pays a fixed dowry determined by the hedonic market price, $D = D(z_h, z_w, m)$.

Marriage celebration expenditures are chosen after the dowry is determined, in order to maximize

$$U = u(Y_w - D(z_w, z_h, m) - C) + (\pi + (1 - \pi)p(C))v(z_h). \quad (7)$$

This maximization problem results in the first order condition:

$$-u'(Y_w - D(z_w, z_h, m) - C) + (1 - \pi)p'(C)v(z_h) = 0. \quad (8)$$

Equation (8) determines the marriage celebration costs as a function of the parameters z_h, z_w, m and π while the dowry is determined by the hedonic price function. In the

Appendix, we obtain the following comparative statics on marriage celebration and

dowries, assuming that the utility function displays prudence, i.e. that the third derivative U''' is positive.

Model 2 - Comparative Statics

Exogenous variable	Effect on marriage celebrations	Effect on dowry
Wife's wealth	+	-
Wife's characteristics	+	-
Husband's wealth and Characteristics	?	+
Marriage market conditions	-	+
Village exogamy	+	0
Interaction Village exogamy Wife's wealth	-	0
Interaction Village exogamy Wife's characteristics	-	0
Interaction Village Exogamy Husband's wealth and characteristics	+	0

The comparative statics on the dowry are directly obtained from the hedonic price function. An increase in the wife's wealth or characteristics reduces the dowry, thereby reducing the marginal utility of income and increasing the marriage celebration expenditures. An increase in the husband's wealth or human capital characteristics has two opposite effects: on the one hand, it increases the dowry, on the other hand it increases the quality of the husband to be displayed. These opposite effects lead to an indeterminate effect on marriage expenditures. When the marriage market is more favorable to men, the dowry increases and marriage expenditures are reduced. When the bride and the groom come from different villages, the need to display the husband's quality is increased and marriage celebrations are increased accordingly. Finally, we

obtain interesting interaction effects between village exogamy and the bride and groom's characteristics. When husband and wife come from different villages, as the need to signal the groom's quality is increased, the interaction between village exogamy and husband's quality is positive. It turns out that, using a third order argument on the utility function, the cross effect of village exogamy and wife's characteristics is positive, reflecting mainly the fact that a lower dowry makes marriage celebrations more attractive.

Data and Econometric Methodology

The sample consists of 800 households randomly chosen from five districts in Karnataka State -- Bidar and South Kanara from the north, and Kodagu, Mysore and Kolar from the south¹³. The districts were chosen to represent cultural and geographic variations within the state. Seven villages from each district were randomly chosen and twenty households then randomly selected from each village. The survey was conducted with an extensive three part instrument (for heads of household, women, and the elderly) that examined various aspects of household behavior, social and economic status, and issues related to marriage and old-age support. One ever-married woman of reproductive age was chosen at random from each household to answer the woman's questionnaire. The marriage data that are employed in this paper were collected retrospectively from the married women. About a third of the sample did not any ever-married women of reproductive age and therefore did not answer the women's questions. Of those that did

¹³ Karnataka State which is located in South-Western India has as an estimated population of over 50 million and literacy rate of 56 per cent. It is largely semi-arid, but also has a lush coastline and is the center of the Indian electronics industry.

have eligible women, many did not provide complete answers to the retrospective marriage questions forcing us to drop them from the analysis. After eliminating about ten outliers, we are left with a sample of about 370 women spread across the five districts. There are no significant differences between this sub-sample and the complete sample for those questions that were answered by all the households.

We will estimate both reduced form models derived above:

1) The dowry equations:

$$\text{Model 1: } D = D(Y_w, x_w, e, m) \quad (9)$$

$$\text{Model 2: } D = D(Y_w, Y_h, x_w, x_h, e, m) \quad (10)$$

2) The Reduced form equation for marriage celebration costs:

$$\text{Model 1: } c = c(Y_w, x_w, e, m) \quad (11)$$

$$\text{Model 2: } c = c(Y_w, Y_h, x_w, x_h, e, m) \quad (12)$$

Where e is a dummy variable indicating whether the family customarily practices village exogamy in its community. Therefore, this, is an indicator of the amount of information that the wife's community has about the groom. Note that because the village exogamy variable measures customary norms prevalent in the respondents community, this is not a choice variable for either party in the marriage and can be treated as exogenous to the dowry and wedding celebration decisions. Customary practices do change over the long term, but are part of the exogenous constraints faced by household in their marriage choices in the short term. We could alternatively used the distance between the homes of the husband and the wife's parents as to measure information availability but this is

clearly an endogenous variable determined at the same time as the other marriage decisions.

Y_h and Y_w , the pre-marriage wealth of the two families will be measured with dummy variables for whether the families had any land or not¹⁴. Among these rural households, the possession of land makes a great deal of difference to a household's status within the village since about 40 per cent of the households are landless. To measure the characteristics of the husband and wife that are valued in the marriage market x_h and x_w , we use their years of schooling and their ages at marriage. m the measure of alternatives in the marriage market is measured by the year of marriage and the marriage squeeze ratio¹⁵-the ratio of the number of women to the number men at marriageable ages (defined as women aged 10-19/ men aged 20-29). m is measured at the year of the marriage for the district where the village is located, since the census reports age tables by district. Also, since the census occurs every ten years we use the ratio for the census year closest to the year of marriage. In addition to these variables we also include dummies for whether the family is Muslim or belongs to a scheduled caste, which are disadvantaged castes targeted by affirmative action programs.

In the regression analysis we will examine a set of four specifications for each dependent variable. The first will test Model 1, including only the wife's characteristics, the second will include the husband's and wife's characteristics with the village exogamy variable and no interactions, the third will add the interactions between village exogamy

¹⁴ While, data on the amount of land that the families possessed before the marriage were collected, these variables are very unreliable because of inconsistencies in the units of measure employed by different interviewers.

¹⁵ See Rao(1993) for a more detailed explanation of this measure, and Bhat and Halli (1999) for a discussion of alternative measures of the marriage squeeze and past and future trends.

and the wealth and education of the husband and wife. Finally, we include a fourth regression introducing a new pair of variables, the average level of education in the husband's village and the interaction between village education and exogamy. This is a measure of the opportunity cost for people from the husband's village to attend the wedding. They attempt to answer a comment from a referee who suggested that positive effects on interactions of wealthy husbands with exogamy may simply indicate that husband's families with higher opportunity cost demand larger outlays of expenditures during the wedding. If this is true, then the husbands from villages that are better educated should have more money spent on their wedding celebrations. After controlling for the average level of education in the husband's village and its interaction with exogamy, the husband's own education and wealth should measure the impact of the husbands own characteristics on wedding celebrations, independent of the opportunity cost of his fellow villagers to attend the wedding.

Econometric Results

Table 1 reports summary statistics from the survey data. The average wedding celebration expenses are 3000 rupees, that are about 11 per cent as large as the average dowry, excluding brideprice, which is 21,000 rupees. Note that when net dowries and brideprices are both included the average dowry is 1596 rupees, with a large standard deviation of 57571 rupees because it is an average over both positive and negative numbers. Average schooling levels for men are 4.2 years and 3 years for women which is

low, but higher than average levels of schooling reported by other surveys of similar regions of the country. The average age at marriage for men is about 25 years and 17 years for women, which is very close to the averages reported by the census for the region. The mean marriage took place in 1980, with a standard deviation of 8.4, showing that the retrospective marriage information spans a fairly long time period. Over this period, the average marriage ratio is 1.13 indicating a surplus of women in the marriage market. 9.5 per cent of the sample is Muslim and 22 per cent belong to schedule castes and tribes, which is also consistent with the census data for the region. Finally, 68 per cent of the households customarily practice village exogamy.

Table 2 reports the OLS dowry regressions¹⁶. Table 2(1) reports the results without the husband's variables. We see that the year of marriage has a positive effect on the dowry, and Muslims pay lower dowries than Hindus. The wife's schooling does not have an effect that is significantly different from zero, wife's land is negative and significant at the 10 % level, while wife's age at marriage is negative and significant, and exogamy does not matter. This provides rather weak support for Model 1. Adding the husband's variables does change the effects dramatically. As expected the wife's effects become weaker, and husband's land has a negative effect on the dowry. The interaction terms also seem to have weak effects on the dowry – table 3 provides F statistics for testing their joint significance and we can see that as a group they are not significantly different from zero. There are also no significant regional differences in the results.

¹⁶The dowry and wedding celebration regressions exclude eleven outliers where the brideprice (negative dowry) was less than 120,000 rupees, and the dowry was greater than 1,000,000 rupees, and the wedding celebration costs were greater than 100,000 rupees.

Thus we find that the dowry regressions are generally rather weak, with very few significant estimates and do not provide much support for either Model 1 or 2, other than demonstrating a general increase in dowry levels. They also reject the hypothesis that dowry payments for individuals who practice village exogamy are different than dowries paid to endogamous households.

The Marriage Celebration Expenses results are much stronger. Looking at the Model 1 regression with no husbands variables we see that wife's schooling increases the size of the celebration as does wife's age, while wife's land reduces it. Village exogamy increases the size of the dowry while the year of marriage reduces it. Assuming that younger women are preferred in the marriage market, most of the estimated effects provide support for model 1, other than wife's land. Adding the husband's variables we find that many of these effects are retained except that wife's schooling is no longer significant. Note also, that controlling for the marriage squeeze ratio, the data indicate that wedding celebration expenses have been declining at a rate of about 140 rupees a year¹⁷. There are some large and significant regional differences. Households in Kodagu district have much larger celebrations than households in Mysore district, while those in Kolar district have much less lavish celebrations. There are two main reasons for this, one economic and the other cultural. Kodagu district is dominated by coffee plantations and is therefore relatively wealthy, also the dominant Coorg community in the district have traditionally had large and lavish celebrations which have had a demonstration effect on other communities in the area. Kolar on the other hand is much more arid and less

¹⁷ Consistent with this our respondents told us that with the rising cost of dowries, wedding celebrations had become less lavish in recent years.

industrialized than Mysore and households there consequently cannot afford large weddings.

The real test of Model 2, however, comes with the addition of the interaction effects and here we find strong support for the predictions. Table 5 provides F-Statistics for testing the joint significance of the interaction effects with exogamy and we find that the interaction effects with husband's land and schooling are positive and jointly highly significant. On the other hand the interaction effects with wife's land and schooling are not jointly significant. Adding the village average education and its interaction, we see that it has no significant impact on marriage celebrations. This suggests that the positive effects of the interaction between husband's quality and exogamy are not driven by the opportunity cost for the husband's family to attend the wedding. They are consistent with the hypothesis that bride's families signal their new social status by "displaying" high quality husbands coming from other villages more expensive celebrations. This is because husbands from other villages are less known to families in the bride's home village.

Overall we find that the marriage celebration results provide stronger support for the theoretical model than the dowry results with limited support for Model 1 and stronger support for Model 2. Our results are supportive of the notion that wedding celebrations are a form of conspicuous consumption that signal the family's social status to the community where it is resident. Dowries and wedding celebrations, however, seem to be driven by very different motives and while the results do not provide a clear story of the underlying the determinants of dowries they indicate that status signaling does not seem to play a role. Thus, the need to acquire higher social status seems to be an

important motive driving purely ceremonial expenditures with no clearly productive purpose, even for people as poor as those in this sample. Finally, the paper suggests that existing marriage market models which are based upon the assumption of complete information need to be extended to allow for imperfect and incomplete information which could result in different and empirically important predictions.

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Appendix

Model I. Consider the system of equations determining C and D :

$$F(C,D, Y_w, x_w, m, \pi) = -U'(Y_w - D - C) + (1 - \pi)p'(C) v(f(z_w, D, m)) = 0.$$

$$G(C,D, Y_w, x_w, m, \pi) = -U'(Y_w - D - C) + (\pi + (1 - \pi)p(C))v'(f(z_w, D, m)) \partial f / \partial D = 0.$$

For any parameter α , we differentiate the system with respect to α to obtain:

$$\frac{\partial F}{\partial C} \frac{dC}{d\alpha} + \frac{\partial F}{\partial D} \frac{dD}{d\alpha} = -\frac{\partial F}{\partial \alpha}$$

$$\frac{\partial G}{\partial C} \frac{dC}{d\alpha} + \frac{\partial G}{\partial D} \frac{dD}{d\alpha} = -\frac{\partial G}{\partial \alpha}.$$

By Cramer's rule,

$$\frac{dC}{d\alpha} = \frac{\begin{vmatrix} -\frac{\partial F}{\partial \alpha} & \frac{\partial F}{\partial D} \\ -\frac{\partial G}{\partial \alpha} & \frac{\partial G}{\partial D} \end{vmatrix}}{\begin{vmatrix} \frac{\partial F}{\partial C} & \frac{\partial F}{\partial D} \\ \frac{\partial G}{\partial C} & \frac{\partial G}{\partial D} \end{vmatrix}}, \quad \frac{dD}{d\alpha} = \frac{\begin{vmatrix} \frac{\partial F}{\partial C} & -\frac{\partial F}{\partial \alpha} \\ \frac{\partial G}{\partial C} & -\frac{\partial G}{\partial \alpha} \end{vmatrix}}{\begin{vmatrix} \frac{\partial F}{\partial C} & \frac{\partial F}{\partial D} \\ \frac{\partial G}{\partial C} & \frac{\partial G}{\partial D} \end{vmatrix}}$$

Now,

$$\begin{vmatrix} \frac{\partial F}{\partial C} & \frac{\partial F}{\partial D} \\ \frac{\partial G}{\partial C} & \frac{\partial G}{\partial D} \end{vmatrix} = \begin{vmatrix} a & b \\ b & c \end{vmatrix}$$

with $a = U'' + (1 - \pi)p'v$, $b = U'' + (1 - \pi)p'v' \partial f / \partial D$,
 $c = U'' + (\pi + (1 - \pi)p)(V''(\partial f / \partial D)^2 + V' \partial^2 f / \partial D^2)$. By Assumption, $a < b < 0$ and $c < b < 0$. So,

$$\begin{vmatrix} a & b \\ b & c \end{vmatrix} = ac - b^2 > 0.$$

Hence, for any of the parameters α , the sign of a marginal increase of α on marriage celebrations and dowries is given by the signs of

$$\begin{vmatrix} -\frac{\partial F}{\partial \alpha} & \frac{\partial F}{\partial D} \\ -\frac{\partial G}{\partial \alpha} & \frac{\partial G}{\partial D} \end{vmatrix}$$

and

$$\begin{vmatrix} \frac{\partial F}{\partial C} & -\frac{\partial F}{\partial \alpha} \\ \frac{\partial G}{\partial C} & -\frac{\partial G}{\partial \alpha} \end{vmatrix}$$

respectively.

We now compute those determinants for all the different parameters.

$$\begin{aligned} \begin{vmatrix} -\frac{\partial F}{\partial Y_w} & \frac{\partial F}{\partial D} \\ -\frac{\partial G}{\partial Y_w} & \frac{\partial G}{\partial D} \end{vmatrix} &= \begin{vmatrix} U''-(1-\pi)p'v' \frac{\partial f}{\partial Y_w} & b \\ U''-(\pi+(1-\pi)p)v'' \frac{\partial f}{\partial D} & \frac{\partial f}{\partial Y_w} \end{vmatrix} \\ &= U''(c-b) - c(1-\pi)p'v' \frac{\partial f}{\partial Y_w} + b(\pi+(1-\pi)p)v'' \frac{\partial f}{\partial D} \frac{\partial f}{\partial Y_w} > 0. \end{aligned}$$

Similarly,

$$\begin{aligned} \begin{vmatrix} \frac{\partial F}{\partial C} & -\frac{\partial F}{\partial \alpha} \\ \frac{\partial G}{\partial D} & -\frac{\partial G}{\partial \alpha} \end{vmatrix} &= \begin{vmatrix} a & U''-(1-\pi)p'v' \frac{\partial f}{\partial Y_w} \\ b & U''-(\pi+(1-\pi)p)v'' \frac{\partial f}{\partial D} \frac{\partial f}{\partial Y_w} \end{vmatrix} \\ &= U''(a-b) + b(1-\pi)p'v' \frac{\partial f}{\partial Y_w} - a(\pi+(1-\pi)p)v'' \frac{\partial f}{\partial D} \frac{\partial f}{\partial Y_w}. \end{aligned}$$

This expression cannot be signed, so the effect of an increase in the bride's wealth on the dowry is indeterminate.

$$\begin{aligned} \begin{vmatrix} -\frac{\partial F}{\partial x_w} & \frac{\partial F}{\partial D} \\ -\frac{\partial G}{\partial x_w} & \frac{\partial G}{\partial D} \end{vmatrix} &= \begin{vmatrix} -(1-\pi)p'v' \frac{\partial f}{\partial Y_w} & b \\ -(\pi+(1-\pi)p)v'' \frac{\partial f}{\partial D} \frac{\partial f}{\partial Y_w} & c \end{vmatrix} \\ &= -c(1-\pi)p'v' \frac{\partial f}{\partial Y_w} + b(\pi+(1-\pi)p)v'' \frac{\partial f}{\partial D} \frac{\partial f}{\partial Y_w} > 0. \end{aligned}$$

$$\begin{aligned} \begin{vmatrix} \frac{\partial F}{\partial C} & -\frac{\partial F}{\partial x_w} \\ \frac{\partial G}{\partial D} & -\frac{\partial G}{\partial x_w} \end{vmatrix} &= \begin{vmatrix} a & -(1-\pi)p'v' \frac{\partial f}{\partial Y_w} \\ b & -(\pi+(1-\pi)p)v'' \frac{\partial f}{\partial D} \frac{\partial f}{\partial Y_w} \end{vmatrix} \\ &= b(1-\pi)p'v' \frac{\partial f}{\partial Y_w} - a(\pi+(1-\pi)p)v'' \frac{\partial f}{\partial D} \frac{\partial f}{\partial Y_w} < 0. \end{aligned}$$

Hence, an increase in the wife's characteristics reduces the dowry and increases marriage celebration expenditures. A similar computation shows that when the marriage market is more favorable to men, the dowry increases and the marriage celebrations are reduced. Finally,

$$\begin{vmatrix} -\frac{\partial F}{\partial \pi} & \frac{\partial F}{\partial D} \\ -\frac{\partial G}{\partial \pi} & \frac{\partial G}{\partial D} \end{vmatrix} = \begin{vmatrix} p'v & b \\ -(1-p)v' \frac{\partial f}{\partial D} & c \end{vmatrix}$$

$$= cp'v + b(1-p)v' \frac{\partial f}{\partial D} < 0.$$

And

$$\begin{vmatrix} \frac{\partial F}{\partial C} & -\frac{\partial F}{\partial \pi} \\ \frac{\partial G}{\partial D} & -\frac{\partial G}{\partial \pi} \end{vmatrix} = \begin{vmatrix} a & p'v \\ b & -(1-p)v' \frac{\partial f}{\partial D} \end{vmatrix}$$

$$= -a(1-p)v' \frac{\partial f}{\partial D} - bp'v > 0.$$

Hence, when information about the groom is less readily available, the dowry decreases and the marriage celebration expenditures go up.

Model II. For the dowry, the comparative statics are directly obtained from the hedonic price function. For the marriage celebration expenditures, we compute the implicit derivatives

$$\frac{\partial C}{\partial Y_w} = \frac{U''(1 - \frac{\partial D}{\partial Y_w})}{U'' + (1 - \pi)p''v} > 0,$$

$$\frac{\partial C}{\partial x_w} = -\frac{U'' \frac{\partial D}{\partial x_w}}{U'' + (1 - \pi)p''v} > 0,$$

$$\frac{\partial C}{\partial m} = -\frac{U'' \frac{\partial D}{\partial m}}{U'' + (1 - \pi)p''v} < 0,$$

$$\frac{\partial C}{\partial z_h} = -\frac{U'' \frac{\partial D}{\partial z_h} + (1 - \pi)p'v'}{U'' + (1 - \pi)p''v}, \text{ which cannot be signed unambiguously.}$$

$$\frac{\partial C}{\partial \pi} = \frac{p'v}{U'' + (1 - \pi)p''v} < 0,$$

$$\frac{\partial^2 C}{\partial \pi \partial z_h} = \frac{p'v'U'' - U'''' \frac{\partial D}{\partial z_h} p'v}{(U'' + (1 - \pi)p''v)^2} < 0.$$

$$\frac{\partial^2 C}{\partial \pi \partial Y_w} = \frac{U''''(1 - \frac{\partial D}{\partial Y_w})}{(U'' + (1 - \pi)p''v)^2} > 0,$$

$$\frac{\partial^2 C}{\partial \pi \partial x_w} = -\frac{U'''' \frac{\partial D}{\partial x_w}}{(U'' + (1 - \pi)p''v)^2} > 0.$$

Table 1
Means and Standard Deviations

Variable N=379	Mean	Standard Deviation
Net Dowry Payment (1994 Rupees)	1596.803	57571.120
Wedding Celebration Expenses (1994 Rupees)	2949.576	6503.741
Marriage Squeeze Ratio	1.129	0.146
Year of Marriage	80.301	8.397
Wife's Schooling (Years)	3.018	8.397
Husband's Schooling (Years)	4.239	4.535
Muslim (Dummy)	0.095	0.294
Scheduled Caste/Tribe (Dummy)	0.222	
Husband Owned Land at Marriage (Dummy)	0.256	
Wife's Owned Land at Marriage (Dummy)	0.237	
Husband's Age at Marriage	24.793	4.263
Wife's Age at Marriage	17.103	3.480
Village Exogamous (Dummy)	0.675	
Bidar (Dummy)	0.229	
South Kanara (Dummy)	0.211	
Kodagu (Dummy)	0.208	
Kolar (Dummy)	0.108	
Mysore (Dummy)	0.244	
Average Years of Schooling in Husband's Village	4.013	1.343

Table 2. Determinants of Net Dowry Payment (N=370, Robust standard errors)

Variables	(1)	(2)	(3)	(4)
Marriage Squeeze Ratio	-37647.770 (1.1)	-23520.250 (0.6)	-29163.840 (0.8)	-36217.220 (1.0)
Year of Marriage	677.475 (2.0)	801.093 (2.5)	859.829 (2.6)	857.449 (2.7)
Wife's Schooling (Yrs)	767.889 (0.5)	52.245 (0.0)	-1970.585 (1.6)	-2081.727 (1.7)
Husband's Schooling (Yrs)		719.135 (1.0)	-598.863 (0.6)	-1035.535 (0.8)
Muslim	-16084.310 (2.2)	-15933.760 (2.2)	-14448.900 (2.2)	-14789.240 (2.2)
Scheduled Caste/Tribe	-6576.616 (1.4)	-6248.137 (1.3)	-7951.195 (1.6)	-7460.341 (1.5)
Wife's Land at Marriage - Dummy	-13345.990 (1.6)	-12287.810 (1.4)	-7730.768 (0.9)	-7312.152 (0.8)
Husband's Land at Marriage - Dummy		-11174.080 (2.2)	-11576.270 (2.0)	-10762.140 (2.1)
Husband's Age at Marriage		1010.964 (1.2)	1525.555 (1.3)	1482.950 (1.2)
Wife's Age at Marriage	-1918.029 (2.2)	-2481.412 (2.4)	-2863.499 (2.6)	-2769.108 (2.5)
Village Exogamous	4167.302 (0.7)	4275.789 (0.7)	-9397.383 (1.3)	8762.237 (0.4)
Exogamous x H. Schooling			1621.140 (1.5)	2225.978 (1.7)
Exogamous x H. Land?			-2007.890 (0.4)	-3768.504 (0.7)
Exogamous x W. Schooling			2969.438 (0.3)	3041.507 (1.4)
Exogamous x W. Land			-1108.930 (0.2)	-1353.498 (0.2)
Mean Village Education				3932.156 (1.2)
Mean Village Education x Exogamous				-5020.306 (0.9)
Bidar	-7282.482 (0.8)	-6425.282 (0.6)	-2703.731 (0.2)	-5374.095 (0.5)
South Kanara	18141.740 (1.3)	14395.160 (1.0)	16469.540 (1.2)	15919.300 (1.3)
Kodagu	-1027.493 (0.1)	-3582.749 (0.3)	-2479.966 (0.2)	-5048.213 (0.4)
Kolar	-2316.809 (0.2)	1679.151 (0.1)	1208.359 (0.1)	-834.557 (0.1)
Constant	21888.690 (0.5)	-17147.910 (0.4)	-13633.550 (0.3)	-17736.660 (0.4)
P-Value (Joint Significance)	0.06	0.09	0.07	0.11
R-Squared	0.03	0.04	0.07	0.07

Table 3.
Dowry Regression – F-Statistics for Joint Significance

<u>Variables</u>	<u>(2)</u>	<u>(3)</u>
Exogamous x H. Schooling	1.22	1.50
Exogamous x H. Land?		
Exogamous x W. Schooling	1.26	1.29
Exogamous x W. Land		
Mean Village Education		0.68
Mean Village Education x Exogamous		

Table 4 Determinants of Marriage Expenses (N=370, Robust Standard errors)

Variables	(1)	(2)	(3)	(4)
Marriage Squeeze Ratio	-21005.530 (1.4)	-15097.230 (0.8)	-13453.800 (0.8)	-13225.910 (0.8)
Year of Marriage	-157.557 (3.1)	-150.973 (2.7)	-169.574 (2.7)	-173.174 (2.8)
Wife's Schooling (Yrs)	113.787 (1.8)	-113.653 (0.5)	11.242 (0.1)	29.434 (0.2)
Husband's Schooling (Yrs)		300.299 (1.2)	21.833 (0.2)	66.060 (0.4)
Muslim	-291.871 (0.2)	254.552 (0.2)	729.081 (0.5)	737.251 (0.5)
Scheduled Caste/Tribe	-1261.549 (1.9)	-628.305 (1.1)	-47.102 (0.1)	-164.900 (0.3)
Wife's Land at Marriage - Dummy	-1388.356 (2.8)	-1359.493 (2.7)	-1640.904 (2.5)	-1713.888 (2.6)
Husband's Land at Marriage - Dummy		-82.428 (0.1)	-1103.712 (1.3)	-1167.015 (1.4)
Husband's Age at Marriage		6.219 (0.1)	-12.476 (0.2)	-11.130 (0.1)
Wife's Age at Marriage	1593.910 (1.7)	-169.865 (2.3)	203.961 (2.6)	214.263 (2.4)
Village Exogamous	1679.466 (3.0)	1600.946 (2.8)	-1671.227 (1.6)	-2890.013 (1.8)
Exogamous x H. Schooling			376.761 (1.3)	332.689 (1.1)
Exogamous x H. Land?			2520.615 (2.9)	2594.622 (2.9)
Exogamous x W. Schooling			-239.232 (0.8)	-262.279 (0.8)
Exogamous x W. Land			1499.679 (1.6)	2540.491 (1.7)
Mean Village Education				-592.797 (1.4)
Mean Village Education x Exogamous				356.521 (0.9)
Bidar	612.475 (0.4)	-85.601 (0.1)	-41.824 (0.0)	751.719 (0.5)
South Kanara	3191.329 (0.7)	946.905 (0.2)	1793.850 (0.3)	2653.129 (0.5)
Kodagu	3774.829 (3.8)	3286.195 (2.7)	3668.554 (2.9)	4351.139 (3.8)
Kolar	-2506.663 (3.8)	-2839.08 (3.4)	-2734.107 (3.0)	-1978.912 (1.8)
Constant	1679.466 (1.8)	1600.946 (2.8)	26896.990 (1.1)	28279.950 (1.2)
P-Value (Joint Significance)	0.00	0.00	0.00	0.00
R-Squared	0.22	0.22	0.25	0.28

Table 5
Marriage Expenses Regression – F-Statistics for Joint Significance

Variables	(2)	(3)
Exogamous x H. Schooling	4.27	4.22
Exogamous x H. Land?		
Exogamous x W. Schooling	1.37	1.41
Exogamous x W. Land		
Mean Village Education		1.01
Mean Village Education x Exogamous		