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Terror as a Bargaining Instrument

A Case Study of Dowry Violence in Rural India

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Some aspects of violent behavior are linked to economic incentives and deserve more attention from economists. In India, for example, domestic violence is used as a bargaining instrument, to extract larger dowries from a wife's family, after the marriage has taken place.

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Summary findings

Bloch and Rao examine how domestic violence may be used as a bargaining instrument, to extract larger dowries from a spouse's family. The phrase "dowry violence" refers not to the dowry paid at the time of the wedding, but to additional payments demanded by the groom's family after the marriage. The additional dowry is often paid to stop the husband from systematically beating the wife.

Bloch and Rao base their case study of three villages in southern India on qualitative and survey data. Based on the ethnographic evidence, they develop a noncooperative bargaining and signaling model of dowries and domestic violence. They test the predictions from those models on survey data.

They find that women whose families pay smaller dowries suffer increased risk of marital violence. So do women who come from richer families (from whom resources can more easily be extracted). Larger dowries — as well as greater satisfaction with the marriage (in the form of more male children) — reduce the probability of violence.

In India marriage is almost never a matter of choice for women, but is driven almost entirely by social norms and parental preferences. Providing opportunities for women outside of marriage and the marriage market would significantly improve their well-being by allowing them to leave an abusive husband, or find a way of "bribing" him to stop the abuse, or present a credible threat, which has the same effect.

This paper — a product of Poverty and Human Resources, Development Research Group — is part of a larger effort in the group to examine crime and violence in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Sader, room MC3-556, telephone 202-473-3902, fax 202-522-1153, email address psader@worldbank.org. Policy Research Working Papers are also posted on the Web at www.worldbank.org/research/workingpapers. Vijayendra Rao may be contacted at vrao@worldbank.org. May 2000. (29 pages)

Terror as a Bargaining Instrument: A Case-Study of Dowry Violence in Rural India

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1. Introduction

The threat of violence is often used as a means of redistributing resources. The Mafia extorts protection money from people under its control, and terrorists threaten hostages with death in order to extract concessions from governments. There is obviously a great deal of economic content in violent behavior and yet it has been neglected as a subject of research by most economists[1]. One prominent example of economically motivated violence comes from the Indian sub-continent where numerous press reports indicate the widespread use of wife-abuse as a means of extracting transfers from the wife's parents[2]. In its most publicized form, disputes over the dowry give rise to what newspapers describe as "dowry murders" where wives are burned alive by their husband's families[3]. Thus, "dowry" violence does not refer directly to marriage related payments made at the time of the wedding, but to additional payments demanded after the marriage by the groom's family where the husband systematically abuses the wife in order to extract larger transfers. In this paper we conduct a case-study of domestic violence in rural India focusing on its use as a bargaining instrument.

There is a small literature on the economics of domestic violence; Tauchen, Witte and Long (1991) and Farmer and Tiefenthaler (1997) develop and test non-cooperative bargaining models of violence, and Farmer and Tiefenthaler (1996) theoretically examine how the use of shelters can serve as a signal of a woman's tolerance of violence. More recently, Lundberg and Pollak (1998) have constructed a model of the intergenerational transmission of domestic violence. The literature on intra-household bargaining is both more extensive and more empirical (Alderman, Chiappori and Kanbur, 1995). Most of these studies follow the work of Manser and Brown (1980) and McElroy and Horney (1981) who develop cooperative models of bargaining within marriage with divorce as the threat point. Lundberg and Pollak (1993) extend this by allowing for an internal non-cooperative threat point where the husband and wife live in "separate spheres."

Our paper differs from these literatures in various ways: It employs ethnographic information on the behaviors underlying dowry related violence culled from open ended interviews conducted in three villages in rural South India to inform the development of a non-

[1] Chwe (1990) is an exception.

[2] See Karlekar (1998) for a survey of the literature on domestic violence in India. This problem is not unique to India, Jahan(1991), presents an account of the same phenomenon in Bangladesh.

[3] One study estimates that 25 per cent of deaths of women between the ages of 15 and 30 in the city of Bombay can be attributed to death by burning - the single highest cause of mortality in that age group (Karkal, 1985).

cooperative model of bargaining and signaling. Predictions from the model are then econometrically tested with survey data collected from the same population that is the focus of the ethnographic interviews. Thus, our paper is unusual in two respects. Firstly, it introduces asymmetric information into a model of household bargaining where domestic violence is used as a signal of the husband's satisfaction with the marriage. Secondly, it combines economic and anthropological methods to rigorously examine violence within the context of Indian marriage markets employing data collected by the authors. We find that marital violence is not only closely linked to low dowry payments, but that a woman who comes from a wealthy family is more likely to be beaten by her husband in an effort to extract higher transfers from her parents.

The paper is structured as follows: Following this introduction Section 2 summarizes the cultural context and the ethnographic information, Section 3 outlines the theoretical model, Section 4 describes the data and lays out the econometric methodology, and Section 5 analyzes the empirical results, provides policy implications and concludes the paper.

2. Cultural Context

To understand why the phenomenon of dowry violence is so widespread, it might help to outline the basic nature of Indian marriage markets[4]: 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. Sub-castes usually share a common characteristic that distinguishes them from other groups; for instance, they may all traditionally practice one occupation, or they may follow unique religious practices. The sub-caste we study in this paper is a potter community in the South Indian State of Karnataka. The craft of pottery was their primary source of employment for many generations, but today the majority are casual laborers. Yet, any individual from the community would face large social sanctions if s/he married someone who belonged to a non-potter caste. Thus, while their caste affiliation may no longer reflect their current occupation, it continues to define them as a social group.

A second feature of the marriage market is that it is patrilocal - 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 marriage is considered final and, while

[4] While there other important factors that affect domestic violence (Karlekar 1998, Rao 1998), this paper focuses on its connection with the marriage market.

there are cases of separation, divorce is not an option[5]. Some of these features have become less restrictive in educated urban circles, but they continue to be a defining aspect of village life.

Getting one's daughter married 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. However, the costs of getting a daughter married have been steadily rising in real terms across the Indian sub-continent. In the community that we focus on here dowries have been increasing substantially for at least two decades. Dowries[6] among the potters average six times the annual income of a bride's parents, an amount that is consistent with findings from other samples[7]. 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 (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. One woman listed the eligible males available for her fifteen-year-old daughter and demonstrated that the competition for them was quite severe with thirteen females competing for six males.

Once the wedding is celebrated and the newly married bride has moved to her husband's home, she is not only a bride but also a potential hostage. Since divorce is impossible, under no circumstances can she move back permanently to her parent's home. Thus, violence can be used as a mechanism to extract further transfers from the bride's family. In fact, all the wife-abusers whom we had in-depth interviews with justified their behavior with "instrumental" explanations, as a means to extract transfers or control resources.

The interviews that we conducted revealed that there was a close link between much of the abuse by the groom's family and the demand for transfers from the bride's family. We will illustrate this link with a brief outline of the case of Sannamma[8] and Raju, a young couple who had been married for about two years. Their parents arranged the marriage when Sannamma was 17 and Raju was about 24, and the wedding was celebrated about six months later. Sanamma's parents are relatively rich with about 10 acres of irrigated land, while Raju's were considerably

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[5] According the 1991 Indian Census, in this region of India the divorce rate is estimated at 0.3 per cent.

[6] 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.

[7] This ratio excludes those bride-households that received brideprices, since this community, like many others in the sub-continent, has undergone a transition from paying brideprice to dowry. When brideprice families are included the average dowry is about double the size of annual incomes. These ratios are very similar to those in the frequently analyzed ICRISAT survey which was conducted in two neighboring states (Rao, 1993).

poorer. Raju shared a house with his parents, his brothers, and their wives and children who all lived off the five acre plot of un-irrigated land supplemented by intermittent work as wage laborers. Raju received a dowry of about 25,000 rupees as a dowry, which is about half the size of most other dowries paid in the community at the time. A few months into the marriage, he demanded that Sanamma ask her father to send them some money so that he could set up a small tea shop. Sannamma agreed and her father sent Raju about 2000 rupees which is what Raju made in 4 months. About two months later Raju demanded a motorcycle, which at about 50,000 rupees was a considerably larger request well beyond the means of Sanamma's parents. But Sannamma passed on the request to her parents who said that they could not afford such a large sum of money. When Raju heard this, he became very angry, hit her, threw her to the ground and said that if her parents did not send the money, "he could not say what might happen to her." Subsequently tensions between Sannamma and Raju increased considerably. Sannamma at this point was very scared, and again asked her parents to send the money. Sannamma says that she now lives in fear of her life. Her parents send money when they can, even though they cannot really afford to keep up with Raju's demands. However, Sannamma refuses to leave her husband and go back to her parents fearing social isolation.

It should be noted that we did not record any instances of murder - dowry related or otherwise - in these villages[9]. However, if one thinks of murder as the most extreme mechanism of marital separation in a society that forbids divorce, we observed less severe but far more common methods by which husbands ended their relationships with their wives and their wives' parents. Wives in bad marriages are often forced by their husbands to break all contact with their parents while being denied access to their husband's income and resources, forcing them to fend for themselves. Thus, while they may continue to live in the same physical space as their husbands because of the taboo against formal divorce, they are effectively abandoned and isolated from family and friends. In the Indian social context where a woman's sense of self is almost entirely derived from her relationship to her family and her social milieu [10]- social and economic isolation have extremely large costs. Moreover, in some instances a husband who abandons his wife may remarry, though this is not an option for the abandoned wife[11].

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[8] The names of respondents have been changed.
[9] There was one suspicious death of a young wife that was ruled a suicide by the police.
[10] Kakar (1989) and Fruzzetti (1982) provide illuminating discussions of this.
[11] We recorded one instance where a man had remarried after abandoning his wife and moving to another village. We did not record any instances of polygamy though it is not unknown in the region.

3. Theoretical Model

While no model can capture all the complex factors that affect marital violence, our task is to construct a theoretical model informed by the qualitative evidence that generates testable hypotheses. From our fieldwork, it is apparent that violence is not simply due to the husbands' inherent pleasure in beating their wives. Rather, we argue that domestic violence is an instrument used by the husband in the wider context of bargaining between the husband's and wife's families over the distribution of their resources. In the cultural context we consider, marriage is viewed as the establishment of durable links between the two families (rather than individuals) and usually implies transfers of resources from one family to the other[12]. Transfers can be of two types, dowries, which are negotiated before the wedding, and post-marriage transfers that are determined after the wife has moved into her husband's home. As explained above, in the cultural context of the villages we are studying, the links between the two families are never terminated through a formal divorce. We have, however, observed instances of what we call "separation" - situations where the husband has broken all links with the wife's family and forced her to fend for herself economically and socially, though she may continue to live in the same physical space as the husband.

Following the South Asian cultural context, we distinguish between two phases of negotiation. Before the marriage is concluded, the two families bargain over the dowry that will be paid by the wife's family to the husband's. Once the marriage has taken place, and the wife has moved to the husband's family, the husband's family may renegotiate the agreement and make additional financial demands on the wife's family. In a world of complete information, since domestic violence is costly to both families, it will never arise in an equilibrium of the bargaining game. Hence, to understand the instrumental effect of domestic violence, we consider a model with asymmetric information. We suppose that, after the marriage is concluded, the husband discerns his private level of satisfaction with the marriage. Dissatisfied husbands prefer to separate from their wives if they do not receive additional transfers while satisfied husbands do not benefit from separation. A dissatisfied husband may exercise domestic violence to show his dissatisfaction with the marriage, in order to extract additional transfers from the wife's family by credibly threatening her with separation if no transfers are made. We thus interpret domestic

[12] Since the model does not distinguish between husbands and wives and their families, we will sometimes use "husband" for the husband's family and "wife" for the wife's family.

violence as a signal sent by dissatisfied husbands to reveal their types. The possibility of domestic violence after the wedding clearly affects the premarital negotiation over the dowry. The wife's family is aware that low dowry payments may result in the exercise of violence and the payment of additional transfers and adjusts its initial dowry offer accordingly. Hence, in the model we consider, the level of dowry and the incidence of violence are determined simultaneously. We now turn to a formal description of the model.

3.1 Preferences and Timing.

We suppose that the preferences of the husband's and wife's families depend on the current status of the marriage. If the marriage is intact, both families benefit from the links created, and utilities depend both on each family's income and human capital and on a set of variables pertaining to the other family. Specifically, we assume that preferences can be represented by the utility functions

$$U^h(I_h, x_h, x_w, \theta)$$

$$U^w(I_w, x_h, x_w)$$

where I_i, $i=h,w$ represents the income of the husband's and wife's families, x_i, $i=h,w$ denotes a vector of human capital characteristics of husbands, wives, and their families that contribute to utility, and θ is the husband's private level of satisfaction with the marriage. We suppose that the husband's private level of satisfaction is a dichotomous random variable, with value 1 when the husband is satisfied and 0 when he is dissatisfied. The prior probability that the husband is dissatisfied depends on a set of observed attributes of the marriage, z, that are realized after the wedding. We denote this prior probability by $p(z)$ with $p'(z) < 0$. The utility functions U^h and U^w are strictly increasing in all their arguments and strictly concave in income.

If the husband separates from his wife, the preferences of the two families change. As the links between the two families are severed, the families cannot benefit any longer from links with the other family. Furthermore, following the cultural context, the situations of the husband and wife after separation are asymmetric: the husband can eventually remarry whereas the wife cannot. The utilities of the husband's and wife's families after separation are thus given by:

$$V^h(I_h, x_h, m_2)$$

and

$$V^w(I_w, x_w)$$

where m_2 is an indicator of the marriage market conditions faced by the husband if he remarries. The utility functions V^h and V^w are strictly increasing in all their arguments and strictly concave in income.

When the marriage is intact, links between the two families generate goodwill and other positive effects due to economies of scale and joint production that increase the marginal utility of income for both families. Intact families may also face the responsibility of not only looking after their children, but also other members of the extended family while spending money on festivals and gifts in order to participate in kin networks with relatives and friends. Thus, we assume that the marginal utility of income is higher in intact than in separated families. Formally, letting U^h_k, U^w_k, V^h_k, V^w_k denote the partial derivatives of the utility functions with respect to the k-th variable,

Assumption 1: $U^h_1(I_h, x_h, x_w, \theta) > V^h_1(I_h, x_h, m_2)$ and $U^w_1(I_w, x_h, x_w) > V^w_1(I_w, x_w)$.

We decompose the income of the husband's and wife's families as

$$I_h = Y_h + D + t$$

$$I_w = Y_w - D - t$$

where Y_h and Y_w denote the initial income of the two families, D the dowry paid by the wife's family to the husband and, t the additional transfers eventually made by the wife's family after the wedding.

If the husband exercises domestic violence, both families are subject to utility losses measured by $C_h(\theta)$ and C_w. We assume that the husband's utility loss is decreasing in his satisfaction with the marriage and includes both a fixed and a random component,

$$C_h(\theta) = \bar{C}_h(\theta) + \kappa$$

where κ is a random variable with prior cumulative distribution F_κ.

In our model, the husband's private level of satisfaction induces two effects: it raises the utility obtained in marriage as well as the cost of violent behavior. A husband can be "satisfied" for a number of reasons - he may simply enjoy being married to his wife and being linked with her family, or he may have a predisposition towards non-violence. It was clear from our fieldwork that some men were simply not violent "types" in the sense that they expressed strong sentiments against violence and tended to look down upon violent men. Thus, in order to simplify the analysis, we characterize satisfied and dissatisfied husbands in the following way. Satisfied husbands obtain a positive surplus from marriage even when they don't receive any additional payments, and incur a very high cost of violence. Dissatisfied husbands prefer to separate from their wives if they don't receive any additional payment, and incur a moderate cost of violence. Formally, we assume

Assumption 2:

$U^h(Y_h + D, x_h, x_w, 1) - V^h(Y_h + D, x_h, m_2) > 0$ and $\bar{C}_h(1) > M$ for all positive M.

$U^h(Y_h + D, x_h, x_w, 0) - V^h(Y_h + D, x_h, m_2) < 0$ and $\bar{C}_h(0) < M$ for some positive M.

On the other hand, since women who are separated suffer such high social and economic costs in this context, we suppose that the wife's family always suffers from separation when no transfers are made and that the cost of domestic violence is not as high as the cost of separation,

Assumption 3:

$U^w(Y_w - D, x_h, x_w) - V^w(Y_h - D, x_w) > 0$ and $C_w < U^w(Y_w - D, x_h, x_w) - V^w(Y_h - D, x_w)$.

The different stages of the bargaining between the two families are illustrated in Figure 1. Before the marriage is concluded, the wife's family makes a take-it-or-leave-it-offer to the husband's family, determining the level of dowry paid. Once the wedding has taken place, the two families learn the marriage market conditions m_2 and the attributes of the marriage z ; the husband learns his private level of satisfaction θ and his cost of violence κ. At the signaling stage, the husband announces a level of transfer t and chooses whether or not to exercise violence. The wife's family observes the occurrence of violence, revises her beliefs on the husband's type

and responds to the demand. In the final stage of the game, the husband chooses whether to separate from his wife.

FIGURE 1

3.2 Renegotiation and Signaling

We start the analysis of the theoretical model with the post-marital renegotiation and signaling game and proceed by backward induction to compute the Bayesian Perfect Equilibria of the game.[13] At the last stage, the husband chooses whether to sever the links with the wife's family.

Under Assumption 2, satisfied husbands never separate from their wives whereas dissatisfied husbands leave their wives if they don't receive any additional transfer. We define the minimal transfer that prevents a dissatisfied husband from leaving his wife, t^h as the solution to

$$U^h (Y_h + D + t, x_h, x_w, 0) - V^h (Y_h + D + t, x_h, m_2) = 0. \quad (1)$$

Given Assumption 1, Equation (1) either has a unique interior solution t^h or $t^h = \infty$.

At the third stage of the game, the wife's family responds to the husband's demand anticipating his future separation decision. As the wife has incomplete information about the husband's type, we let ρ denote her belief that the husband is dissatisfied at that stage. The wife thus believes that with probability ρ, the demand comes from a dissatisfied husband who will abandon her if she rejects the demand and with probability $(1-\rho)$ that the demand comes from a satisfied husband who will never separate. Hence we define the maximal transfer that the wife's family is willing to pay to maintain links, $t^w(\rho)$, as the solution to

$$\rho V^w (Y_w - D, x_w) + (1-\rho) U^w (Y_w - D, x_h, x_w) - U^w (Y_w - D - t, x_h, x_w) = 0. \quad (2)$$

[13] See Fudenberg and Tirole (1991, p. 325) for a formal definition of Bayesian Perfect Equilibrium in signaling games.

Given Assumption 3, Equation (2) either has a unique solution $t^w(\rho)$ or $t^w(\rho) = \infty$. It is easy to see that the maximal transfer that the wife's family is willing to pay is decreasing in the belief ρ. In order to simplify the analysis, we assume that, when the wife's family believes that she faces a dissatisfied husband with certainty, she is willing to pay him a transfer which prevents him from separating. On the other hand, when the wife's family keeps her prior beliefs on the husband's type, we suppose that the maximal transfer she is willing to pay is not sufficient to prevent the husband from leaving her.

Assumption 4: $t^w(1) > t^h > t^w(p(z))$.

While Assumption 4 is not expressed in terms of the primitives of the model, it can easily be interpreted. The first inequality, $t^w(1) > t^h$, is satisfied if the wife's family is willing to pay enough to make sure that her husband stays in the marriage when he is dissatisfied, i.e.: when her cost of separation is much higher than the husband's benefits from separation. The second inequality, $t^h > t^w(p(z))$, is satisfied if the proportion of dissatisfied husbands in the population is low enough.

We can now characterize the optimal behavior of the wife's family at the third stage of the game. The wife's family should reject any demand $t < t^h$ and any demand $t > t^w(\rho)$, and accept any demand t satisfying: $t^w(\rho) \geq t \geq t^h$.

At the signaling stage, the husband announces the transfer t and chooses whether to exercise domestic violence. By Assumption 2, satisfied husbands never beat their wives. Hence, there can only be two equilibria in the signaling game: a pooling equilibrium, where neither type of husband beats his wife, and a separating equilibrium, where dissatisfied husbands beat their wives when the cost of domestic violence is not too high.

Pooling Equilibrium

In a pooling equilibrium, neither type of husband exercises violence, and the wife keeps her prior belief $p(z)$. By Assumption 4, the wife rejects any transfer demand from the husband's family, and the level of the transfer requested by the husband's family is indeterminate.
For this equilibrium to exist, the out-of-equilibrium belief must be specified so that a dissatisfied husband has no incentive to deviate and exercise violence. This implies that the wife's family rejects any demand $t > t^h$ after observing violence. Since, by Assumption 4, $t^w(1) > t^h$, the wife's family must assign a positive probability that the husband is satisfied after observing violence.

Separating Equilibrium

In a separating equilibrium, a dissatisfied husband exercises violence if the cost of domestic violence is not too high, and does not exercise violence otherwise. A satisfied husband never exercises violence. When the wife observes the husband being violent, she believes with probability 1 that she faces a dissatisfied husband, and agrees to pay any transfer t, $t^w(1) \geq t$. Hence, the husband's optimal strategy is to request a transfer $t = t^w(1)$. If the wife does not observe violence, she infers that either the husband is satisfied, or the husband is dissatisfied but has a high cost of violence. Letting κ^* denote the maximal cost of a violent husband, we derive the wife's posterior belief that the husband is dissatisfied as

$$\rho_0 = p(z)(1- F_\kappa(\kappa^*))/ (p(z)(1- F_\kappa(\kappa^*))+ 1- p(z)) < p(z).$$

Since $t^w(.)$ is a decreasing function, by Assumption 4, $t^h > t^w(p(z)) > t^w(\rho_0)$. Hence, the wife never accepts the demand of a husband who does not behave violently. We now characterize the value of the maximal cost κ^* for which a dissatisfied husband is indifferent between exercising violence and obtaining the transfer $t^w(1)$ and not exercising violence and abandoning his wife. The value κ^* is given by:

$$\kappa^* = U^h(Y_h + D + t^w(1), x_h, x_w, 0) - \bar{C}_h(0) - V^h(Y_h + D, x_h, m_2). \quad (3)$$

Finally, notice that the construction of the pooling equilibrium relies on the out-of-equilibrium belief that, if the wife observes violence, she faces a satisfied husband with positive probability. Since, by Assumption 2, satisfied husbands never beat their wives, these beliefs do not satisfy Cho and Kreps (1987)'s intuitive criterion. We conclude with the following Proposition.

Proposition 1. *The signaling and renegotiation game admits a unique Bayesian Perfect Equilibrium satisfying Cho and Kreps (1987)'s intuitive criterion. It is a separating equilibrium, where dissatisfied husband whose cost of violence is lower than κ^* exercise domestic violence. Dissatisfied husbands whose cost is higher than κ^* and satisfied husbands do not beat their wives. Upon observing violence, the wife's family agrees to a transfer $t = t^w(1)$. If no violence is exercised, the wife's family rejects the husband's demand. Dissatisfied husbands whose cost is*

higher than κ^* separate from their wives, while satisfied husbands and dissatisfied husbands whose cost is lower than κ^* remain in an intact marriage.

Proposition 1 establishes that violence only occurs for dissatisfied husbands whose cost of violence is lower than κ^*. We thus may write the conditional probability that violence is exercised given that the husband is dissatisfied as

$$\Pr(\text{violence}|\theta=0)= F_\kappa(\kappa^*) = F_\kappa(U^h(Y_h+D+t^w(1), x_h, x_w, 0) - \bar{C}_h(0) - V^h(Y_h+D, x_h, m_2)).$$

Since the prior probability that the husband is dissatisfied is given by $p(z)$, we obtain

$$\Pr(\text{violence}) = p(z)\, F_\kappa(U^h(Y_h+D+t^w(1), x_h, x_w, 0) - \bar{C}_h(0) - V^h(Y_h+D, x_h, m_2)) \quad (4)$$

$$= B(Y_h, D, Y_w, x_h, x_w, z, m_2)$$

In the Appendix, we derive the following comparative statics for the equation determining the incidence of violence.

Proposition 2. *An increase in the income of the wife's family, Y_w increases the probability of violence. An increase in the observed marriage attributes, z, and in the marriage market conditions, m_2, reduces the probability of violence. If an increase in the husband's income reduces the probability of violence, than an increase in the dowry also reduces the probability of violence, and the marginal effect of an increase in the dowry is larger than the marginal effect of an increase in the husband's income.*

Proposition 2 provides three clear comparative statics results on the variables Y_w, z and m_2. An increase in the income of the wife's family reduces the wife's family's marginal utility of income, thereby increasing the level of the transfer $t^w(1)$. An increase in the transfer paid makes violence more attractive to the husband. An increase in the observed attributes of the marriage reduces the probability that the husband is dissatisfied, thereby reducing the probability of violence. An increase in the marriage market conditions raises the husband's incentive to separate from his wife, reducing the probability of violence. The effect of an increase in the husband's wealth is ambiguous, since it involves a comparison between the marginal utility of income in the

marriage and after separation at two different income levels. An increase in the dowry affects the probability of violence through two channels: it raises the husband's income and reduces the wife's income thereby reducing the level of the transfer $t^w(1)$. While the first effect cannot be signed, the second effect is always negative. Hence, when an increase in the husband's income results in a lower probability of violence, so does an increase in the dowry, and the marginal effect of an increase in the dowry is larger than the marginal effect of an increase in the husband's income. Changes in the husband's and wife's characteristics, x_h and x_w, affect both the utility in the marriage and after separation, producing ambiguous effects on the probability of violence.

3.3 Dowry Bargaining

We now turn to the initial dowry bargaining stage. Before the marriage is concluded, the values of θ, κ, z and m_2 are unknown to the two families. Both families share a common prior that the probability that the husband will be dissatisfied is $p(z)$ and that the prior distributions of κ, z and m_2 are given by F_κ, F_z and F_m respectively. At the time of negotiation of the dowry, the husband has a reservation utility given by $R(Y_h, x_h, m_1)$, which depends on the wealth and characteristics of his family and on the marriage market conditions at the time of the marriage, m_1. We suppose that the reservation utility is increasing in all its arguments. The wife's family makes a take-it-or-leave-it offer to the husband's family. In computing this offer, the bride's family takes into account the expected utility of the husband's family after the marriage. This expected utility depends on the three possible marriage régimes: either the husband is satisfied and stays in the marriage without receiving additional payments, or the husband is dissatisfied and experiences a low cost of violence, extracts additional transfers and keeps the marriage intact, or the husband is dissatisfied, experiences a high cost of violence and separates from his wife. Formally, we write the husband's expected utility after the marriage as

$$
\begin{aligned}
E\,U^h = & \int (1-p(z))\; U^h\,(Y_h + D,\, x_h,\, x_w,\, 1)\, dF_z \\
& + \iiint^{\kappa^*} p(z)\; (U^h\,(Y_h + D + t^w(1),\, x_h,\, x_w,\, 0) - \quad \bar{C}_h(0) \;-\kappa)\, d\,F_\kappa\; dF_m\; dF_z \\
& + \iiint_{\kappa^*} p(z)\; V^h\,(Y_h + D,\, x_h,\, m_2)\, d\,F_\kappa\; dF_m\; dF_z. \qquad (5)
\end{aligned}
$$

In the Appendix, we show that the husband's expected utility is an increasing function of the dowry received. Hence, the husband's family rejects any dowry offer such that $E\,U^h < R(Y_h, x_h, m_1)$ and accepts any dowry offer such that $E\,U^h \geq R(Y_h, x_h, m_1)$.

Similarly, the wife's expected utility in the marriage depends on the three possible marriage régimes and is given by

$$E\,U^w = \int (1-p(z))\, U^w(Y_w - D, x_h, x_w)\; dF_z$$
$$+ \iint_{\kappa^*} p(z)\, (U^w(Y_w - D - t^w(1), x_h, x_w) - C_w)\; d\,F_\kappa\; dF_m\; dF_z$$
$$+ \iint_{\kappa^*} p(z)\, V^w(Y_h - D, x_w))\; d\,F_\kappa\; dF_m\; dF_z. \qquad (6)$$

In the Appendix, we show that, if an increase in the dowry reduces the probability of violence, the wife's expected utility is an increasing function of the dowry paid. Hence, in equilibrium, the wife's family offers the minimal dowry that the husband accepts.

Proposition 3. *If an increase in the dowry reduces the probability of violence, the dowry is uniquely determined by* $R(Y_h, x_h, m_1) = E\,U^h$.

We denote the dowry equation by $D(Y_h, Y_w, x_h, x_w, m_1)$ and derive in the Appendix the following comparative statics on the dowry equation.

Proposition 4. *An increase in the wealth of the wife's family reduces the dowry. Better marriage market options for men increases the dowry.*

Most exogenous variables have ambiguous effects on the level of the dowry. Changes in the husband's wealth affect simultaneously the husband's reservation utility and his expected utility after marriage, resulting in ambiguous effects. Changes in the wife's and husband's characteristics produce ambiguous effects on the expected utility after marriage. The only two variables with clear effects are the wife's family's income – an increase in the wife's family's income raises the transfer paid, thereby increasing the husband's expected utility in the marriage – and the marriage market conditions – an increase in the marriage market conditions raises the husband's reservation utility, yielding an increase in the dowry.

4. Data and Econometric Methodology

To test the predictions from the model we use survey data collected by us from the same caste of potters, from three villages in the South Indian State of Karnataka, who were the focus of the qualitative interviews. All three villages exchange brides indicating that they are all part of the same marriage market. The survey consisted of a three part questionnaire, a family questionnaire directed to the head of the household, a woman's questionnaire for all women above the age of fifteen, and a husband's questionnaire. All 149 potter families in the three villages were interviewed, which included 177 adult women, and 130 married men. After dropping the never-married and widowed women we are left with a sample of 142 women of which 137 answered the violence question[14]. In addition to questions relating to socio-economic characteristics and marriage transactions, all the married women were asked if they had ever been severely physically assaulted by the husbands at any time during the marriage, along with questions about the extent and severity of the violence. The question on the incidence of domestic violence elicited a much more accurate response than the questions about its extent and severity[15]. Thus in this paper we will focus on the determinants of a binary variable indicating whether the wife has ever been severely physically assaulted by her husband. Men were not asked about wife-abuse in the survey, but were interviewed about it in the qualitative work. As far as possible, all the women were interviewed by female interviewers and the men by male interviewers.

It is clear that while our data are detailed and intimate, these advantages are traded off with the size of the sample[16] and its representativeness. However, a more conventional sampling frame would not have permitted us to collect sensitive information like the incidence of wife-abuse, as we would not have established the level of trust necessary to gather such information with reasonable accuracy.

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[14] The model suggests that some of these women are in bad "separated" marriages where links between the husband's and wife's families have been severed, but where violence is absent. While we have anecdotal evidence from a sub-sample of 40 interviews suggesting that about fifteen per cent of marriages fall into this category, the survey instrument did not include questions on the quality of the links between the two families.

[15] The questions on the extent and severity of violence were answered by only 70 per cent of the sample. Even when the questions were answered the responses had strong interviewer effects with some interviewers being able to elicit more complete and consistent responses than others. On other the hand, the dichotomous question on whether a woman had ever been physically assaulted by her husband was answered by all the respondents without significant interviewer effects.

[16] This sample size is comparable to the widely analyzed ICRISAT sample, the core of which consists of 120 households from three villages.

We have derived three equations in the previous section for which we have provided testable predictions:

1) The Dowry Equation:

$D = D(Y_h, Y_w, x_h, x_w, m_1)$

2) The Violence Equation:

Pr(violence) = $B(Y_h, D, Y_w, x_h, x_w, z, m_2)$

We estimate a linear approximation of the Dowry function by OLS. The violence function is estimated with a Probit specification. The Violence equation *B(.)* has the possibility of being endogenously determined with Dowries and therefore we estimate it with Instrumental variables. The variable excluded from the Dowry equation in the first stage is the measure of outside options in the marriage market at the time of the marriage m_1 [17].

Most of the variables used in the three equations are directly observed, but we do not have direct observations of Y_h and Y_w, the wealth of the husbands and wives families. Wealth is difficult to measure in these villages because most of it is in the form of one or two room homes and very small plots of land which are almost never sold[18]. Thus, we use the closest proxies we have available - the incomes of the families of the husband and the wife. Since most of the income is in the form of agricultural output, or farm and non-farm labor, wealth and income are highly correlated. The characteristics of the husband and wife, x_h and x_w are measured by their years of schooling and ages at marriage, we also include their year of marriage to account for the duration of their marriage and thus their current age. For *z*, the indicator of the observed characteristics of the marriage, we use the number of male and female children of the couple. Children of violent fathers whom we interviewed expressed a great deal of dislike of their father's behavior and sympathized with their mother's plight. On the other hand, this is a male dominated society, which greatly values male children. Thus, the presence of male children should increase

[17] The first stage dowry regression in the Probit-IV estimate of violence determinants includes the square of m_1, in addition to the other exogenous variables in the system. Note that m_1 and m_2 are not collinear (ρ=0.19).

[18] Plots owned by husbands families average 0.61 acres.

the husband's satisfaction with the marriage. For the sake of comparison we also include the number of female children, even though their effect on the husband's satisfaction is less clear.

Outside options in the marriage market, m_1 and m_2 are measured by the marriage squeeze ratio[19]-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_1 is measured at the year of the marriage while m_2 is measured ten years after the marriage. m_2 is measured with a ten year lag because we do not know the exact time when the violence occurred but our qualitative interviews suggest that most incidences of violence occur within the first ten years of marriage. Additionally, since the Indian census is conducted every ten years, a ten year lag permits us to obtain the value of the marriage squeeze ratio from the next period available in the census. For both m_2 and m_2 we use the census year closest to the year of marriage. We obtain the data from the census for Mysore district in Karnataka State - the geographic region within which these households choose their spouses[20].

5. Econometric Results, Policy Implications and Conclusion

Table 1 provides a few summary statistics about the community. The families in our sample are poor. The mean schooling of both women and men is very low, at 1.14 years for women and 1.46 years for men. The average annual income of the wife's parents is 5,506 rupees ($625 in PPP adjusted US dollars) while that of the husband's family is 6440 rupees (PPP $731), but note that the standard deviation of the wife's family's income is very large at 6572 rupees compared to 784 rupees for the husband's family income. One possible reason for this large variation is measurement error because we did not interview the parents of the wife directly, but asked the wife to give us an estimate of her parent's income. Fertility levels are rather low, the average family has 1.18 male children and 1.2 female children.

The average dowry paid is 11,840 rupees with a standard deviation of about six times that. The large variation is mainly because dowries are both negative and positive since this community has moved from paying brideprices (negative dowries) to dowries. The average of

[19] See Rao(1993) for a more detailed explanation of this measure, and Bhat and Halli (1999) for a extended discussion on past and future trends in the availability of grooms in India.

[20] Ooru and Halli villages are located in Mysore district. Beedu village is in Coorg district but arranges marriages with families exclusively within Mysore district. We should note that the marriage squeeze variable is an approximation of the true availability of spouses for the potter families because it measures the ratio for all endogamous groups in the district. However, because it is largely driven by reductions in

the positive dowries is 39,355 rupees with a standard deviation of 82,993 rupees. The dowry information is reasonably accurate since dowries are the single largest lifetime expense and respondents tended to have a good memory of how much was spent. Note that 23% of women said that their husbands had beaten them at some time during the marriage. This proportion is considerably higher than the incidence in the US where one in six women report having been struck by their husbands during the course of a marriage (Gelles and Straus, 1989). The mean year of marriage is 1974, though marriages range from 1950 through 1992. The marriage squeeze ratio averages 1.06 in this sample indicating that there is a slight surplus of women in the marriage market due to younger cohorts being of larger size than older cohorts because of increases in population growth rates. The ratio averages 1.08 for the tenth year of the marriages suggesting that the surplus has been increasing with time.

Table 2(a) presents OLS estimates of the dowry equation. The theoretical model predicted ambiguous effects for all the exogenous variables here with the exception of the income of the wife's family which was negative and the marriage market parameter which was positive. Most of the estimated coefficients in the dowry regression are not significant with the exception of the marriage squeeze ratio which has a positive impact on the dowry and is significant at the 10 per cent level. A 0.01 increase in the ratio raises the dowry by 3000 rupees indicating a rather large effect. The income of the wife's family has a negative coefficient as hypothesized by the theoretical model, but it is not significantly different from zero.

Tables 2(b) presents estimates from the Probit-IV specification of the violence equation. Here a number of effects are consistent with the theoretical predictions. A 10,000 rupee increase over the mean of the wife's parents' annual income increases violence by 3.3 per cent. The observed and positively valued characteristics of the marriage z, that we measure by the number of male children, also has the predicted effect with an additional make child reducing violence by 10 per cent at the mean. This is consistent with the notion that more male children reduce the chances that the husband is dissatisfied. A 10,000 rupee increase in predicted net dowries measured at the mean reduces the probability of violence by 5 per cent, while the husband's family's income has a negative effect which is not significant. This is consistent with the prediction of the theoretical model that the direction of the impact of dowries and husband's income on violence should be the same, but that the dowry effect should be greater than the effect of the husband's income.

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mortality and fertility in the region, it should serve as a good proxy for spouse availability among the potters.

While the human capital variables did not have clear predictions, husband's schooling has an interesting impact on violence. A one year increase in the mean value of husband's schooling increases the risk of violence by almost four per cent. This suggests that the positive effects of schooling on violence - by raising the transfer the wife's family is willing to give and by raising the husband's gains to marriage, dominate the negative effect - increasing the husband's welfare after separation. None of the other variables have significant effects.

To think about the policy implications of these results, it is important to appreciate the extent to which most Indian women do not have options outside of marriage. Marriage, for women, is never a matter of choice but is almost entirely driven by social norms and the preferences of parents. Consequently, the burden of any adversity in the marriage market, or within a marriage after it has been arranged, is almost exclusively borne by the wife or bride. As other work has demonstrated, it is in this context that a shortage of grooms in the marriage market causes dowries to rise substantially. If it were possible for a woman to opt to marry at a much later age, or choose not to marry at all, or to divorce her husband if the marriage were unsatisfactory, dowries would not rise, though the number of single or divorced women might.

Thus, providing opportunities for women outside marriage and the marriage market would significantly improve their well-being by allowing them to leave an abusive husband, by finding a way of "bribing" him to stop the abuse, or by presenting a credible threat that achieves the same objective. In more specific terms, the main opportunities for women outside the marriage market would be in the labor market. Policies that invest in the human capital of women could make a difference but would be more effective if job opportunities for women were also provided. Thus, income-generation programs and micro-lending strategies focused on women could be of great value.

To conclude, in this case-study we have demonstrated that violence can be used as an instrument to redistribute resources. The example we focus on is the highly publicized link between the marriage market and wife-abuse in the Indian sub-continent. To examine this, we employ an approach that combines the usual methods of economics with ethnographic techniques borrowed from anthropology. We construct a non-cooperative bargaining and signaling model of dowries and domestic violence which is informed by the ethnographic evidence. Predictions from this models are tested with survey data gathered from the same population examined in the in-depth interviews. We find that for the most part the econometric evidence is consistent with the theory. In Probit-IV estimates of violence we find that husbands are more likely to beat their wives when the wife's family is rich because there are more resources to extract and the returns are greater. We also find that larger dowries reduce the probability of violence. A husband's

greater satisfaction with the marriage indicated by higher numbers of male children, reduces the probability of violence. Thus, it is likely that aspects of violent behavior are strongly linked to economic incentives and deserve greater attention from economists.

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Appendix

COMPARATIVE STATICS OF THE VIOLENCE EQUATION

From Equation (2), we compute the marginal effect of a change in Y_w on the transfer $t^w(1)$.

$$\partial t^w(1) / \partial Y_w = (U^w_1 (Y_w-D-t, x_h, x_w) - V^w_1 (Y_w-D, x_w)) / U^w_1(Y_w-D-t, x_h, x_w)) .$$

By concavity of the utility function, $U^w_1 (Y_w-D-t, x_h, x_w) > U^w_1 (Y_w-D, x_h, x_w)$ and, by Assumption 1, $U^w_1 (Y_w-D, x_h, x_w) > V^w_1 (Y_w-D, x_w)$. Hence, $\partial t^w(1) / \partial Y_w > 0$. Furthermore, since $V^w_1 (Y_w-D, x_w) > 0$, $\partial t^w(1) / \partial Y_w < 1$. By a similar argument, we find $-1 < \partial t^w(1) / \partial D < 0$.

We now use Equation (4) to derive the comparative statics of the violence equation.

$$\partial B / \partial Y_w = p(z) f_\kappa (\kappa^*) U^h_1(Y_h +D+ t^w(1), x_h, x_w, 0) \partial t^w(1) / \partial Y_w > 0.$$

$$\partial B / \partial z = p'(z) F_\kappa (\kappa^*) U^h_1(Y_h +D+ t^w(1), x_h, x_w, 0) > 0.$$

$$\partial B / \partial m_2 = - p(z) f_\kappa (\kappa^*) V^h_3(Y_h+D, x_h, m_2) < 0.$$

Next we compute the marginal effect of a change in the husband's wealth,

$$\partial B / \partial Y_h = p(z) f_\kappa (\kappa^*)(U^h_1(Y_h +D+ t^w(1), x_h, x_w, 0) - V^h_1 (Y_h+D, x_h, m_2))$$

The sign of $\partial B / \partial Y_h$ cannot be determined. To sign the marginal effect of an increase in the husband's income on the probability of violence, we need to compare the marginal utility of income in the marriage and after separation at two different income levels. Finally, we consider the effect of a change in the dowry,

$$\partial B / \partial D = p(z) f_\kappa (\kappa^*)(U^h_1(Y_h +D+ t^w(1), x_h, x_w ,0) (1 + \partial t^w(1) / \partial D) - V^h_1 (Y_h+D, x_h, m_2)).$$

This sign cannot be determined either. However, since $\partial t^w(1) / \partial D < 0$, $\partial B / \partial D < \partial B / \partial Y_h$. Hence, if $\partial B / \partial Y_h < 0$, $\partial B / \partial D < 0$ and the marginal effect of a change in the dowry is higher than the marginal effect of a change in the husband's income.

THE DOWRY EQUATION

We first use Equation (5) to show that $\partial E\, U^h / \partial D > 0$.

$$\begin{aligned}
&\partial E\, U^h / \partial D = \int (1-p(z))\, U^h_1 (Y_h +D, x_h, x_w, 1)\, dF_z \\
&+ \iint_{\kappa^*} p(z) (U^h_1 (Y_h +D+ t^w(1), x_h, x_w, 0) (1 + \partial t^w(1) / \partial D) - \bar{C}_h(0) - \kappa)\, d F_\kappa\, dF_m\, dF_z \\
&+ \iint p(z) (\partial \kappa^* / \partial D) (U^h (Y_h +D+ t^w(1), x_h, x_w, 0) - \bar{C}_h(0) - \kappa^*)\, dF_m\, dF_z \\
&+ \iint_{\kappa^*} p(z) V^h_1 (Y_h+D, x_h, m_2)\, d F_\kappa\, dF_m\, dF_z. \\
&- \iint p(z) (\partial \kappa^* / \partial D) V^h (Y_h+D, x_h, m_2)\, dF_m\, dF_z
\end{aligned}$$

From Equation (3), $U^h (Y_h +D+ t^w(1), x_h, x_w, 0) - \bar{C}_h(0) - \kappa^* - V^h (Y_h+D, x_h, m_2) = 0$. Hence,

$$\partial E\, U^h / \partial D = \int (1 - p(z))\, U^h_1 (Y_h + D, x_h, x_w, 1)\, dF_z$$
$$+ \iiint^{\kappa^*} p(z)\, (U^h_1 (Y_h + D + t^w(1), x_h, x_w, 0) - \bar{C}_h(0) - \kappa)\, (1 + \partial t^w(1) / \partial D)\, dF_\kappa\, dF_m\, dF_z$$
$$+ \iiint_{\kappa^*} p(z)\, V^h_1 (Y_h + D, x_h, m_2)\, dF_\kappa\, dF_m\, dF_z.$$

Since the marginal utility of income is positive, and $\partial t^w(1) / \partial D > -1$, $\partial E\, U^h / \partial D > 0$.

Next we use equation (6) to show that, if $\partial \kappa^* / \partial D < 0$, $\partial E\, U^w / \partial D < 0$.

$$\partial E\, U^w / \partial D = -\int (1 - p(z))\, U^w_1 (Y_w - D, x_h, x_w)\, dF_z$$
$$- \iiint^{\kappa^*} p(z)\, (U^w_1 (Y_w - D - t^w(1), x_h, x_w) - C_w)(1 + \partial t^w(1) / \partial D)\, dF_\kappa\, dF_m\, dF_z$$
$$+ \iint p(z)\, (\partial \kappa^* / \partial D)\, (U^w (Y_w - D - t^w(1), x_h, x_w) - C_w)\, dF_m\, dF_z$$
$$- \iiint_{\kappa^*} p(z)\, V^w_1 (Y_h - D, x_w))\, dF_\kappa\, dF_m\, dF_z.$$
$$+ \iint p(z)\, (\partial \kappa^* / \partial D)\, V^w (Y_h - D, x_w)\, dF_m\, dF_z.$$

By Assumption 3, $U^w(Y_w - D - t^w(1), x_h, x_w) - C_w - V^w(Y_h - D, x_w) > 0$. Hence, since $\partial \kappa^* / \partial D < 0$,

$$\iint p(z)\, (\partial \kappa^* / \partial D)\, (U^w (Y_w - D - t^w(1), x_h, x_w) - C_w)\, dF_m\, dF_z$$
$$+ \iint p(z)\, (\partial \kappa^* / \partial D)\, V^w (Y_h - D, x_w)\, dF_m\, dF_z < 0.$$

Since the marginal utility of income is positive and $\partial t^w(1) / \partial D > -1$, we conclude that $\partial E\, U^w / \partial D < 0$.

Finally, we use implicit differentiation to compute the marginal effect of a change in the income of the wife's family, and of the marriage market conditions on the level of the dowry.

$$\partial D / \partial Y_w = -(\partial E\, U^h / \partial Y_w) / (\partial E\, U^h / \partial D).$$

Now,

$$\partial E\, U^h / \partial Y_w = \iiint^{\kappa^*} p(z)\, (U^h_1 (Y_h + D + t^w(1), x_h, x_w, 0) - \bar{C}_h(0) - \kappa)\, (\partial t^w(1) / \partial Y_w)\, dF_\kappa\, dF_m\, dF_z$$

Since $\partial t^w(1) / \partial Y_w > 0$, $\partial E\, U^h / \partial Y_w > 0$ and hence $\partial D / \partial Y_w < 0$.

$$\partial D / \partial m_1 = (\partial R / \partial m_1) / (\partial E\, U^h / \partial D) > 0.$$

The marginal effects of changes of the other exogenous variables on the dowry can also be computed by implicit differentiation, but cannot be signed.

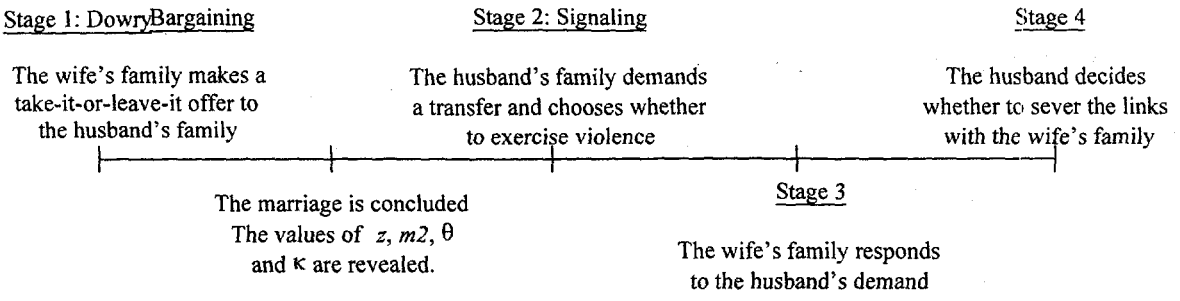

Figure1: Timing of the Model

Table 1: Means and Standard Deviations (N=137)

Variables	Mean	Standard Deviation
Marriage Squeeze Ratio at the time of the Wedding (m_1)	1.060	0.04
Marriage Squeeze Ratio ten years after the wedding (m_2)	1.071	0.02
Net Dowry in 1992 Rupees	11,840.44	72,861.06
Beedu Village	0.39	
Ooru Village	0.37	
Year of Marriage	74.39	12.17
Wife's Age at Marriage	14.71	2.98
Husband's Age at Marriage	24.46	5.05
Wife's Education	1.14	2.56
Husband's Education	1.46	3.03
Husband's Family's Income / 1000 (In 1992 Rupees)	6440.98	784.90
Wife's Family's Income / 1000 (In 1992 Rupees)	5506.73	6572.05
Number of Male Children Alive	1.18	1.11
Number of Female Children Alive	1.20	1.08
Incidence of Violence (%)	22.63	

Table 2: Dowry and Violence Regressions :
(Heteroskedasticity Corrected Std. Errors)

Variables	**Dowry OLS (N=142)** *Coefficient*	$\|t\|$	**Violence Probit IV (N=137)** *Derivative P(v) at* $\bar{X}$	$\|t\|$
Marriage Squeeze Ratio at the time of the wedding (m_1)	330.111	1.7	---	--
Marriage Squeeze Ratio ten years after the wedding (m_2)	---	--	-0.848	0.4
Beedu Village	-3.682	0.2	0.574	0.5
Ooru Village	4.743	0.4	0.155	1.4
Year of Marriage	4.365	0.7	0.081	1.4
Year of Marriage Squared	- 0.037	0.9	-0.001	1.4
Wife's Age at Marriage	-0.300	0.1	0.014	1.0
Husband's Age at Marriage	-0.295	0.4	-0.006	1.0
Wife's Education	2.660	0.8	-0.004	0.2
Husband's Education	4.518	1.0	0.039	2.3
Husband's Family's Income / 1000 (In 1992 Rupees)	-1.061	1.2	-0.009	1.3
Wife's Family's Income / 1000 (In 1992 Rupees)	-0.047	0.4	0.003	2.1
Number of Male Children Alive	---	--	-0.098	2.5
Number of Female Children Alive	---	--	0.018	0.5
Net Dowry /1000 (In 1992 Rupees – Predicted)	---	--	-0.005	2.3
Constant	-446.774	1.6	---	--
Adjusted/Pseudo R-Squared	0.08		0.13	

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