

# The Determinants of Gender Equity in India: Examining Dyson and Moore's Thesis with New Data

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IN 1983, TIM DYSON AND MICK MOORE proposed that North India's cultural bias favoring exogamous marriage and South India's bias favoring endogamous marriage between close kin, which ensured a wife's lifelong access to the kinship network of her birth, went far to explain the greater degree of autonomy enjoyed by women in the South. So persuasive was Dyson and Moore's thesis that it has dominated demographic thought on female autonomy—and, by extension, on fertility and infant mortality—in South Asia.

That gender equity differs significantly between North and South Indian states has been documented and studied at least since the 1960s (Visaria 1967). Looking at the two states that are the focus of this article, the 2001 population sex ratio in the Northern state of Uttar Pradesh was 898 females per 1,000 males, compared to 964 females per 1,000 males in the Southern state of Karnataka (Planning Commission 2002). Rural Karnataka also had a lower ratio of female-to-male infant mortality (0.99 compared to 1.20 in rural Uttar Pradesh), a higher ratio of female-to-male school enrollment (0.68 compared to Uttar Pradesh's 0.50 for the 11–14 age group), and higher adult female literacy rates (49 percent compared to 38 percent in Uttar Pradesh). These differences are even stronger across North and South India as a whole.

To explain India's regional divergence in gender equity, many anthropologists and demographers continue to follow Dyson and Moore's emphasis on cultural norms. By contrast, economists (e.g., Bardhan 1974) generally ascribe gender equity differences to the fact that the South has more labor-intensive crops than the North and therefore a correspondingly larger market for female labor. Still a third approach (Jeffrey 1993) attributes the differences to state policies designed to promote female equality, which have

been more forthcoming in the relatively proactive Southern states compared to the North.

Despite ample discussion over the years, no quantitative attempt has been made to consider all three of these key determinants of female equity. In this study we use multivariate econometric analysis to assess the relative impact of each, with the aim of achieving a more balanced picture of the root causes of gender inequity in India.

## South Asia's gender equity debate

In any discussion of gender equity, the primary issue is to define and measure gender equity. Dyson and Moore define female autonomy as "the capacity to manipulate one's personal environment," which has implications for "equal decision-making ability with regard to personal affairs" (1983: 45). Introducing a different term, Kabeer (1999: 437) defines female agency as "processes by which those who have been denied the ability to make strategic life choices acquire such an ability." Measures of female autonomy include the degree of power women have over their own mobility, personal decisions, and decisions within the household (Mason 1984); while measures of gender equity include women's achievements and the resources available to them.<sup>1</sup> As Kabeer points out, to measure and quantify complex concepts such as these is an imperfect exercise. Yet it is an exercise that is essential if we are to ascertain key socioeconomic patterns and trends that inform public policy.

Dyson and Moore opened the modern debate about gender equity in India with the theory that women's lack of autonomy and their low status in North India stem from the widespread regional practice of exogamous marriage. In the North, women are expected to marry outside the family and to move in with their husband's family, typically located in a different village, which they enter in an inferior position within the household hierarchy. Although a wife's power and status rise as she becomes a mother and mother-in-law (Das Gupta 1995), Dyson and Moore emphasize that married women in the North lose the "protection" of their own family. Northern marital customs require the girl's parents to pay large dowries and have given rise to a preference for sons and high fertility rates. By contrast, women in the South marry close kin and retain their family networks. Many also have greater control over their own mobility, and some are allowed to inherit property. Moreover, since a bride price rather than a dowry was the norm in South India at the time they wrote, Dyson and Moore found that, in the South, "neither marriage nor dowry is necessarily very important" (p. 45). The result was that South Indian women exercised more authority over decisions, daughters were more highly prized, and fertility rates were lower than in the North.

Powerful as Dyson and Moore's cultural model is, its conclusions are based on ethnographies that are now anywhere between 30 and 150 years old. Much

of their understanding of kinship is derived from Karve's (1965) seminal book, *Kinship Organization in India*, which reviews ethnographies from the nineteenth century and the first half the twentieth.<sup>2</sup> They also cite Sopher's (1980) and Miller's (1981) extensions of Karve's work that both relate kinship structures to patterns of gender discrimination and supplement Karve with some ethnographies from the 1970s. However, as we will see below, a great deal has changed in Indian kinship patterns since Karve's review. Moreover, ethnographies are by definition local, sacrificing breadth for depth. Facts about kinship based on survey data from representative samples provide a more inclusive snapshot of kinship practices in India's large and diverse population.

Dyson and Moore failed to take account of negative outcomes that may be associated with endogamous marriage practices common in the South. Marrying within the family may require wives to split their time and loyalties between two competing circles of kin and thereby hamper their efforts to forge a new base of power within their husband's household. Similarly, kinship rules that prescribe marriage to an uncle, an older male who is in a position of authority over his niece, can result in even greater restrictions on the wife's agency—ones that are unlikely to change over time. Finally, in cases of a conflict with in-laws, endogamous marriage leaves a wife with limited outside opportunities, since her natal kin are also her kin by marriage.

Despite this caveat, recent studies appear to confirm the existence of a gender equity gap between North and South cited by Dyson and Moore. Basu's (1992) largely qualitative analysis comparing female agency among South and North Indian migrants to the Delhi slums finds that Southern women today continue to enjoy greater mobility and freedom of expression than their Northern counterparts. Jejeebhoy's (2001) quantitative study concludes that Tamil women in the South have more mobility and authority than women in Uttar Pradesh. The quantitative assessment has some limitations, however. It is difficult on the basis of Jejeebhoy's analysis to establish a causal relationship between her explanatory variables and outcome variables because independent and dependent variables are placed on both sides of the regression equation.<sup>3</sup> Residence near natal kin, labor force participation, and dowry payments are on the right side of an equation explaining mobility and decisionmaking authority. In our view all three are choice variables potentially determined simultaneously with mobility and decisionmaking variables. For example, women may face fewer mobility restrictions because they are able to earn higher wages, which could also increase their labor force participation rates. This means that a positive coefficient of labor force participation on mobility could indicate a spurious correlation. In addition, the "culture" variables are poorly measured: exogamy is measured as residence near natal kin (whether or not the wife resides in the same "area" as her parents, with area not defined) rather than through a direct question on the kinship rules practiced within her community. The analysis also fails to take into

account key cultural factors such as the prevalence of *purdah* and *gunghat*,<sup>4</sup> consanguinity, and the effect of state action.

Some economists (e.g., Bardhan 1974) and anthropologists (e.g., Miller 1981) have argued that regional differences in female autonomy stem largely from divergent economic conditions.<sup>5</sup> Wet-rice cultivation, they point out, which is more prevalent in the South than in the North, requires skills in which women have a comparative advantage, while the wheat cultivation prevalent in the North requires work for which men have a comparative advantage.<sup>6</sup> This helps explain why the female labor force participation rate in rural Karnataka in 1999 was 56 percent, compared to 33 percent in rural Uttar Pradesh. Building on this hypothesis, Rosenzweig and Schultz (1982) analyzed microeconomic data from rural India to show that differences in child survival rates are also associated with differences in male and female labor force participation rates.

Economists more generally view gender inequities in India as the outcome of a household-level optimization scheme that assigns lower economic worth to females than to males. Models of intrahousehold allocation<sup>7</sup> rely on a “sharing rule” that assigns a share of household resources to each member of a household, depending on his or her relative contribution and “fallback options” should the household be dissolved. According to this view, therefore, women’s lack of authority over household decisions stems from their lower contribution to the household budget and their more limited outside options. Related models focus on the division of labor within the household economy (Browning and Chiaporri 1998). In such a framework lower female agency arises from either lower productivity or lower returns from female labor. Women’s status within the family will change as they are increasingly perceived as economically productive—particularly where a large proportion of women in the village work, think, and act with relative independence. Thus, lower levels of female participation in the labor force reduce female autonomy in two ways: first by limiting the intrinsic worth of females within the household economy (assuming that a role involving a pecuniary return is more valuable than one, such as housework, that does not) and second by reducing the fallback options available to women in the case of conflict within the household. While we cannot explicitly test these models, we have included measures of an individual’s outside options, using as proxies village-level wage rates for women and for men.<sup>8</sup>

Persuasive though these economic analyses are, they fail to control for cultural factors affecting female labor and therefore do not indicate whether it is “economics” or “culture” that determines outcomes conducive to women’s welfare. Indeed, the problem of omitted variables suggests a potential for bias and could mean these studies are identifying an association rather than a causal relationship between labor force participation and gender outcomes.

In addition to culture and economics, researchers have considered active state intervention as an important determinant of gender equity in In-

dia. Recent studies suggest that today, as in 1983, the overall level of human development continues to be appreciably higher in the South than in the North. In 2002 the Planning Commission's Rural Human Development Index—a weighted average of expenditures, literacy, formal education, life expectancy, and infant mortality rate—ranked Uttar Pradesh 31st out of 35 states and union territories in India and ranked Karnataka 21st out of 35 (Planning Commission 2002). Jeffrey (1992) ascribes the lack of gender differentials in mortality and the high level of education for women in the South Indian state of Kerala to the combined interaction of a culture that treats women with greater equity and government interventions that have made education and health services more accessible. Das Gupta and her coauthors (2004) cite state policy as key to gender equity in India, China, and Korea, where kinship practices are similar to one another. Murthi, Guio, and Drèze (1995), who conducted a district-level analysis of fertility and mortality in India, also find that government programs to increase the availability of health facilities and levels of urbanization are positively related to lower rates of fertility and mortality. Thus, these authors make a strong case that public investment in rural development and welfare may well supersede cultural difference as the most important promoter of female agency and positive demographic outcomes.

Some attempts have been made to reconcile these potentially competing explanations by trying to control for cultural and economic factors in statistical analysis. Kishor (1993) analyzes cross-sectional district-level data to estimate the determinants of child mortality rates. She finds that both village exogamy, measured as the proportion of women who have migrated from other villages, and female labor participation rates are important determinants of child mortality. Malhotra, Vanneman, and Kishor (1995) follow a similar approach to study the determinants of fertility and find that village exogamy matters less than female labor force participation, female literacy, and the proportion of women unmarried in the 15–19 age group. These more recent studies clearly point to the possibility that both economic and cultural factors affect differences in women's status in North and South India. However, the district-level data on which they are based, while useful as a first pass, lack the depth to discern the subtle variations in economic and social behaviors that lead to gender discrimination. First, social organization and kinship structures, as is the case with "women's empowerment," are difficult to measure with district-level data culled largely from the limited number of variables measured in the Indian census. The census also does not collect data that directly measure the extent of village exogamy, the practice of purdah, or the level of dowry—the kinds of variables that Dyson and Moore believe are correlated with North–South patterns of gender discrimination.<sup>9</sup> Moreover, kinship practices, women's labor force participation, and the status of women all exhibit substantial heterogeneity within districts; analyzing district averages hides this variability and could result in statistically biased results.

Therefore, while attempts have been made to extend, test, and critique elements of Dyson and Moore's hypotheses, they have never been adequately tested with data from households and communities—the level at which they were formulated. This article revisits some of the assumptions underlying Dyson and Moore's conceptual framework and directly tests the statistical validity of the various explanations for differences in women's agency in North and South India within an integrated framework.

## Measuring gender equity and its determinants in India

We employ a "reduced-form" approach, which limits the set of explanatory variables to those considered exogenous—that is, not subject to choice.<sup>10</sup> Our explanatory variables on kinship practices refer to the norms prevalent in the community to which the respondent household belongs, rather than to the choice made during the respondent's own marriage.<sup>11</sup> Thus, the question on consanguinity asks whether the endogamous sub-caste of the respondent household prefers uncle–niece or cross-cousin marriage, rather than whether the husband and wife are blood relatives. The consanguinity variable can, therefore, be treated as outside the respondent household's realm of choice and may be included as an explanatory variable. Similarly, the question on village exogamy, used as an explanatory variable, asks about the kinship rule preferred by the respondent household's endogamous caste. We also measure the distance to the wife's natal home—a question that is obviously specific to the wife—but we never treat this as an explanatory variable.

The data for this analysis come from a randomized household and individual-level survey conducted in 1995 in five districts in Karnataka in South India and five districts in Uttar Pradesh<sup>12</sup> in the North. Of the five districts in each state, two are considered economically advanced in terms of infrastructure and wealth, one is moderately well-to-do, and two are economically backward.

Our analysis is based on 800 complete responses to a household survey provided by married women (see the Appendix for details). The survey, conducted in 1995, was administered to 1,120 households, which contained 1,897 women of reproductive age. After excluding a large number of unmarried women and widows from the analysis, we were left with a final sample of 800 women. No significant differences in education or wealth were found between our subsample and the full sample surveyed.

A number of social rules, resistant to change in the short run, are included as explanatory variables. This group includes rules of village exogamy, consanguinity, and female seclusion practices such as *purdah* and *gunghat*. In addition we include village-level data on wage rates for men and women; the availability of public services such as schools, clinics, and electricity; and

measures of the availability of assets and durable goods as measures of wealth. Data on marriage and other cultural practices provide first-hand information on North–South ethnographic differences and kinship practices. Data gleaned from micro-level fieldwork improve on district-level analyses of census data. Village-level data allow us to consider the impact of public investment and infrastructure. Finally, the integrated statistical framework used to analyze these data allows us to assess the relative and combined effects of cultural traditions, economic factors, and state policy on gender equity.

We examine two categories of dependent variables. The first category is measures of freedom of mobility. Mobility is measured by the ability to visit a given place without permission from one's husband or from senior members of the household. We focus on mobility within the village by examining the respondent's ability to leave the house or compound or to visit friends' or relatives' houses within the village, and to go to the local health center and the local market. We also examine the determinants of women's labor force participation as part of the mobility measures.

The second set of dependent variables measures the level of participation in household decisionmaking. This is measured in two ways. First, we include categorical measures of the respondent's economic authority within the household: whether the wife has any say in how household income is spent and whether she receives cash for household expenditures. While the latter may not necessarily imply greater decisionmaking authority in determining how household income is spent,<sup>13</sup> we assume that direct control of cash implies greater autonomy. Second, we examine a series of index scores based on which member of the household participates in making various decisions and who is the most important decisionmaker in each instance. (See the Appendix for a description of how the index scores were derived.) These indexes cover decisions regarding expenditure on major household durables, whether the respondent can work outside the house, how many children to have, children's health care when ill, and children's schooling. Greater female decisionmaking authority (i.e., lower index scores) implies greater autonomy of choice, and this allows us to define spheres in which women exercise the greatest choice and presumably enjoy greater individual agency.<sup>14</sup>

Given our underlying assumption that women's agency is greatly influenced by their perceptions of mobility and decisionmaking authority, we base our dependent variables on responses from female interviewees only.<sup>15</sup> This single-sex approach has been questioned as possibly introducing bias into assessments of subjective variables. Ghuman et al. (2000) did indeed find systematic differences by sex and across communities. A similar analysis of our own dataset indicates that male and female perceptions about who makes decisions, who is the most important decisionmaker, and what factors constrain female mobility also differ systematically, with a consistent 30 percent of couples in our sample in disagreement with each other. The level of dis-

agreement is greater, moreover, in Karnataka than in Uttar Pradesh, and the difference between the two states is statistically significant.

Such findings highlight the subjective nature of these issues and the fact that perceptions about decisionmaking are likely to vary for reasons not entirely clear but deserving of further study. Despite their evident subjectivity, this study considers female responses to be the best available source for information on women's view of their own welfare and agency. Our analysis thus touches on how women's views about their roles differ in North and South India.

To control for other individual and household demographic characteristics, we included variables for female-headed households, the presence of a father-in-law or mother-in-law, wife's age, husband's age, marriage year, years of schooling for both husband and wife, and literacy level of wife's parents. Measures of household wealth included ownership of land and consumer durables, such as a television set, radio, electric fan, and bullock cart.

Although female control and ownership of economic resources are often cited as key indicators of gender equity (Agarwal 1994), our survey found limited female property rights throughout the sample. This finding reflects the fact that—regardless of variations in agency—all of the women sampled live under a patriarchal system in discriminatory circumstances. We therefore excluded indicators of property and inheritance rights from our analysis. We focused instead on labor market opportunities as the key economic determinant of women's agency and used village agricultural wages for women in the harvest season as a broad measure of women's potential earning power. For comparison, we also included male agricultural wages during the harvest.

To account for wide disparities in the cultural and socioeconomic makeup of Indian districts even within specific states, we included controls for district-level variation with district dummy variables in all our specifications. Ideally we would have liked to include village dummies for the same reason, but because of the small sample size this was not feasible. Instead we included a wide range of village-level characteristics to control for factors related to state action and to reflect the village's level of economic development. Questions on total village cropped land and proportion of village land irrigated were used to measure village wealth and level of agricultural technology. We did not have adequate crop data to investigate whether the type of crop grown affected female welfare. To measure the level of village infrastructure and government intervention, we included questions on the quality of the main village road (dirt path or paved) and the presence of electric streetlights, a village bus station, an educational institution of any level or type, and a maternity or family health clinic. A question on distance to the nearest town was included as a measure of remoteness.



## Analysis and results

The first step in reevaluating Dyson and Moore's thesis is to assess how the status of women in India has changed over the past quarter century. Recent research has documented a clear worsening of gender equity in India's South. Sudha and Rajan (1999) and Rajan et al. (2000) suggest that sex-specific infant mortality rates and sex ratios at birth, indicators of gender bias, are worsening both in Kerala and in Tamil Nadu, where the practice of female infanticide is found to be widespread. The South has also seen a sharp increase in dowry payments, indicating that the region is abandoning its earlier bride price tradition (Caldwell, Reddy, and Caldwell 1983; Rao 1993a, 1993b; Bloch, Rao, and Desai 2004). Violence against women is also a severe problem in the South Indian states of Karnataka (Rao 1997; Bloch and Rao 2002) and Tamil Nadu (Jejeebhoy 1998), as it is in the North. All this indicates that some of the basic assumptions underlying Dyson and Moore's hypotheses may need to be revised.

We begin by presenting patterns in kinship and other cultural practices by state in Table 1. As first shown by Karve (1965), consanguinity is more common in the South. We observe that 25 percent of Karnataka households today belong to sub-castes that prefer marriage within the same family, compared with 7 percent in Uttar Pradesh. But conditions have changed considerably since Dyson and Moore's study with regard to village exogamy, which today is far and away the norm throughout India. In Uttar Pradesh, village exogamy is practiced by some 80 percent of the sub-castes, and in

**TABLE 1 Indicators of kinship and other cultural practices and characteristics in North and South Indian states**

	Uttar Pradesh	Karnataka	T/Z-value
Marry relatives (%)	6.8	24.7	9.6
Village exogamy (%)	80.2	63.3	7.2
Practice purdah (%)	61.3	26.0	13.6
Hindu (%)	88.1	88.6	0.3
Muslim (%)	11.9	11.4	0.3
Scheduled caste/tribe (%)	28.5	21.0	3.4
Average distance from wife's parents (km)	33.1 (83.7)	28.3 (51.2)	1.3
Average net real dowry payment (Rs)	15,193 (238,363)	14,506 (255,979)	0.1
Average net positive real dowry payment (Rs)	46,096 (255,104)	66,322 (332,166)	0.7

NOTES: Standard deviations in parentheses; T-value tests difference in means, Z-value tests difference in proportions. Dowry data are subject to large measurement error; net dowry payment measures groom price net of bride price; net positive dowry payment measures positive groom price net of bride price. Rs 1,000 was roughly equivalent to \$31 in 1995 using market exchange rates.

Karnataka the figure is 63 percent. These findings fail to support Dyson and Moore's view of South India as village-endogamous—a conclusion further undermined by the fact that the average distance wives live from their parents in Uttar Pradesh is 33 kilometers, statistically no different from the 28 kilometers reported in Karnataka. Such differences in female autonomy between North and South as exist today cannot be attributed either to village exogamy or to distance from the natal home. Our findings suggest that the terminology first outlined by Karve (1965) on "Northern" and "Southern" kinship systems may no longer be relevant.

We also find that the net dowry payment, averaged across both dowry and bride price, is similar in Uttar Pradesh and Karnataka. Given that many Karnataka communities have switched from bride price to dowry and that our dowry information was collected retrospectively from both young and old couples in the sample, it may be instructive to focus on households that have paid positive dowries. While the net average positive dowries paid in Karnataka are larger than in Uttar Pradesh, the difference is again statistically insignificant.<sup>16</sup>

Focusing on the nature of female seclusion practices by religion, we find that some form of purdah or gunghat is widespread in Uttar Pradesh among Hindus and Muslims alike, 61 percent compared with 26 percent in Karnataka. A majority of Muslims practice purdah in both states, as well as 59 percent of Hindus in Uttar Pradesh; by contrast, only 18 percent of Hindus in Karnataka practice purdah or gunghat (Hindu/Muslim breakdown not shown in the table).

To summarize: (1) Although a preference for cross-cousin and uncle-niece marriage is more prevalent among a minority of communities in the South, village exogamy is the norm practiced by a majority of communities in both states. (2) Women in the North do not live any farther from their natal kin than women in the South. (3) Women in the South pay dowries that are just as high as those paid by women in the North. (4) Women in the North are much more likely to practice purdah or gunghat than women in the South, with the practice being more prevalent among Muslims in both regions. The first three findings differ significantly from those of Dyson and Moore, suggesting that India's kinship practices have changed a great deal over the past few decades.

Tables 2, 3, and 4 tabulate the dependent variables by state. One can see in Table 2 that female labor force participation is almost three times higher in Karnataka than in Uttar Pradesh. Mobility (measured by not needing permission to leave the house) is also higher in Karnataka for all types of destinations. In every case except for permission to visit friends and relatives, these differences are statistically significant.

By contrast, Table 3 shows that women in Uttar Pradesh have on average significantly greater authority over household expenditures than do women in Karnataka. (This result differs from Jejeebhoy's findings in her

**TABLE 2** Indicators of women's labor force participation and mobility

	Uttar Pradesh	Karnataka	Z-value
Participation in labor force (%)	12.6	34.7	11.0
Mobility			
Permission not required (%):			
To go outside the house/compound	42.4	67.9	9.8
To visit friends/relatives within village	29.0	29.8	0.4
To go to local health center	22.3	36.2	5.8
To go to local market	24.1	34.3	4.3

NOTE: Z-value tests difference in proportions in the two states.

comparison of Uttar Pradesh and Tamil Nadu, possibly reflecting regional differences in the samples.) From the index scores for decisionmaking authority in Table 4, no clear pattern of female authority by state appears, even though the states differ significantly in all but two measures. For decisions about fertility and children's schooling, women in Karnataka appear to have greater say, but for decisions about household expenditures and women's work, Uttar Pradesh women exercise greater authority. Authority over decisions on children's health is the same in both states.

Overall, the analysis of mobility and labor force participation variables indicates that women in Uttar Pradesh face considerably greater constraints on their mobility than do women in Karnataka but have more authority than their South Indian counterparts over household expenditures. Karnataka wives, by contrast, have more authority over decisions pertaining to children. These findings show a complex array of authority and constraints that makes it difficult to say women in one state have greater autonomy than women in the other.

Table 5 summarizes the independent variables by state. We see that a greater proportion of households in Uttar Pradesh are likely to be female headed. A greater proportion of households in Uttar Pradesh are also likely

**TABLE 3** Indicators of women's economic authority within the household

	Uttar Pradesh	Karnataka	Z-value
Wife has say in expenditure of household income (%)	65.4	41.8	9.1
Wife receives cash for household expenditures (%)	61.5	40.8	8.0
Wife has say in purchase of major household goods (%)	77.9	45.4	12.8

NOTE: Z-value tests difference in proportions in the two states.

**TABLE 4** Index scores for women's decisionmaking authority within the household

	Uttar Pradesh	Karnataka	T-test
Household expenditures	5.9 (1.6)	6.7 (2.4)	6.6
Wife working	5.8 (1.7)	6.8 (2.4)	8.9
Number of children to have	6.2 (1.5)	6.0 (2.5)	1.7
Children's education	6.1 (1.5)	5.8 (2.2)	2.4
Children's health	5.7 (1.7)	5.7 (2.4)	0.5

NOTES: Standard errors in parentheses; T-test is a test of difference in means or proportions. Index scores of women's authority range from 1 (high) to 9 (low).

to be part of joint families, indicated by the significantly higher proportion of women who live with their in-laws. Women in Karnataka have approximately twice the number of years of schooling as women in Uttar Pradesh,

**TABLE 5** Independent variables

	Uttar Pradesh	Karnataka
<b>Individual and household demographic characteristics</b>		
Female household head (%)	6.4	5.5
Presence of father-in-law (%)	8.0	5.1
Presence of mother-in-law (%)	24.2	12.5
Wife's age (years)	33.1 (12.263)	33.9 (12.256)
Husband's age (years)	37.3 (13.04)	40.6 (12.05)
Marriage year	78.7 (8.784)	79.9 (8.642)
Wife's years of schooling	1.1 (2.824)	2.2 (3.605)
Husband's years of schooling	5.6 (4.655)	4.1 (4.247)
Wife's father literate (%)	32.0	24.5
Wife's mother literate (%)	5.7	11.8

**TABLE 5 (continued)**

	Uttar Pradesh	Karnataka
<b>Household wealth (ownership)</b>		
Land (%)	72.0	67.3
Television (%)	11.5	10.8
Radio (%)	32.0	48.5
Electric fan (%)	15.0	1.0
Bullock cart (%)	8.6	9.0
<b>Village-level wages</b>		
Female wage (Rs per day)	30 (1.353)	20 (1.466)
Male wage (Rs per day)	40 (1.501)	27 (1.364)
<b>Village wealth and infrastructure</b>		
Cropped area (acres)	1.2 (0.955)	1.1 (0.719)
Land irrigated (%)	66.6	15.8
Type of main road <sup>a</sup>	2.6 (0.997)	2.0 (1.039)
Distance to nearest bus station (minutes)	6.2 (14.465)	7.4 (22.613)
Distance to nearest town (km)	26 (0.437)	9 (0.279)
Street lighting (%)	64.9	83.5
Maternity and family health clinic (%)	66.1	49.0
Educational facility (%)	88.7	100.0
Sample size	1,090	807

NOTE: Standard errors in parentheses.

<sup>a</sup>Type of main road is a rank-ordered index ranging from 1 to 5, where 1 indicates a mud road and 5 indicates a tarmac-paved road.

although the mean levels are very low in both states (1.1 in Uttar Pradesh and 2.2 in Karnataka). Gender differentials in education are higher in Uttar Pradesh, however, with men having 5.6 years of schooling compared to 4.1 years in Karnataka.

There are no significant differences in household wealth between the states except that a higher proportion of households in Uttar Pradesh own electric fans, while a higher proportion in Karnataka possess radios. Wages are significantly higher in Uttar Pradesh, but gender differences in wage rates are similar. Average village size is similar in the two states, with the

Uttar Pradesh villages in this sample having greater access to irrigated land. There are some distinct differences in village infrastructure, however: a significantly greater proportion of Karnataka villages have street lighting and educational facilities and are significantly closer to towns. Uttar Pradesh villages, meanwhile, have a higher proportion of maternity and family health clinics (66 percent compared to 49 percent in Karnataka), slightly better roads, and tend to be closer to the bus station.

To estimate the relationship between the dependent and the independent variables, we used regressions of the following form:

$$A_{hvs} = \alpha + \beta X_{hvs} + \gamma C_{hvs} + \lambda E_{vs} + \chi Z_{vs} + \delta S_s + \mu D_s + \varepsilon_{hvs},$$

where  $A$  is our measure of female autonomy for one adult female in household  $h$  in village  $v$  and state  $s$ ;  $X$  contains such household characteristics as structure and wealth;  $C$  includes such underlying cultural variables as purdah and kinship;  $E$  includes measures of economic worth, using, as proxies, village-level wages for males and females;  $Z$  includes village-level facilities and characteristics; and  $S$  and  $D$  represent state and district dummies. This approach allows us to assess the relative impact of different determinants of female autonomy within a unified framework. As in all other statistical analyses of cross-sectional data, we face the problem of omitted variables. While we have included a large number of exogenous controls, variables not considered may still exist that could affect the dependent variable directly or even affect both dependent and independent variables, resulting in biased estimates. Readers should keep this caveat in mind when interpreting our results.

### Mobility

Table 6 reports probit regression estimates of the mobility variables. The results indicate that female mobility depends not only on the location but also on the type of place visited.<sup>17</sup> Contrary to Dyson and Moore's hypothesis, the social norm of village exogamy seems to have no significant effect on mobility, while marrying relatives has a mixed effect. Women who belong to sub-castes that marry kin are less likely to need permission to leave the home but are more likely to need permission to visit friends and relatives or to go to the local market.

As expected, Muslim women are more constrained in their mobility than Hindu women, particularly when going outside the home or to the local health center, although this difference is significant only at the 10 percent level. Women who practice purdah or gunghat also show mixed effects on mobility, more often requiring permission to go outside the home and to visit friends and relatives but less often requiring permission to visit the local health center or market. This suggests that, while restricted in their mobility, Muslim women are given relative freedom to attend to problems related to their own or their children's health.

**TABLE 6 Regression coefficients on permission to move outside the home and on labor force participation**

Independent variable	Permission not required to visit or to go to				Participation in labor force
	Outside house	Friends/relatives	Health center	Local market	
UP state dummy	-0.362 (4.026)	-0.078 (1.033)	-0.327 (4.539)	-0.276 (3.731)	-0.155 (3.070)
Muslim	-0.158 (1.855)	0.056 (0.693)	-0.125 (1.911)	0 (0.004)	0.008 (0.741)
Scheduled caste/tribe	-0.028 (0.484)	0.047 (1.003)	-0.043 (0.856)	-0.059 (1.184)	0.018 (2.679)
Village exogamy	-0.021 (0.310)	0.052 (0.966)	0.073 (1.209)	0.052 (0.871)	-0.002 (0.383)
Marriage to relatives customary	0.208 (2.467)	-0.222 (3.718)	-0.08 (1.056)	-0.152 (2.164)	-0.008 (-1.511)
Practice purdah/gunghat	-0.247 (3.444)	-0.133 (2.111)	0.142 (2.284)	0.093 (1.510)	-0.013 (1.521)
Female household head	0.186 (1.136)	-0.012 (0.045)	0.077 (0.321)	0.088 (0.357)	0.008 (0.559)
Log village female wage	0.215 (0.863)	-0.233 (1.265)	0.406 (1.989)	0.526 (2.509)	0.042 (2.520)
Log village male wage	-0.556 (1.833)	-0.171 (0.773)	-0.525 (2.052)	-0.863 (3.271)	-0.075 (2.663)
Village total cropped area	-0.093 (2.725)	0.002 (0.088)	0.016 (0.557)	0.001 (0.035)	0.006 (1.846)
Proportion of village land irrigated	-0.051 (0.374)	0.143 (1.434)	-0.067 (0.635)	0.033 (0.322)	0 (0.020)
Main village road	-0.001 (0.025)	0.004 (0.172)	0.049 (2.179)	0.059 (2.654)	-0.002 (0.724)
Distance to nearest bus station	0.003 (1.896)	0 (0.262)	-0.002 (1.563)	-0.001 (1.040)	0 (0.081)
Distance to nearest town	0.156 (2.446)	0.031 (0.462)	-0.035 (0.523)	-0.004 (0.067)	-0.006 (0.947)
Village electric street lighting	0.369 (4.959)	0.2 (3.655)	0.172 (2.917)	0.209 (3.600)	0.022 (3.024)
Village maternity and family health clinic	-0.099 (2.000)	-0.027 (0.698)	0.026 (0.631)	-0.012 (0.294)	-0.002 (0.379)
Village educational facilities	0.579 (5.718)	0.238 (3.842)	0.1 (1.132)	0.173 (2.127)	-0.591 (2.596)
Sample size	800	796	721	724	725

NOTES: T-statistics in parentheses. All regressions include district dummies and household demographic and wealth controls. Demographic controls include dummies for father-in-law in household, mother-in-law in household, wife's father's literacy, wife's mother's literacy; and variables for wife's age, husband's age, year of marriage, wife's schooling, and husband's schooling. Household wealth controls include dummies for ownership of land, television, electric fan, radio, and bullock cart.

Age and duration of marriage also have noteworthy effects. When going to the market, older women show a much higher level of freedom of movement. Older men seem more lenient in allowing their wives to go outside the home but less lenient in allowing them to visit friends and relatives within the village. Marriages of shorter duration are also correlated with stricter control of women's movements outside the home and with greater leniency visiting the local market. Female schooling and mother's education both improve women's ability to leave home and go to market without permission. By contrast, male schooling, both of the husband and the wife's father, has no discernible effect on female mobility. The data indicate that wealthier families grant women less mobility. Possession of an electric fan, for instance, is associated with reduced mobility in all four categories. Yet families that own a television tend to put fewer restrictions on women's mobility outside the home, suggesting that television ownership may be an indicator of progressive attitudes—whether inherently or because having a television introduces families to ideas from the larger world.

While higher wages for women increase their freedom of mobility for going to health centers and the market, higher wages for their husbands have a negative effect on female mobility in all categories. Wealthier villages that have a larger gross cropped area, moreover, are associated with greater restrictions on women's mobility. This "negative wealth effect" apparently stems from the desire of better-off families to be respectable. This is related to norms, such as Sanskritization<sup>18</sup> and *izzat* (respectability), that characterize "respectable" behavior in such a way that wealthier families prefer that women confine their activities to the household sphere.

By contrast, indicators of greater government intervention are associated with considerable improvements in women's mobility. For instance, if the village approach road is of better quality, women are significantly less likely to need permission to visit health clinics and markets. If a bus station is nearby or the village is located close to town, the probability that a woman will require permission to leave the house is reduced. Interestingly, the presence of electric street lighting, which reduces the fear of venturing out in the dark, is positively correlated with higher female mobility across the board. This finding suggests that some restrictions on female mobility stem at least in part from the inadequacy of village infrastructure and that better technology could lessen or even eliminate such restrictions. By the same token, the presence of a school in the village<sup>19</sup> greatly improves women's ability to go outside the home, visit friends and relatives, and venture to the local market.

We note here, however, that the bias due to "omitted" variables, or variables which are not considered, may particularly affect analyses of the impact of village infrastructure. For example, progressive communities or those with a higher capacity for state action may be more likely to have a higher level of female mobility and also be more successful in getting gov-



ernment resources for the village, giving rise to a spurious connection between the two variables. Results from infrastructure variables should therefore be interpreted as associations rather than as causal relationships. The large number of village-level variables and the state controls in our estimation go some way to alleviate—but cannot eliminate—this problem. In all of these regressions, strong state effects remain, although these become smaller in magnitude as kinship variables, village wages, and village infrastructure are added.<sup>20</sup> In some cases the state effect disappears once all controls are included. Where it does exist, the overall state effect indicates that female mobility is more restricted in Uttar Pradesh than in Karnataka. This suggests that some factor we have not measured at the state level continues to influence mobility.

Table 6 also reports probit estimates for regressions on female labor force participation. Despite various controls in these regressions, Karnataka continues to display a significantly higher rate of female labor force participation than Uttar Pradesh. Consistent with earlier findings on the subject, moreover, scheduled castes, which are traditionally discriminated against by upper castes, show higher rates of female labor force participation. By contrast, women's schooling has no impact on female participation in the labor force, possibly because these are rural areas where the available jobs are mainly unskilled labor that do not require higher levels of education.

Higher levels of schooling for husbands, however, are correlated with lower rates of wives' labor force participation, possibly another sign of the "negative wealth effect" referred to above. Because work for women is not considered respectable, it is something an educated, relatively well-to-do husband would discourage. The negative effect of wealth on female labor can also be seen in the significant negative effects of male wage rates and ownership of land or a bullock cart.

Unlike the negative effects of wealth, higher wages for women tend to increase the probability of women working in the labor force, consistent with theories of labor supply. Villages with streetlights and wider cropped area also have higher rates of women's labor force participation, possibly because of increased mobility and labor demand. Surprisingly, the presence of educational facilities shows a negative effect on female participation in the labor force, again possibly a sign of the negative effect of village wealth.

To summarize our discussion of the kinship variables affecting female mobility, we note that, contrary to Dyson and Moore's assessment, consanguinity is no longer widely practiced in the South and, where it is, has a mixed effect on mobility. Variables exerting clear negative effects on female mobility include the practice of *purdah* or *gunghat* and, to a lesser extent, being Muslim, household wealth, and husband's education. Those exerting positive effects on female mobility include better market opportu-

nities for female labor (using the proxy measure of higher wages), proximity to the nearest town, and simple public infrastructure improvements such as the presence of electric streetlights and a school. The lower overall mobility of women in Uttar Pradesh compared with Karnataka also appears to be attributable to factors not accounted for in our analysis.

## Decisions

Regressions regarding decisions about household expenditures show several different effects. In Table 7 the state-level dummies have weak effects, indicating that most of the variation in the data has been captured by the included exogenous variables. Women who belong to endogamous communities have a significantly lower probability of being granted a voice in household expenditures, both in terms of giving advice and in terms of receiving money for the expenditure itself. Consistent with the notion that women's status and authority increase in a marriage over time (Das Gupta 1995), we found that women in marriages of longer duration had a greater voice in expenditure decisions.

Female schooling also increases the likelihood that the wife's advice will be taken into account in making expenditure decisions. Public infrastructure variables, such as the presence of electric street lighting and a village educational facility, have large positive effects on women's decision-making authority, as do proximity to the nearest town and bus station. By contrast, the presence of maternity and family health clinics has a weak negative impact.

Tables 8 and 9 show results from ordered probit regressions of the indexes of decisionmaking within the household. Keeping in mind that smaller values of the index indicate greater decisionmaking authority for women, we find that village exogamy significantly increases women's say in expenditure decisions but not in their ability to work (the sign is negative but not significant). By contrast, consanguinity has a large negative impact on women's say for both variables. Muslim women have greater say both in expenditure decisions and in deciding whether the wife should work, while the practice of *purdah* or *gunghat*, which is common in Muslim households, reduces women's say about work but not about expenditures. In female-headed households, women have a greater say about expenditures but are no better off with regard to decisions about work. Women's schooling has a weak positive impact on expenditure decisions but, surprisingly, no impact on work decisions. Higher women's wages significantly increase wives' input on labor force decisions but do not have an impact on expenditure decisions. Male wages, on the other hand, reduce women's say in both areas. The presence of irrigation is associated with greater female authority over expenditures, while the presence of

**TABLE 7** Regression coefficients on wife's decisionmaking authority for household expenditures

Independent variable	Wife has say in household expenditures	Wife gets money for household expenditures
UP state dummy	0.072 (0.787)	0.048 (0.544)
Muslim	0.133 (1.535)	0.11 (1.287)
Scheduled caste/tribe	-0.024 (0.458)	0.031 (0.592)
Village exogamy	-0.013 (0.210)	-0.093 (1.449)
Marriage to relatives customary	-0.494 (6.392)	-0.428 (5.508)
Practice purdah/gunghat	-0.006 (0.093)	0.037 (0.578)
Log village female wage	0.059 (0.278)	0.027 (0.125)
Log village male wage	-0.405 (1.591)	-0.49 (1.850)
Village gross cropped area	0.006 (0.172)	0.021 (0.656)
Proportion of village land irrigated	0.039 (0.295)	-0.097 (0.768)
Main village road	0.006 (0.240)	-0.008 (0.357)
Distance to nearest bus station	0.004 (3.427)	0.004 (2.991)
Distance to nearest town	0.172 (2.504)	0.173 (2.553)
Village electric street lighting	0.217 (3.159)	0.231 (3.457)
Village maternity and family health clinic	-0.084 (1.732)	-0.062 (1.281)
Village educational facilities	0.243 (2.156)	0.192 (1.817)
Sample size	796	798

NOTES: T-statistics in parentheses. All regressions include district dummies and household demographic and wealth controls. Demographic controls include dummies for father-in-law in household, mother-in-law in household, wife's father's literacy, wife's mother's literacy; and variables for wife's age, husband's age, year of marriage, wife's schooling, and husband's schooling. Household wealth controls include dummies for ownership of land, television, electric fan, radio, and bullock cart.

**TABLE 8 Regression coefficients on index of decisionmaking authority for expenditures and women's work**

<b>Independent variable</b>	<b>Expenditure on major goods</b>	<b>Wife working</b>
UP state dummy	0.124 (0.630)	-0.159 (0.827)
Muslim	-0.322 (1.913)	-0.463 (2.964)
Scheduled caste/tribe	-0.014 (0.153)	0.046 (0.483)
Village exogamy	-0.283 (2.665)	-0.032 (0.253)
Marriage to relatives customary	0.616 (3.774)	1.234 (6.418)
Practice purdah/gunghat	0.097 (0.698)	0.268 (1.878)
Female household head	-0.615 (3.518)	0.291 (1.139)
Log village female wage	-0.509 (1.114)	-1.343 (3.076)
Log village male wage	1.219 (2.275)	2.017 (3.728)
Village gross cropped area	0.065 (1.067)	-0.092 (1.542)
Proportion village land irrigated	-0.596 (2.263)	-0.252 (0.942)
Main village road	0.116 (2.377)	0.135 (2.625)
Distance to nearest bus station	-0.004 (1.424)	-0.007 (2.660)
Distance to nearest town	0.207 (1.791)	0.061 (0.553)
Village electric street lighting	-0.593 (4.071)	-0.747 (4.681)
Village maternity and family health clinic	-0.072 (0.860)	-0.046 (0.566)
Village educational facilities	-0.553 (2.707)	-1.042 (4.657)
Sample size	754	743

NOTES: T-statistics in parentheses. All regressions include district dummies and household demographic and wealth controls. Demographic controls include dummies for father-in-law in household, mother-in-law in household, wife's father's literacy, wife's mother's literacy; and variables for wife's age, husband's age, year of marriage, wife's schooling, and husband's schooling. Household wealth controls include dummies for ownership of land, television, electric fan, radio, and bullock cart.

**TABLE 9 Regression coefficients on index of decisionmaking authority for number of children and children's health and education**

Independent variable	Number of children	Children's health	Children's education
UP state dummy	0.484 (2.355)	0.786 (4.227)	1.141 (5.486)
Muslim	-0.252 (1.651)	-0.202 (1.300)	-0.286 (1.804)
Scheduled caste/tribe	0.027 (0.289)	0.114 (1.247)	0.078 (0.861)
Village exogamy	-0.22 (1.866)	0.005 (0.043)	-0.171 (1.548)
Marriage to relatives customary	0.652 (3.718)	0.477 (2.834)	0.568 (3.465)
Practice purdah/gunghat	0.254 (1.800)	0.32 (2.311)	0.269 (2.069)
Female household head	-0.177 (0.618)	0.122 (0.255)	-0.186 (0.437)
Log village female wage	0.082 (0.184)	-0.142 (0.346)	-0.679 (1.834)
Log village male wage	0.725 (1.359)	0.872 (1.696)	1.35 (3.003)
Village gross cropped area	0.04 (0.659)	0.035 (0.546)	-0.032 (0.515)
Proportion village land irrigated	-0.038 (0.132)	-0.656 (2.446)	-0.655 (2.354)
Main village road	0.033 (0.641)	0.12 (2.381)	0.043 (0.881)
Distance to nearest bus station	-0.002 (0.669)	0.003 (0.991)	-0.002 (0.817)
Distance to nearest town	0.177 (1.534)	0.117 (1.026)	-0.043 (0.372)
Village electric street lighting	-0.411 (2.556)	0.006 (0.044)	-0.005 (0.034)
Village maternity and family health clinic	-0.028 (0.334)	-0.051 (0.584)	-0.045 (0.538)
Village educational facilities	-0.779 (4.482)	-0.382 (1.753)	-0.686 (3.374)
Sample size	767	753	754

NOTES: T-statistics in parentheses. All regressions include district dummies and household demographic and wealth controls. Demographic controls include dummies for father-in-law in household, mother-in-law in household, wife's father's literacy, wife's mother's literacy; and variables for wife's age, husband's age, year of marriage, wife's schooling, and husband's schooling. Household wealth controls include dummies for ownership of land, television, electric fan, radio, and bullock cart.

electric streetlights and village schools is associated with greater female say concerning both spending and work. By the same token, women in isolated villages farther from bus stations and without good approach roads have less say over both. Once other variables have been introduced as controls, however, there is no difference between Uttar Pradesh and Karnataka in decisions about expenditures on major goods and whether the wife should work.

Table 9 contains regression results on decisions related to children, such as fertility and children's health and education. Despite the controls, a strong state effect remains: women in Uttar Pradesh clearly have significantly less say than women in Karnataka in all three types of decisions regarding children.

Contrary to Dyson and Moore's hypothesis, village exogamy improves women's say in matters related to fertility and, very weakly, to children's education. Consanguinity worsens women's situation for all three outcomes, as does the practice of *purdah* or *gunghat*. Controlling for all these factors, we find that Muslim women have slightly greater say than Hindu women in decisions on fertility and children's education. This is, however, only a conditional comparison derived after elimination of the detrimental effects of *purdah* and marriage to relatives, both of which are more prevalent among Muslims than Hindus.

Higher female wages increase women's say over decisions about their children's education, and higher male wages produce a negative wealth effect, significantly lessening wives' participation in their children's education and weakly reducing it in decisions concerning children's health. As for government interventions, the presence of schools is associated with increased female authority over all decisions tested. Irrigation is associated with greater authority over decisions about children. Electric streetlights are associated with greater say regarding fertility. Access to maternity and family health clinics, on the other hand, has no apparent impact on decisions of any type.

Our account of the factors affecting women's ability to make decisions about their own and their children's lives in India is mixed, depending greatly on the type of decision involved. Yet patterns do emerge. While village exogamy sometimes improves women's authority, *purdah*, *gunghat*, and consanguinity consistently tend to reduce it. Outside economic opportunities also matter a great deal, in that women who live in less gender-biased labor markets have more say over household decisions than women in villages where male wages are high. This finding is consistent with collective models of intrahousehold allocation, in which the individual's fallback option—in this case the village market wage—affects individuals' autonomy within the household. Surprisingly, the most consistent positive correlate of female autonomy is public investment.

## Analysis and conclusions

Our results do not support Dyson and Moore's contention that consanguinity and village exogamy are the major determinants of differences in gender equity between North and South India. We find that village exogamy, although more prevalent in Uttar Pradesh, is practiced by a majority of communities in Karnataka and that the distance wives live from their natal family in the two states is essentially the same. Whereas Dyson and Moore posit strong negative effects from village exogamy across the board, we find little impact on women's mobility and a weak but positive association with their increased authority in making decisions. We also find that South Indian women pay dowries that are just as high as those of their North Indian counterparts, suggesting that the factors determining dowries in both regions do not contribute directly to the divergent observations regarding gender equity. As Dyson and Moore suggest, however, the practice of *purdah* and *gunghat*, which is more prevalent in the North, is strongly correlated with restrictions on women's agency.

Because our data indicate a much lower prevalence of consanguinity in Karnataka than was observed in the older ethnographic literature, it appears that kinship norms have changed considerably in the last few decades. Sub-castes that continue the practice, therefore, may be more conservative in preserving other traditions as well, including restrictive rules regarding the role and conduct of women. We find that women from sub-castes that practice uncle-niece and cross-cousin marriage have significantly lower authority on a number of decisions, but differences in restrictions on their mobility do not show a consistent pattern. Even at a theoretical level, it is not clear that greater access to the natal home improves women's agency, because it could equally well reinforce the traditional hierarchy in effect between the spouses prior to marriage. In any case, it is now possible to say that recent data gathered from these two states are inconsistent with the conclusions of Dyson and Moore regarding the impact of kinship structures on women's autonomy.

Our findings concerning women's ability to make household decisions suggest that, rather than women in South India having a clear advantage over their counterparts in the North, as posited by Dyson and Moore, women in the two regions exercise power over different spheres. Accounting for cultural factors and for variables such as schooling, wealth, wages, and village facilities, we find that Muslim women seem to exercise more agency than Hindu women over decisions made within the household. Consistent with Dyson and Moore, we find that women in Uttar Pradesh have more restrictions placed on their mobility than women in Karnataka, yet women in Uttar Pradesh have more authority over expenditure decisions. Given that women in Karnataka exercise greater control over decisions pertaining to fertility and

to children's health and education and that Karnataka has lower rates of infant mortality than Uttar Pradesh, it appears that female mobility and control over fertility and child-related issues matter most in determining sex differentials in mortality and in other demographic outcomes.

In contrast to our results with regard to "cultural" variables, our findings for economic variables are consistent with those of earlier studies. Higher female wages make women unambiguously better off, giving them greater mobility, labor force participation, and say in household decisions. Higher male wages, on the other hand, make women worse off—a finding that accords with models of intrahousehold allocation where the sharing rule depends on the fallback options open to individual members. There is also evidence that improvements in household wealth actually reduce female agency, a finding consistent with the notion that women's lack of property and inheritance rights, coupled with social practices such as Sanskritization and observing rules of respectability, adds up to less autonomy for women from wealthy families than from poorer ones. Gains from economic growth biased toward men could therefore have a negative impact on women's agency.

Perhaps most striking in this study are the notable correlations found between women's mobility and public investments by the state. The large and significant association between the presence of electric streetlights and women's mobility suggests that restrictions on mobility may at least in part be driven by fears for women's safety. Similarly, the presence of schools, good roads, and bus service generally increases women's agency. These findings bring with them a hopeful message: providing better public services could improve the mobility and autonomy of women.

While our results also indicate that village infrastructure is associated with greater female involvement in household decisionmaking, the actual pathways involved remain unclear. This uncertainty reflects our inability to consider other variables that might affect female autonomy, such as district-level rural development expenditure, state programs for maternal and child welfare, and the like. Similarly, better village infrastructure and closer proximity to towns may be correlated with higher activity of nongovernmental organizations, which could be the more powerful determinant behind improvements in female autonomy. Our results should therefore be treated with caution when assessing the role of state action in improving female autonomy.

Despite the large number of our controls, state-level dummy variables continue to have significant effects on the mobility regressions and on some of the decisionmaking variables. Generally they suggest better outcomes for women in Karnataka than in Uttar Pradesh. This suggests that there remain some unobservable correlates of women's agency that help explain North-South differences. History, and in particular the legacy of colonial rule, could be an important part of the explanation. Banerjee and Iyer (2003) have



shown that patterns of land tenure established by the British in the early nineteenth century have observable effects on a variety of indicators of human well-being today, with North India generally having large landholdings and the South having small landholdings. Our results suggest a pathway by which land tenure could affect women's mobility and agency. In areas with large landholdings, patriarchal structures may result in increased restrictions on women—particularly since notions such as Sanskritization and respectability are closely tied to the reproduction of class structures. Thus, social mobility may have been more closely tied to demonstrated restrictions on women's mobility in the North than in the South. Similarly, historians have emphasized the role of benevolent "princely states" in establishing egalitarian rule in areas that are now part of Karnataka state and in Kerala (Bhagavan 2003; Jeffrey 1993). Thus, cultural and institutional factors in addition to those suggested by Dyson and Moore may help explain the differences in women's agency in North and South India.

In short, "culture" matters to women's autonomy but not necessarily in the ways Dyson and Moore predicted, and not to the same extent as they asserted. Our analysis, based on more recent data, suggests that improving women's economic opportunities and investing in village infrastructure could go far toward increasing women's agency in rural India, both North and South.

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## Appendix

Our sample consists of 1,897 married women of reproductive age from households randomly selected from five districts each in Karnataka and Uttar Pradesh, India. These districts are Bidar, South Kanara, Kodagu, Mysore, and Kolar in Karnataka and Ghazipur, Faizabad, Mathura, Muzaffarnagar, and Almora in Uttar Pradesh. Each state and district was chosen in order to compare North–South differences in gender practices and to represent cultural and geographic variations within each state. Seven villages from each district were randomly selected, and, within each village, 20 randomly selected households were surveyed.

The survey was composed of three questionnaires: one for the household head (male or female), one for ever-married women of reproductive age randomly selected, and one for an elderly resident. Together these questionnaires were intended to provide a multi-faceted picture of various aspects of household behavior, community practices related to marriage and inheritance, female mobility and decisionmaking, and female labor force participation. The survey also contained detailed questions on household wealth, income, and socioeconomic status. This information was supplemented with village-level data collected from a 1993 India-wide survey conducted by the National Council for Applied Economic Research.

The female mobility variables we used in our estimation were derived from responses to the following questions:

1) Do you have to ask your husband or a senior family member for permission to go to:

- a) Any place outside your house or compound
- b) The home of relatives or friends in the village
- c) The local health center
- d) The local market

2) Can you travel alone to each of the above places?

The decisionmaking variables were of two types. The first type comprises two categorical variables created from the following questions on household expenditure:

- a) Do you have a say in how the household's income is spent?
- b) Do you receive any cash in hand for household expenditures?

The second type of decisionmaking variable was an index constructed from responses to the following questions:

1) Who in your family decides the following? (decision can be made by more than one person)

2) Who of these has the greatest say in this decision?

The six decisions inquired about were the following:

- a) What food to prepare for family meals
- b) Whether to purchase major goods for the household
- c) Whether or not to work outside the home
- d) How many children to have
- e) What to do if a child falls sick
- f) How much schooling to give your children

The index ranges from a value of 1 (where the wife has sole authority over a decision) to 9 (the husband has sole authority). It is constructed from a set of questions in which each respondent was asked to identify the most important person(s) who participated in the decisions listed. Details are available on request from the authors.

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## Notes

Address correspondence to [vrao@worldbank.org](mailto:vrao@worldbank.org). The two authors share equal responsibility for this article. Data used here were collected by the National Council for Applied Economic Research under a project jointly supervised by Sonalde Desai and the second author and funded by the Rockefeller Foundation. We are indebted to Desai for her contribution to the survey and sampling design and to the Rockefeller Foundation for their support. Analysis of the data was partially funded by the World Bank's Gender Division of the Poverty Reduction and Economic Management Group. We thank Francis Bloch, Monica Das Gupta, Naila Kabeer, Beth King, and Karen Mason for valuable comments and discussions. Rukun Advani and, especially, Elizabeth Sherman-Levy provided valuable editorial assistance. The findings, interpre-

tations, and conclusions expressed here are those of the authors and do not necessarily reflect the views of the World Bank or the IMF.

1 See Mason and Smith (2001) on the demographic meaning of "women's autonomy." See also Malhotra, Schuler, and Boender (2002) for a review of the literature on women's empowerment in developing countries.

2 Since the publication of Karve's pioneering work there have been several studies of Indian kinship. Trautmann (1981) is the definitive work on South Indian kinship.

3 This treatment of variables substantially complicates and compounds the problem of omitted variables that affects all statistical analyses of cross-sectional data, including those in this article.

4 Gunghat, a milder form of purdah practiced by Hindus, requires covering the head and part of the face with the end of a saree in the presence of strangers. Purdah/gunghat norms vary between Hindus and Muslims, as argued in Mandelbaum (1988). He states that Muslim women have a stricter code of purdah in terms of the family members in front of whom they observe the practice. In Muslim families purdah is mainly practiced in the presence of strangers, and often among close relatives within the family circle whom the woman can marry (including affine ties but excluding her close blood relatives). Hindus, on the other hand, are more concerned with the danger to the household from within, that is, the affine relations resulting from marriage. Furthermore there are different degrees of purdah or female seclusion. In many areas gunghat is the norm, whereas in others female seclusion restricting women's mobility is the common practice. With our data we cannot distinguish between gunghat and purdah and/or seclusion.

5 Dyson and Moore also acknowledge that longstanding differences in cropping patterns and in the value of female labor may be the "ultimate historical 'cause' of differences between north and south," but say that such an approach raises problems because "there simply is no clear spatial correspondence between cultural variation on the one hand and differences in agrarian ecology on the other" (1983: 47). So, "it seems safer and more realistic to take culture as the primary determining factor..." (p. 48). One problem with this statement is that Dyson and Moore take "culture" to mean largely "kinship," ignoring the wide range of phenomena that could be considered cultural (Rao and Walton 2004).

6 See Foster and Rosenzweig (1996) for an elaboration of this argument.

7 See Behrman (1997) for a survey of such models.

8 This is a good proxy because rural labor markets in India tend to have two uniform wages in any particular village for unskilled laborers, one for males and one for females.

9 For instance, Dyson and Moore use female out-migration as a proxy for village exogamy, which is a far from perfect measure since it is likely to pick up migration driven by

economic and other reasons but does not account for exogamy within the same district.

10 Our article does not address the important question of whether *changes* in kinship structures and the rise in dowry payments may be connected to increases in gender equity, although this is a distinct possibility. This question cannot be adequately addressed by our data. We have no way of identifying how kinship choices and dowry decisions made by households affect women's autonomy, because they are all "endogenous" variables. To statistically identify a causal relationship between them would require instrumental variables correlated with kinship choices and dowries that are not correlated with mobility and autonomy. We therefore can only conduct a "reduced-form" analysis relating mobility and autonomy to variables on kinship rules preferred by the endogamous sub-caste to which the household belongs because this is not in the household's realm of choice and can be treated as "exogenous." For an analysis of the relationship between kinship structures, dowries, and marriage celebrations see Bloch, Rao, and Desai (2004).

11 Therefore, the kinship variable is intended to capture effects of the kinship "system" to which the household belongs.

12 The state of Uttar Pradesh was reorganized in 2000, and one of our districts (Almora) now falls in the new state of Uttaranchal. The other districts remain in Uttar Pradesh.

13 As Kabeer (1999) points out, in a patriarchal system women's ability to make choices may not necessarily imply free agency but may rather serve to perpetuate that system. In many South Asian families, for example, the practice of favoring male children during meals is perpetuated by female members of the family who exercise the greatest control over decisions regarding the cooking and serving of food.

14 A lower index score indicates less decisionmaking authority for the husband and more authority for the wife. We tested our analysis using categorical variables to show whether the respondent participated in, and whether she was the most important decision-maker with regard to, the categories of decisions listed. When we tried various weightings of the index to address our concern about im-

posing notions of equality of participation in our index design, we found no significant differences in our results.

15 Another reason for omitting an analysis of male responses was that men's responses were much less complete and would have reduced the usable sample size by 11 percent.

16 We would hesitate to describe this switch from bride price to dowry, as one referee does, as the encroachment of "Northern" patterns to the South. Rather, we see it as a change caused by a fundamental realignment in the political economy of South Indian marriage (see Rao 1993b and Bloch, Rao, and Desai 2004).

17 We also estimated a set of regressions for questions about whether women could go unaccompanied to these sites, but results largely mirrored those of the "permission required" questions.

18 Sanskritization refers to the adoption by lower castes of the social and cultural practices of upper castes to demonstrate social mobility. The term was coined by Srinivas (1966).

19 The survey did not collect information on the type of school, that is, whether boys-only, girls-only, or mixed.

20 Only the full set of regressions is reported. The subset of regressions is available from vrao@worldbank.org.

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