

Female Labour, Status and Decision Power^{*}

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Abstract

This paper investigates the role of (perceived or own) norm cost in the relationship between female labour supply and decision power, which we define as the say women have in major household decisions. We propose a model where female labour supply and decision power are jointly set following a bargaining process. Taking into account the fact that men may lose status when having a working wife, we show that decision power and female labour supply can be negatively correlated. We test the predictions of our model using Indian panel data. We find that the relationship is negative in contexts where the norm cost of having a working wife is high.

Keywords: Status, Decision Power, Bargaining model, Labour supply, India.

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1 Introduction

Policy debates show a tendency to take the empowering effect of female labour force participation for granted. And indeed, some authors have put forward a positive link (Blumberg

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and Coleman, 1989; Anderson and Eswaran, 2009; Majlesi, 2016; Kabeer et al., 2011). However a growing literature provides a more nuanced description (Hanmer and Klugman, 2016). First, cultural factors and community norms may weigh down on the capacity of women to translate additional earnings into increased power (Oppenheim-Mason, 2005; Heath and Tan, 2019; Field et al., 2021). Second, female labour force participation may backlash through increased domestic violence (Krishnan et al., 2010; Heath, 2014; Bhalotra et al., 2021).

In this paper, we show, theoretically and empirically, that female labour supply can be negatively correlated to the capacity to make decisions within the household, arguably an important aspect of empowerment. The theoretical mechanism we provide is grounded in the assumption that men may suffer from letting their wives work, either by fear of being stigmatized as unable to provide for their families (as in Kabeer (1997); Basu (2006); Bernhardt et al. (2018)), or by incurring an identity cost if they are unable to keep their wives home.¹ Our theory illustrates the necessity of distinguishing between two different dimensions of female empowerment: 1) the ability to participate in household decision making and 2) the bargaining power, the former being derived from the latter, together with other determinants of the utility. This distinction is in line with the recent literature that underlines that empowerment is multi-dimensional (Kabeer, 1999) and that differentiating between the different dimensions is key to understand the effect of programs that aim at enhancing female power (Peterman et al., 2021; Richardson, 2018).

What we call *bargaining power* reflects the conditions under which a marriage exists and is captured by the weight given to each spouse’s utility, as has become standard in the models of intra-household bargaining (Lundberg and Pollak, 1993; Chiappori, 1997). It is determined by a threat option and is a structuring parameter of the marriage contract. We think of bargaining power as being essentially set at marriage and depending on factors such as the relative wealth of spouses’ families, or payments made at marriage such as dowry or bride price, spouses relative social standing, age etc. as argued by Quisumbing and Maluccio

¹We follow the terminology introduced by Field et al. (2021) and we use perceived norm cost to refer to the stigma and own norm cost to refer to the identity cost.

(2003) and Brown (2009). What we call *decision power* reflects the operating conditions of such a marriage and results in decisions taken in everyday life. It is envisaged as having a say in households' choices of public goods. It is distinct from bargaining power in the sense that involvement in household's decisions is not a parameter that structures the lives and power relationships within the household, but rather a way to handle current affairs, given such a power relationship.²³ We therefore hypothesize decision power to be an outcome of the bargaining process.

In our model, husbands' utility depends on their status, which is determined by both their decision power and the labour of their wives. As labour supply and decision power are both the outcomes of the bargaining process, husbands' loss in utility can be compensated by greater decision power over choices that are of importance to the household such as fertility for instance. Hence, female labour supply can be negatively correlated to decision power, as women surrender their decision power to their husbands in order to compensate for their loss in status and hence in utility. Our argument has similar consequences as the argument that women buy peace by surrendering their wages to their opposing husbands, thereby cancelling the potentially empowering effect of labour in their households, as investigated by Kabeer (1997). In both cases, an increase in female labour supply coincides with a reallocation of household's decision making to the advantage of men. Importantly, a loss in decision power for women does not necessarily entail a loss in their utility, as it may just be the compensation women provide to work more, have greater material well-being and more utility.

The theoretical model generates predictions that we are able to test using panel data from the India Human Development Survey (IHDS). India seems a particularly relevant case study as it has been documented that men care about the norm of keeping a wife at home (Bernhardt et al., 2018).⁴ We show that women's participation in the labour force and an

²³The relevance of such distinction is mentioned in Bernard et al. (2020)

³The assumption that bargaining power is set at marriage and fixed over time is unnecessarily strong. What we want to emphasize, however, is that bargaining power is less flexible and adjusts less to changes in the external environment than decision power.

⁴Bernhardt et al. (2018) not only clearly put forward that men believe, largely more than women, that female work is costly to them, but the authors also set forth that men perceive the community's disapproval

increase in their labour time, measured in terms of number of days worked over the last twelve months, are negatively associated with their decision power measured as having a say over the choice of important household public goods related to fertility, large expenses and children’s marriage. This negative relationship is primarily found in rural settings, which are presumably more conservative in terms of gender norms, and where female labour may be more easily observable. Moreover, the correlation between labour supply and decision power is significantly negative not only for paid labour but also for labour supplied to the household farm or business. This suggests that the effect is unlikely to capture a change in the threat option or bargaining power, as unpaid work is often thought as having little effect on these dimensions (Anderson and Eswaran, 2009). It also highlights that the effect cannot be interpreted as a search for more autonomy outside their home when women face a decrease in their decision power, as working on the household farm or business is not likely to bring more autonomy.

We also explore alternative explanations to the observed negative correlation between female labour supply and decision power. Our results are not consistent with explanations that involve changes in family structure, in female relative wealth or income, in time allocation between spouses, in health status of household members or in the reallocation of bargaining power.

The literature that explores the heterogeneous relationship between female labour supply and female empowerment mainly focuses on the capacity of women to retain control over their income (Heath and Tan, 2019; Field et al., 2021). Our paper adds to this literature by exploring an additional mechanism, the role of the cost that men may incur from having a wife who works. In doing so, it also complements the literature on social norms on female employment (Dildar, 2015; Dean and Jayachandran, 2019; Jayachandran, 2021; Field et al., 2021). By showing that a change in labour force participation or in the number of days

of female labour to be much higher than it actually is. Other papers have investigated the extent of such misperception (see for instance Bursztyn et al. (2020) in the context of Saudi Arabia or Jayachandran (2020) for a review). Although these studies do provide a solid ground for our claim that men resent their wives’ labour, discussing the existence and extent of such a gap in perceptions is beyond the scope of this work.

worked recast the allocation of decision power within the household, we show that this norm, not only has an impact at the extensive margin but also on the intensive margin of female labour supply. Finally, our paper suggests that decision power, as observed by the way a wife may have in important household decisions, is a poor proxy of her unobserved bargaining power.

The rest of the paper is structured as follows. Section 2 sets out the model and Section 3 presents the data and the empirical strategy. Section 4 sets out and comments on the empirical results, while Section 5 investigates potential alternative explanations.

2 Model

A key novelty of the paper lies in the distinction we make between bargaining power and decision power. On the one hand, the allocation of bargaining power is assumed to be exogenous to household decisions, while, on the other hand, the distribution of decision power results from the bargaining between spouses and is set concurrently with the amount of labour supplied by the wife.⁵

Women and men's utility, u_f and u_m , depend on their respective material well-being, m_i , as well as on their status, s_i , $i \in \{f, m\}$. Their material well-being is a classical function increasing in consumption c_i and decreasing in labour time ℓ_i :

$$m_i = c_i - h_i(\ell_i),$$

where the disutility of labour function h_i satisfies: $h'_i > 0$ and $h''_i > 0$, $i \in \{f, m\}$.

The status of women depends on their decision power within the household, d_f , and on

⁵Our assumption that household decisions do not affect the relative bargaining power of the spouses does not prevent this relative power from depending on exogenous parameters, such as the wife's wage. In the Appendix, we present a variant of the model in which the relative bargaining power depends on the wife's wage and the basic results still hold.

their labour time, according to the function

$$s_f = d_f + \delta \ell_f,$$

where δ represents the importance of her labour time in a woman's status. A positive δ , the intuition that is found in the literature, means that working for pay or in the household farm or business provides additional status to women. A negative δ means that women gain social status by staying home, for instance because their time home allows them to build and entertain their social network.

The status of men depends on their decision power within the household, d_m , and on their wife's labour allocation, according to the function

$$s_m = d_m - \gamma \ell_f,$$

where $\gamma \geq 0$ represents the strength of the cost incurred by husbands for being unable to keep their wives home. The value of γ may differ across households. The assumption that s_m is linear in its two arguments is made for simplicity, but it is central that there is substitution between decision power and female labour time.

To be relatively neutral in terms of the complementarity or substitutability between material well-being and status, we assume

$$\begin{aligned} u_f(m_f, s_f) &= m_f s_f, \\ u_m(m_m, s_m) &= m_m s_m. \end{aligned}$$

The constraints facing the household are first that its members need to work to earn money and consume. We assume that they have a non-earned income (or wealth) of y and

each spouse works at a wage of w_i , $i \in \{f, m\}$. The constraint can be written

$$c_f + c_m \leq y + w_f \ell_f + w_m \ell_m. \quad (1)$$

The second constraint is that the decision power is divided among the spouses:

$$d_f + d_m = 1. \quad (2)$$

Spouses have to decide on $\ell_f, \ell_m, d_f, d_m, c_f$ and c_m . We assume that all these variables are chosen through a bargaining process. We model the bargaining as a Nash bargain, where the bargaining power of the wife (resp., the husband) is equal to λ (resp., $1 - \lambda$), that is the household solves the following program

$$\max_{\ell_f, \ell_m, d_f, d_m, c_f, c_m} \mathcal{N} = u_f^\lambda u_m^{1-\lambda}$$

under constraints (1) and (2).

We would like to set out a correlation between d_f and ℓ_f , *for a fixed* λ , as a consequence of a higher γ in the household. We simplify the problem by assuming that men always work full time, so that ℓ_m is fixed. Taking constraints into account and taking the log of the Nash product, we rewrite the problem as

$$\begin{aligned} & \max_{\ell_f, d_f, c_f} \lambda \ln(c_f - h_f(\ell_f)) + \lambda \ln(d_f + \delta \ell_f) \\ & + (1 - \lambda) \ln(y + w_f \ell_f + w_m \ell_m - c_f - h_m(\ell_m)) + (1 - \lambda) \ln(1 - d_f - \gamma \ell_f). \end{aligned}$$

We denote the optimal values of the endogenous variables with a $*$.

The derivative of the objective with respect to c_f gives us

$$\frac{\partial \mathcal{N}}{\partial c_f} = \frac{\lambda}{c_f^* - h_f(\ell_f^*)} - \frac{(1 - \lambda)}{y + w_f \ell_f^* + w_m \ell_m - c_f^* - h_m(\ell_m)} = 0,$$

which can be simplified into

$$\frac{m_f^*}{m_m^*} = \frac{\lambda}{1 - \lambda},$$

that is, material well-being is distributed proportionally to the bargaining power. This is not a surprise, given the separability assumptions that we made.

More interesting is the derivation of the optimal division of decision power within the household. We have

$$\frac{\partial \mathcal{N}}{\partial d_f} = \frac{\lambda}{d_f^* + \delta \ell_f^*} - \frac{(1 - \lambda)}{1 - d_f^* - \gamma \ell_f^*} = 0,$$

which can be rewritten

$$d_f^* = \lambda - (\lambda\gamma + (1 - \lambda)\delta)\ell_f^*, \quad (3)$$

so that

$$\frac{dd_f^*}{d\ell_f^*} = -(\lambda\gamma + (1 - \lambda)\delta), \quad (4)$$

that is, the correlation between the optimal decision power and labour time of the wives is a convex combination of the two perceived norm parameters, γ and δ . The sign of the derivative depends on the sign and size of γ and δ according to

$$\frac{dd_f^*}{d\ell_f^*} \leq 0 \Leftrightarrow \lambda\gamma \geq (1 - \lambda)(-\delta).$$

If they are both equal to 0, that is, if there is no status concern associated with female labour, then there is no reason for the decision power to change as a function of female labour. Indeed, the division of the decision power is a matter of the bargaining power, and the decision about women work is a purely economic one: the household trade-off between the utility of consuming more and the disutility of labour. As a consequence, if it turns out to be interesting for the household to have the wife work outside for money or to work at

the household farm, she is compensated for it with a larger consumption.⁶

A positive δ means that working outside gives status to wives. When this is so, both γ and δ push in favor of a negative relationship between labour time and decision power: as the husband dislikes letting his wife work whereas she likes working outside the house, then the husband gets a compensation in terms of decision power. The relationship between female labour participation and her decision power is more subtle when her status also suffers from working outside. If the dominating effect is a large γ , that is, if being able to keep their wife home is of high value to men, then a higher female labour time goes together with a lower female decision power, because the husband's decrease in status due to the larger female labour has to be compensated with a larger decision power.

The model so far assumes that the female labour time is a continuous variable. As a result, the optimal female labour time adjusts to external shocks at the intensive margin, so that small changes in the environment leads to small adjustments of the labour supply. A simplified version of the model could restrict this adjustment to be at the extensive margin, which is particularly relevant if status is determined only as a function of whether the wife works or not, instead of how long she works. In this case, we can restrict our attention to $\ell_f \in \{0, 1\}$. If the optimal labour time is 0, then we have $\frac{d_f}{1-d_f} = \frac{\lambda}{1-\lambda}$ at equilibrium, so that $d_f = \lambda$. If the optimal labour time is 1, then we have $\frac{d_f+\delta}{1-d_f-\gamma} = \frac{\lambda}{1-\lambda}$ at equilibrium, so that $d_f = \lambda - (\lambda\gamma + (1-\lambda)\delta)$. If the wife takes a job outside, her decision power decreases by $(\lambda\gamma + (1-\lambda)\delta)$. We test our predictions below by looking at both the intensive and the extensive margins.

It is typical to define the Nash product in terms of utility gains and not utilities themselves, with utility gains being evaluated with respect to some threat option utility level. Anderson and Eswaran (2009) point out the influence of the threat option. While the threat

⁶The derivative of the Nash product with respect to the labour time of the wives gives us

$$\frac{\partial \mathcal{N}}{\partial \ell_f} = \frac{-\lambda h'_f(\ell_f^*)}{c_f^* - h_f(\ell_f^*)} + \frac{\lambda \delta}{d_f^* + \delta \ell_f^*} + \frac{(1-\lambda)w_f}{y + w_f \ell_f^* + w_m \ell_m - c_f^* - h_m(\ell_m)} - \frac{(1-\lambda)\gamma}{1 - d_f^* - \gamma \ell_f^*} = 0,$$

which, together with the previous equation, determines the optimal labour time.

option is key to determining the relative utility of the agents at the equilibrium, which is the focus of the analysis of Anderson and Eswaran (2009), our result, captured by Eq.4, is less related to the relative utilities obtained by spouses than to the shape of the Pareto frontier (in the six-dimensional space of consumption, decision power and labour time of spouses) at the equilibrium.⁷

We can summarize the main result of the model in the following three predictions, which we test in the next sections.

Prediction 1 *It is possible to have a negative relationship between the wife's labour supply and her decision power within the household. This comes from the fact that $\lambda\gamma + (1 - \lambda)\delta$ can be positive.*

Prediction 2 *A negative relationship between the wife's labour supply and her decision power within the household is more likely in households in which it is important for men to keep their wives home. This comes from the fact that a larger γ goes together with a lower $\frac{dd_f^*}{d\ell_f^*}$.*

Prediction 3 *A negative relationship between the wife's labour supply and her decision power within the household is more likely in households in which the work for pay of the wife conveys status. This comes from the fact that a larger δ goes together with a lower $\frac{dd_f^*}{d\ell_f^*}$.*

⁷Assume, indeed, that there is a threat option, determined by material well-beings and social statuses $\bar{m}_f$, $\bar{m}_m$, $\bar{s}_f$ and $\bar{s}_m$. The Nash product becomes

$$\begin{aligned} & \max_{\ell_f, d_f, c_f} \lambda \ln(c_f - h_f(\ell_f) - \bar{m}_f) + \lambda \ln(d_f + \delta \ell_f - \bar{s}_f) \\ & + (1 - \lambda) \ln(y + w_f \ell_f + w_m \ell_m - c_f - h_m(\ell_m) - \bar{m}_m) + (1 - \lambda) \ln(1 - d_f - \gamma \ell_f - \bar{s}_m). \end{aligned}$$

The derivation with respect to d_f leads to the following variant of Eq. (3)

$$d_f^* = \lambda(1 - \bar{s}_m) + (1 - \lambda)\bar{s}_f - (\lambda\gamma + (1 - \lambda)\delta)\ell_f^*,$$

so that $\frac{dd_f^*}{d\ell_f^*}$ is not affected by the threat option. The key point is that we are on the Pareto frontier, at a point which is determined by the threat option and the relative bargaining power, but Eq. (4) comes from both the efficiency condition and the relative bargaining power.

3 Data and Descriptive statistics

To test our theoretical predictions, we use data from the India Human Development Survey (IHDS), which is a two-year panel collected in 2006 and 2012 (Desai et al., 2019). It is a nationally representative survey that contains information on households throughout India. In each household, at least one woman who has ever been married is interviewed in 2006 and 2012. To avoid household composition effects, we focus on households whose composition has not dramatically changed over the two periods, namely on households that are either nuclear or extended in both waves. The final sample is composed of 32,086 households.

Table 1 provides descriptive statistics on our key variables of interest and reads as follows: the first three columns provide the sample mean of the variables, for the two waves pooled (column 1) or separately (columns 2 and 3), while column 4 displays the fraction of the sample which has a different value for the variable in 2006 compared to 2012. Column 5 and 6 further decompose the change: for the fraction of the sample which had a change between 2006 and 2012, column 5 displays the fraction for which the change is an increase and column 6 the fraction for which the change is a decrease.

Our measures of decision power are binary variables that are equal to one if the respondent declares that she takes part to the decision regarding (a) what to cook on a daily basis (b) what to do if a child falls sick (c) whether to buy an expensive item such as a fridge or a TV (d) how many children to have and (e) to whom children should marry. Although we use all these variables, they do not equally translate relevant decision power. Cooking and child care are traditionally under women’s purview and hence may not starkly reveal enhanced decision power. We refer to these decisions as “routine” ones. In comparison, large expenses, fertility choices and family unions through marriages are important decisions that are less likely to be the domain of women, and that we term “major” decisions. Although women seem to largely take part in all these decisions, they are relatively less involved in major ones. There are also relatively more variations over time in women’s declared participation in major decisions: 28 to 37% of the women witnessed a change of their decision power for

Table 1: Descriptive Statistics - main variables

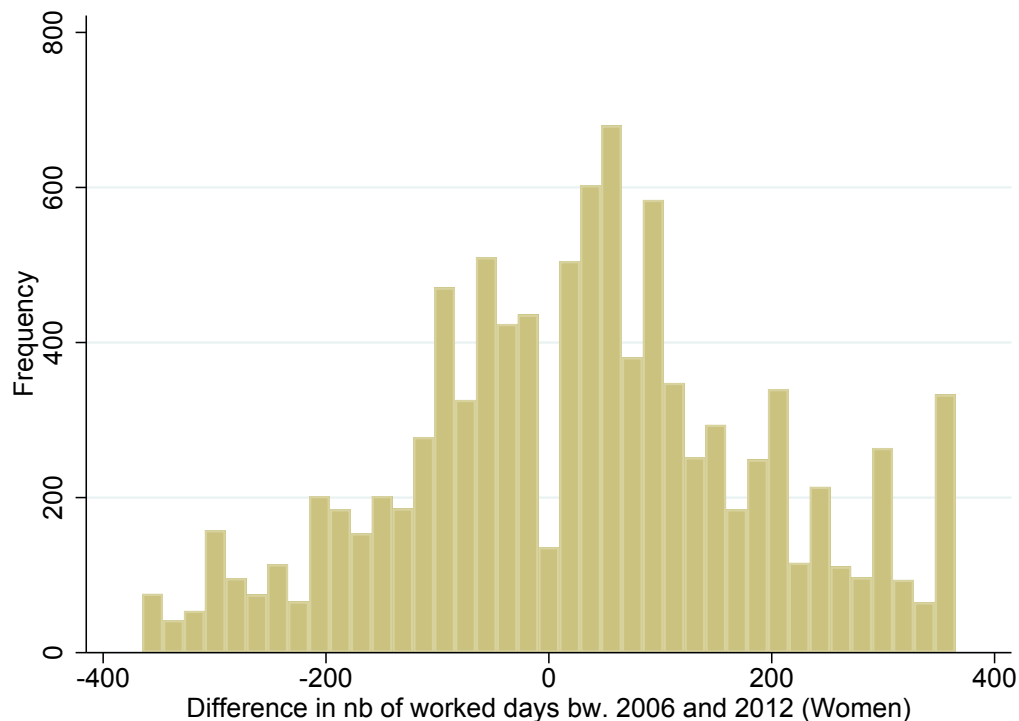
	Mean both years	Mean 2006	Mean 2012	Prop. Change 2006-2012	Prop. ↗ 2006-2012	Prop. ↘ 2006-2012
Decision power variables						
(a) Cook	0.95 (0.23)	0.95 (0.22)	0.94 (0.23)	0.10	0.48	0.52
(b) Sick	0.87 (0.33)	0.85 (0.36)	0.90 (0.30)	0.26	0.55	0.45
(c) Major expenditure	0.75 (0.43)	0.71 (0.46)	0.80 (0.40)	0.37	0.63	0.37
(d) Fertility	0.85 (0.35)	0.80 (0.40)	0.91 (0.29)	0.28	0.75	0.25
(e) Marry	0.82 (0.38)	0.77 (0.42)	0.87 (0.33)	0.34	0.58	0.42
Labour variables - Women						
Labour force participation	0.52 (0.50)	0.48 (0.50)	0.55 (0.50)	0.29	0.63	0.37
Labour time (days)	88.62 (111.65)	82.20 (107.93)	95.04 (114.90)	0.64	0.56	0.44
Work for wage (days) (days)	44.45 (88.13)	41.03 (83.52)	47.87 (92.39)	0.40	0.56	0.44
Work in HH activity (days)	44.93 (81.55)	41.69 (78.19)	48.18 (84.65)	0.45	0.55	0.45
Labour variables - Husbands						
Labour force participation	0.94 (0.24)	0.95 (0.23)	0.93 (0.26)	0.10	0.42	0.58
Labour time (days)	239.49 (104.37)	239.84 (98.00)	239.13 (110.37)	0.93	0.54	0.46
Work for wage (days)	150.41 (131.96)	149.26 (127.46)	151.55 (136.31)	0.75	0.54	0.46
Work in HH activity (days)	93.40 (120.44)	93.71 (120.62)	93.08 (120.27)	0.60	0.51	0.49
N Observations	32,086	16,043	16,043			

Column 1-3 report the sample mean and the standard deviation (in parenthesis) for each variable. Column 1 includes both waves, column 2 only year 2006, and column 3 year 2012. Column 3-6 report changes between the two waves: column 4 reports the proportion of the sample that declares a different value in 2012 compared to 2006 ; column 5 and 6 report the proportion of those (among the ones who declared a different value) who declared an increase (column 5) and a decrease (column 6).

major decisions compared to 10 to 26% of the women for routine decisions.

Data also provide information about the amount of labour supplied by members of the household either on the household farm or business or in the labour market. We use two variables: first, whether the respondent participates in the labour force and second, the total number of days of labour she has supplied over the last 12 months, which is self-reported. These variables are eventually disaggregated between labour supplied, if any, to the household business or farm on the one hand, and to the labour market for a wage on the other hand. Summary statistics show that 48% of women in the sample participated in the labour force in 2006 and 55% in 2012, but 29% changed their labour force participation status, among which 63% went from not working in 2006 to working in 2012 and 37% experienced the opposite change.

Figure 1: Changes in female labour time between 2006 and 2012



With respect to labour time, women supplied on average 89 days of labour divided in 44 days of labour to the market and 45 days to the household farm or business. Figure

1 graphs the difference in the number of days worked between 2006 and 2012 for the 64% of women who declare a different value in 2006 and 2012. As can be seen from the graph, there are positive and negative changes over a large range of value. Therefore, Table 1 and Figure 1 do not depict a general increase in labour force participation. A large fraction of the sample did not experience any change between the two waves, and, among those who experienced a change, many have decreased their labour participation. That should warn us against explaining the correlations that we uncover by simple long run trends imposing themselves to everyone.

Not surprisingly, husbands participate much more in the labour force and work more time. Two-thirds of their labour time is for wage, while two-thirds is in the household farm or business. Other descriptive statistics on our control variables are shown in Table B.1 in Appendix.

4 Results

Our model emphasizes a correlation between female labour supply and female decision power. As both variables are, per our model, jointly determined in the bargaining process, the empirical strategy does not need to identify a *causal* relationship between labour supply and decision power. However, we need to make sure that the correlation that we observe is not due to other unrelated (unobserved) factors. To do so, we exploit the panel dimension of our data that allows us to control for individual and household level factors that are fixed over time, such as the bargaining power and the status variables, λ , γ and δ , which we assume heterogenous across households but fixed over time (an assumption that we test in Section 5.5). To control for time-varying factors, we rely on a rich set of time-varying controls. We discuss potential alternative explanations in Section 5.

4.1 Decision power and female labour supply

We begin with prediction 1 that states that the correlation between decision power and female labour supply can be negative:

Prediction 1 *It is possible to have a negative relationship between the wife's labour supply and her decision power within the household. This comes from the fact that $\lambda\gamma + (1 - \lambda)\delta$ can be positive.*

To test prediction 1, we estimate the following equation using a linear probability model:⁸

$$Pr(DP_{i,t} = 1) = \alpha + \beta L_{i,t} + \gamma X_{it} + c_i + j_t + u_{i,t} \quad (5)$$

$DP_{i,t}$ is a dummy equal to one if woman i has a say in the dimension considered at time t : cooking, children's healthcare, major expenses, fertility or who the children should marry. $L_{i,t}$ is either a dummy that takes the value 1 if the respondent has supplied any labour over the year t , or it is the number of days she has worked over the period either for wage or on the household farm or business. X_{it} is a vector of time varying individual and household characteristics. It includes the respondent's and husband's age and its squared form as decision power and the capacity to work may evolve along the life cycle. We control for the presence of either of the in-laws who may be in demand of the woman's time and at the same time exert a direct influence on her capacity to decide. Similarly, we control for the dependency of other household members by including the number of children below schooling age and of individuals in the household. We also control for standard correlates of labour supply such as household's income, excluding that of the respondent, as well as wealth, by

⁸The use of least squares to model a dichotomous variable may lead to increasingly biased and inconsistent estimates as the proportion of predicted probabilities that fall out of the $[0,1]$ interval increases (Horrace and Oaxaca, 2006). We, nevertheless, resort to a Linear Probability Model for two reasons: first the proportion of predicted probabilities that are out of range is modest so that the extent of the bias should be limited. Second, the alternative would be to resort to non-linear models such as probit or logit. However, given that we include individual fixed effects, estimates would suffer from incidental parameter bias. We test the robustness of our results with respect to the bias identified by Horrace and Oaxaca (2006) by excluding observations with predictions out of the interval $[0,1]$ in Panel 3 of Table 2.

including the amount of land owned by the household as land is the main source of wealth in rural, and to some extent in urban India, and an index for assets owned. Other controls relate to the characteristics of the woman’s work, such as the woman’s earned daily wage rate and a proxy for the status of the work (a dummy that indicates if the wife works in the agricultural sector), that may relate to their bargaining power within the household. Finally we include binary variables equal to one if the household operates a farm or a business as it is likely to determine women’s labour supply, and the month and year the interview was conducted. c_i are individual fixed effects that control for individual and household characteristics that are fixed over time.⁹ j_t is a time dummy and $u_{i,t}$ is the error term. In order to account for the potential spatial correlation of the disturbance term, standard errors are clustered at the Primary Sample Unit level which is either the village in rural areas or the neighborhood in urban areas.

Panel 1 in Table 2 presents the estimation results for the link between decision power and labour force participation (A) and between decision power and the number of days worked over the year (B).¹⁰ The labour time variable is standardized, such that the coefficient can be interpreted in terms of standard deviations.

Columns (1) and (2) show no significant relationship between female labour force participation or labour time and decisions that are traditionally in the hands of women such as cooking and child care. However, columns (3), (4) and (5) exhibit a statistically significant and negative relationship between women’s involvement in major household’s decisions such as large expenses, number of children to have or family alliances through marriage and female labour force participation as well as labour time.¹¹ Participating in the labour force decreases the probability to take part in decisions regarding major expenses by 4.5

⁹In particular, the individual fixed effects capture the heterogeneity in terms of bargaining power across households, and in the status variables, λ , γ and δ , which we consider as fixed or changing very slowly over time. This assumption is discussed in Section 5.5.

¹⁰For the sake of clarity and conciseness we only present the coefficients related to women labour supply. The coefficients associated with the control variables are displayed in Table B.2 in Appendix.

¹¹The relationship is not significant between the decision on whom the child should marry and labour force participation but the coefficient becomes significantly different from 0 in the robustness checks shown in Panel 3 and 4 and when we restrict to rural areas in Table 3.

Table 2: Main specification and robustness checks

	Routine Decisions		Major Decisions		
	(1)	(2)	(3)	(4)	(5)
	Cook (w)	Sick (w)	Maj. exp. (w)	Fert. (w)	Marry (w)
Panel 1: Main specification					
A - Labour Force Participation	-0.0120 (0.00754)	0.00498 (0.0122)	-0.0449*** (0.0146)	-0.0254** (0.0117)	-0.0210 (0.0129)
R^2	0.018	0.044	0.061	0.101	0.080
N	32024	30156	31866	31034	29488
B - Labour Time (days)	-0.00609 (0.00402)	-0.00890 (0.00616)	-0.0297*** (0.00653)	-0.0237*** (0.00612)	-0.0248*** (0.00642)
R^2	0.018	0.044	0.063	0.103	0.082
N	32024	30156	31866	31034	29488
Panel 2: Controlling for district FLFP					
A - Labour Force Participation	-0.0107 (0.00731)	0.00567 (0.0125)	-0.0448*** (0.0149)	-0.0233** (0.0117)	-0.0199 (0.0130)
District FLFP	0.0137 (0.0275)	-0.151** (0.0694)	-0.140* (0.0823)	-0.0700 (0.0707)	-0.127* (0.0765)
R^2	0.020	0.050	0.065	0.103	0.083
N	30961	29144	30807	29980	28497
B - Labour Time (days)	-0.00276 (0.00335)	-0.00397 (0.00594)	-0.0271*** (0.00656)	-0.0203*** (0.00571)	-0.0191*** (0.00604)
District FLFP	0.0139 (0.0275)	-0.150** (0.0692)	-0.137* (0.0818)	-0.0679 (0.0703)	-0.124 (0.0762)
R^2	0.019	0.050	0.066	0.105	0.084
N	30961	29144	30807	29980	28497
Panel 3: Excluding observations with out of interval [0, 1] predictions					
A - Labour Force Participation	-0.0127 (0.00825)	0.00175 (0.0115)	-0.0461*** (0.0147)	-0.0304** (0.0134)	-0.0230* (0.0138)
R^2	0.018	0.034	0.061	0.050	0.058
N	27964	26730	31392	22220	25026
B - Labour Time (days)	-0.00661 (0.00436)	-0.0103* (0.00602)	-0.0313*** (0.00644)	-0.0191*** (0.00723)	-0.0256*** (0.00730)
R^2	0.019	0.036	0.062	0.051	0.061
N	28122	26596	31388	22480	25212
Panel 4: Excluding women with small var in labour days					
B - Labour Time (days)	-0.00583 (0.00399)	-0.00937 (0.00598)	-0.0274*** (0.00659)	-0.0227*** (0.00625)	-0.0226*** (0.00658)
R^2	0.031	0.051	0.085	0.129	0.107
N	18668	17540	18542	18052	17180

Notes: Standard errors in parentheses clustered at the village/neighborhood level with ***, **, and * respectively denoting significance at the 1%, 5%, and 10% levels. All equations include individual fixed effects and time dummies (month and year of the survey) as well as the following controls at the individual level: respondent's and husband's age and age², relation to the head, number of children under 5, whether the woman works in the agricultural sector and her earned average daily wage. The household level controls are: number of household members, presence of the father or mother-in-law, amount of land owned (in log), whether the household cultivates a farm or operates a non farm business, yearly income (in log, without the female respondent income). The labour days variable is standardized.

percentage points from an average of 75% to 70%, and to have a say in fertility decisions by 2.5 percentage points from an average of 85% to 82%. It is of the same magnitude but not significant for marriage decisions. A one standard deviation increase in labour time (i.e. by 112 days) lowers the probability to have a say in major expenses from an average of 75% to 72%, in the number of children to have from an average 85% to 83% and in whom children should marry from an average of 82% to 79%.¹²

Our results set forth a negative relationship between decision power and on one hand labour force participation and on the other hand labour time, an effect we attribute to the cost that men incur for not being able to keep their wives at home. In Panel 2 to 4 we test the robustness of the relationship. First, the cost that men incur may evolve over time. In order to proxy for the acceptability of female work, we compute the average labour force participation at the district - sector (i.e urban or rural) level using the 62 and 68 rounds of the National Sample Survey Data.¹³ Panel 2 of Table 2 shows that the addition did not significantly alter the results.

Second, given that our specification includes a large number of fixed effects, we adhere to a linear probability model. According to Horrace and Oaxaca (2006), however, coefficients may be biased if a large proportion of predicted probabilities falls outside the $[0, 1]$ interval. The authors suggest, as a robustness check, re-estimating the coefficients on a sample that is reduced to observations whose predicted probabilities fall within the $[0, 1]$ interval. Panel 3 of Table 2 confirms that the bias, if any, was limited and led, in broad terms, to underestimating the relationship. For instance, participation to marriage decisions is now significantly correlated with the decision to enter the labour market and most coefficients are bigger in

¹²In Appendix B.3 we explore whether the relationship between labour supply and decision power depends on the direction of the change in labour supply between 2006 and 2012 by dividing the sample into women who increase their labor supply and women who decrease it. For labour force participation, the negative relationship is mostly driven by women who declared that they work in 2012 but not in 2006. This is consistent with an asymmetry between the effect of an increase in women's labour force participation on their husband's status and the effect of a decrease: the loss of status is larger in the former case than the (re)gain of status in the latter case, suggesting some stickiness in the social stigma or the identity cost of having a working wife. When looking at labour time the effect is the same across both groups.

¹³Dharmalingam and Philip Morgan (1996) show that the participation of women to the local labour market partially captures the acceptability of female work

absolute terms. Finally, we investigate whether changes in the number of days worked is due to inaccuracies in respondents' answers or possibly to noise in the data. In order to test that possibility, estimates are computed excluding households who declared the smallest change in the number of days worked, that is the lowest 5th percentile and displayed in Panel 4 of Table 2. The relationship remains significant and negative and of similar magnitude.

4.2 Men's status and decision power

Predictions 2 and 3 deal with two possible sources of heterogeneity in the relationship between decision power and female labour supply. Prediction 2 is about heterogeneity in the social status of men:

Prediction 2 *A negative relationship between the wife's labour supply and her decision power within the household is more likely in households in which it is important for men to keep their wives home. This comes from the fact that a larger γ goes together with a lower $\frac{dd_f^*}{d\ell_f^*}$.*

We test this Prediction by looking at the heterogeneity of the relationship between decision power and female labour supply with respect to the localization of the household. While we cannot measure the norm cost of having a wife who works, we can hypothesize that it is higher in rural areas. On one hand because rural areas tend to be more conservative (Allendorf and Pandian, 2016; Jensen and Oster, 2009):¹⁴ in an urban environment having a working wife may not be as frowned upon, or at least by less people, and on the other hand, because the behavior of individuals is likely to be more observable in a village than in a city. To test Prediction 2, Equation 5 is estimated on rural and urban samples separately. The localization is fixed in our sample as IHDS only re-interviewed households who had not changed location. Results are presented in Table 3. The negative relationship between

¹⁴Allendorf and Pandian (2016) document that marriage arrangements are much more traditional in rural areas: for instance future spouses are less often consulted in the choice of a match than in urban areas and they more often meet on the day of the wedding. Jensen and Oster (2009) also show how the introduction of cable television in rural India, by exposing rural households to urban attitudes and values, led to improvements in the status and autonomy for rural women, that lagged behind that of urban dwellers.

Table 3: Test of Prediction 2: Heterogeneity of the effect with respect to the localization

	Routine Decisions		Major Decisions		
	(1)	(2)	(3)	(4)	(5)
	Cook (w)	Sick (w)	Maj. exp. (w)	Fert. (w)	Marry (w)
Panel 1: Urban sample					
A - Labour Force Participation	0.0130 (0.00803)	0.00791 (0.0165)	0.00819 (0.0196)	0.00664 (0.0187)	0.0145 (0.0194)
R^2	0.019	0.071	0.052	0.072	0.062
N	11148	10528	11122	10838	10238
B - Labour Time (days)	0.00233 (0.00356)	-0.00460 (0.00660)	-0.00625 (0.00857)	-0.00382 (0.00746)	-0.00627 (0.00834)
R^2	0.019	0.071	0.052	0.072	0.062
N	11148	10528	11122	10838	10238
Panel 2: Rural sample					
A - Labour Force Participation	-0.0207** (0.00967)	0.000488 (0.0138)	-0.0598*** (0.0177)	-0.0356** (0.0138)	-0.0324** (0.0156)
R^2	0.026	0.048	0.089	0.127	0.100
N	20876	19628	20744	20196	19250
B - Labour Time (days)	-0.0102* (0.00550)	-0.0111 (0.00789)	-0.0376*** (0.00817)	-0.0310*** (0.00781)	-0.0313*** (0.00813)
R^2	0.026	0.049	0.090	0.130	0.102
N	20876	19628	20744	20196	19250

Notes: Standard errors in parentheses clustered at the village/neighborhood level with ***, **, and * respectively denoting significance at the 1%, 5%, and 10% levels. All equations include individual fixed effects and time dummies (month and year of the survey) as well as the following controls at the individual level: respondent's and husband's age and age², relation to the head, number of children under 5, whether the woman works in the agricultural sector and her earned average daily wage. The household level controls are: number of household members, presence of the father or mother-in-law, amount of land owned (in log), whether the household cultivates a farm or operates a non farm business, yearly income (in log, without the female respondent income). The labour days variable is standardized.

female labour supply and decision power is only found in rural areas (Panel 2), which is in line with Prediction 2: we expect the norm cost for men to be higher in rural areas than urban areas.

4.3 Women’s status and decision power

Finally, Prediction 3 states that the relationship may also be heterogeneous with respect to the occupation of the wife:

Prediction 3 *A negative relationship between the wife’s labour supply and her decision power within the household is more likely in households in which the work for pay of the wife conveys status. This comes from the fact that a larger δ goes together with a lower $\frac{dd_f^*}{d\ell_f^*}$.*

Unfortunately, there is no precise information in the dataset about the level of qualification of women’s work. We hypothesize that within wage work, being employed in agriculture is considered lowly work, and explore whether the relationship between wage work and decision power is different for agricultural labourers. If Prediction 3 holds, we expect the relationship between decision power and wage work to be less negative for agricultural jobs. We differentiate between wage work and work for the household, and interact wage work with a dummy indicating whether the woman works as agricultural labourer. Table 4 presents the estimates. The first finding is that the relationship between labour supply and decision power is negative for both types of work. As we will discuss again in Sections 5.5 and 5.6, this result highlights that the negative correlation between labour supply and decision power cannot be interpreted as coming from a change in the threat point, as labour supply on the household farm or business is not likely to impact outside options. It also shows that the results are hard to reconcile with an alternative story where a decrease in decision power were to lead women to search for more autonomy outside their home, as working on the household farm or business is not conducive of more autonomy. Second, the relationship between wage work and decision power is only negative for non-agricultural work. When

Table 4: Test of Prediction 3: Heterogeneity of the effect with respect to the type of work

	Routine Decisions		Major Decisions		
	(1)	(2)	(3)	(4)	(5)
	Cook (w)	Sick (w)	Maj. exp. (w)	Fert. (w)	Marry (w)
A - Labour Force Participation					
Work for wage (dum.)	-0.0527*** (0.0196)	-0.0163 (0.0316)	-0.0409 (0.0314)	-0.0410* (0.0247)	-0.0334 (0.0302)
Work for wage $\times$ Agr. Lab.	0.0369* (0.0221)	0.0688** (0.0341)	0.163*** (0.0396)	0.121*** (0.0328)	0.111*** (0.0359)
Work in HH act. (dum.)	-0.0142 (0.0103)	-0.00146 (0.0145)	-0.0481** (0.0190)	-0.0330** (0.0158)	-0.0360* (0.0185)
R^2	0.028	0.048	0.088	0.128	0.100
N	20876	19628	20744	20196	19250
Effect of Work for wage when Agr. Labourer					
Work for wage (dummy)	-0.0158 (0.0165)	0.0525* (0.0312)	0.122*** (0.0355)	0.0799*** (0.0281)	0.0779** (0.0330)
B - Labour Time (days)					
Work for wage (days)	-0.0153** (0.00671)	-0.0123 (0.0118)	-0.0302*** (0.0114)	-0.0309*** (0.00866)	-0.0192* (0.0106)
Work for wage $\times$ Agr. Lab.	0.0189** (0.00934)	0.0176 (0.0198)	0.0317 (0.0205)	0.0171 (0.0168)	0.0110 (0.0202)
Work in HH activity	-0.00569 (0.00487)	-0.00842 (0.00694)	-0.0317*** (0.00817)	-0.0206*** (0.00723)	-0.0265*** (0.00798)
R^2	0.027	0.049	0.091	0.130	0.103
N	20876	19628	20744	20196	19250
Effect of Work for wage when Agr. Labourer					
Work for wage (days)	0.00364 (0.00671)	0.00531 (0.0156)	0.00150 (0.0170)	-0.0138 (0.0145)	-0.00817 (0.0164)

Notes: Standard errors in parentheses clustered at the village/neighborhood level with ***, **, and * respectively denoting significance at the 1%, 5%, and 10% levels. All equations include individual fixed effects and time dummies (month and year of the survey) as well as the following controls at the individual level: respondent's and husband's age and age², relation to the head, number of children under 5, whether the woman works in the agricultural sector and her earned average daily wage. The household level controls are: number of household members, presence of the father or mother-in-law, amount of land owned (in log), whether the household cultivates a farm or operates a non farm business, yearly income (in log, without the female respondent income). The labour days variable is standardized.

women are hired as agricultural labourers, the relationship is either positive (for labour force participation), or not significantly different from zero (for labour time). If our assumption is correct, i.e. that working as an agricultural labourer brings little status, then this result is in line with Prediction 3.

5 Alternative Stories

Our empirical strategy sets out a correlation between, on one hand a *change* in the decision to work and in the amount of labour supplied, and on the other hand a *change* in decision power. The main threat to our empirical strategy is the occurrence of other changes at the individual or household level that may have altered decision power within the family and labour supply over the six-year period. We control for as many factors as possible, including individual fixed effects. However, to test the robustness of our results, this Section examines competing explanations.

5.1 Changes in Family Structure

Changes in the family structure, such as the birth of additional children or the death of in-laws may simultaneously alter decision power and female labour supply. It also seems plausible that changes in status within the household, such as becoming a mother-in-law, may generate negative or positive correlations between decision power and female labour supply. We already take into account these various changes in the household, by controlling for the presence of either of the in-laws, the number of children under the age of 5 living in the household and the position of the woman in the household with respect to that of the head (wife, daughter-in-law, etc...). Our sample is also restricted to households that do not drastically change between 2006 and 2012, as we focus on households that are extended or nuclear in both waves. In any case, to ensure that the composition of the extended family, whatever it might be, is not driving our results, we replicate the estimation using only nuclear

households. The results, displayed in Panel 1 of Table 5 are robust to this restriction.¹⁵

5.2 Changes in Female Relative Wealth or Wage

Another potential threat to our estimation could be a change in the wife's wealth relative to that of her husband. For example, an increase in female relative wealth would boost her bargaining power and ultimately her decision power. This could yield a spurious negative correlation between decision power and labour supply, should such an increase in female relative wealth decrease her labour supply. We do not have information about the wealth of individual family members, so we cannot control for such changes in the estimation. Yet, increased relative wealth does not necessarily imply a reduction in female labour supply. In fact, Heath and Tan (2019) use an exogenous shock to female relative wealth, the Hindu Succession Act of 2005 that improved women's capacity to inherit property, to show that in India, female labour supply *increases* when women become relatively wealthier. The underlying mechanism is that an increase in their relative wealth increases their control over their earnings, and they gain more from working. Thus, although higher relative wealth may lead to additional decision power, it also leads to an increase, and not a decrease, in female labour supply so that it cannot account for the negative correlation we set forth between decision power and labour supply.

The same reasoning should apply to a change in relative income. If an increase in female relative income bolsters female bargaining power, we should expect an increase in her labour supply. However, to check whether this is the case, we control for the labour income of the wife and of the husband in Panel 2 of Table 5. The results are robust to this inclusion.

¹⁵The coefficients on labour force participation lose significance for fertility and marriage decisions. It may be due to the smaller sample size as the size of the coefficients does not change much.

Table 5: Alternative stories

	Routine Decisions		Major Decisions		
	(1)	(2)	(3)	(4)	(5)
	Cook (w)	Sick (w)	Maj. exp. (w)	Fert. (w)	Marry (w)
Panel 1: Only nuclear HH					
A - Labour Force Participation	-0.0160 (0.0103)	0.0163 (0.0196)	-0.0540** (0.0234)	-0.0288 (0.0188)	-0.0215 (0.0221)
R^2	0.031	0.053	0.096	0.144	0.111
N	12074	11408	11958	11632	11236
B - Labour Time (days)	-0.00535 (0.00566)	-0.0110 (0.00892)	-0.0448*** (0.0106)	-0.0335*** (0.00934)	-0.0307*** (0.0100)
R^2	0.031	0.053	0.100	0.148	0.114
N	12074	11408	11958	11632	11236
Panel 2: Controlling for Income					
A - Labour Force Participation	-0.00988 (0.00943)	0.00606 (0.0138)	-0.0566*** (0.0191)	-0.0293* (0.0150)	-0.0293* (0.0171)
Income of the husband	-0.0000805 (0.00101)	-0.00114 (0.00152)	-0.00348* (0.00202)	-0.00275* (0.00141)	-0.00233 (0.00168)
Income of the wife	-0.00467** (0.00229)	-0.00270 (0.00347)	-0.00472 (0.00370)	-0.00164 (0.00309)	-0.00123 (0.00353)
R^2	0.028	0.049	0.089	0.128	0.100
N	20876	19628	20744	20196	19250
B - Labour Time (days)	-0.00427 (0.00558)	-0.0104 (0.00830)	-0.0377*** (0.00957)	-0.0315*** (0.00826)	-0.0338*** (0.00905)
Income of the husband	-0.0000657 (0.00102)	-0.00129 (0.00153)	-0.00355* (0.00203)	-0.00291** (0.00143)	-0.00249 (0.00169)
Income of the wife	-0.00466** (0.00234)	-0.000652 (0.00361)	-0.00257 (0.00389)	0.00135 (0.00303)	0.00215 (0.00364)
R^2	0.028	0.049	0.090	0.131	0.103
N	20876	19628	20744	20196	19250
Panel 3: Labour supply - husbands					
A - Labour Force Participation	-0.0213** (0.00959)	0.00129 (0.0138)	-0.0595*** (0.0177)	-0.0353** (0.0138)	-0.0321** (0.0156)
LFP - Husband	0.0298 (0.0200)	-0.0367 (0.0249)	-0.0169 (0.0260)	-0.0112 (0.0229)	-0.0135 (0.0243)
R^2	0.027	0.049	0.089	0.127	0.100
N	20876	19628	20744	20196	19250
B - Labour Time (days)	-0.00982* (0.00530)	-0.00778 (0.00793)	-0.0318*** (0.00805)	-0.0277*** (0.00754)	-0.0271*** (0.00793)
Labour Time - husband	-0.00127 (0.00458)	-0.0123** (0.00604)	-0.0216*** (0.00672)	-0.0122** (0.00568)	-0.0160** (0.00664)
R^2	0.026	0.050	0.092	0.131	0.104
N	20876	19628	20744	20196	19250

Table 5: Alternative stories (continued)

	Routine Decisions		Major Decisions		
	(1)	(2)	(3)	(4)	(5)
	Cook (w)	Sick (w)	Maj. exp. (w)	Fert. (w)	Marry (w)
Panel 4: Controlling for health shocks					
A - Labour Force Participation	-0.0212** (0.00965)	0.000346 (0.0137)	-0.0600*** (0.0176)	-0.0353*** (0.0136)	-0.0315** (0.0155)
R^2	0.028	0.051	0.092	0.132	0.102
N	20876	19628	20744	20196	19250
B - Labour Time (days)	-0.0105* (0.00544)	-0.0111 (0.00784)	-0.0376*** (0.00817)	-0.0310*** (0.00773)	-0.0312*** (0.00809)
R^2	0.028	0.052	0.094	0.134	0.105
N	20876	19628	20744	20196	19250
Controls					
Any disease (w)	-0.0097 (0.0229)	-0.0353 (0.0306)	0.0388 (0.0295)	-0.0014 (0.0260)	0.0116 (0.0283)
Unable to do normal act. (w)	-0.0001 (0.0001)	-0.0002 (0.0003)	-0.0008*** (0.0003)	-0.0004* (0.0002)	-0.0000 (0.0002)
Days hospitalised (w)	-0.0002 (0.0004)	0.0004 (0.0003)	0.0007 (0.0004)	0.0006* (0.0003)	-0.0002 (0.0003)
Cost of treatment (w)	-0.0018 (0.0014)	0.0027 (0.0024)	0.0006 (0.0028)	0.0008 (0.0022)	-0.0009 (0.0024)
Physical difficulty (w)	-0.0148 (0.0211)	-0.0372 (0.0304)	-0.0453 (0.0325)	-0.0528* (0.0275)	-0.0102 (0.0299)
Any disease (HH)	-0.0252 (0.0167)	0.0044 (0.0204)	0.0089 (0.0252)	0.0197 (0.0195)	0.0112 (0.0233)
Unable to do normal act. (HH)	-0.0000 (0.0001)	-0.0002*** (0.0001)	-0.0002 (0.0001)	-0.0002** (0.0001)	-0.0001 (0.0001)
Days hospitalised (HH)	-0.0003 (0.0005)	-0.0008 (0.0006)	0.0010 (0.0009)	0.0004 (0.0006)	-0.0011 (0.0009)
Cost of treatment (w)	0.0017 (0.0014)	0.0029 (0.0021)	-0.0016 (0.0022)	0.0011 (0.0018)	0.0004 (0.0022)
Physical difficulty (HH)	-0.0032 (0.0128)	-0.0088 (0.0181)	-0.0223 (0.0207)	-0.0381** (0.0157)	-0.0494** (0.0204)
Panel 5: First-difference					
B - Labour time (diff 2012 - 2006)	-0.0129* (0.00659)	-0.0167* (0.00975)	-0.0386*** (0.0104)	-0.0255*** (0.00962)	-0.0249** (0.0104)
Labour time (2006)	-0.00553 (0.00732)	-0.0106 (0.0116)	-0.00185 (0.0137)	0.0110 (0.0117)	0.0138 (0.0132)
R^2	0.026	0.038	0.069	0.083	0.068
N	10363	9749	10372	10041	9562

Notes: Standard errors in parentheses clustered at the village/neighborhood level with ***, **, and * respectively denoting significance at the 1%, 5%, and 10% levels. All equations include individual fixed effects and time dummies (month and year of the survey) as well as the following controls at the individual level: respondent's and husband's age and age², relation to the head, number of children under 5, whether the woman works in the agricultural sector and her earned average daily wage. The household level controls are: number of household members, presence of the father or mother-in-law, amount of land owned (in log), whether the household cultivates a farm or operates a non farm business, yearly income (in log, without the female respondent income). The labour days variable is standardized.

5.3 Time Reallocation Between Spouses

It could be assumed that decision power is just a correlate of the time spent at home. A working wife, having less time at home, may want or have to pass on responsibilities for making decisions to her husband, just for the sake of an efficient household management. Hence a reallocation of time at home could drive the allocation of decision power. Additional female labour could go hand in hand with less decision power, due to a lack of time.

Two points need to be made. First, if the negative relationship between female labour and decision power was just a question of time at home, then we should observe a negative relationship with all sorts of decisions, be they mundane, or major. But among all decisions, only those regarding time consuming activities such as cooking or child care are not affected by female labour, suggesting that reallocation of time cannot be the driving force behind our results.

Second, on the basis of this argument, an increase in male labour supply should imply a greater female decision power, holding all other factors constant. Panel 3 in Table 5 sets out our main relationship and additionally controls for the work supplied by the respondent's husband. The negative correlation still holds even after controlling for the labour supplied by the husband, and the relationship between decision power and the labour supply of the husband is negative.

5.4 Health Shocks

Adverse health shocks to the women or a household member may affect a woman's capacity to work, and her decision power. Intuitively, if they were to have an influence, health shocks would be negatively correlated with labour supply and decision power, such that their omission would lead to an upward bias, which means that our coefficients of interest could be even more negative. Panel 4 of Table 5 presents our main coefficients after controlling for the onset of a long term disease for the woman, the number of days she could not conduct normal activities because of the disease, the number of days spent at the hospital, the cost

of treatment or whether she has experienced any physical difficulty. We also control for the same set of health related variables for other members of the household. Our main results remain unchanged.

5.5 Changes in bargaining power and status variables

An important assumption of our theory is that bargaining power, λ , and the status variables γ and δ are stable over time. We believe it is unlikely that our results capture changes in bargaining power. Indeed, decision power is correlated to labour both when it is supplied for a wage and to the family farm or business. Labour in the family farm or business is unpaid, and, therefore, it is often thought as having little effect on the threat point and bargaining power. Nonetheless, to test the possibility that our results are driven by changes in the parameters that we consider exogenous, let's assume that the bargaining power had changed over time and that what we observe in 2006 is the outcome of a bargaining process based on different parameters from the ones in 2012. Our model would then apply to these two processes, so that we would get

$$\begin{aligned} d_f^{*06} &= \lambda^{06} - (\lambda^{06}\gamma^{06} + (1 - \lambda^{06})\delta^{06})\ell_f^{*06} \\ d_f^{*12} &= \lambda^{12} - (\lambda^{12}\gamma^{12} + (1 - \lambda^{12})\delta^{12})\ell_f^{*12}. \end{aligned}$$

Taking the difference $d_f^{*12} - d_f^{*06}$ and rearranging the terms leads to

$$d_f^{*12} - d_f^{*06} = (\lambda^{12} - \lambda^{06}) + \beta_1\ell_f^{*06} - \beta_2(\ell_f^{*12} - \ell_f^{*06}), \quad (6)$$

where

$$\beta_1 = (\lambda^{06}\gamma^{06} + (1 - \lambda^{06})\delta^{06}) - (\lambda^{12}\gamma^{12} + (1 - \lambda^{12})\delta^{12}),$$

which is the difference in the impact of a change in the labour time on the decision power between 2006 and 2012, and

$$\beta_2 = (\lambda^{12}\gamma^{12} + (1 - \lambda^{12})\delta^{12}),$$

which is the (absolute value) of this impact in 2012.

Equation 6 suggests to estimate our model in differences, providing the female labour time in 2006 is added to the specification. The result of this regression is shown in Panel 5 of Table 5. The coefficient on labour time in 2006, which measures an aggregate change in the three relevant parameters of the model, is not significantly different from 0, suggesting that these parameters have remained stable between 2006 and 2012. The coefficient on labour time difference is negative and significant, as the model predicts.

It may be worth insisting that what is key to our story is not that these parameters remain stable in society, but within households. This is consistent with younger couples being more egalitarian in bargaining power and less influenced by traditional norms than older ones.

5.6 Reverse Causality

As the changes in female labour time that we observe are not exogenous to the observed decision power, our empirical work identifies a correlation between these two variables. This does not exclude, therefore, a causality from decision power to labour time. Even if possible, such a causality is unlikely.

First, the main difficulty comes from the fact that this alternative theory should be consistent with the finding of Heath and Tan (2019), according to which an increased autonomy of the wife goes together with an increase in her labour time. The exogenous increase in a woman's decision power should then lead to a decrease in her autonomy, which is largely counterintuitive. Moreover, even if we were to assume that as a woman's decrease in decision

power would lead her to take on a job in order to gain autonomy from her husband, such a reasoning would not explain why the relationship is also observed when she works on the household farm or business, which would not be conducive to greater autonomy.

Second, the starting point of the alternative theory needs to be an exogenous shock on the distribution of decision power, which, let us insist on this again, should be distinguished from a change in bargaining power. Such a change in decision power cannot come from a change in family composition, or a change in income, because we control for them in all our specifications. Our results are also robust to the accounting of health shocks.

6 Conclusions

This paper provides empirical evidence and a plausible mechanism for a negative relationship between female labour supply, both at the extensive and intensive margins, and decision power. We argue that this correlation is rooted in the loss in status experienced by men as a result of their wives' labour and that husbands' loss in utility receives a compensation in the form of enhanced decision power. In other words, when new work opportunities for women arise, or needs of the household increase, the bargaining process between husbands and wives leads to a decision that the wife increases her labour supply, and her power of decision decreases in compensation. This correlation is primarily found in conservative rural areas where men incur in all likelihood a higher norm cost if their wives work and where it may also be more easily observable.

The results found in this paper and the arguments put forward depart from the literature that assumes that female labour strengthens women's power. Our point is that a distinction should be introduced between bargaining power, which is to be viewed as a structural parameter of the marriage and that is only occasionally adjusted, and decision power, that relates to the ability to influence important decisions in the life of the household and that is frequently updated. In our mechanism, decision power and labour supply are simultane-

ous outcomes of the bargaining within the household. If we are to consider wives' decision power as a dimension of empowerment, our results suggest that less decision power does not necessarily go together with less utility. Labour time should be complemented with other variables, such as decision power, to measure women's empowerment.

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A Endogenous bargaining power

In this Appendix, we comment on what our theory would predict in case the bargaining power is a function of the wage at which women can find a job: $\lambda = \lambda(w_f)$. We assume that $\lambda'(w_f)$ is positive. Because w_f is exogenous, the derivation of the optimum is the same as above, with λ being replaced with $\lambda(w_f)$. We then obtain from the derivation of the Nash product w.r.t. the wife's decision power, that the following equation must hold:

$$d_f^* = \lambda(w_f) - (\lambda(w_f)\gamma + (1 - \lambda(w_f))\delta)\ell_f^*. \quad (7)$$

An increase in w_f would now have three first order effects, which can be intuitively presented as follows. First, the couple adjusts the wife's labour time by considering the effects on consumption and the disutility of labour time. There are both a substitution and an income effects, so that the net effect is impossible to predict theoretically. The other effects are more mechanical. Let us assume that the wife's equilibrium labour time increases. That creates an imbalance between husband's and wife's status, which can only be compensated by a decrease in the wife's decision power. On the other hand, the new balance of decision power needs to be obtained at a ratio more favorable to the wife. As can be seen from Eq. 7, that entails an immediate positive effect on the wife's decision power proportional to $\lambda'(w_f)$. That is the second effect. Finally, we have the same negative effect as before, proportional to the increase in labour time with a factor of $(\lambda(w_f)\gamma + (1 - \lambda(w_f))\delta)$. It is of course possible to find values of parameters γ , δ and $\lambda(\cdot)$ such that the total effect on the wife's decision power is positive, but we see as well that if $\lambda'(w_f)$ is small in magnitude compared to γ , the most likely case is that of a decrease in decision power.

B Additional tables and figures

Table B.1: Descriptive Statistics - controls

	Mean both years	Mean 2006	Mean 2012	Prop. Change 2006-2012	Prop. ↗ 2006-2012	Prop. ↘ 2006-2012
Women's characteristics						
Education	4.28 (4.64)	4.19 (4.62)	4.37 (4.66)	0.34	0.56	0.44
Age	35.97 (8.56)	32.41 (7.60)	39.54 (7.96)	0.99	0.99	0.01
Age - Husband	41.40 (9.44)	37.76 (8.52)	45.03 (8.89)	0.99	0.99	0.01
Nb child. < 5	0.44 (0.75)	0.63 (0.84)	0.25 (0.58)	0.41	0.18	0.82
Households' characteristics						
Nb persons HH	5.42 (2.31)	5.50 (2.27)	5.35 (2.34)	0.61	0.42	0.58
Household Farm	0.48 (0.50)	0.46 (0.50)	0.49 (0.50)	0.16	0.60	0.40
Household Business	0.22 (0.41)	0.22 (0.41)	0.22 (0.41)	0.20	0.50	0.50
HH income (excl. woman)	10.54 (1.75)	10.04 (1.71)	11.05 (1.65)	1.00	0.86	0.14
Land owned (acres, in log)	0.51 (0.75)	0.52 (0.77)	0.50 (0.73)	0.47	0.46	0.54
Nb Assets	12.96 (6.18)	11.29 (5.90)	14.63 (5.99)	0.92	0.86	0.14
Father-in-law in HH	0.18 (0.38)	0.21 (0.40)	0.15 (0.36)	0.06	0.08	0.92
Mother-in-law in HH	0.28 (0.45)	0.30 (0.46)	0.26 (0.44)	0.05	0.16	0.84
Work characteristics						
Agr. Lab.	0.16 (0.36)	0.16 (0.37)	0.16 (0.36)	0.16	0.49	0.51
Earned daily wage	23.93 (66.88)	11.21 (32.50)	36.65 (86.98)	0.40	0.76	0.24
N Observations	32,086	16,043	16,043			

Column 1-3 report the sample mean and the standard deviation (in parenthesis) for each variable. Column 1 includes both waves, column 2 only year 2006, and column 3 year 2012. Column 3-6 report changes between the two waves: column 4 reports the proportion of the sample that declares a different value in 2012 compared to 2006 ; column 5 and 6 report the proportion of those (among the ones who declared a different value) who declared an increase (column 5) and a decrease (column 6).

Table B.2: Parameters for the controls of Panel 1 in Table 2

	Routine Decisions		Major Decisions		
	(1) Cook (w)	(2) Sick (w)	(3) Maj. exp. (w)	(4) Fert. (w)	(5) Marry (w)
Age	0.0118*** (0.00442)	0.0337*** (0.00796)	0.0302*** (0.00914)	0.00683 (0.00705)	0.0302*** (0.00822)
Age sq.	-0.000159*** (0.0000547)	-0.000367*** (0.0000963)	-0.000374*** (0.000111)	-0.0000785 (0.0000820)	-0.000322*** (0.0000966)
Age - Husband	-0.00706* (0.00423)	-0.0198** (0.00921)	-0.0167** (0.00846)	0.00779 (0.00669)	-0.00860 (0.00779)
Age sq. - Husband	0.0000812* (0.0000450)	0.000206** (0.0000986)	0.000163* (0.0000911)	-0.0000754 (0.0000679)	0.0000723 (0.0000800)
Nb child. < 5	0.00194 (0.00431)	0.0221*** (0.00679)	-0.0110 (0.00748)	0.00444 (0.00618)	0.00918 (0.00755)
Father-in-law in HH	0.0141 (0.0174)	-0.0595 (0.0703)	0.00912 (0.0299)	0.0432* (0.0236)	0.0197 (0.0286)
Mother-in-law in HH	-0.0248 (0.0165)	-0.0182 (0.0217)	-0.0676** (0.0284)	-0.00653 (0.0242)	-0.0148 (0.0267)
Nb persons HH	-0.00445 (0.00287)	0.00313 (0.00619)	-0.00286 (0.00406)	-0.00251 (0.00319)	-0.00142 (0.00362)
HH income (excl. woman)	0.00154 (0.00175)	-0.00206 (0.00276)	-0.00191 (0.00341)	-0.00212 (0.00243)	-0.00394 (0.00320)
Household Farm	-0.00527 (0.0115)	-0.0584** (0.0297)	-0.00117 (0.0222)	0.00482 (0.0180)	0.0134 (0.0214)
Household Business	0.00245 (0.00791)	-0.000916 (0.0133)	-0.00839 (0.0176)	-0.0205 (0.0136)	-0.0146 (0.0153)
Nb Assets	0.00228** (0.00111)	0.00170 (0.00199)	0.00390 (0.00245)	0.00457** (0.00182)	0.00135 (0.00227)
Land owned (acres, in log)	0.00606 (0.00896)	0.00268 (0.0150)	-0.0265 (0.0170)	-0.0170 (0.0132)	-0.0283* (0.0161)
Agr. Lab.	0.00827 (0.00862)	0.0186 (0.0172)	0.0337* (0.0194)	0.0411** (0.0170)	0.0363* (0.0192)
Earned daily wage	-0.0000308 (0.0000460)	0.0000125 (0.0000639)	0.000110 (0.000124)	0.000115 (0.0000702)	0.000152** (0.0000746)
Relation to head	Yes	Yes	Yes	Yes	Yes
Interview Year	Yes	Yes	Yes	Yes	Yes
Interview Month	Yes	Yes	Yes	Yes	Yes
R-squared	0.018	0.044	0.061	0.101	0.080
N	32024	30156	31866	31034	29488

Notes: Standard errors in parentheses clustered at the village/neighborhood level with ***, **, and * respectively denoting significance at the 1%, 5%, and 10% levels.

Table B.3: Heterogeneity of the effect with respect to the direction of the change in labour supply

	Routine Decisions		Major Decisions		
	(1)	(2)	(3)	(4)	(5)
	Cook (w)	Sick (w)	Maj. exp. (w)	Fert. (w)	Marry (w)
Panel 1: Increase or no change in labor supply from 2006 to 2012					
A - Labour Force Participation	-0.00553 (0.0105)	-0.00240 (0.0150)	-0.0523*** (0.0187)	-0.0395*** (0.0144)	-0.0358** (0.0162)
R^2	0.018	0.045	0.060	0.104	0.084
N	30112	29004	30023	29535	28635
B - Labour Time (days)	-0.0144** (0.00694)	-0.0150 (0.00937)	-0.0394*** (0.00980)	-0.0254*** (0.00817)	-0.0220** (0.00930)
R^2	0.018	0.040	0.047	0.088	0.066
N	23816	22788	23719	23204	22435
Panel 2: Decrease or no change in labor supply from 2006 to 2012					
A - Labour Force Participation	-0.0199** (0.00982)	0.0144 (0.0206)	-0.0316 (0.0238)	-0.000513 (0.0184)	0.00219 (0.0208)
R^2	0.017	0.048	0.066	0.103	0.082
N	27354	26384	27283	26921	26059
B - Labour Time (days)	0.00140 (0.00514)	-0.000841 (0.0109)	-0.0193 (0.0124)	-0.0250** (0.0108)	-0.0267** (0.0116)
R^2	0.014	0.051	0.065	0.099	0.081
N	20482	19602	20421	20104	19281

Notes: Standard errors in parentheses clustered at the village/neighborhood level with ***, **, and * respectively denoting significance at the 1%, 5%, and 10% levels. All equations include individual fixed effects and time dummies (month and year of the survey) as well as the following controls at the individual level: respondent's and husband's age and age², relation to the head, number of children under 5, whether the woman works in the agricultural sector and her earned average daily wage. The household level controls are: number of household members, presence of the father or mother-in-law, amount of land owned (in log), whether the household cultivates a farm or operates a non farm business, yearly income (in log, without the female respondent income). The labour days variable is standardized.