Reinforcing Gender Norms or Easing Housework Burdens? The Role of Mothers-in-Law in Determining Women's Labor Force Participation

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Abstract

Women's labor force participation is stymied by childcare and housework duties, as well as long-held social norms that restrict their autonomy and mobility in developing countries. A coresiding mother-in-law may restrict women's labor force participation as the custodian of gender-specific social norms, but may also help by taking on housework responsibilities. Using a nationally representative panel dataset from India, we use the exogenous variation in the mother-in-law's death to empirically investigate which effect dominates. We show that a mother-in-law's death reduces her daughter-in-law's labor force participation by 10 percent in an individual fixed-effects model. A placebo test reveals no effect of a coresiding father-in-law's death on his daughter-in-law's labor force participation, which alleviates concerns about demographic changes as the drivers of our results. Also, women with four or more children drive the effects of the mother-in-law's death. We provide suggestive evidence to show that by sharing the burden of household production tasks, coresiding mothers-in-law free up their daughter-in-law's time, which allows them to participate in the labor market. Overall, our results suggest that long-established gender roles that limit women's role as homemakers and caregivers play a critical role in shaping women's labor supply decisions in India.

Keywords: Female labor force participation, Women, Family structure, Housework burden, Home production, Gender, India
JEL Classification: J12, J16, J21, J22

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1 Introduction

Gender disparities in labor market outcomes can be explained by long-established gender roles that put a disproportionately higher burden of household production tasks and childcare on women (Angrist and Evans 1998; Bertrand, Goldin, and Katz 2010; Field, Jayachandran, and Pande 2010; Alesina, Giuliano, and Nunn 2013; Adda, Dustmann, and Katrien 2017; Kleven, Landais, and Søgaard 2019). In South Asia, women's labor force participation is further inhibited by gender-specific social norms that restrict women's bargaining power and mobility (Jayachandran 2019; Anukriti et al. 2020). A coresiding mother-in-law (MIL) can affect the two forces in opposite directions by either helping her daughter-in-law (DIL) with housework or reinforcing restrictive social norms. Thus, it is essential that we understand the effect of a coresiding MIL on her DIL's employment decisions to inform any policy that challenges restrictive norms or lessens women's housework burden.

In a South Asian patriarchal-patrilocal joint family in which intergenerational coresidence is typical, the MIL heads the power hierarchy within the domain of the tasks and responsibilities allotted to women. MILs are assigned the role of guardians of social norms and family honor. Restrictive social norms are such that the family's honor and social status depend on women's demeanor, and their movement outside the home is stigmatized (Jayachandran 2015; Bernhardt et al. 2018). To ensure that DILs do not sully the family's image and adhere to their predefined roles in household chores, MILs restrict their bargaining power and mobility, and thereby their employment decisions (Eswaran, Ramaswami, and Wadhwa 2013; Gram et al. 2018; Anukriti et al. 2020). The massive audience for Indian soap operas—which ran for close to a decade with almost 2000 episodes and portrayed a complicated MIL/DIL love-hate relationship—testifies to this relationship's relevance.

In this paper, we first propose a conceptual framework that contains two countervailing channels through which a MIL's presence affects her DIL's decision to participate in the labor market. On the one hand, the MIL imposes constraints on the DIL's autonomy and mobility and restricts her labor force participation. On the other hand, the MIL boosts the DIL's labor force participation by sharing her housework burden and loosening constraints on the DIL's time. Within this framework, the ultimate effect of the MIL's presence (or absence) is ambiguous and contingent on the relative sizes of the two countervailing effects. We base our empirical examination of the effect of the MIL's death on her DIL's labor force participation on the conceptual framework described above.

The primary challenge in identifying the MIL's effect on women's labor force participation is that the decision to live with the MIL is endogenous. For example, a woman who views a MIL as a potential barrier to her decision to participate in the labor market may choose

not to live with her MIL. Unobserved omitted variables may jointly determine cohabitation between a woman and her MIL and her decision to participate in the labor market. To address this concern, we use a sample from a nationally representative household panel dataset in India in which the MIL coresides with the respondent DIL at baseline.

To isolate the causal effect of coresident MILs on women's labor force participation, we exploit the exogenous death of the MIL. We compare women's labor force participation over time across households in which the MIL dies versus lives, employing individual fixed effects. Thus, any time-invariant unobservable characteristics of women that are correlated with their decision to participate in the labor force and the MIL's death are absorbed by the fixed effects. To alleviate further concerns about the household's time-variant socioeconomic conditions that affect both the death of the MIL and the DIL's labor force participation, we conduct a placebo test to investigate the effects of the death of the coresident father-in-law (FIL).

This paper's key result is that the MIL's death reduces her DIL's labor force participation by 4.6 percentage points, which is 10 percent of the labor force participation rate of women whose MILs did not die. The effect is primarily driven by women who lost their MILs most recently, which suggests that they adjust to the initial shock of the MIL's death over time. We do not find any effect of the MIL's death on her son's employment status or of the FIL's death on the DIL's employment status. These results demonstrate that compared with men, women's labor supply decisions are more responsive to adverse shocks that potentially increase the housework burden.

Having established that the MIL's death reduces women's labor force participation, we provide suggestive evidence that the increased housework burden described by our conceptual framework drives this result. First, we show that women whose MILs are dead are less likely to visit their natal homes often, which suggests that they have less residual time. Second, we show that the MIL's death increases the time women spend on household production tasks, such as collecting water and fuel. Consistent with the argument that it is the increased housework burden that reduces women's labor force participation, women with four or more children—who conceivably have more housework to attend to—drive the effect of the MIL's death.

Next, we show that the negative effect of the MIL's death on women's labor force participation is driven by relatively older (over age 30) DILs. This result is explained by the nature of social norms that are weaker for older women, and these women are more likely to be employed outside the home in the first place (Rahman and Rao 2004; Sarkar, Sahoo, and Klasen 2019). Even though our overall results suggest that the housework burden is a crucial factor in women's employment decisions, heterogeneous effects by age provide evidence

on the role of restrictive social norms. Finally, we present and argue against several other mechanisms that could have driven the decrease in the DIL's labor force participation due to her MIL's death.

This paper contributes to several strands of the literature. First, it contributes to studies on the factors that influence gender disparities in the labor market as reviewed, for instance, by Bertrand (2011); Olivetti and Petrongolo (2016); and Blau and Kahn (2017). The literature has presented many explanations for the determinants of female labor force participation; for example, discrimination and human capital accumulation (Altonji and Blank 1999; Deshpande, Goel, and Khanna 2018); fertility and contraception (Goldin and Katz 2002; Bailey 2006; Bailey, Hershbein, and Miller 2012; Goldin 2014); technology (Greenwood, Seshadri, and Yorukoglu 2005; Dinkelman 2011); labor market opportunities and peer effects (Beaman et al. 2009; Jensen 2012; De Mel, McKenzie, and Woodruff 2014; Ghani, Kerr, and O'Connell 2014; Field et al. 2016a); property rights and divorce laws (Voena 2015); systematic differences in psychological factors, such as risk preferences and competitiveness (Gneezy, Niederle, and Rustichini 2003; Niederle and Vesterlund 2007); and social norms (Akerlof and Kranton 2000; Fernández and Fogli 2009). There is also a sizeable amount of work on the effect of fertility and motherhood on women's labor market performance (Angrist and Evans 1998; Agüero and Marks 2008; Bertrand, Goldin, and Katz 2010; Fernández-Kranz, Lacuesta, and Rodríguez-Planas 2013; Angelov, Johansson, and Lindahl 2016; Adda, Dustmann, and Katrien 2017; Kleven and Landais 2017; Kleven, Landais, and Søgaard 2019; Talamas 2020). We complement and advance this literature by showing that the interaction of social norms and housework burden can also impede women's labor force participation.

The study most closely related to ours is that of Talamas (2020), who shows that the death of a co-inhabiting MIL reduces mothers' employment rate by 25 percent due to its impact on childcare. We examine detailed mechanisms and shed light on the relevance of household production chores, in addition to childcare, as a driving force that impedes women's employment. We also provide some suggestive evidence on the role of restrictive social norms by showing that older women with weaker mobility constraints experience a more considerable decline in their labor force participation rates after the MIL's death.

Second, this paper is related to the literature on the relevance of family structure and intrahousehold dynamics. The literature has examined the effects of family structure on schooling, gender gaps in education, child health, intimate-partner violence, non-farm employment, female autonomy, and fertility (Evans and Miguel 2007; Bertocchi and Bozzano 2016; Duflo 2003; Kaur 2017; Tur-Prats 2019; Dhanaraj and Mahambare 2019; Debnath 2015; Anukriti et al. 2020). Anukriti et al. (2020) show that in India, coresidence with the

MIL is negatively correlated with her DIL's mobility and ability to form social connections outside the household. Our results suggest that even though the MIL's restrictive role is important in other contexts, it is not a binding constraint in women's decision to work. Consistent with our results, other studies also show that coresidence with parents or in-laws has a significant positive effect on married women's labor force participation in Japan (Sasaki 2002); China (Guo et al. 2018); and Mexico (Talamas 2020). Our paper complements these studies by providing external validity for their results by showing that the MIL's death negatively affects her DIL's labor force participation in the Indian context. Additionally, we show that the increased burden of housework drives this finding.

Third, this paper contributes to the literature on the importance of cultural norms or beliefs regarding appropriate gender-specific roles in determining women's status. Less equal gender norms, measured using reported gender-role attitudes and female employment, have their roots in the historical division of labor within the household (Alesina, Giuliano, and Nunn 2013; Hansen et al. 2015). Even today, enduring norms penalize women in the marriage market for making career-enhancing decisions that signal ambition and assertiveness (Fisman, Iyengar, and Simonson 2006; Bertrand, Kamenica, and Pan 2015; Bursztyn, Fujiwara, and Pallais 2017; Folke and Rickne 2020). Our findings reinforce the importance of gender roles defined by social norms in determining female employment: The MIL's death decreases her DIL's labor force participation, not her son's. Also, the patriarch's or the FIL's death does not affect his DIL's labor force participation. Since gendered norms cast women as more suited to or productive in domestic chores as caregivers and caretakers, they predominantly bear the household work burden. This increases disproportionately compared with men's burden in response to an adverse shock (death of the MIL in this case).

Finally, this paper's findings are especially relevant to India, where female employment rates remain low and have displayed a secular decline despite economic growth, educational gains, and a decline in fertility. The reduction in female labor force participation reflects both demand- and supply-side factors and has attracted substantial attention from researchers and policymakers (Bhalotra 1998; Klasen and Pieters 2015; Gupta 2015; Mehrotra and Parida 2017; Afridi, Dinkelman, and Mahajan 2018; Fletcher, Pande, and Moore 2018; Afridi, Monisankar, and Mahajan 2019; Deshpande and Kabeer 2019). From a policy perspective, removing supply-side constraints that impede women from getting help for domestic work beyond childcare can improve women's labor force participation. Encouraging women's labor force participation can have additional benefits, because paid employment and control over one's income improves the survival rates of girls, increases women's bargaining power, and relaxes gender norms against women's employment outside the home (Qian 2008; Carranza 2014; Field et al. 2016b).

The rest of the paper is organized as follows: Section 2 presents the conceptual framework that underlies the relationship between the death of the MIL and her DIL's labor force participation. Section 3 describes the data followed by a summary of the empirical strategy in Section 4. Section 5 presents the main results and discusses the placebo tests. Section 6 presents evidence that the main results are driven by an increase in workload for the DIL and discusses and rejects other mechanisms that could drive this result. Section 7 discusses the results and concludes.

2 Conceptual Framework

This section describes a simple static framework of women's labor supply decisions and their interaction with MIL's presence. Conceptually, there are two potential ways in which the MIL's presence affects the DIL's labor force participation: (1) by sharing her housework burden, and (2) by imposing restrictive gender norms. With this in mind, this framework explores how the MIL's presence (or absence) can affect her DIL's labor force participation. Next, we use this framework to delineate testable implications for the heterogeneous consequences of the MIL's death.

In this setup, DIL i divides her time endowment of one unit across three uses: leisure (R_i), housework (H_i), and labor (L_i). She has aggregate $\bar{H}_i$ units of housework to attend, and her MIL shares some given units of those responsibilities by contributing H_i^{MIL} units of work. Therefore, $H_i = \bar{H}_i - H_i^{MIL}$. We also assume that the DIL has to consume some minimum leisure, $\underline{R}$.

Her non-labor income is z. One can think of z as her share of household wealth or fixed income she receives from other family members. She earns a wage rate of w for each unit of labor work. We assume that the DIL does not save, and therefore, her private consumption, $C_i = wL_i + z$.

Finally, when the DIL works, she faces a norms-based utility cost, γ (Field et al. 2016b). Within this framework, γ represents the norms costs imposed on the DIL by her family, including her MIL. In the Indian context, social norms are such that a family's honor depends on women's behavior (Eswaran, Ramaswami, and Wadhwa 2013), and unconstrained movement of women outside the home is considered socially inappropriate. In this framework, norms costs reflect the social stigma of allowing women to work outside the home. And MILs play an especially critical role in guarding their families' honor by imposing gender norms in this context. We draw from studies that document a negative correlation between MIL's presence and the DIL's autonomy to argue that norms costs are more restrictive if the MIL is present in the household (see for instance: Jejeebhoy and Sathar 2001; Gram et al. 2018).

We posit that γ will also depend on the DIL's age and caste. While all women living with their MIL and working outside the home incur norms costs in this framework, this cost is likely to be much higher for younger women compared to older women. Social norms are less restrictive for older women, who face fewer mobility constraints, and thus, γ associated with their outside work would be lower (Rahman and Rao 2004). Norms costs are also likely to be lower for lower-caste (lower social-status) women, and these women are more likely to leave home for employment in the first place (Srinivas 1956; Eswaran, Ramaswami, and Wadhwa 2013).

Putting all this together, therefore, the DIL solves the following maximization problem in deciding whether to work:

$$\max_{L_i C_i} U(1 - \bar{H}_i + H_i^{Mil} - L_i, C_i) - \gamma 1(L_i > 0)$$

subject to

$$(1) wL_i + z = C \geq 0$$

$$(2) R_i \geq \underline{R}$$

Some useful conclusions can be gleaned from this simple framework. To choose whether to work, DIL will compare their utility when they pay the norms costs and choose an optimal amount of labor to their utility when they do not work and don't incur norms costs. Therefore, when the MIL dies, then the DIL's labor force participation will be affected through two key channels:

(a) *Increased Housework*: The DIL's labor force participation would decline as she has to allocate more time to household work. Since $H_i = \bar{H}_i - H_i^{MIL}$, and H_i^{MIL} becomes zero after the MIL's death, H_i must increase, and thus, L_i could decrease. We call this the *workload effect*.

(b) *Decreased Norms Costs*: The MIL's death also reduces γ, and increases her DIL's autonomy. The DIL's labor force participation could increase if γ decreases. We call this the *autonomy effect*.

In this setup, since there are two opposing effects, the overall effect of the MIL's death on the DIL's labor force participation would be determined by which effect is dominant.

Observation 1: *The overall effect of the MIL's death on the DIL's labor force participation is ambiguous and is a matter of empirical investigation.*

Next, women with more children would arguably have more housework responsibilities or a higher $\bar{H}_i$. After the MIL's death, these women would have to allocate more time to household work, and the *workload effect* is more likely to be larger than the *autonomy effect*.

Observation 2: *The decrease in the DIL's labor force participation after the death of the MIL, if present, would be more pronounced among women who have more children.*

As discussed above, older and lower caste women are likely to have lower norms costs (γ) to begin with. Therefore, the positive *autonomy effect* will likely be smaller for these women relative to the negative *workload effect*.

Observation 3: *The decrease in the DIL's labor force participation due to the death of the MIL, if present, would be driven by older women and lower caste women.*

To summarize, this framework shows while the net effect of the death of the MIL may be ambiguous, if it is negative, it should be more pronounced among women with more children, older women, and women from lower caste households. Moreover, suppose the *workload effect* is the predominant channel through which the death of the MIL affects her DIL's labor supply. In that case, we should expect to see an increase in DIL's housework responsibilities. We take observations one through three to data to understand the drivers of the DIL's labor supply and confirm the validity of our conceptual framework. While not tested formally, the framework outlined in this section provides an intuitive and parsimonious set up to interpret this paper's primary results.

3 Data

We use panel data from the Indian Human Development Survey (IHDS), a two-wave survey conducted in 2005 and 2012. The IHDS is a nationally-representative panel survey of 41,554 households across 1503 villages and 971 urban neighborhoods in India. The IHDS interviewed ever-married women between ages 15 and 49, randomly selected from each sampled household. For the bulk of the analysis, we build the analysis sample from data based on these interviews.

There are several advantages to using this nationally representative survey. First, it collects longitudinal data that allows us to track the same households and individuals across two survey rounds spanning seven years. Second, while we can identify the MIL/DIL pairs using the household roster, along with the two rounds of longitudinal data, tracking data across all members is publicly available, which allows us to identify in which cases the MIL died and not just moved away.[1] Finally, in addition to demographics and employment, this collected extensive data on themes relevant for this paper, including gender relations and time-use by gender.

To estimate the causal effect of living with the MIL on female labor force participation, we restrict the sample to 7,541 women living with their MIL in 2004-05. This restriction

1. Appendix A describes the rules we followed to identify MIL/DIL pairs in detail.

allows us to address the issue that the choice to live with in-laws is endogenous. More specifically, a woman's decision to live with her MIL will depend on her prior beliefs about the role a MIL would play in the household. For example, if a woman believes that her MIL could restrict her autonomy and ability to work, she may not want to live with her MIL. However, if she sees the MIL as a potential help with household work and childcare, she may prefer to live with her MIL. Table C.1 describes the characteristics of the full sample of ever-married women in 2004-05 across two subgroups of women–those who lived with their MIL and those who did not live with their MIL. It suggests that women living with their MIL are different from those who do not live with their MIL in almost every regard. We try to address this concern by restricting our analysis sample to women living with their MILs at baseline.

The primary outcome that this paper focuses on is the labor force participation of the DIL. This is a binary outcome variable equal to one if the individual worked for more than 240 hours in the year preceding the interview and zero otherwise. There is no time criterion required for an individual to be considered a part of the labor force in the IHDS. Each respondent is asked about her contribution to the family business as well as any other income-generating activity.[2]

Table 1 describes the baseline characteristics of our restricted sample across two subgroups: (1) women whose MILs are still in the household and (2) women whose MILs passed away between the two rounds of the IHDS, i.e., between 2004-05 and 2011-12. In this sample, 6,045 women were still living with their MILs, whereas 1,496 had lost their MILs by the second round. There are some expected differences between the two groups of women. Women whose MILs passed away were older, had more siblings, had greater economic autonomy, and had higher labor force participation at the baseline. The baseline difference in the labor force participation between the two groups could be because women whose MILs died are likely to be older and because older women face fewer mobility constraints, they are more likely to be employed, to begin with.F

4 Empirical Strategy

This paper aims to isolate the effect of the MIL's presence on her DIL's labor force participation. As discussed in Section 3, the key empirical challenge in identifying this effect is that the decision to live with a MIL is endogenous. For instance, a woman who strongly

2. Klasen and Pieters (2015) show that estimates of female labor force participation from the IHDS are comparable to those from the National Sample Survey, data that have been typically used to study labor markets in India.

prefers to work may choose to live with her MIL. We address this challenge by restricting the analysis sample to those women who were living with their MILs and could be linked to their MILs. This means that our results should be interpreted as internally valid for the sample of women who lived with their MILs at baseline.

Next, we use the variation in the coresidence due to the MIL's death during the 7-8 years between the two rounds of the IHDS. In the restricted sample, 20% of the women lost their MIL between the two survey rounds. Recall that the two groups of women differ along several characteristics (Table 1). These descriptive statistics suggest that the death of the MIL itself is a nonrandom event correlated with her DIL's labor force participation. Therefore, a difference-in-differences strategy, without additional controls, may not identify an unbiased effect of the MIL's death. In this case, one would want to control carefully for these baseline characteristics to make inferences about the impact of the MIL's death. Still, unobservables correlated with MIL's death, like the household's attitude towards women, may bias results since even after observables are controlled for, her death might not be random.

Our identification strategy addresses these concerns by combining the variation in the MIL's death with individual fixed effects. Individual fixed effects de facto account for anything that may differ about those women, their households, and their communities, whose MILs passed away between two survey rounds. This approach is very similar to Evans and Miguel (2007), who use child fixed effects to estimate the effect of a parent's death on schooling in Kenya.

To summarize, our identification strategy uses a combination of difference-in-differences design with individual fixed effects. The first difference comes from comparing women's employment status before and after the MIL's death. The second difference comes from comparing women's employment status across households where the MIL passed away with those where she did not. The key identifying assumption is that any relative shift in the employment status of women living with MILs is attributable to the MIL's death.

Our main specification is:

$$y_{it} = \beta_0 + \beta_1 MILdied_i * Post_{it} + \beta_2 Post_{it} + \delta_i + X'_{it}\gamma + \epsilon_{it} \tag{4.1}$$

where y_{it} is the employment status, time use, or a measure of woman's autonomy i in survey round t. $MILdied_i$ is an indicator equal to one if woman i's MIL died between two rounds of the IHDS, and $Post_{it}$ is an indicator equal to one when we consider data from the second survey round. X_{it} is a vector of time-varying woman-specific characteristics, including the total number of comparable assets and number of children. Finally, δ_i denote individual fixed effects. ϵ_{it} is a conditionally-mean-zero error term. Standard errors are clustered at the

level of the primary sampling unit. β_1 is the difference-in-differences estimator that captures the effect of MIL's death on her DIL's labor supply.

In theory, it is possible that the effect of the MIL's death accumulates over time or decreases if coping mechanisms materialize over time. To examine such effects, we also estimate a version of specification 4.1 by replacing the $Post_{it}$ with years since MIL's death dummies at the time of the second round of interviews. This specification allows us to assess the effect of the MIL's death on the DIL's employment status by years passed since death.

Finally, for further exploratory analysis, we estimate the effect of the death of the MIL for different sub-groups of women. The specification for such analysis is:

$$y_{it} = \beta_0 + \beta_1 MILdied_i * Post_{it} * H_i + \beta_2 Post_{it} + \delta_i + X'_{it}\gamma + \epsilon_{it} \tag{4.2}$$

where all variables are defined as in equation 4.1 and H_i is an indicator equal to one if individual i belongs to the sub-group being considered.

5 Results

This section starts by documenting the key result of this paper: MIL's death decreases her DIL's labor supply. We then discuss results by sectors and placebo tests and provide relevant robustness checks. We conclude this section by addressing the different levels of labor force participation at the baseline.

5.1 Effect on Labor Force Participation

Figure 1 plots the labor force participation rate for those women who lost their MILs between the rounds of the IHDS and those who did not. Three striking patterns are clear from this figure. First, women's labor force participation consistently declined over seven years between the rounds of the IHDS survey. Second, the labor force participation for those who eventually lost their MILs was always higher than those who did not. Last, the decline in labor force participation for women who lost their MILs was steeper, which is essentially the paper's main result.

Table 2 describes our main set of results: Column (1) presents the results using equation 4.1, and Column (2) presents results that vary by the length of time that has elapsed since the MIL's death using equation 4.2. Table 2 demonstrates that the death of the MIL decreases her DIL's labor supply by 4.6 percentage points. Compared to the labor supply rate among women whose MILs did not pass away between the two survey rounds, this effect denotes a 10 percent reduction in labor supply. Our results are statistically significant at the 5 percent

level. Further, this effect is driven by women who lost their MIL in the one year before the second round of the interview, which shows that the effect documented in Column (1) is the strongest right after the MIL's death (Figure B.1).

A critical caveat is that while this result is internally valid for the sample of women who lived with their MILs in 2004-05, we cannot comment on the results' validity for the rest of the sample. In 2004-05, 30 percent of the interviewed women lived with their MILs (C.1). It is worth mentioning that the labor force participation of women who lived with their MILs at the baseline was lower than others. If we expect this pattern to persist, we should ex-ante expect that the MIL's death would increase the female labor force participation, and any negative effect is underestimated.

To better understand the economic significance of our results, we compare the magnitude of our estimates to other studies analyzing the determinants of female labor force participation. Bailey (2006) showed that the introduction of birth control pills increased female labor force participation by 3 percentage points in the US. According to Dinkelman (2011), electrification raised female employment rates by 9 percentage points in South Africa. In the Indian context, providing recruiting services and daycare programs increased women's employment rates by 2.4 and 2.6 percentage points (Jensen 2012; Nandi et al. 2020). It is worth noting that our estimated effect of a 4.6 percentage point decline in women's employment rate due to the MIL's death lies within the range of estimates found by other studies.

5.2 Effect on Labor Supply by Sector

Next, we explore which sector is driving the effect documented in Table 2. To do so, we use an indicator of participation in a particular sector as the dependent variable. The decrease in farm work participation almost entirely drove the decline in DIL's labor supply (Table 3). This result is in line with the already documented evidence on the recent decrease in female labor force participation in India, where the largest decline is driven by the agricultural sector (Afridi, Dinkelman, and Mahajan 2018).

5.3 Placebo Tests

We present the following placebo tests to support the validity of the effect of the MIL's death on her DIL's employment rate described in Table 2.

Father-in-law and Spouse. The first test uses a placebo *treatment*–the death of the FIL. Column (1) in Table C.2 shows that unlike the case of the MIL, FIL's death between the two survey rounds decreases women's labor supply only by 1.1 percentage points and is

statistically insignificant.[3] The second test uses the spouses' labor supply as the outcome to show that the death of the MIL does not significantly affect the labor supply of her son (Column (2), Table C.2).[4] The first test result suggests that the FIL does not share the daughter-in-law's household work burden, and hence, his death does not affect her labor force participation. The second test explains that negative shocks that increase the burden of household chores affect women's labor force participation but not their spouses' labor force participation. These patterns highlight the importance of gender roles in impeding female labor force participation.

Permutation Test. Next, we use a placebo treatment assignment as a falsification exercise based on a simulation exercise that confirms that the key results are not due to pure chance (Athey and Imbens 2017). We falsely assigned the MIL's death status to a randomly selected set of observations many times to re-estimate the effect of the placebo treatment on the DIL's labor force participation.[5] This exercise creates a reference distribution of the treatment estimate and the associated t-statistic that would arise if the null hypothesis of no treatment effect was true. Reassuringly, according to Figure B.5, the placebo estimates are centered around zero, and only 2.35 percent of the replicated estimates reach the estimate of -4.6 percentage point. The p-value recovered from randomization inference is 0.043, which is very similar to what we describe in Table 2 (0.041).

5.4 Difference in Labour Force Participation at the Baseline

Recall that women who lost their MILs were more likely to be working at the baseline (Table 1). While we account for the difference in the proclivity to work at the baseline by including individual fixed effects, this strategy does not address the concern that the two groups might have had different trends in the labor force participation had one group not lost their MILs. To confirm that this is unlikely to be confounding our key results, we look at the differences in the characteristics of those women who lost their coresident FIL between the two survey rounds with those who did not. As was the case for MIL's death, women who lost their FILs had higher labor force participation at the baseline (Table C.3). However, we do not see any effect of FIL's death on female labor force participation (Table C.2).

3. As was the case while estimating the effect of the MIL's death, the sample is restricted to those households where the FIL was a coresident at the baseline.

4. We use the labor supply status of spouses of women in the restricted sample. However, all women in this sample could not be matched to their spouses in the roster, giving us a smaller sample for this analysis.

5. We repeat this exercise 2,000 times. Young (2019) shows that typically 2,000 replications suffice to recover the non-parametric distribution of estimated effect size under placebo treatment.

6 Potential Mechanisms

In this section, we study whether the mechanisms underlying the main results are consistent with the conceptual framework described in Section 2, and are evident because of a (relatively) large *workload effect*.

6.1 Heterogeneous Effects

We start by examining heterogeneity in the effect of the MIL's death across multiple margins and confirming whether the patterns of heterogeneous impacts are consistent with predictions from the framework. This exercise is also relevant to highlight that the average effects mask a substantial heterogeneity across sub-groups.

Observation 2 argues that the workload effect would dominate for women with more children. To test this argument empirically, we estimate equation 4.2 by the number of children in the second survey round.[6] In line with *Observation 2*, we find that the effect is monotonically increasing in the number of children in the second survey round and only statistically significant in case the woman had four or more children (Column (1), Table 4; Figure B.2).

Next, we focus on *Observation 3*, which noted that since the positive autonomy effect would be lower for older women and lower caste women, the key result should be more pronounced among these groups. Column (1) in Table 5 describes the key result by age categories.[7] The negative effect of the death of the MIL is monotonically increasing in DIL's age, and statistically significant only if the DIL is over 30 (Figure B.3). Note that this pattern clarifies that the key result of this paper is not contrary to Anukriti et al. (2020)'s result that MILs restrict their DILs mobility because their analysis sample was restricted to 18-30-year-women. In line with *Observation 3*, the decrease in the DIL's labor force participation is marginally higher for lower caste women compared to higher caste women in the analysis sample. However, the difference in the effects on the two groups is not statistically significant (Column 2, Table 5; Figure B.4).

6. The following categories are used: (1) less than or equal to two children, (2) three children, (3) four children, and (4) five or more children. These cutoffs represent 49.5%, 27.6%, 13.5%, and 9.4% of the analysis sample. Since the number of children is discrete, we chose a categorization of the number of children such that the sample is the most evenly split while still capturing the intensity of housework. While these results are robust to including the number of children as a continuous dimension of heterogeneity, we use this specification for the ease of interpretation.

7. Following categories based on the baseline age are used: below 25, between 26 and 30, between 31 and 35, between 36 and 40, and between 41 and 49. These cutoffs represent 37.3%, 24.9%, 17.6%, 12.4%, and 7.7% of the analysis sample. While these results are robust to including the age as a continuous dimension of heterogeneity, we use this specification for the ease of interpretation.

Finally, we estimate equation 4.2 by baseline estimates of wealth on an asset-based index. The effect of the MIL's death, by wealth categories, could go in either direction. In comparison to poorer women, richer women may absorb adverse shocks of increased housework burden due to the MIL's death by hiring domestic help and thus maintaining their employment status. However, due to less financial constraints, richer women may be able to substitute outside employment for housework after the MIL's death, and their labor supply would be more responsive to this shock. We find that the difference in the effects on the top 50% in terms of wealth compared to the bottom 50% is not statistically different from zero (Column 2, Table D.1; Figure D.1).

6.2 Other Outcomes

If the negative *workload effect* is indeed the driving mechanism, we should see a higher work burden, and consequently lower free time for the DIL. We find that DILs are 5.1 percentage points (or 6.7 percent) less likely to visit their natal home often after their MIL's death, indicating that they have lesser free time (Column (3), Table C.4).

In addition, we use the information on the time spent on collecting water and fuel by different household members. An important caveat for these results is that these data were collected during the household interview and not the interview with the eligible women. Table 6 describes the effect of the MIL's death on women's time-use patterns: women in the household spent more time collecting water (4.4 more minutes over the control average of 25.0 minutes) and fuel (17.9 more minutes over the control average of 52.4 minutes). These patterns persist if we scale the total time spent on those activities by the number of women in the household (Table C.5). Reassuringly, we do not find any effect of the FIL's death on women's time use patterns (Table C.6) or of the MIL's death on time use patterns of men and children (Table C.7 & Table C.8).

6.3 Robustness to Alternate Mechanisms

We have shown several patterns in data consistent with the narrative that the MIL's death decreases her DIL's labor supply due to increased work burden within the household. However, other frameworks would also causally link the MIL's death to her DIL's labor supply. In this sub-section, we discuss some of these other frameworks and argue that they are unlikely to be driving our key results.

Chronically ill mother-in-law. The first alternative mechanism relates to how the MIL passed away. If the MIL passed away because of prolonged sickness, the DIL might have had to leave work to care for her. Indeed, if they died between the two survey rounds,

MILs were 10.7% more likely to be chronically ill (Table 1). In that case, MIL's death would have freed up the DIL's time and allowed her to work. This effect should go in a direction opposite to that of the documented effect. Moreover, individual fixed effects control for differences in the MIL's health at baseline.

Financial burden. Next, it is possible that the DIL started working because of the financial burden of her MIL's illness and stopped working after the latter's death because this financial need waned. In such a scenario, we should expect a reduction in the labor force participation in response to the FIL's death. However, the estimated impact of the FIL's death on the DIL's labor supply is statistically insignificant and much smaller in magnitude (Table C.2).

Increased Mental Stress. In the context of losing a MIL, mental stress may arise due to two reasons. First, stress could be associated with the emotional trauma of losing a family member. If there is a mental health effect due to the MIL's illness and death, it could reduce the DIL's labor market participation (Banerjee, Chatterji, and Lahiri 2017). Placebo tests described in Table C.2 help discard this mechanism. If this was the case, we should see a similar decline in her husband's labor force participation and a decline in her participation if her FIL passes away. Next, stress could be associated with the increased household work burden on the DIL after the MIL passed away. We cannot completely rule out this mechanism. The DIL's mental health might take a toll due to the increased household work pressure, affecting her labor supply.

Bargaining Power. Consider another narrative that would negatively link the MIL's death with her DIL's labor supply. We also know that there is a positive association between women's labor force participation and autonomy. (Dharmalingam and Morgan 1996; Rahman and Rao 2004). Anderson and Eswaran (2009) present a theoretical argument that earned income would be more effective in increasing a woman's autonomy than an increase in unearned income (from work on own farm). They also provide empirical evidence that establishes a causal link between a woman's employment outside her husband's farm and her autonomy; working on her husband's farm does not improve her autonomy. Now, if a MIL's presence reduces the DIL's autonomy, she may choose to work to improve her bargaining position within the household. Once the MIL passes away, the DIL does not need to assert her autonomy, so one would expect to see a decrease in her labor supply. Recall that the negative effect on the DIL's labor supply was due to a decrease in farm work (Table 3), which would not have increased her autonomy before the MIL's death. Also, while we do find some, albeit statistically insignificant improvements in markers of performance of gender (Table C.4), the likelihood that daughters-in-law take permission to go out does not decrease

with her MIL's death (Table C.9).[8]

Wealth Shock. Finally, the MIL's death could also be a positive wealth shock due to inheritance. The labor-leisure trade-off would suggest that an increase in wealth would increase leisure and induce women to drop out of the labor force. We do not think that a financial windfall is driving our result because the property is typically passed on to the son and not the DIL in India (Agarwal 1995). We confirm this pattern with more recent data by exploring female property ownership patterns in the National Family Health Survey conducted in 2015-16. In only 9.84 percent of the cases, a woman was listed as one of the owners of agricultural land (individually or jointly); in only 12.63 percent cases, a woman was listed as one of the dwelling owners. Of course, if the impact between the MIL's death was due to the income effect, it should have been evident for the male labor supply or when the FIL passed away, which is not the case (Table C.2).

7 Conclusion

Women's labor force participation is not only thwarted by gender roles that cast women as better suited to housework and childcare duties, but also by restrictive social norms that impede women's employment outside the home in developing countries. A coresident MIL, who plays the role of gatekeeper of restrictive social norms, may affect both frictions in opposite directions. The coresident MIL can encourage the DIL's labor force participation by sharing the housework burden. However, the MIL may instead inhibit the DIL's labor force participation by restricting her autonomy and mobility. The popular media in South Asia has also portrayed the MIL/DIL relationship as complex. In this paper, we explore the role a MIL plays in the DIL's decision to participate in the labor market in India.

Against the backdrop of a conceptual framework that describes the two countervailing effects of a MIL's presence on the DIL's labor force participation, we show that the MIL's death decreases her DIL's labor force participation. Our empirical approach relies on a difference-in-differences strategy combined with individual fixed effects and uses longitudinal data from two rounds of a nationally representative survey. Although the MIL's death decreases her DIL's labor force participation, we do not observe any effect due to a coresiding FIL's death or any impact on the son's labor force participation. These patterns suggest the role that older women play in the household, by sharing the housework burden and consequently allowing younger women to work, is critical in shaping the latter's labor force

8. It is worth mentioning that the proportion of women who report that they have to seek permission to go out massively increased between two survey rounds, indicating a change in the data collection methodology. While the inclusion of $Post_{it}$ would control for the trend increase in these outcomes, the estimates should be interpreted with caution.

participation.

Together, our results suggest that the restrictive role of MILs, while essential in other contexts such as the DIL's bargaining power, social networks, and fertility decisions, is not a binding constraint for their DIL's decision to work. This finding is further confirmed by the increased time the DIL spends on household production tasks or fewer visits to her natal home after her MIL's death. Also, we show that the labor force participation of women with four or more children, who are likely to have a more substantial household work burden, is more strongly affected by their MIL's death. Nevertheless, these results should be interpreted with caution and are only valid for our sample of women living with their MIL in 2004-05.

The results of this paper provide insights into the critical importance of long-established gender roles that put the burden of household chores and childcare on women in shaping women's decision to work. More immediately, providing institutional childcare support or creches across industries can encourage female labor force participation; mothers' labor force participation responds to greater availability of childcare across contexts, from Germany and France to Kenya and India (Bick 2016; Givord and Marbot 2015; Glinskayai, Lokshin, and Garcia 2000; Nandi et al. 2020). Policies such as neutral tax treatment, which increases the return on married women's market work and the availability of part-time jobs, childcare facilities, and paid parental leave boost female labor force participation (Jaumotte 2004; Colonna and Marcassa 2015; Byker 2016). These policy responses designed to encourage women's work are particularly important in the Indian context, in which the female labor force participation is low and has even declined. Ultimately, challenging the norms that put housework and childcare responsibilities solely on women must be at the center of any policy response to low female labor force participation. Fortunately, restrictive gender norms are not immutable. For instance, in India, exposure to female leaders and attempts to reshape gender attitudes through discussion and persuasion not only challenges stereotypical gender roles but also closes adolescents' gender aspiration gap and makes attitudes more supportive of gender equality (Beaman et al. 2012; Dhar, Jain, and Jayachandran 2018).

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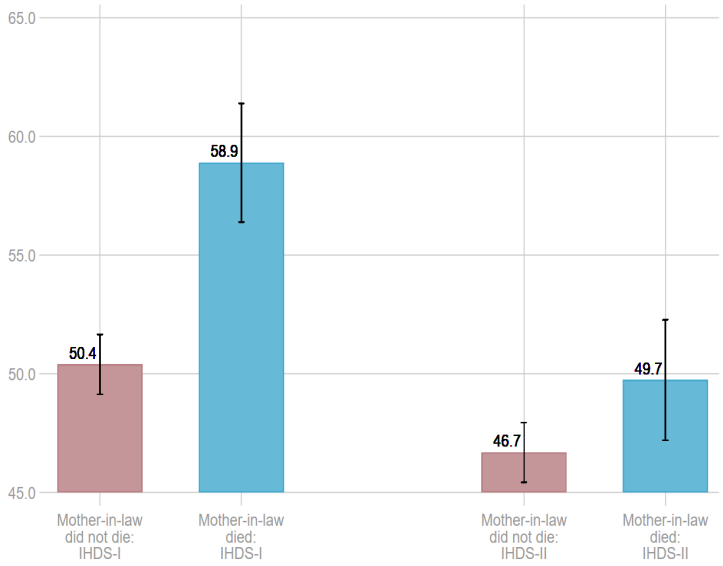
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Figures

Figure 1. Average labour force participation for the estimation sample across IHDS-I and IHDS-II



Note: This figure plots the average labour force participation rate for women who lost their MILs and those who didn't across IHDS-I and IHDS-II. The estimation sample is restricted to the women who were living with their MILs at the baseline.

Tables

Table 1. Sample Characteristics in 2004-05

	(1) Sub-group: Mother-in-law did not pass away	(2) Sub-group: Mother-in-law passed away	(2) - (1)
Urban residence	0.26	0.27	0.00
SC/ST/OBC	0.86	0.85	-0.01
Own land	0.54	0.54	0.01
Assets (number)	13.08	12.41	-0.67***
Age (in years)	28.31	32.96	4.65**
Age at marriage (in years)	17.61	17.31	-0.30**
Number of brothers	1.96	2.04	0.07**
Number of sisters	1.87	1.92	0.04**
Purdah	0.59	0.59	0.00
Men eat first	0.39	0.34	-0.05**
Cash in hand	0.76	0.80	0.03**
Name in house papers	0.10	0.13	0.03**
Mother-in-law ill in 2004-05	0.35	0.39	0.04**
Labor force participation: >240 hours	0.50	0.59	0.09***
Number of observations	6,045	1,496	

Note: This table reports simple differences in means using data from the IHDS-I for DILs who live with their MILs in 2004-05 across two groups of women: whose MILs didn't die and those whose MILs died between the IHDS-I and IHDS-II.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table 2. Effect of Mother-in-law's Death on Labor Force Participation

	(1) Past Year Labor Force Participation: $<$ 240 Hours	(2) Past Year Labor Force Participation: $<$ 240 Hours
Post	-0.032**	-0.031*
	(0.016)	(0.016)
Post X Mother-in-law Died	-0.046**	
	(0.023)	
Post X Mother-in-law died last year		-0.218**
		(0.096)
Post X Mother-in-law died one years ago		0.000
		(0.056)
Post X Mother-in-law died two years ago		-0.047
		(0.049)
Post X Mother-in-law died three years ago		-0.121***
		(0.045)
Post X Mother-in-law died four years ago		-0.057
		(0.052)
Post X Mother-in-law died five years ago		-0.005
		(0.059)
Post X Mother-in-law died six years ago		-0.038
		(0.065)
Post X Mother-in-law died more than seven years ago		-0.025
		(0.106)
Observations	15048	15048
R-squared	0.689	0.689
Control Average	0.467	0.467
Individual Fixed Effects	Yes	Yes
Time Varying Controls	Yes	Yes

Note: This table reports the results from a difference-in-differences specification 4.1 in Column (1) and from specification 4.2 in Column (2). The outcome is an indicator for if the woman was active in the labor market in the past one year. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table 3. Effect of Mother-in-law's Death on Labour Force Participation: By Sector

	(1)	(2)	(3)	(4)	(5)	(6)
	Past Year Labour Force Participation: $<$ 240 Hours Farm Job	Past Year Labour Force Participation: $<$ 240 Hours Animal Husbandry Job	Past Year Labour Force Participation: $<$ 240 Hours Agricultural Wage Job	Past Year Labour Force Participation: $<$ 240 Hours Non-agricultural Wage Job	Past Year Labour Force Participation: $<$ 240 Hours Salaried Job	Past Year Labour Force Participation: $<$ 240 Hours Business Job
Post	0.007	-0.035**	0.038***	0.049***	-0.033***	-0.035***
	(0.013)	(0.014)	(0.010)	(0.008)	(0.005)	(0.004)
Post X Mother-in-law Died	-0.034*	-0.016	0.006	-0.006	0.003	-0.002
	(0.019)	(0.021)	(0.016)	(0.013)	(0.007)	(0.007)
Observations	15048	15048	15048	15048	15048	15048
R-squared	0.724	0.686	0.700	0.581	0.508	0.509
Control Average	0.252	0.280	0.137	0.0768	0	0
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Varying Controls	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the results from a difference-in-differences specification 4.1. The outcome is an indicator for if the woman was active in the labor market for different sectors in the past one year. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.

* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table 4. Effect of Mother-in-law's Death on Labour Force Participation: Heterogeneous Effects, by Number of Children in Round 2

	(1) Past Year Labour Force Participation: $<$ 240 Hours, by Number of Kids
Post X Mother-in-law died X 0-2 children	-0.005
	(0.034)
Post X Mother-in-law died X 3 children	-0.039
	(0.037)
Post X Mother-in-law died X 4 children	-0.107**
	(0.047)
Post X Mother-in-law died X >=5 children	-0.123*
	(0.063)
Observations	15048
R-squared	0.689
Control Average	0.467
Individual Fixed Effects	Yes
Time Varying Controls	Yes

Note: This table reports the results from heterogeneity by the number of kids in the difference-in-differences specification 4.2. The outcome is an indicator for if the woman was active in the labor market in the past one year. Column (1) shows that the effect is the strongest for women with more than three children. The differences in estimates between women with 0-2 children and women with 4 or more children are statistically significant. However, the differences in estimates for women with 3 children and those with 4 or more children is not statistically different from zero. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table 5. Effect of Mother-in-law's Death on Labour Force Participation: Heterogenous Effects, by Age and Caste

	(1) Past Year Labour Force Participation: $<$ 240 Hours, by Age	(2) Past Year Labour Force Participation: $<$ 240 Hours, by Caste
Post X Mother-in-law died X <=25 years	0.049	
	(0.049)	
Post X Mother-in-law died X 26-30 years	0.018	
	(0.046)	
Post X Mother-in-law died X 31-35 years	-0.094**	
	(0.045)	
Post X Mother-in-law died X 36-40 years	-0.103**	
	(0.046)	
Post X Mother-in-law died X >40 years	-0.120***	
	(0.045)	
Post X Mother-in-law died X Non-SC/ST/OBC		-0.039
		(0.050)
Post X Mother-in-law died X SC/ST/OBC		-0.048*
		(0.024)
Observations	15048	15048
R-squared	0.690	0.689
Control Average	0.467	0.467
Individual Fixed Effects	Yes	Yes
Time Varying Controls	Yes	Yes

Note: This table reports the results from heterogeneity by age and caste in the difference-in-differences specification 4.2. The outcome is an indicator for if the woman was active in the labor market in the past one year. The differences in effects for women who are of age 25 or less and those who are over 30 are statistically significant. The differences in the coefficients reported in Column (2) for the two caste categories are not significantly different from zero. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.

* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table 6. Effect of Mother-in-law's Death on Women's Aggregate Time Use

	(1) Total Time Spent in Getting Water	(2) Total Time Spent in Getting Fuel
Post	-12.646***	-87.503***
	(1.649)	(5.840)
Post X Mother-in-law Died	4.338*	17.894**
	(2.228)	(7.685)
Observations	28720	28650
R-squared	0.616	0.608
Control Average	25.01	52.39
Individual Fixed Effects	Yes	Yes
Time Varying Controls	Yes	Yes

Note: This table reports the results from a difference-in-differences specification 4.1. The outcome in column (1) is the total time women spend in getting water and the outcome in column (2) is the total time women spend in getting fuel. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Appendices

A Identifying Mother-in-law/Daughter-in-law Pairs

In this section, we describe how we used the household roster at the baseline to identify co-residing MIL/DIL pairs. The household roster listed demographic information on all the individuals who lived in this dwelling and shared the same kitchen for over the past six months. These individuals constitute household members.

The key ingredients for identifying identify MIL/DIL pairs were the sex of the head of household, sex of their children, their children's marital status, and relationship to the head of the household. We used four rules to identify MIL/DIL pairs using the household roster:

Rule 1: If the household had a male head and a married son, then the wife of the household head is the MIL and the female child-in-law of the household head is the DIL.

Rule 2: If the household had a female head and a married son, then the household head is the MIL, and the female child-in-law of the household head is the DIL.

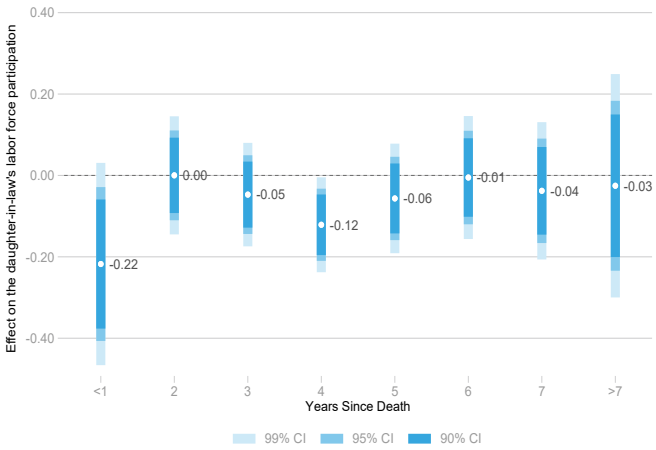
Rule 3: If the household had a married male head and his mother was a household member, then his mother is the MIL, and his wife is the DIL.

Rule 4: If the household had a married female head and her parent-in-law was a household member, then her female parent-in-law is the MIL, and she is the DIL.

We used analogous rules to identify the FIL of the DIL we thus identified. Finally, we used information on the spouse identification number within the same roster to identify the spouses of the DIL.

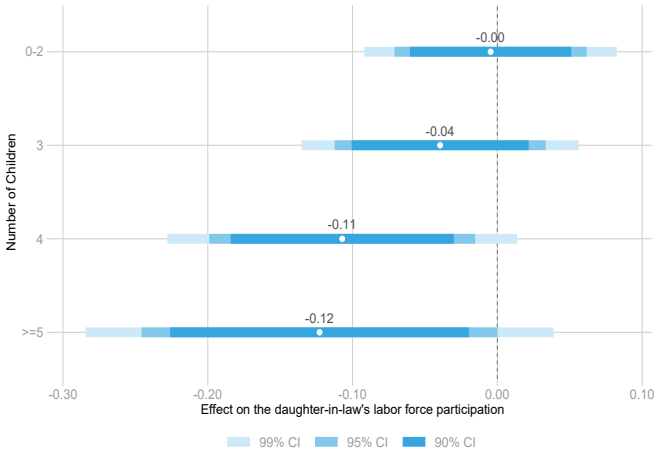
B Additional Figures

Figure B.1. Effect of the Death of the Mother-in-Law, by years of death



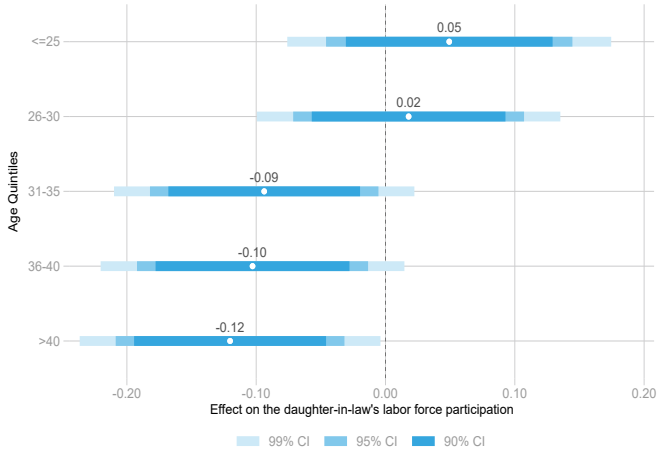
Note: Each circle plots the point estimate for the coefficient on $MILdied_i * Post_{it} * H_i$ where H_i is the number of years since the MIL's death (see equation 4.2). The regressions include individual fixed effects and time-varying controls (assets and number of children). All standard errors are clustered at the level of the primary sampling unit.

Figure B.2. Effect of the Death of the Mother-in-law, by the number of children



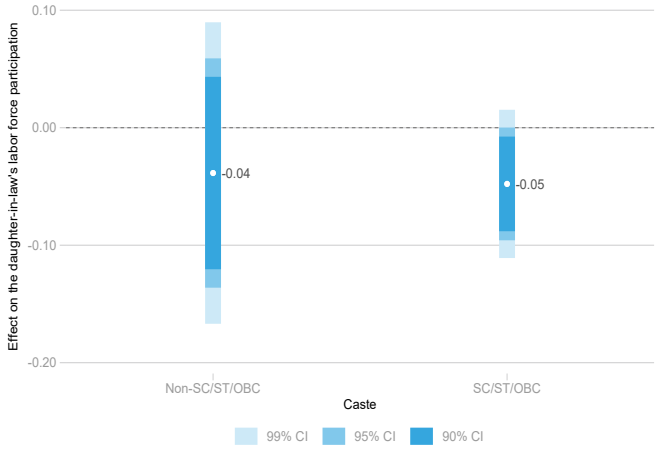
Note: Each circle plots the point estimate for the coefficient on $MILdied_i * Post_{it} * H_i$ where H_i is the number of children the DIL had in 2011-12 (see equation 4.2). The regressions include individual fixed effects and time-varying controls (assets and number of children). All standard errors are clustered at the level of the primary sampling unit.

Figure B.3. Effect of the Death of the Mother-in-Law, by age



Note: Each circle plots the point estimate for the coefficient on $MILdied_i * Post_{it} * H_i$ where H_i is the DIL's age (see equation 4.2). The regressions include individual fixed effects and time-varying controls (assets and number of children). All standard errors are clustered at the level of the primary sampling unit.

Figure B.4. Effect of the Death of the Mother-in-Law, by caste



Note: Each circle plots the point estimate for the coefficient on $MILdied_i * Post_{it} * H_i$ where H_i is caste (see equation 4.2). The regressions include individual fixed effects and time-varying controls (assets and number of children). All standard errors are clustered at the level of the primary sampling unit.

Figure B.5. Permutation Tests for the Effect of Mother-in-law's Death on Daughter-in-law's Labor Force Participation

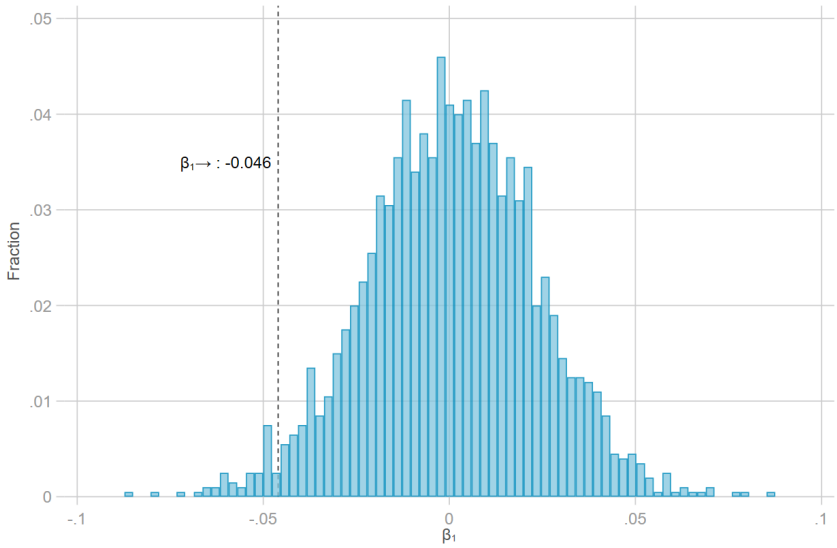


Figure B.6. Distribution of β_1

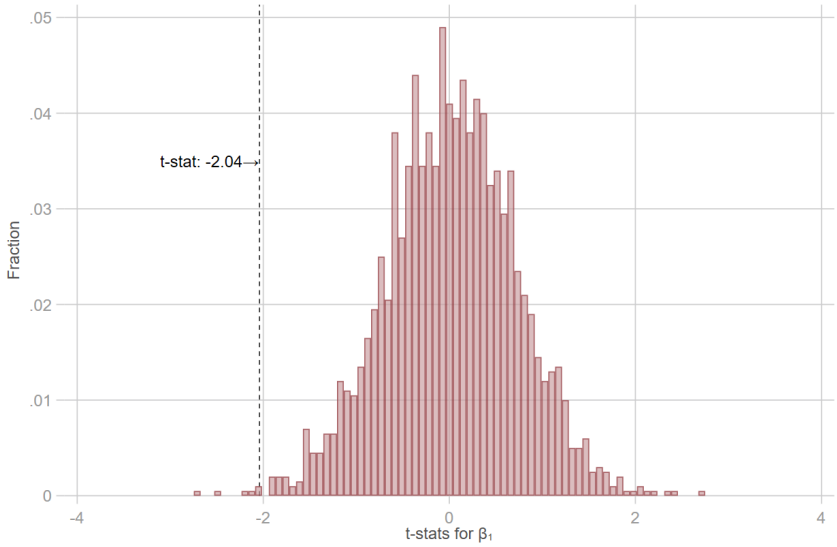


Figure B.7. Distribution of t-statistic

Note: Panel (a) shows the distribution of estimates of β_1 from a permutation test for equation 4.1. Panel (b) shows the distribution of estimates of t-statistic from a permutation test for equation 4.1. For each observation, treatment status was randomly generated and these assignments were used to compute β_1 and associated t-statistic 2000 times.

C Additional Tables

Table C.1. Full Sample Characteristics of Eligible Women in 2004-05

	(1) Sub-group: Did not live with mother-in-law	(2) Sub-group: Lived with mother-in-law	(2) - (1)
Urban residence	0.33	0.26	-0.06***
SC/ST/OBC	0.85	0.86	0.00
Own land	0.44	0.54	0.09***
Assets (number)	11.50	12.95	1.45***
Age (in years)	34.88	29.23	-5.64***
Age at marriage (in years)	16.99	17.55	0.56***
Number of brothers	2.05	1.98	-0.07***
Number of sisters	1.96	1.88	-0.08***
Purdah	0.53	0.59	0.06***
Men eat first	0.30	0.38	0.09***
Cash in hand	0.84	0.77	-0.07***
Name in house papers	0.17	0.11	-0.06***
Labor force participation: >240 hours	0.58	0.52	-0.06***
Number of observations	17,935	7,541	

Note: This table reports simple differences in means using data from the IHDS-I for all eligible women in 2004-05 across two groups of women: who live with their MILs and those who did not live with their MILs.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table C.2. Effect of Mother-in-law's Death on Labor Force Participation: Placebo Tests

	(1)	(2)
	Past Year Labor Force Participation: $<$ 240 Hours	Past Year Labor Force Participation: $<$ 240 Hours
	Treatment Father-in-law's Death	Outcome Spouse's Labor Force Participation
Post	-0.025	-0.049**
	(0.020)	(0.019)
Post X Father-in-law died	-0.011	
	(0.027)	
Post X Mother-in-law Died		-0.034
		(0.027)
Observations	9949	13095
R-squared	0.678	0.737
Control Average	0.467	0.458
Individual Fixed Effects	Yes	Yes
Time Varying Controls	Yes	Yes

Note: This table reports the results from a difference-in-differences specification 4.1. The outcome for column (1) is an indicator for if the woman was active in the labor market in the past one year and for column (2) is an indicator if her spouse was active in the labor market in the past one year. In the first column, the sample is restricted to those women who lived with their FILs, and in the second column it is restricted to those men whose wives lived with their mothers-in-law. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table C.3. Sample Characteristics in 2004-05

	(1) Sub-group: Father-in-law did not pass away	(2) Sub-group: Father-in-law passed away	(2) - (1)
Urban residence	0.24	0.25	0.01
SC/ST/OBC	0.86	0.85	-0.02
Own land	0.57	0.56	-0.00
Assets (number)	13.29	12.98	-0.31
Age (in years)	26.81	29.86	3.05***
Age at marriage (in years)	17.54	17.67	0.13
Number of brothers	1.94	1.97	0.03
Number of sisters	1.86	1.94	0.07
Purdah	0.64	0.59	-0.05**
Men eat first	0.47	0.41	-0.05**
Cash in hand	0.75	0.76	0.01
Name in house papers	0.08	0.11	0.03**
Labor force participation: >240 hours	0.47	0.55	0.08***

Note: This table reports simple differences in means using data from the IHDS-I for DILs who live with their FILs in 2004-05 across two groups of women: whose FILs didn't die and those whose FILs died between the IHDS-I and IHDS-II.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table C.4. Effect of Mother-in-law's Death on Women's Other Outcomes

	(1) Men Eat First	(2) Woman Keeps Purdah	(3) Woman Visits Natal Home Often
Post	-0.096***	0.002	0.024
	(0.018)	(0.015)	(0.016)
Post X Mother-in-law Died	0.026	-0.031	-0.051**
	(0.024)	(0.020)	(0.023)
Observations	15048	15048	15048
R-squared	0.612	0.775	0.583
Control Average	0.278	0.600	0.760
Individual Fixed Effects	Yes	Yes	Yes
Time Varying Controls	Yes	Yes	Yes

Note: This table reports the results from a difference-in-differences specification 4.1. In column (1), the outcome is if men eat first, in column (2), the outcome is if woman keeps purdah, and in column (3), the outcome is if woman visits natal home often. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table C.5. Effect of Mother-in-law's Death on Women's Per Capita Time Use

	(1) Average Time Spent in Getting Water	(2) Average Time Spent in Getting Fuel
Post	-8.040***	-43.787***
	(0.755)	(2.584)
Post X Mother-in-law Died	2.748***	12.245***
	(0.957)	(3.180)
Observations	28720	28650
R-squared	0.614	0.607
Control Average	9.453	19.90
Individual Fixed Effects	Yes	Yes
Time Varying Controls	Yes	Yes

Note: This table reports the results from a difference-in-differences specification 4.1. The outcome in column (1) is the average time women spend in getting water and the outcome in column (2) is the average time women spend in getting fuel. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table C.6. Effect of Father-in-law's Death on Women's Time Use

	(1) Total Time Spent in Getting Water	(2) Total Time Spent in Getting Fuel	(3) Average Time Spent in Getting Water	(4) Average Time Spent in Getting Fuel
Post	-11.991***	-89.828***	-7.873***	-46.927***
	(1.822)	(6.469)	(0.848)	(3.115)
Post X Fother-in-law died	-1.400	-2.711	-1.288	-5.186
	(2.847)	(8.739)	(1.459)	(4.712)
Observations	17302	17252	17284	17234
R-squared	0.616	0.607	0.613	0.608
Control Average	24.44	51.12	9.766	20.40
Individual Fixed Effects	Yes	Yes	Yes	Yes
Time Varying Controls	Yes	Yes	Yes	Yes

Note: This table reports the results from a difference-in-differences specification 4.1. The outcome in column (1) is the total time women spend in getting water, the outcome in column (2) is the total time women spend in getting fuel, the outcome in column (3) is the average time women spend in getting water, and the outcome in column (4) is the average time women spend in getting fuel. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table C.7. Effect of Mother-in-law's Death on Men's Time Use

	(1) Total Time Spent in Getting Water	(2) Total Time Spent in Getting Fuel	(3) Average Time Spent in Getting Water	(4) Average Time Spent in Getting Fuel
Post	-3.779***	-39.456***	-3.042***	-21.002***
	(0.996)	(3.933)	(0.509)	(1.845)
Post X Mother-in-law Died	1.128	9.215	0.458	0.497
	(1.526)	(5.854)	(0.763)	(3.072)
Observations	28720	28709	28597	28586
R-squared	0.562	0.563	0.566	0.573
Control Average	11.06	31.36	4.480	13.44
Individual Fixed Effects	Yes	Yes	Yes	Yes
Time Varying Controls	Yes	Yes	Yes	Yes

Note: This table reports the results from a difference-in-differences specification 4.1. The outcome in column (1) is the total time men spend in getting water, the outcome in column (2) is the total time men spend in getting fuel, the outcome in column (3) is the average time men spend in getting water, and the outcome in column (4) is the average time men spend in getting fuel. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table C.8. Effect of Mother-in-law's Death on Children's Time Use

	(1) Girls' Total Time Spent in Getting Water	(2) Girls' Total Time Spent in Getting Fuel	(3) Boys' Total Time Spent in Getting Water	(4) Boys' Total Time Spent in Getting Fuel
Post	-1.143*	-2.166**	1.640***	-1.501*
	(0.659)	(0.942)	(0.437)	(0.853)
Post X Mother-in-law died	0.526	-0.501	-0.979	-0.039
	(1.139)	(2.218)	(1.309)	(1.411)
Observations	28720	28720	25305	28720
R-squared	0.507	0.492	0.575	0.479
Control Average	4.512	5.245	4.160	3.738
Individual Fixed Effects	Yes	Yes	Yes	Yes
Time Varying Controls	Yes	Yes	Yes	Yes

Note: This table reports the results from a difference-in-differences specification 4.1. The outcomes in column (1) & (2) are the total time girls spend in getting water and fuel. The outcomes in Column (3) & (4) are the total time boys spend in getting water & fuel. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Table C.9. Effect of Mother-in-law's Death on Measures of Autonomy

	(1) Need Permission to Visit Local Grocery Store	(2) Need Permission to Visit Friend's Home	(3) Need Permission to Visit Health Center
Post	0.197***	0.086***	0.105***
	(0.022)	(0.016)	(0.013)
Post X Mother-in-law died	-0.007	-0.029	-0.007
	(0.029)	(0.022)	(0.020)
Observations	15048	15048	15048
R-squared	0.544	0.522	0.534
Control Average	0.485	0.878	0.922
Individual Fixed Effects	Yes	Yes	Yes
Time Varying Controls	Yes	Yes	Yes

Note: This table reports the results from a difference-in-differences specification 4.1. In column (1), the outcome is if the woman needs permission to visit a local grocery store, in column (2), the outcome is if she needs permission to visit her friend's home, and in column (3), the outcome is if woman she needs permission to visit a health center. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

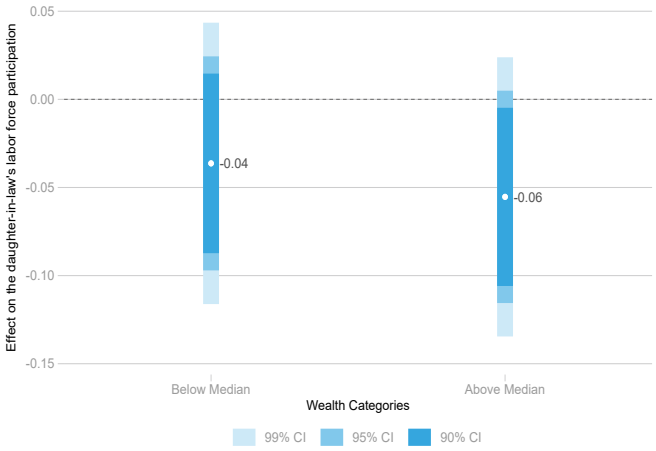
D Additional Analysis

Table D.1. Effect of Mother-in-law's Death on Labour Force Participation: Heterogenous Effects, by Wealth

	(1) Past Year Labour Force Participation: $<$ 240 Hours, by Wealth
Post X Mother-in-law died X Bottom 50%	-0.036
	(0.031)
Post X Mother-in-law died X Top 50%	-0.055*
	(0.031)
Observations	15048
R-squared	0.689
Control Average	0.467
Individual Fixed Effects	Yes
Time Varying Controls	Yes

Note: This table reports the results from heterogeneity by wealth in the difference-in-differences specification 4.2. The outcome is an indicator for if the woman was active in the labor market in the past one year. Column (1) shows that the effect is marginally stronger for richer women. However, the differences in the estimates between the two wealth categories are not statistically different from zero. Time-varying controls include assets and number of children. We also include individual fixed effects. Robust standard errors clustered at the level of the PSU are reported.
* Significant at 10%; ** Significant at 5%; *** Significant at 1%.

Figure D.1. Effect of the Death of the Mother-in-Law, by wealth



Note: Each circle plots the point estimate for the coefficient on $MILdied_i * Post_{it} * H_i$ where H_i is wealth categories (see equation 4.2). The regressions include individual fixed effects and time-varying controls (assets and number of children). All standard errors are clustered at the level of the primary sampling unit.