

## F Online Appendix (Author’s Website)

### F.1 Additional Theories of Dowry

One additional mechanism that could cause dowries to rise is changes in the price of commodities typically given as part of dowry. This is rationalized by a model of dowry in which dowry has a social signaling value, and there is anchoring on the quantity of past dowry gifts rather than their value. For example, suppose members of one’s community recently gave 10 grams of gold as dowry and due to “keeping up with the Joneses”, there is a social cost to not giving at least 10 grams, rather than the monetary equivalent. If there is a rise in the price of dowry commodities (in this case, gold) relative to inflation, this could increase the real value of dowry. The most obvious commodity in which such inflation could occur is gold, which is given in over 90% of marriages with dowry. Bhalotra et al. (2018) find a positive relationship between gold prices and dowry size, though that is only an auxiliary portion of their analysis, which is predominantly focused on how dowry price affects sex selection. They also use the 1999 REDS data, but focus on a sample of 2239 to 4201 marriages between 1970 and 1999. They find a strong positive relationship between gold prices and dowry, and in some specifications, are unable to reject a 1:1 relationship between increases in gold price and the corresponding increase in dowry. Yet international gold prices were almost completely stable between 1945 and 1967, and then increased in the post-1970 period (World Gold Council, 2019). This is the opposite of the pattern of dowry increases.

Another possibility is that increased urbanization may have lead to increases in dowry size. Urbanization may lead to changes in norms and adoption of new practices, such as dowry. It may also be related to changes in the composition of the workforce and pool of grooms/brides. Taking district level urbanization data between 1911-1991, we find no relationship between urbanization and dowry adoption or dowry size (appendix table A8). Another theory is that marriage markets may have expanded over time, increasing competition for high quality grooms. However, we find no change in the distance between the natal homes of brides and grooms over time, which is inconsistent with this hypothesis.

Finally, it is possible that the causes of changes in dowry are non-economic in origin, such as changes in the relative gender status of men and women, shifts in social norms, and increased desire for social signaling. Such explanations are difficult to test quantitatively due to the lack

of historical data on such factors. It is also scientifically unsatisfying to posit spontaneous shifts without specifying a reason – for example, why should norms change at this point in time, and not before? It could be that economic changes facilitated changes in norms, and thus are the root cause: for example, it may be that changes in incomes/groom differentiation drove changes in norms around taking/giving dowry. Unfortunately we lack the data for a more rigorous test of this hypothesis.

|                   | Dowry<br>(=1)      | Dowry<br>Value    |
|-------------------|--------------------|-------------------|
| Urbanization Rate | -0.0354<br>(0.229) | -117.7<br>(149.5) |
| Observations      | 40275              | 40275             |
| Controls          | Yes                | Yes               |
| District FE       | Yes                | Yes               |
| Year FE           | Yes                | Yes               |

Standard errors are clustered at the district level.  
\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Table A8: Urbanization and Dowry

## F.2 Assortativity of Matching on Education

This section examines how the assortativity of education has been changing over time, using a method proposed by Eika et al. (2019). Intuitively, this method checks whether matches between partners of the same educational level occur more or less frequently than would be expected by chance. If they occur more (less) frequently, then matches are positive (negative) assortative. They divide men and women into relatively coarse educational categories and examine the proportion of marriages in which the bride and groom have the same level of education. They then divide this by the expected proportion of marriages in which the bride and groom would have the same level of education if matches had been done randomly. For each education bin, an assortativity coefficient  $r_{ii}$  can be calculated, where the numerator is the proportion of marriages where the bride and groom both are of education level  $i$ , and the denominator is expected proportion of marriages in which the bride and groom would have education level  $i$  if matching were done randomly.

In our analysis, individuals are divided into education groups of no education, only primary education, middle-school education (4-8 years of school) and secondary education or higher. Figure

A6 plots these ratios ( $r_{ii}$ ), demonstrating that the patterns of assortativity have changed over time. While those with a middle school education or higher have begun to match less assortatively over time, those with no education have become more likely to marry others with no education. Those with primary education initially matched less assortatively, but have begun to match more assortatively since the late 1970s. We also calculate an aggregate assortativity ratio. This is equal to the total number of marriages in which the bride and groom have the same level of education divided by the expected number of marriages in which bride and groom education would be equal if matching were done randomly. Driven by the increased assortativity of matching by those with lower levels of education, we find that the coefficient of assortative matching on education nearly doubles between 1940 and 2000. However, this is mostly during the period prior to 1980, as aggregate assortativity has remained roughly constant since then.

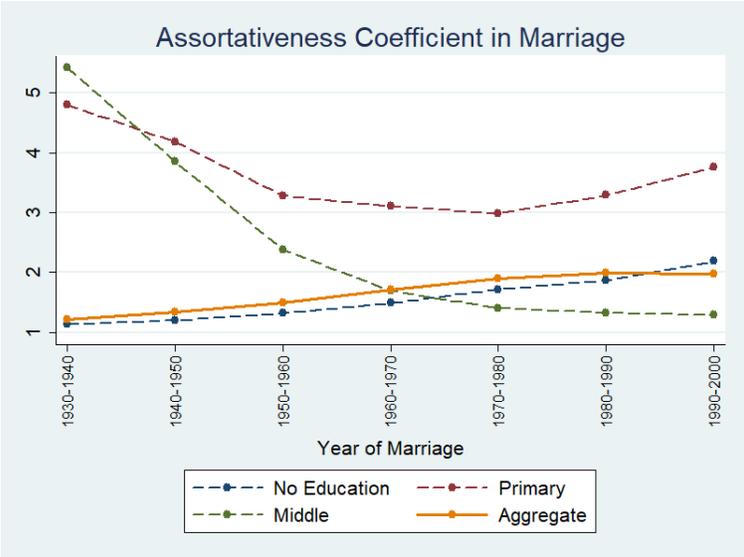


Figure A6: Assortativity in marriages

### F.3 Figures on the Evolution of Marriage Markets in India

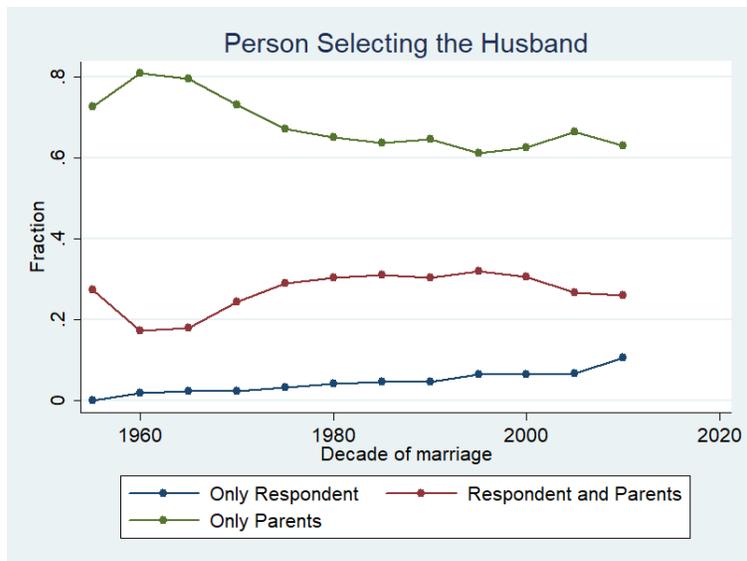


Figure OA1: Decisions Over Identity of Husband (IHDS)

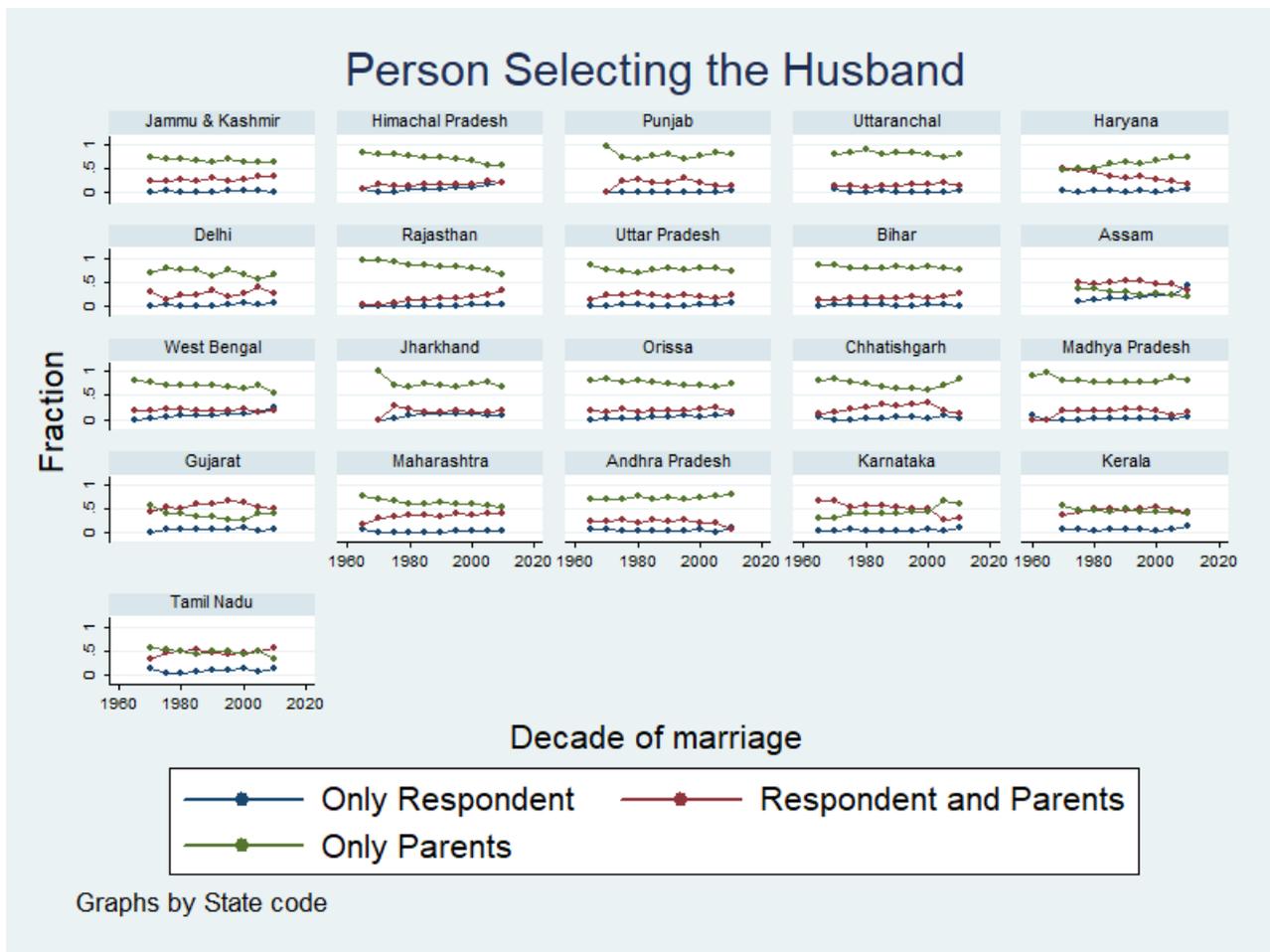


Figure OA2: Person Selecting Husband, by State (IHDS, 2011)

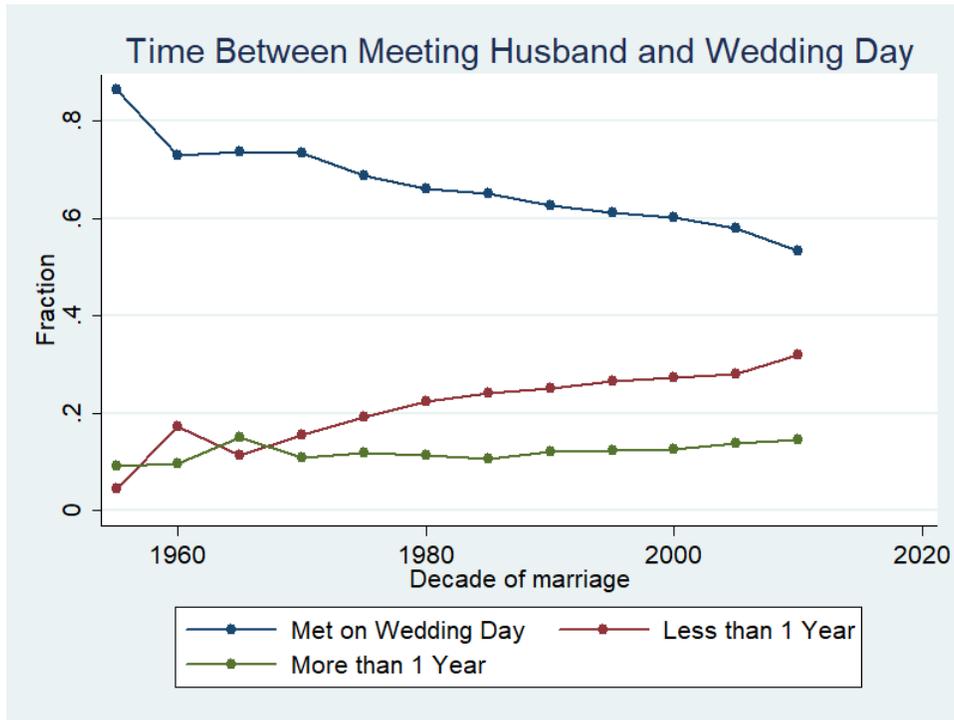


Figure OA3: Time Between Meeting Husband and Wedding Day (IHDS, 2011)

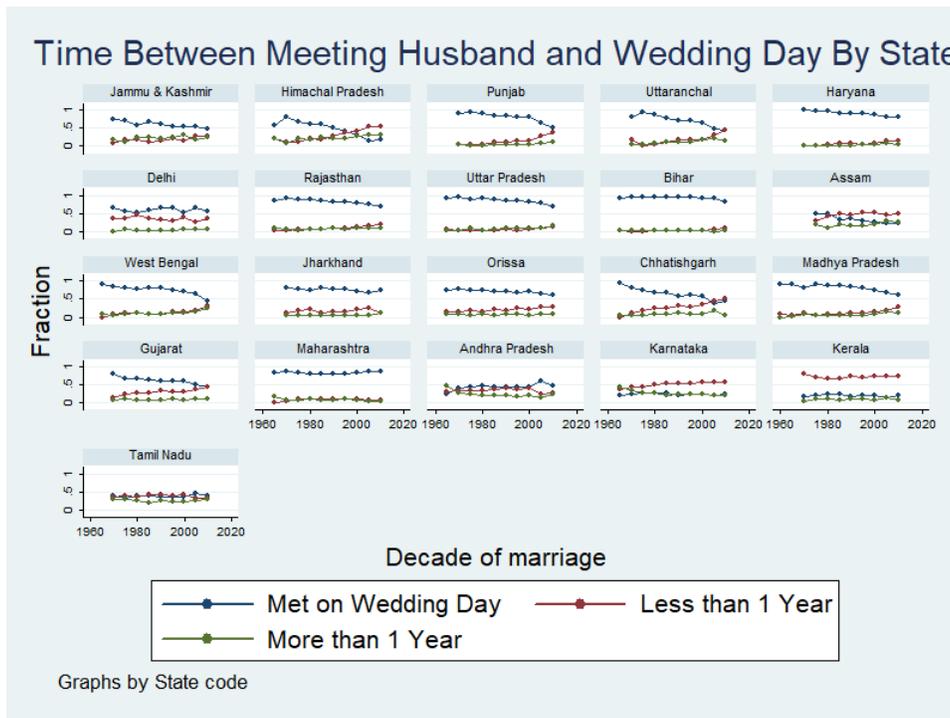


Figure OA4: Time Between Meeting Husband and Wedding Day, By State (IHDS, 2011)

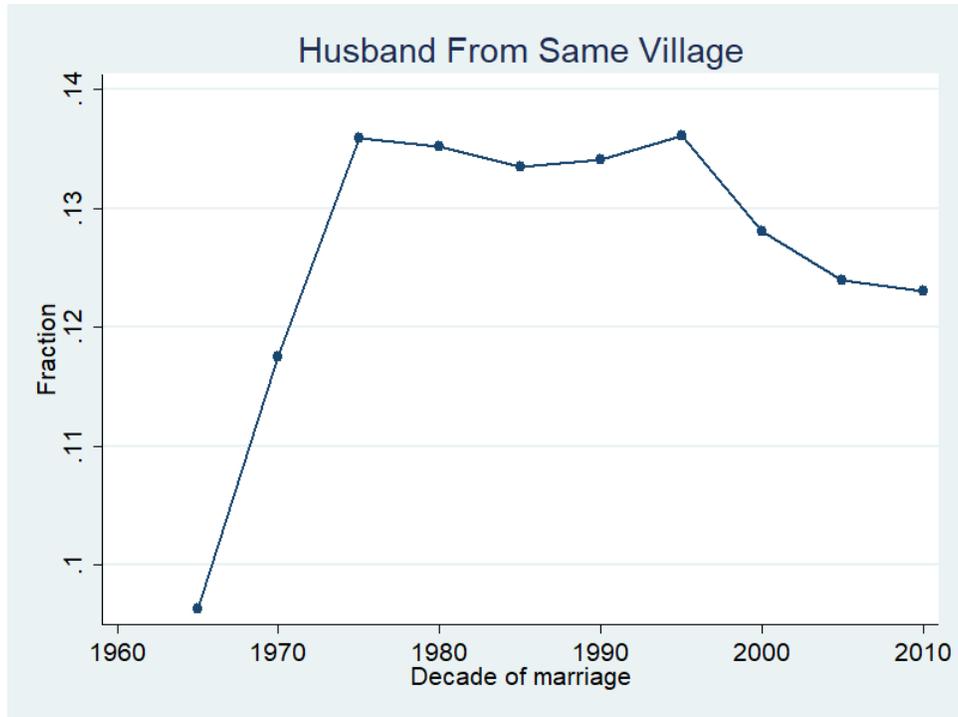


Figure OA5: Location of Husband and Wife's Natal Homes (IHDS, 2011)



Figure OA6: Location of Husband and Wife's Natal Homes (IHDS, 2011)

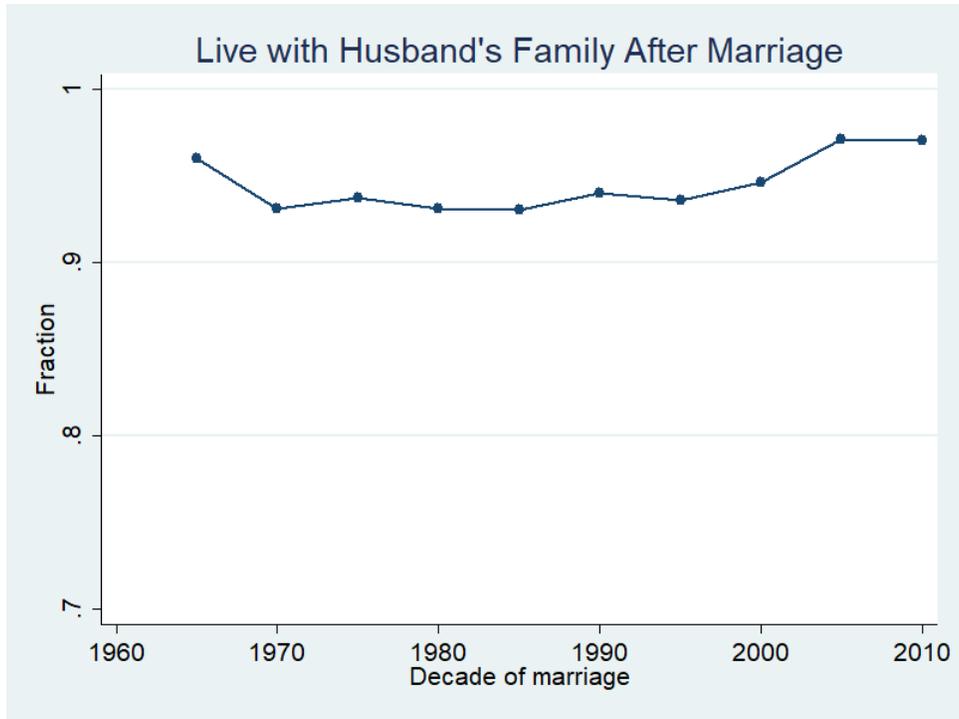


Figure OA7: Living Situation of Couple After Marriage (IHDS, 2011)

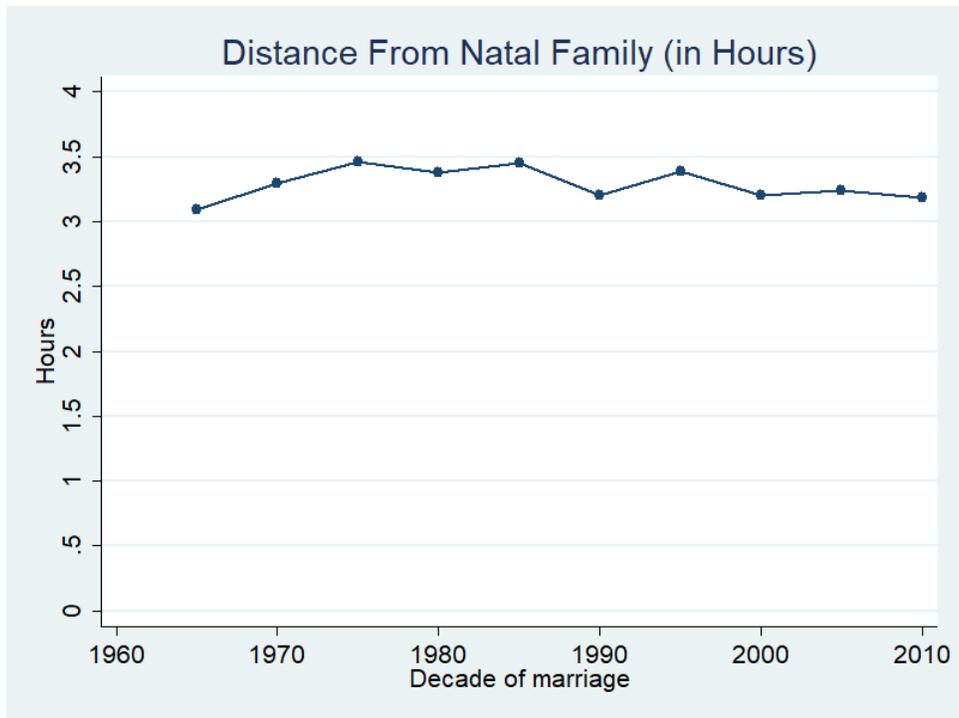


Figure OA8: Distance between Natal Households of Brides and Grooms (IHDS, 2011)

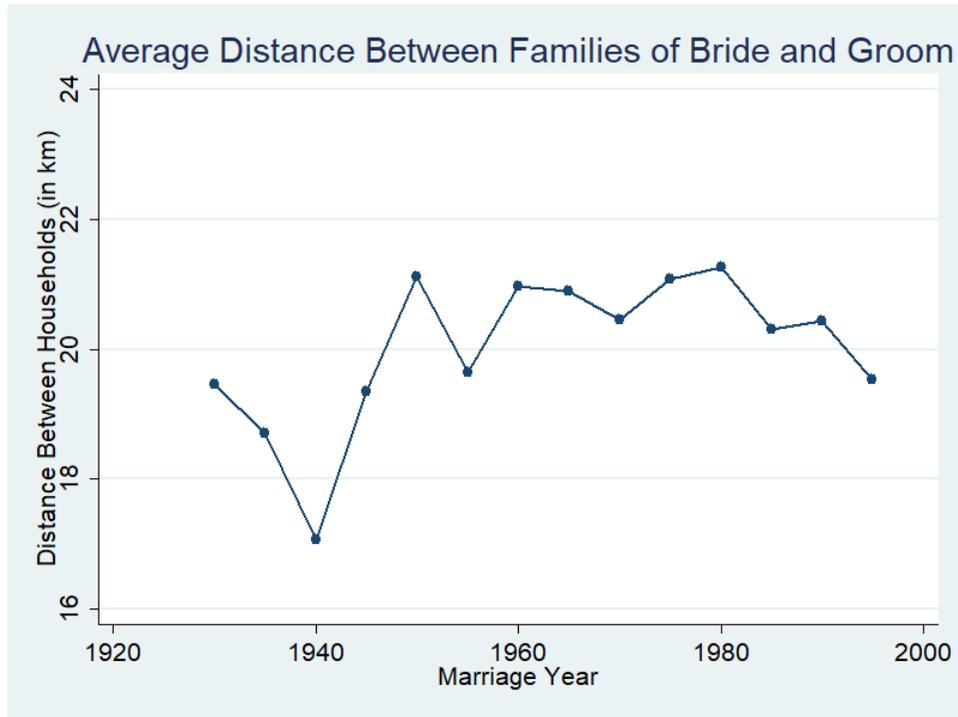


Figure OA9: Distance between Natal Households of Brides and Grooms (REDS)

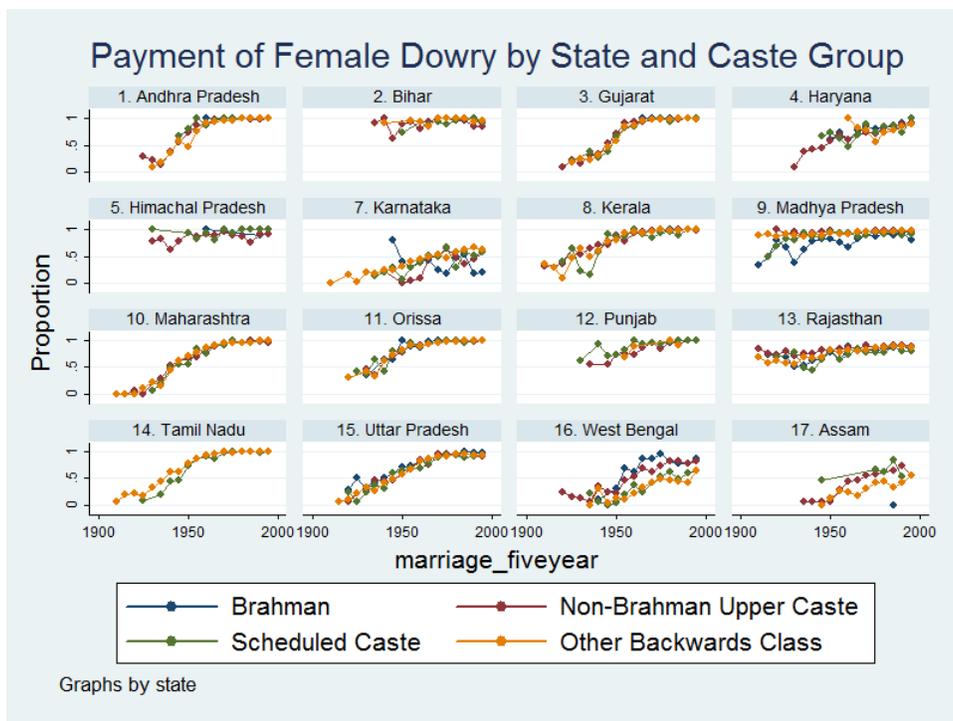


Figure OA10: Prevalence of Dowry by Decade and Caste, Across States

#### F.4 Additional Figures and Tables for Test of Dowry Theories

| (1)          |                   |
|--------------|-------------------|
| Education    |                   |
| Sex Ratio    | -0.839<br>(0.870) |
| Observations | 57145             |
| Controls     | Yes               |
| District FE  | Yes               |
| Year FE      | Yes               |

Standard errors are clustered at the district level.  
 \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Table OA1: Sex Ratio and Groom Education

#### F.5 Main Figures and Tables (Excluding Dowry Data from Andhra Pradesh, Gujarat, Maharashtra, Orissa and Tamil Nadu)

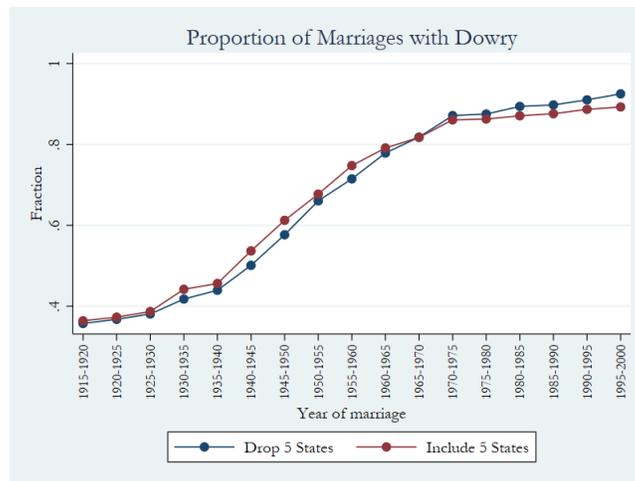


Figure OA11: Comparison of Dowry Prevalence Estimates

Table OA2: Response of Dowry to Shifts in Lower Caste Groom Quality Distribution

|  | Dowry (=1)        | Dowry (=1)        | Dowry Value       | Dowry Value       |
|--|-------------------|-------------------|-------------------|-------------------|
|  | (1)               | (2)               | (3)               | (4)               |
| <i>Panel A: Lower Caste Groom Educational Distribution</i> |                   |                   |                   |                   |
| Groom Education Avg (Lower Caste)                          | -0.002<br>(0.076) |                   | 10.349<br>(8.010) |                   |
| Groom Education SD (Lower Caste)                           |                   | -0.033<br>(0.067) |                   | 1.861<br>(12.832) |
| State-Caste FE   | Yes               | Yes               | Yes               | Yes               |
| Year FE  | Yes               | Yes               | Yes               | Yes               |
| Observations   | 36417             | 36417             | 36417             | 36417             |
| <i>Panel B: Lower Caste Dowry Distribution</i>             |                   |                   |                   |                   |
| Dowry Avg (Lower Caste)                                    | 0.001<br>(0.002)  |                   | 0.072<br>(0.301)  |                   |
| Dowry SD (Lower Caste)                                     |                   | 0.001<br>(0.001)  |                   | 0.094<br>(0.069)  |
| State-Caste FE   | Yes               | Yes               | Yes               | Yes               |
| Year FE  | Yes               | Yes               | Yes               | Yes               |
| Observations   | 27882             | 27882             | 27882             | 27882             |

Standard errors are clustered at the state-caste group level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

|              | (1)                | (2)              | (3)                 | (4)                          | (5)                            |
|--------------|--------------------|------------------|---------------------|------------------------------|--------------------------------|
|              | Dowry<br>(=1)      | Dowry<br>Value   | Age Gap             | Age of<br>Marriage<br>(Male) | Age of<br>Marriage<br>(Female) |
| Sex Ratio    | -0.0365<br>(0.113) | 61.13<br>(44.40) | -3.178**<br>(1.565) | 1.249<br>(1.938)             | 4.469***<br>(1.572)            |
| Observations | 37783              | 37783            | 5205                | 5276                         | 5207                           |
| Controls     | Yes                | Yes              | Yes                 | Yes                          | Yes                            |
| District FE  | Yes                | Yes              | Yes                 | Yes                          | Yes                            |
| Year FE      | Yes                | Yes              | Yes                 | Yes                          | Yes                            |

Standard errors are clustered at the district level.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table OA3: Sex Ratios and Dowry

|   | (1)<br>Dowry<br>(=1)    | (2)<br>Dowry<br>Value | (3)<br>Dowry<br>(=1)   | (4)<br>Dowry<br>Value | (5)<br>Dowry<br>(=1) | (6)<br>Dowry<br>Value |
|---|-------------------------|-----------------------|------------------------|-----------------------|----------------------|-----------------------|
| Groom Education (Years)                               | 0.00287***<br>(0.00104) | 1.008***<br>(0.248)   | 0.00545**<br>(0.00229) | 2.128***<br>(0.634)   |                      |                       |
| Groom Education (Years) X Highly<br>Educated Frac     |                         |                       | -0.0124<br>(0.00843)   | -5.318*<br>(2.712)    |                      |                       |
| Above Median Education (=1)                           |                         |                       |                        |                       | 0.0374**<br>(0.0174) | 15.85***<br>(3.931)   |
| Above Median Education (=1) X Highly<br>Educated Frac |                         |                       |                        |                       | -0.0572<br>(0.0704)  | -41.49***<br>(15.28)  |
| Observations  | 30651                   | 30651                 | 29609                  | 29609                 | 29609                | 29609                 |
| Year FE   | Yes                     | Yes                   | Yes                    | Yes                   | Yes                  | Yes                   |
| Household-5 year FE                                   | Yes                     | Yes                   | Yes                    | Yes                   | Yes                  | Yes                   |
| Birth Order FE  | Yes                     | Yes                   | Yes                    | Yes                   | Yes                  | Yes                   |

Standard errors clustered at the district level. All regressions include controls for bride's education.

Table OA4: Education and dowry within a search model of marriage markets