Why Dowry Deaths Have Risen in India?

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Abstract

The present study builds on the extant literature on dowry deaths in India. We analyse the extent of rise of and reasons underlying dowry deaths between 2001-2016, using a nation-wide panel survey, supplemented by another analysis that focuses on a panel of two cross-sections for 2001 and 2011. A key hypothesis to explain the rise in dowry deaths is the marriage squeeze causing dowry inflation and deaths. Our analysis offers a robust confirmation, based on alternative measures of marriage squeeze. Other explanatory factors include state affluence, education of women, nature of state governance, convictions against dowry deaths, and an important Supreme Court judgment in 2010 that made it compulsory to establish prior harassment of a victim by the male spouse and his relatives arising from dowry. Glaring inefficiencies of the police and judiciary systems in registering dowry deaths and punishing the perpetrators are highlighted. Anti-dowry legislation is not to be judged by its intent but by its implementation. Besides, aggressive masculinity can't be curbed without addressing powerful influences of gender norms and systems of inequality. In brief, the challenges of curbing the growing menace of dowry deaths are many but effective solutions are few.

Key Words: *dowry deaths, marriage squeeze, affluence, anti-dowry legislation, education, bestial masculinity, India*.

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Why Dowry Deaths Have Risen in India

1. Introduction

Dowry deaths rose from about 19 per day in 2001 to 21 per day in 2016. While these statistics are worrying, there is a great deal of variation in the incidence of "dowry deaths" across regions and over time.

It is indeed alarming that the rise in dowry deaths is unabated despite greater stringency of anti-dowry laws. In 1961, the Dowry Prohibition Act made giving and taking of dowry, its abetment or the demand for it an offence punishable with imprisonment and fine or without the latter. This was an abysmal failure as dowries became a nationwide phenomenon, replacing bride price. More stringent laws followed but with little effect.

Dowry refers to the gross assets brought in by the bride at the time of marriage, henceforth "gross dowry". Beckerian dowry, on the other hand, refers to the bride's contribution minus the groom's payments, henceforth "net dowry"[1]. Dowry as negative bride price tends to emphasize the marriage market in determining dowry, and focuses on net dowry. Dowry as bequest, on the other hand, focuses on gross dowry.

In Becker's framework, the payments are between bride and groom. If the net recipient were the bride, the net transfer is the bride price and if the recipient were the groom, it is called dowry (Edlund, 2006).

While dowry has replaced bride price across different regions and communities, there is a great deal of controversy about the inflation of dowry-whether net or gross dowry-and the underlying factors, there is little doubt that the inflation is driven by population growth, marriage squeeze and hypergamy (See, for example, the debate between Edlund,

[1] This follows from Becker's (1981) influential model of marriage.

2006, and Rao, 1993a, 1993b, based on the same ICRISAT data)[2., 3] . While Rao (1993a) offers strong evidence favouring net dowry inflation, Edlund (2000, 2006) rejects it emphatically. Her view is that net dowry didn't rise after 1950, but gross dowry may have. A rise in either implies a deterioration in the terms of trade for brides in the marriage market. Another plausible reason could be greater inter-generational bequests to children.

There has been a persistent rise in the incidence of dowry marriages in India. The amount of dowry demanded has grown to a level that threatens destitution of daughter-only households and the constant harassment of brides. It is the part of dowry over which the bridegroom or his kinsmen hold either direct or indirect control (groom price) that has been rising steadily. Such a change in marriage transactions, corroborated by the perceptions of parents themselves, suggests a rise in the value of bridegrooms as a result of their relative scarcity in the marriage market. Besides, while a large dowry raises the prestige of the bride among her affines, more importantly, a small one can make her life miserable and result in extreme torture and in many cases her murder (e.g. through burn injuries) or suicides. What is indeed worse is that dowry claims continue in her later life as contributions to life-cycle events (Bhatt and Halli, 1999).

Dowry deaths may occur by various means, including poisoning, hanging or burning. Recognition by lawmakers that women in India have traditionally been vulnerable to dowry-related abuse by their in-laws, sometimes resulting in their death, has led to the enactment of special legal provisions to prevent such abuse and cruelty[4].

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[2] Rajaraman (1983) analyses the transformation of the bride price into a dowry as a nation-wide phenomenon in the last few decades. Her main conclusion is that a dowry system which evolves from a bride-price system on account of a decline in female contribution to family income alone, without any other parallel developments, will have a punitive incidence no greater than that of the system replaced. This is of course an incomplete argument as it doesn't throw light on inflation of dowry. Moreover, Rao (1993a, b) show that female participation rate has no effect on dowry.

[3] Illustrating the rapid spread of dowry among different religious groups, Anukriti et al. (2016) point out that dowry is not just a Hindu phenomenon in India. In fact, Christians and Sikhs exhibit a remarkable increase in dowry in recent years. Moreover, average net dowry payments in Muslim marriages are only slightly lower than Hindu dowries. The dowry inflation in post-2000 years appears to be driven by upper castes and non-Hindus.

[4] Section 498A IPC penalizes harassment (of any kind) of a woman by her marital family. Unnatural death of a woman within seven years of marriage attracts penal provisions of section 304B IPC. This section defines dowry death as the unnatural death of a woman following harassment or cruelty by her husband or his relatives in connection with a demand for dowry. In cases where a woman commits suicide, as a result of harassment (not

The police act as ‘death brokers’ and use culturally appropriate scripts to classify death of a woman within seven years of marriage as dowry-related (or not). They engage in a set of social negotiations with the victim, her natal (family of birth) and marital (husband's family) families, health practitioners, and forensic experts to render the definition of an individual death socially and legally acceptable. Recent evidence shows how the police collude with the perpetrators of this crime in resisting registration of FIR, tampering with the evidence, and threatening the victim’s family with dire consequences.

The main objective of the present study is to throw light on why dowry deaths have risen despite stringency of anti-dowry legislation. A long nation-wide panel data covering the period 2001-16 is analysed using a state-of-art panel data model to understand better the underlying reasons. New light is thrown on marriage squeeze hypothesis as the driver of inflation of dowries, state affluence, the importance of a Supreme court judgment requiring prior proof of harassment of the victim to classify a death as a dowry death; rural-urban composition of a state population; educational attainments of women in a state; convictions against dowry deaths; and state political regime. To the best of our knowledge, this is the most comprehensive specification which is validated through a state-of-art econometric analysis. The findings have considerable policy relevance.

The scheme is as follows: Section 2 is a literature review of selected studies of dowry deaths, with an emphasis on analytical rigour and selected findings, to serve as the foundation for our own econometric analysis; Section 3 discusses the panel model specifications with alternative definitions of marriage squeeze; Section 4 focuses on salient features of the India Human Development Survey 2015, and supplementary data sources and population projections; Section 5 is devoted to inter-state and inter-regional variation in dowry deaths over

related to dowry) from her husband or his relatives, section 306 IPC addresses abetment of suicide. If it is a dowry-related suicide both sections 304B and 306 are applicable. Amendments to the Indian Evidence Act (IEA) introduced a presumption of abetted suicide, which is a form of dowry death, and a separate presumption of dowry death. Section 113A of the IEA gives the court the powers to presume abetment on the part of the husband or his relatives if a woman commits suicide within 7 years of marriage, if the husband or his relatives subjected her to cruelty. Section 113B provides that the courts ‘shall’ presume dowry death in case of unnatural death of a woman within 7 years of marriage, where prior to death either the husband or his relatives subjected the woman to harassment or cruelty (Belur et al.2014).

the period 2001-2016; Section 6 discusses the results of the panel models; Section 7 views the main findings from a broader policy perspective; and, finally, Section 8 focuses on what needs to be done to curb the menace of growing dowry deaths.

2. Literature Review

An important contribution is Rajaraman (1983) who analysed the transformation of the bride price into a dowry as a nation-wide phenomenon in the preceding 2-3 decades. Her main argument is that a dowry system which evolves from a bride price system on account of a decline in female contribution to family income alone, without any other parallel developments, will have a punitive incidence no greater than that of the system replaced. This is of course an incomplete analysis as it doesn't throw light on inflation of dowry.

In an insightful contribution, based on marriage recall data collected by ICRISAT, Deolalikar and Rao (1990), estimate the demand of groom-households for dowries and brides in an economic model of bride-selection and dowry exchange. They report that grooms and brides are matched not only by individual traits but, consistent with India's arranged marriage system, by household characteristics as well. Furthermore, they found that while the wealth of a groom's parental household brings a higher dowry, his individual characteristics do not make much difference to the level of the dowry. They also noted a significant rise in the real value of dowry transfers over time.

Following Becker's (1981) model of marriage, in which he derives dowry and bride price as the price of the joint value of the marriage over the utility in the single state of the spouses, when the division of "income" within the marriage is inflexible, Rao (1993 a) offers a definitive analysis of net dowry inflation using marriage recall data collected by ICRISAT[5,6].

[5] There is a great deal of ambiguity about what exactly constitutes the 'price' component of a dowry or bride price. Some part of the dowry may actually be *stridhan*, 'wealth of the bride', and hers to do with as she pleases. Other components of the dowry may be ritual gift exchanges. In fact, in almost all of the marriages, transfers were made in both directions. To correct for this to the extent possible, Rao (1993b) examines the net value of the transfer, i.e. transfers received by the groom's household less transfers paid. This net value is free of the ritual, gift-exchange component of the dowry.

[6] On dowry inflation and rising dowry deaths, see Self and Grabowski (2009).

The district sex ratio, which is an index of the degree of the marriage squeeze, is significantly associated with increases in net real dowries. This suggests that an increase in the number of women in the marriage market relative to the number of men causes dowries to rise. The effect of the labour force ratio, however, is not significant, disputing Rajaraman's (1983) argument that a reduction in the relative female labour force participation rate has had an effect on dowries. The difference in land owned by the parents of each spouse before the marriage significantly reduces net dowries. The estimated effect of the age difference is also not significantly different from zero.

The marriage squeeze mainly manifests itself in these regions by forcing dowries to rise and reducing age differences between spouses. However, a surplus of women in the marriage market should, more generally, shift the distribution of marital resources towards men.

In another companion piece, Rao (1993 b) validates the marriage squeeze hypothesis[7]. Notable regional differences and assortative mating are established.

Consider an equilibrium in a 'marriage market' in which grooms and brides have been matched so that men marry younger women. Suppose there is an exogenous increase in the rate of population growth which results in increasing the numbers of women in the marriage market. Since these surplus women come from a younger cohort, the average age of potential brides decreases. This results in further competition for scarce grooms which induces an upward shift in dowries.

Thus the marriage squeeze, in combination with the strong preference for early, universal and monogamous marriage, results in greater competition for eligible grooms. Even though the marriage squeeze is 'resolved' through an increase in the average age at marriage of women in the sense that almost all women and men find a mate, the pressures associated with the adjustment in the age difference cause dowries to rise.

The marriage-squeeze ratio is negatively and significantly associated with the age difference which indicates that women do get married at

[7] A population with declining mortality (or increasing fertility) will contain larger younger cohorts than older ones. If women tend to marry older men, they will belong to a younger and hence larger cohort, and there will be a surplus of women in the marriage market. This phenomenon is typically called the marriage squeeze.

ages closer to those of men in regimes with a greater marriage squeeze. Moreover, the difference in land owned by the parents of each spouse before the marriage significantly reduces net dowries. The district age ratio which is an index of the extent of the marriage squeeze is significantly associated with increases in net real dowries.

In brief, the estimates of the dowry function provide evidence in support of the hypothesis that the rise in real net dowry transfers has been significantly affected by a marriage squeeze brought on by a surplus of women in the marriage market caused by population growth. The wealth of a spouse's parent is a valued trait and important in determining a match. In regions more to the north dowries on average seem to be higher[8].

Bhat and Halli (1999) show that there is a real numerical deficit in the availability of eligible men. They argue that the decline of mortality caused a marriage squeeze against women. (i) As a consequence of large reductions in infant and child mortality levels, the age structure of the population became younger, with the result that younger women at marriageable ages were in excess supply compared to single men at older ages. (ii) As females in each incoming cohort were forced to postpone their marriages, the number of unmarried girls wanting to marry in any given year began to rise, causing the marriage squeeze to tighten further. Almost all females did manage to get a husband by postponing marriage from the traditional age of 13 years to 19, and paying a groom price as well.

They emphasise the strong influence of hypergamy on groom price. There is a preference among Hindus for arranging a daughter's marriage to a man superior in social status to their own. Such marriages involve payment of groom price which helps to bridge the status asymmetry between bride- givers and bride-takers. Another adverse impact of hypergamy is on female autonomy. As the rules of marriage dictated that wives came from lower-status households, they had little

[8] An illustration of dowry inflation is pertinent. Holcombe (2016) reports "An eligible bachelor can enter his attributes, such as a degree from a top institution, into a software app and find out how much dowry he can demand. "I'm worth one crore rupees," one executive told the *Times of India*—roughly $150,000". However, she also points out that there is gender asymmetry. "The experience is not equivalent for women, for whom higher education or powerful careers can hurt. A poll by shaadi.com, a match-making website, discovered that men seek educated partners but overwhelmingly prefer a partner who earns less than them".

option but silently to endure the domination and brutality of men. With modernization, hierarchical class formations have occurred in almost all castes and regions, and hypergamy with the associated groom price marriage has become a rule rather than an exception.

In a critique of Rao's (1993) analysis of dowry inflation, Edlund (2000) failed to replicate his results with the same retrospective marriage data collected by ICRISAT. Besides, she argues that there are several theoretical weaknesses in the argument. It relies on spousal age gaps being exogenous, while in fact age gaps in India have shrunk substantially in the last century.

Her empirical analysis shows net dowries did not increase in the period after 1950, belying claims of "recent" increases. Moreover, variables designed to capture marriage squeeze or male relative to female heterogeneity didn't have the expected effects. Thus, it is likely that the widespread reports of dowry inflation relate to gross dowries. Moreover, the stagnation of net dowries after 1950 raises doubts about worsening of marriage market conditions for brides. While a rise in gross (or net) dowry could reflect such a deterioration, another possibility is that higher dowries reflect greater intergenerational bequests to children. However, the work of Arunachalam and Logan (2006) indicates that bequest dowries have declined in importance. In addition, recent analysis reinforces the notion that the practice of dowry is spreading and real inflation (net dowry) is taking place (Srinivasan and Lee, 2004).

Based on NCAER's 2006 round of REDS, Anukriti et al. (2016) document the trends in dowry payments in India and find that average dowry has been remarkably stable over time, albeit there is considerable heterogeneity across castes, religions, and states. Dowry is not just a Hindu phenomenon in India. In fact, Christians and Sikhs exhibit a remarkable increase in dowry in recent years. Moreover, average net dowry payments in Muslim marriages are only slightly lower than Hindu dowries.

While the trend is quite flat for several states, there are some noticeable exceptions. Kerala exhibits stark and persistent dowry inflation since the 1970s, and has the highest average dowries in recent years. Similarly, the inflationary trend in Punjab—a majority Sikh state—is

also consistent with the rise in Sikh dowries. Other states with less dramatic inflationary trends are Haryana and Gujarat, although the latter exhibits a sharp rise during 2000-09. On the other hand, dowry decreased in Orissa (with a slight recent increase), West Bengal, Tamil Nadu, and in one of the two ICRISAT states, Maharashtra. Unfortunately, no explanation is offered of inter-state variation in dowry.

Media reports abound in bestiality towards a bride, with the natal family failing to comply with hugely inflated dowry demands and subsequent extortionary demands. As if daily humiliation, wife beating, torture, threats of bodily harm, and forced sex with male relatives were not ghastly enough, often brutal killings through wife-burning, or asphyxiation, and not infrequently through hired assassins follow in quick succession. The natal family is left a silent spectator constrained by tradition, custom, lack of resources for legal redressal and not least by perceived difficulty of marrying another daughter. It is thus not an exaggeration that the distinction between dowry death and murder is blurry (Dang et al. 2018).

To illustrate, Sangeeta Verma, 36, suffered 90 per cent burns. A preliminary post-mortem report suggests she was burnt alive with diesel and acid. It is alleged the acid attack was carried out by her husband and in-laws. Police have arrested her husband Sanjeev Nagar, but a manhunt is on to catch her absconding in-laws. The attack followed years of harassment and torture over a Rs. 25-lakh dowry demand. Cops had labelled her injuries a 'suicide bid' - but changed stance after outrage (*Mailonline India*, 19th April, 2018).

Bloch and Rao (2002) develop a framework in which marital violence is used to extract dowry transfers from the wife's family. Their empirical findings provide strong evidence that domestic violence in India is an economically motivated crime. In extreme cases, these dowry disputes escalate to murders. When a wife dies, her husband becomes free to remarry and receive dowry from a new wife's family. In severe shocks, husbands or their families may even resort to dowry killings so that the husband can enter the marriage market and get another dowry.

Belur et al. (2014) focus on “burn” dowry deaths. They examine the ways in which women's deaths by burning do or do not come to be suspected as, treated as, and formally classified as dowry deaths.

A total of 59 semi-structured interviews were conducted with three groups of respondents: women (and their family members) admitted to two major burns units over two months (May-June) in 2012, health care providers, and police officers. The research sites were two of the largest burns units in two of India's largest cities, Delhi and Mumbai.

Whether a death is deemed an accident, suicide, homicide or dowry death depends heavily on allegations in the accounts of the woman or her family, and further, if allegations of harassment are made, whether they are dowry-related. The final classification follows an inverted process. Depending primarily upon whether and what allegations are made by the victim or her relatives, the police invoke particular sections of the law, which in turn determine the legal classification of death.

While families sometimes provide the woman with the necessary courage to tell the truth, at other times their influence can be more pernicious.

One familiar factor in the victim's initial account of her burns was fear: fear of the in-laws who are around the victim at the time of admission, or fear of the future, how she would return to her marital home or who would look after her children.

Two related factors influenced police decisions: the perception of the victim and the need to protect themselves from allegations of corruption and inefficiency.

There are at least three sources of validation: the hospital staff treating her, evidence from the scene of the incident, and the report of the pathologist conducting the post-mortem. Any or all of these could be routinely used to check that the verbal accounts given are consistent with other evidence. The findings suggest that they are currently underused.

Simister and Mehta (2010) examine long-term trends in such violence in recent decades and consider a possible explanation: Indian men became more violent in response to Indian women adopting more “modern” (as opposed to “traditional”) attitudes and behaviour.

They use data from various household surveys in India, which were carried out between 1990 and 2007, to examine long-term trends in GBV—it considers attitudes to violence and prevalence of violence and uses official statistics on recorded crime.

The World Values Survey (WVS) is a series of attitude surveys carried out in many countries. In India, WVS surveys based on stratified sampling were carried out in 14 Indian states in 1990 and 1995, increasing to 18 states in 2001 and 2006. Each survey includes urban and rural households. For these four samples, respondents were aged 18 or older; between 43% and 47% of respondents were women. Each WVS sample is a mix of married, single, widowed, and separated or divorced people.

Among men, the proportion who think a person should *not* stay married to a violent spouse rose steadily over 1992-2007; a similar pattern is observed among women respondents. To some extent, this change reflects wider acceptance of divorce, as seen from affirmative responses to whether heavy drinking justifies divorce. The data also show a much more dramatic increase in rejection of violence, compared to rejection of heavy drinking, suggesting an increasing tendency from 1992 to 2007 to view GBV as unacceptable.

The above evidence suggests that Indian women now feel less pressure to stay in a violent marriage, compared to women in previous decades. This may be part of a rejection of marriage as a whole.

Women were even more likely to suffer violence if she was employed but her husband was not: some men who have no economic power over their wife resort to using violence against her; or that having to share economic power with his wife can make a husband abusive.

In brief, often adjusting to “modern” values is associated with a period of increased violence. This is corroborated by this analysis, which shows a trend of women’s increasing economic control in the household and increasingly modern attitudes to gender roles, coinciding with an increase in GBV. Such violence may be increasing because women reject the traditional ideas that men have about their roles in their relationships.

In an innovative contribution, Sekhri and Storeygard (2014) examine how rainfall variability affects dowry deaths in India. They also examine whether political representation of women reduces these crimes.

They posit that a consumption smoothing mechanism drives their findings, following a rigorous validation of this mechanism. First, using a dataset collected from a subset of the districts, dowry payments increase in response to adverse rainfall shocks. Second, the incidence of dowry killings in response to shocks is much lower in areas where dowry would be less prevalent due to differences in cultural norms. Third, and related to the previous finding, shocks in agriculturally important periods of rain drive their results. The authors posit that dowry killings are at least partially driven by incentives to smooth consumption. Indeed, dowry deaths are used to increase income in time of economic distress, as these killings give households access to a large dowry payment. Finally, there is no empirical support for the proposition that reservation in the national parliament will mitigate appropriation risk faced by women in times of economic adversity. Whether female officials in local and state governments are in a better position to offer protection to women than their national counterparts deserves careful scrutiny.

3. Model Specification

The fundamental advantage of a panel data set over a cross-section is that it allows considerable flexibility in modelling differences in behaviour across individuals or any other unit of observation (e.g. states in India, countries). The basic regression model takes the form

$$y_{it} = \boldsymbol{x}_{it}'\boldsymbol{\beta} + \boldsymbol{z}_i'\boldsymbol{\alpha} + \varepsilon_{it} \qquad (1)$$

$$= \boldsymbol{x}_{it}'\boldsymbol{\beta} + c_i + \varepsilon_{it}$$

There are K regressors in $\boldsymbol{x}_{it}$, not including a constant term. The heterogeneity, or individual effect, is $\boldsymbol{z}_i'\boldsymbol{\alpha}$ where $\boldsymbol{z}_i$ contains a constant term and a set of individual or group-specific variables, which may be observed such as caste, sex, location and so on, or unobserved such as individual traits, for example, attitude. If $\boldsymbol{z}_i$ is observed for all individuals, then the entire model can be treated as an ordinary linear

model and estimated by least squares. The complication, however, is that c_i is unobserved.

The main objective of this analysis is consistent and efficient estimation of the partial effects

$$\boldsymbol{\beta} = \partial \boldsymbol{E}\,[y_{it}|\boldsymbol{x}_{it}]/\partial \boldsymbol{x}_{it}$$

Whether this is possible depends on the assumptions about the unobserved effects. One is a strict exogeneity assumption for the independent variables

$$\boldsymbol{E}[\varepsilon_{it}|\boldsymbol{x}_{i1}, \boldsymbol{x}_{i2}, \ldots\ldots\ ] \ = 0$$

That is, the current disturbance is uncorrelated with the independent variables in every period. The crucial aspect of the model concerns the heterogeneity. A convenient assumption is mean independence.

$$\boldsymbol{E}[\varepsilon_{it}|\boldsymbol{x}_{i1}, \boldsymbol{x}_{i2}, \ldots\ldots] = \alpha$$

So the model is specified as

$$y_{it} = \boldsymbol{x}'_{it}\boldsymbol{\beta} + \alpha_i + \varepsilon_{it} \qquad (2)$$

where $\alpha_i = \boldsymbol{z}'_i\boldsymbol{\alpha}$ embodies all the observable effects and specifies an estimable conditional mean. The fixed effects approach takes α_i to be a group- specific constant term in the regression model. Note that the term "fixed" as used here signifies the correlation of c_i and $\boldsymbol{x}_{it}$, not that c_i is non-stochastic (Greene, 2012).

If the unobserved heterogeneity, however formulated, can be assumed to be uncorrelated with included variables, then the model may be specified as

$$y_{it} = \boldsymbol{x}'_{it}\boldsymbol{\beta} + \boldsymbol{E}\,[\boldsymbol{z}'_i\boldsymbol{\alpha}\,] + \{\boldsymbol{z}'_i\boldsymbol{\alpha} - \boldsymbol{E}\,[\boldsymbol{z}'_i\boldsymbol{\alpha}\,]\} + \varepsilon_{it}$$

$$y_{it} = \boldsymbol{x}'_{it}\boldsymbol{\beta} + \alpha + u_i + \varepsilon_{it} \qquad (3)$$

that is, as a linear model with a compound disturbance that may be consistently but inefficiently estimated by least squares. The random effect approach specifies that u_i is a group-specific random element similar to ε_{it} except that for each group there is a single draw that enters the regression identically in each period. The crucial distinction between fixed and random effects is whether the unobservable individual effect embodies elements that are correlated with the

repressors in the model, not whether these effects are stochastic or not (Greene, 2012).

As the estimation procedures are discussed in detail in Greene (2012), it is unnecessary to reproduce them here.

To choose between the random effects and fixed effects, the Hausman test compares the coefficient estimates from the random effects model to those from the fixed effects model. The idea underlying this test is that both the random effects and fixed effects estimators are consistent if there is no correlation between the error component and the explanatory variables $\boldsymbol{x}_{it}$. If both estimators are consistent then they should converge to the true parameter values $\boldsymbol{\beta}$ in large samples**.** On the other hand, if the error component is correlated with any $\boldsymbol{x}_{it}$, the random effects estimator is inconsistent, and the fixed effects estimator remains consistent. The equality of the two sets of coefficients is rejected if the chi-square value exceeds the critical value. This suggests that the random effects estimator is inconsistent.

4. Data

We use the data from National Crime Records Bureau or NCRB (2001 to 2016) on dowry deaths of women across Indian states. Number of dowry deaths is normalised per 100,000 women in each state. To construct the panel of explanatory variables, we have relied on various sources: the Indian Census 2001 and 2011; population projections by the Registrar General of India, and estimates of convictions against rapes from Ministry of Home Affairs, Reserve Bank of India for estimates of state GDP (or SGDP) per capita. These are at 2013-14 constant prices. Political regime variables were constructed for each state and year from available sources.

Various adjustments had to be made because of missing data, smallness of some states, and reorganisation of states over this period.

As the states of Assam, Chhattisgarh, Goa, Gujarat, Jammu and Kashmir, Kerala, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Rajasthan, Tripura and West Bengal have not released official 2016-17 SDP estimates, going by RBI released data as on Dec' 2017, we extrapolate the same. We do this by computing the difference in the SDP in the preceding years of 2014-15 and 2015-16. We then

add this difference (SDP 2016-15 minus SDP 2015-14) to the 2015-16 official SDP estimates, giving us the 2016-17 SDP estimates.

The SDP figures for the state of West Bengal are not available in the RBI dataset after 2011. To ensure that the richness of our panel is not lost due to this shortcoming, we calculated the SGDP at constant 2014 prices from the current prices approximations released by National Institute for Transforming India (*Niti Aayog*) for West Bengal.

Population figures for different years for which Census data are not available are taken from the report of the technical group on population projections constituted by the National Commission on Population in May 2006. We do this to approximate the change in population after the 2001 and 2011 census. Using these projections, we calculate the new sex ratio and the age distribution structures across the Indian states from 2001 to 2016.

An issue is underreporting of dowry deaths for familiar reasons: fear of retaliation by the husband's family, difficulty in marrying a second daughter and the requirement of prior harassment by the male spouse in registering a dowry death and resistance from local police in filing an FIR.

5. Inter-State and Regional Variation in Dowry Deaths

There are two complementary ways of analysing inter-state and inter-regional variations in dowry deaths within the same year or over time. One is to identify the states with low and high incidences of dowry deaths and state shares in 2001 and 2016. Another is to do a similar exercise by region (Table 2)[9]. State based results are given in Table 1.

Let us first consider state shares in total dowry deaths. In 2001, the lowest share (Table 1, A1) was that of Himachal Pradesh, followed by Jammu and Kashmir and then Kerala. The ranking didn't change much in 2016 but the shares of Himachal Pradesh and Jammu and Kashmir reduced while Kerala was replaced by Gujarat.

Among those with high shares (Table 1, A2), Uttar Pradesh accounted for the highest share in 2001, followed by Bihar and then Madhya Pradesh. Uttar Pradesh remained at the top with a substantially higher

[9] We have aggregated state estimates into 6 regions: North-Eastern, Western, Southern, Eastern, Northern, and Central.

share in 2016, Bihar's share rose while that of Madhya Pradesh recorded a small reduction.

Inter-State and Regional Variation in Dowry Deaths

TABLE 1

A1. Best States: Concentration of Dowry Death (% of all India registered Dowry Death)

2001		2016	
State	Concentration (%)	State	Concentration (%)
HIMACHAL PRADESH	0.15	HIMACHAL PRADESH	0.04
JAMMU & KASHMIR	0.19	JAMMU & KASHMIR	0.08
KERALA	0.39	GUJARAT	0.16

A2. Worst States: Concentration of Dowry Death (% of all India registered Dowry Death)

2001		2016	
State	Concentration (%)	State	Concentration (%)
MADHYA PRADESH	8.89	MADHYA PRADESH	8.44
BIHAR	12.54	BIHAR	13.24
UTTAR PRADESH	32.27	UTTAR PRADESH	38.46

B1. Best States: Incidence of Dowry Death (Cases Registered Per Lakh Women)

2001		2016	
State	Incidence	State	Incidence
KERALA	0.16	GUJARAT	0.04
JAMMU & KASHMIR	0.27	HIMACHAL PRADESH	0.09
GUJARAT	0.27	JAMMU & KASHMIR	0.10

B2. Worst States: Incidence of Dowry Death (Cases Registered Per Lakh Women)

2001		2016	
State	Incidence	State	Incidence
BIHAR	2.12	ODISHA	1.88
UTTAR PRADESH	2.77	BIHAR	1.95
HARYANA	2.87	HARYANA	2.05

Source: Authors' calculations based on National Crime Records Bureau.

Note: Only Major Indian States have been considered for the purposes of Cross tabulation.

The three states with low incidence (Table 1, B2) were Kerala, Jammu and Kashmir and Gujarat, with the lowest incidence in Kerala in 2001.The ranking changed in 2016, with Gujarat as the best, followed

by Himachal Pradesh and then Jammu and Kashmir. Notably both Gujarat and Jammu and Kashmir witnessed reductions.

Among those with high incidence (Table 1, B2), Haryana topped the list, followed by Uttar Pradesh and Bihar within a narrow range. In 2016, Haryana was still at the top, followed by Bihar and Odisha, within a narrow range. Both Haryana and Bihar recorded small reductions.

Turning to inter-regional variations, we find that North-East had the lowest share (Table 2, A1) in total dowry deaths in 2001, followed by West and South, and the range was large. Although the ranking remained unaffected in 2016, the shares changed, with North-East witnessing a small increase while the other two regions recorded small reductions.

Among high shares (Table 2, A1), Central region topped the list in 2001, followed by East and North with wide margins. Although the ranking was the same in 2016, the shares changed with North experiencing a small reduction while East saw a more than moderate rise, and Central a slight rise.

In terms of incidence (Table 2, B1), North-East had the lowest incidence, followed by West and South in 2001. The ranking changed slightly in 2016, with West as the best/or with lowest incidence, followed by South and North-East. While West Recorded a reduction, North-East saw an increase. The incidence in South was almost unchanged.

Among the worst (or with highest incidence) in 2001 (Table 2, B2), the highest incidence was in the Central, followed by North and then East. While Central remained the worst with a slight reduction in 2016, East and West switched ranks, with a lower incidence in the latter and a higher incidence in the former.

In brief, while incidence varied between states and over time, the variation in shares was larger.

TABLE 2			
A1. Best Region: Concentration of Dowry Death (% of all India registered Dowry Death)			
2001		2016	
Region	Concentration (%)	Region	Concentration (%)
NORTH EAST	1.09	NORTH EAST	2.39
WEST	5.50	WEST	3.51
SOUTH	12.54	SOUTH	10.25

A2. Worst Region: Concentration of Dowry Death (% of all India registered Dowry Death)			
2001		2016	
Region	Concentration (%)	Region	Concentration (%)
NORTH	14.00	NORTH	13.11
EAST	23.87	EAST	29.47
CENTRAL	43.00	CENTRAL	43.50

B1. Best Region: Incidence of Dowry Death (Cases Registered Per Lakh Women)			
2001		2016	
Region	Incidence	Region	Incidence
NORTH EAST	0.40	WEST	0.30
WEST	0.52	SOUTH	0.59
SOUTH	0.76	NORTH EAST	0.77

B2. Worst Region: Incidence of Dowry Death (Cases Registered Per Lakh Women)			
2001		2016	
Region	Incidence	Region	Incidence
EAST	1.47	NORTH	1.20
NORTH	1.51	EAST	1.64
CENTRAL	2.38	CENTRAL	2.03

Source: Authors' calculations based on National Crime Records Bureau.

Note: Regions are classified based upon the configuration of Indian Zonal Councils, all Major and Minor Indian states are covered in this exhaustive classification. (Footnote 9)

6. Determinants of Dowry Deaths

In order to analyze the factors underlying the rise in dowry deaths during 2001-16, we employ a panel model with random effects, favoured by the Hausman test. The results are given in Table 3.

Table 3

Determinants of Incidence of Dowry Death (Per lakh Women)

Specification 1

Random-effects GLS regression — Number of observations = 371
Group variable: Indian State — Number of groups = 25

R-sq: within = 0.2336 — Obs per group: min = 3
Between = 0.0362 — avg = 14.8
Overall = 0.0104 — max = 16

	(1)	(2)	(3)
VARIABLES	**FE**	**RE**	**ME(RE) Φ**
Sex Ratio	2.690**	1.892*	1.968
	(1.062)	(0.984)	
2010 Time Dummy	0.210*	0.206*	0.235
	(0.111)	(0.113)	
Sex ratio* 2010 Time Dummy	0.143*	0.174**	
	(0.0749)	(0.0759)	
Net State Domestic Product/ Capita	-1.01e-05***	-9.92e-06***	-9.92E-06
	(2.00e-06)	(2.01e-06)	
Sq. Net State Domestic Product/ Capita	0***	0***	
	(0)	(0)	
Ratio of Rural to Urban Population	-0.278***	-0.114**	-0.1145
	(0.0777)	(0.0521)	
Rate of Conviction of Dowry Deaths	-0.00946***	-0.00860***	-8.46E-03
	(0.00229)	(0.00232)	
Sq. Rate of Conviction of Dowry Deaths	8.10e-05***	7.05e-05***	
	(2.51e-05)	(2.55e-05)	
BJP + BJP Coalitions	0.173**	0.162*	0.0862
	(0.0837)	(0.0847)	
INC + INC Coalitions	0.119	0.0999	0.0564
	(0.0790)	(0.0798)	
Regional Parties	0.127	0.0973	0.0273
	(0.0828)	(0.0837)	
BJP + BJP Coalitions* 2010 Time Dummy	-0.188	-0.172	
	(0.118)	(0.120)	
INC + INC Coalitions* 2010 Time Dummy	-0.128	-0.0985	
	(0.116)	(0.117)	
Regional Parties* 2010 Time Dummy	-0.186	-0.158	
	(0.121)	(0.123)	
Constant	-0.137	0.0923	
	(1.042)	(0.945)	
Observations	371	371	
R-squared	0.246		
Number of Indian States	25	25	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The Hausman test doesn't reject the null of random effects (chi 2=13.13, prob >chi 2=28.50)
Φ Net marginal effects taking interactions into consideration.

A key variable is the sex ratio (i.e. number of women per 1000 men, as it is closely related to dowry amount. As emphasized earlier, under certain assumptions, the higher the ratio, the higher is the dowry amount. If the actual dowry falls short of the demand, brutal harassment follows, and, in extreme cases, murder. As expected, the combined effect of the sex ratio and its interaction with the time dummy (which takes the value 1 for 2010 and subsequent years, and 0 otherwise) are individually significant and positive. The combined marginal effect is positive[10].

State affluence (measured as real state GDP per capita) has a significant negative but negligible coefficient, as also the significant positive coefficient of its square. As a result, their joint effect is negligible too. It is not self-evident why this is so except that it could be the outcome of offsetting factors such as inflation of dowries and more prompt registration of dowry deaths. The higher the ratio of rural to urban population, the lower was the incidence of dowry deaths, implying higher incidence in urban areas.

Convictions for dowry deaths are slow and low, reflecting glaring inefficiencies in the police and judiciary systems. It is, therefore, hardly surprising that the convictions have a significant but negligible effect. The square of convictions has a significant positive but negligible effect. So the combined effect is negligible and thus inconsequential.

Since law and order is a state subject, the role of nature of the political regime is sought to be captured by which party or parties ruled a state during the period 2001-2016. For convenience of analysis, we have considered four categories: BJP or its coalition-ruled states; Congress or its coalition-ruled states: regional party or parties'-ruled states; and the (omitted) category of President-ruled states. These regimes reflect not just differences in governance but also in ideology-specifically, concern for protection of women and girls against criminal violence. Only BJP or its coalition-ruled states possess a significant positive coefficient. The marginal effect is positive (taking into account the

[10] Recall that following the Supreme Court judgment on 14 May 2010, it had also to be shown that soon before a spouse's alleged dowry death, she was subjected to cruelty or harassment by her husband or any relative of her husband for, or in connection with, any demand for dowry.

interaction with the time dummy), implying that the incidence was higher in these states relative to President-ruled states.

In a supplementary analysis, we experimented with an alternative specification of the marriage squeeze variable [along the lines of Rao (1993 a) and others]. Here we use the ratio of women (10-20 years of age) to older men (21-30 years). The results are given in Table 4.

The analysis is confined to a state panel for the two Census years: 2001 and 2011. The Hausman test doesn't reject the null of random effects. Using both the redefined sex ratio and its square, both coefficients are significant, with that of the sex ratio positive and that of its square negative. The marginal effect is, however, positive, implying that the more acute is the marriage squeeze, the greater the dowry and consequently the greater the risk of murder. The coefficient of rate of dowry death convictions is significant and positive but small. So the marginal effect is small.

Taking the log of state domestic product per capita and its square, only the former has a significant and positive but small coefficient. The marginal effect is positive but also small. In sharp contrast to the previous results, the nature of state political regime doesn't have a significant effect on dowry deaths, presumably because of the small sample and domination of Congress at the Centre and state levels for most of this period. This analysis, however, yields an important insight: states with higher proportion of women with middle up to matriculation level of education had lower dowry deaths. There is some evidence that education serves as partial substitute for dowry and thus lowers dowry deaths. Moreover, it is arguable that with some education women become more assertive and better able to protect themselves against harassment from the spouse and in- laws.

Table 4

Determinants of Dowry Deaths (Per lakh women)

Specification 2

Random-effects GLS regression	Number of observations = 47
Group variable: Indian State	Number of groups = 25
R-sq: within = 0.4877	Obs per group: min = 1
between = 0.3564	avg = 1.9
overall = 0.3544	max = 2
Wald chi2(12) = 23.93	
corr(u_i, X) = 0 (assumed)	Prob > chi2 = 0.0208

	(1)	(2)	(3)
VARIABLES	RE	FE	ME(RE)
Squeeze in Potential Marriage Market	9.310Φ	2.344	1.828
	(6.066)	(7.579)	
Sq. Squeeze in Potential Marriage Market	-3.741 Φ	-1.546	
	(2.371)	(2.809)	
Rate of Conviction of Dowry Deaths	0.0245**	-0.0152	0.0242
	(0.0118)	(0.0186)	
Sq Rate of Conviction of Dowry Deaths	-0.000167	8.73e-05	
	(0.000121)	(0.000164)	
Log Net State Domestic Product/ Capita	5.423*	2.993	4.90272-E05
	(3.240)	(4.465)	
Sq. Log Net State Domestic Product/ Capita	-0.236 Φ	-0.131	
	(0.156)	(0.211)	
BJP + BJP Coalitions	0.375	0.585	0.375
	(0.386)	(0.405)	
INC + INC Coalitions	0.256	0.408	0.256
	(0.374)	(0.390)	
Regional Parties	0.296	0.494	0.296
	(0.342)	(0.333)	
Pool of married women (married between the age 10-20, normalized by total women) who have Primary and below primary education at the time of Census survey	-2.542	1.048	-2.542
	(3.194)	(5.761)	
Pool of married women (married between the age 10-20, normalized by total women) who have matric level education at the time of Census survey	-6.457**	-2.418	-6.457
	(2.697)	(4.975)	
Pool of married women (married between the age 10-20, normalized by total women) who have above matric level education at the time of Census survey	-3.288	-5.026	-3.288
	(3.475)	(6.673)	
Constant	-34.08	-15.77	
	(16.45)	(23.82)	
Observations	47	47	
R-squared		0.704	
Number of Indian States	25	25	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1, Φ p<0.15

The Hausman test doesn't reject the null of random effects (chi2=15.71, Prob >chi2=0.11)

7. Discussion

As much of the debate on violence against married women and dowry deaths have centered around inflation of dowries and failure of bride's parents/relatives to meet the groom's family's demands not just at the time of wedding but also subsequently at other family events, and consequent brutal harassment of the bride and, in extreme cases, her murder. Ideally, therefore, the analysis should have focused on dowries. Lacking recent state-wise data, we have worked with proxies such as female/male ratios. The higher the ratio, the acuter is the marriage squeeze as an excess of females adjusts through a rise in age at marriage and higher dowries.

Another phenomenon of hypergamy (i.e. women marrying up in the social heirarchy) has been found to be associated with dowry inflation. As noted earlier, the discourse is divided on whether the dowry inflation relates to gross or net dowries (net of what bride's family receives from the groom's family). An illustrative case in point is: while Rao (1993a) offers strong evidence favouring net dowry inflation, Edlund (2000, 2006) rejects it emphatically, based on the same ICRISAT data. Her view is that net dowry didn't rise after 1950, but gross dowry may have. A rise in either implies a deterioration in the terms of trade for brides in the marriage market.

Gruesome and brutal accounts of dowry deaths abound. Dowry deaths may occur by various means, including poisoning, hanging or burning.

Based on the the usual sex ratio of women per 1000 men, we find a positive effect of marriage squeeze through dowries on dowry deaths. Another approximation to marriage squeeze, the ratio of women 10-20 years to men 20-30 years (e.g. Rao, 1993 a), also has a significant positive effect on dowry deaths.

Another important insight from our supplementary analysis is that education matters. The higher the proportion of married women (married between the age of 10-20 years) with middle to matriculation level of education at the time of census survey (2001/12), the lower is the incidence of dowry deaths. There may be two underlying reasons. One is that education acts as a partial substitute for dowry. The second is that women with some education are likely to be more assertive, and

resist harassment from the male spouse and his relatives, and thus dowry deaths may be lower[11].

Media reports tend to highlight more dowry deaths in major cities/states and those occurring in remote, poorer areas are often neglected. As NCRB data are not available separately for rural and urban areas in a state, there is no way of verifying directly whether the occurrence of dowry deaths is more frequent in rural or urban areas. Together with the frequency of dowry deaths, the numbers registered also combine the effect of the efficiency of judicial and police systems. If urban women also are better educated and more assertive, the negative but neglible effect of affluence of a state (measured as SGDP per capita at constant prices) is a manifestation of these offsetting factors.

A related finding that resonates our view is the significant negative effect of the ratio of rural to urban population, implying greater frequency of registration of dowry deaths in urban areas. Brutality of dowry deaths, however, is less likely to differ.

Convictions against dowry deaths are generally slow and low for several reasons. One is the fear of retaliation from the groom's family-especially if they are locally powerful. A related concern is greater difficulty in marrying another daughter. A third reason is callousness and corruption among the police, compounded by the difficulties in establishing a death as a dowry death because of the prior requirement of harassment directed against the victim by the groom and in-laws arising from the dowry. Even if an FIR is registered, it may take 2-3 years to get a verdict. It is therefore not surprising that the effect of convictions is not robust—it varies from negative to positive-but negligible in either case.

The 2010 judgment requiring prior harassment of the victim associated with a dowry shortfall has made it harder to register a dowry death but presumably also harder to prove beyond a resonable doubt that it was a dowry death, and not in fact suicide. This would lower conviction rate and thus could influence potential perptrators of such crimes. Our finding of a significant positive effect of the time dummy (that takes

[11] See, for example, Imai et al. (2014) confirming education's role in strengthening women's bargaining power.

the value 1 for 2010 and beyond) both on its own and through its interaction with the (usual) sex ratio is thus a perverse outcome.

Yet another insight into the glaring inefficiency of the judicial and police systems stems from the nature of state political regime, especially because law and order is a state subject. To capture this dimension of govrnance, we identified four different political regimes: BJP or its coalition-ruled states, Congress or its coalition-ruled states, regional party or parties –ruled states and President-ruled states. Party ideologies differ as also implementation of existing laws designed to protect women from cruelty. Our analysis with the state panel which is sufficiently long corroborates that BJP or its coalition ruled states fared worst relative to President-ruled states. Thus we need more evidence on the process of implementation of such laws.

Extensions of this analysis require state-wide dowry data over a period of time for a more robust analysis of dowry deaths, and on the functioning of the judicial and police systems. Another refinement would be to understand better the circumstances under which a woman commits suicide to escape brutal harassment -including rapes by male relatives.

8. Concluding Observations

Dowry deaths rose from about 19 per day in 2001 to 21 per day in 2016. While these statistics are worrying, there is a great deal of variation in the incidence of "dowry deaths" across regions and over time. It is indeed alarming that the rise in dowry deaths is unabated despite greater stringency of anti-dowry laws[12].

In 1961, the Dowry Prohibition Act made giving and taking of dowry, its abetment or the demand for it an offence punishable with imprisonment and fine or without the latter. This was an abysmal failure as dowries became a nationwide phenomenon, replacing bride price. More stringent laws followed but with little effect.

[12] More than 50 laws and acts were enacted under the Indian Penal Code (IPC) and Special & Local Laws (SLL) having direct or indirect bearing on the life of women and female children. Many of these laws or acts were later amended mainly due to large scale campaigns and consequent pressure by feminist organizations to make the laws contextual and effectual. Yet, implementation of these laws has remained partial. As a result, there is growing awareness among women activists about the efficacy of laws to prevent such violence. Obviously, the law does not always operate in the same way, nor does it always produce consistent results. Also, cultural behaviours often work their way around legal loopholes (Ghosh, 2013).

In December 1983 the Criminal Law (second amendment) Act was passed, introducing Section 498A to the Indian Penal Code. According to this section, cruelty, specifying both physical and mental harassment, was made a non-bailable offence, punishable by up to two years in jail and a fine. A complaint under the law allows for immediate arrest and jailing of the accused, often the husband and his family members, but it was observed that this provision was frequently misused with many women filing false cases. To put a stop to it, the Supreme Court ruled on 27 July, 2017, that arrests can be made only after a preliminary investigation into the accusation. Moreover, the apex court directed that in every district, one or more family welfare committees be constituted by the District Legal Services Authorities (DLSA) and every complaint received by police or the magistrate under this provision be referred to and looked into by the committee.

Indian Evidence Act was also amended by including Section 113A that helped with proving abetment to suicide. Lastly, there was also an amendment of Section 174 of the Criminal Procedure Code, which made it compulsory to do a post-mortem of a woman who died within 7 years of marriage.

Whether a death is deemed an accident, suicide, homicide or dowry death depends heavily on allegations in the accounts of the woman or her family, and further, if allegations of harassment are made, whether they are dowry-related. The final classification follows an inverted process. Depending primarily upon whether and what allegations are made by the victim or her relatives, the police invoke particular sections of the law, which in turn determine the legal classification of death. Thus many cases get eliminated.

The National Crime Records Bureau (NCRB) reveals that after registration of dowry deaths, police have chargesheeted around 93.7 per cent of the accused, of which only 34.7 per cent have been convicted. The remaining cases are still pending in various courts. As we do not know how many cases were rejected by the local police (or fraction of total cases registered), and the dismal conviction rate with delays of two years or more, the inescapable conclusion is one of despair.

Anti-dowry laws are not to be judged by their intent but by their implementation. On this criterion, the police and judicial systems are abysmal failures. Even if these failures are remedied, the main culprit is bestial masculinity.

In a nuanced view based on recent evidence, Kulkarni et al (2014) argue that dominance and control over women are set in male attributes and behaviour ("masculinity"), regarded as a shared social ideal. Violence is not necessarily a part of masculinity, but the two are often closely linked, mediated by class, caste and religion.

A few observations on what needs to be done suffice: while the expansion of education among girls and more rewarding employment opportunities for girls and women are likely to enhance women's bargaining power, in a context where they are highly disadvantaged there could be perverse outcomes. Evidence suggests, for example, that a woman gaining employment while the male spouse is unemployed may cause tension and domestic violence. Together with rewarding employment opportunities, the transfer of property to women (eg landed property) significantly reduces the risk of marital violence. Immovable property provides a woman economic and physical security, enhances her self-esteem, and visibly signals the strength of her fall-back position and tangible exit option. It can both deter violence and provide an escape if violence occurs (Agarwal and Panda, 2007).

Using community networks, identifying change agents, and disseminating provocative messages through the media can at least bring intimate partner violence out of the private realm into the public eye. Interventions with boys and men demonstrate that addressing unequal gender norms early in life (through approaches similar to girls' life skills programmes addressing early marriage) can influence boys' perceptions of masculinity and gender norms (Dang et al. 2018).

Interventions that address masculinity seem to be more effective than those that ignore the powerful influence of gender norms and systems of inequality. Though limited, examples such as *Yaari Dosti* are encouraging: young men in the programme's intervention groups in Mumbai and Gorakhpur were much less likely to perpetrate physical or

sexual violence than others in these sites. The replicability of such results, however, needs further investigation.

Effective women-focused initiatives strengthen resilience against violence by combining economic empowerment, relationship skills and greater awareness of women's rights, as seen, for example, in the *Rashtriya Mahila Kosh* and *Swawlamban* programmes.

In brief, the challenges are many but effective solutions are few.

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