Signing for Safety: Can Mandatory Marriage Registration Reduce Domestic Violence?

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Abstract

This paper identifies a novel determinant of domestic violence, the lack of legal documentation of marriage in the context of India. For identification, we use a difference-in-differences model, leveraging a mandatory marriage registration law implemented in the Indian state of Bihar. We identify the role of document verification and legal access as potential mechanisms and establish that reductions in polygamy, spousal alcohol consumption, child marriage, and increases in women's education and awareness plausibly drive the reduction in domestic violence. Further analysis reveals that the tangible impacts of the policy only emerge after the implementation of anti-corruption measures in public service delivery, underscoring the critical role institutional efficiency plays in determining policy effectiveness. Thus, mandatory marriage registration is crucial in combating domestic violence, but it must be integrated into broader initiatives to reduce corruption and increase the efficiency of public service delivery.

Keywords: Domestic violence, Marriage registration, Difference-in-differences, Polygamy, Child marriage

JEL Codes: O12, O15, J12, J16, J18, I31

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1 Introduction

Violence against women, particularly domestic violence, continues to be a pervasive issue worldwide, escalating alarmingly each year (WHO, 2021). Over half a billion women globally, almost one in every three women, have reported experiencing violence from their intimate partner at least once during the span of their relationship (OECD, 2023). Domestic violence (DV) not only inflicts a negative impact on women's labor market outcomes (Sabia et al., 2013), mental and physical health (Ackerson and Subramanian, 2008; Ahinkorah, 2021) but also has a long-lasting adverse intergenerational effect on children's health, cognitive development and school participation (Aizer, 2011; Carrell and Hoekstra, 2010). The situation is particularly severe in patriarchal societies, where rigid gender norms and societal taboos related to the reporting of DV exacerbate the problem. South Asia has the highest prevalence of DV globally, with an estimated 40% of women affected (WHO, 2013). In India, data from the National Family Health Survey (NFHS, 2019-21) reveal that 30.44% of women have experienced DV, yet 87% of these women do not seek any formal or informal help. These statistics highlight the critical need for policy interventions to reduce DV and smoothen the help-seeking process for affected women.

In this paper, we study the impact of a mandatory marriage registration policy on DV in India. Marriage registration certificate makes the legal procedure of filing a complaint of DV easier for women (Motiani, 2024), gives them access to legal protections like restraining order against the husband and in case of a divorce, helps them to obtain spousal support and child's custody (Hanmer and Elefante, 2016; Kumari et al., 2022) and ensures inheritance rights (Buvinic and Carey, 2019). Additionally, the age and identity verification process of marriage registration helps to curb child marriage and polygamy. Despite these multifold benefits, marriage registration is yet to be made compulsory across all of India (Kumari et al., 2022). Some Indian states have passed their own mandatory registration laws, but they are not under a unified legal framework, which makes the implementation and enforcement inconsistent across the country.

For identification purpose, we utilize a mandatory marriage registration policy introduced in Bihar in 2006. The policy made it compulsory for all the citizens of the state, irrespective of religion and social background, to formally register their marriages, with non-compliance resulting in a monetary penalty (Government of Bihar, 2006)[1]. We take the neighboring state of Jharkhand as a control state and apply a difference-in-differences (DID) model to derive our causal estimates. Jharkhand has previously been used as a control state for Bihar (Muralidharan and Prakash, 2017) due to their shared sociocultural structures and the fact that Bihar and Jharkhand remained a unified state until 2001. We establish the validity of the parallel trends assumption through an event study analysis.

Using data from the fourth round of National Family Health Survey (NFHS, 2015-16), we show that the likelihood of DV reduced by 11.6 percentage points (pp) following the implementation of the mandatory registration policy in Bihar compared to Jharkhand. Specifically, the likelihood of emotional, sexual and physical violence decreased by 8.7 pp, 5.6 pp and 10.8 pp, respectively. Notably, event study analysis reveals that the policy only became effective after Bihar implemented Right to Public Services Act (RTPS) in 2011, which enhanced the efficiency of public service delivery by curbing corruption.

In terms of the underlying mechanisms, we find a reduction in polygamy and spousal alcohol consumption, which are critical determinants of DV (Luca et al., 2015; Heath et al., 2020). Additionally, we observe a reduction in child marriage, an increase in age at marriage, and higher educational attainments among women. Interestingly, we find a reduction in the likelihood of justifying DV for both women and their husbands. Our results withstand a series of robustness checks, such as balance test, placebo and falsification tests, alternative clustering and matched sampling like propensity score matching and entropy balancing.

Our paper contributes to the literature in the following ways: Firstly, this paper highlights the

[1]For details of the policy, please refer to the policy document, published via Notification No. 2-R-2-201/97 (Part) 1647 dated 7.8.2006.

role of a novel determinant of DV, the lack of legal documentation of marriage. We contribute to the growing body of research that aims to unfold the socioeconomic factors that lead to DV, including labor market conditions such as gender wage gap and unemployment (Aizer, 2010; Anderberg et al., 2016; Bhalotra et al., 2021), sociocultural norms (Tur-Prats, 2019; González and Rodríguez-Planas, 2020), marital endowments (Sekhri and Storeygard, 2014; Menon, 2020; Calvi and Keskar, 2023), gender ratios (Amaral and Bhalotra, 2017), family history of abuse (Bensley et al., 2003), female political representation (Anukriti et al., 2022; Bochenkova et al., 2023), contraceptive use (Ojha and Babbar, 2024), women's educational attainment and health (Erten and Keskin, 2018; Papageorge et al., 2021; Weitzman, 2018).

Secondly, we contribute to the literature that highlights the critical role of institutions in economic development, poverty reduction, conflict resolution and inequality mitigation (Acemoglu et al., 2001; Banerjee and Iyer, 2005; Duflo and Pande, 2007; Easterly, 2001; Cervellati et al., 2008). We focus on how institutional changes can influence social norms related to violence against women, embedded in patriarchal social structures. Furthermore, we underscore the importance of institutional efficiency driven by enhanced accountability (Deininger and Mpuga, 2005).

Thirdly, this study contributes to the strand of literature that explores the effectiveness of policy measures in reducing violence against women, including divorce and separation laws (Stevenson and Wolfers, 2006; García-Ramos, 2021), cash transfer policies (Bobonis et al., 2013; Hidrobo and Fernald, 2013; Hsu, 2017; Heath et al., 2020), financial inclusion (Bhukta et al., 2025) and stricter punitive measures (Aizer and Dal Bo, 2009; Iyengar, 2009). To our knowledge, this paper is the first to evaluate the causal impact of mandatory marriage registration as a policy intervention and causally estimate its impact on DV. Our findings highlight the need to make marriage registration mandatory and to strengthen the legal framework by implementing it as a uniform, pan-India law. Our results also underscore the negative impact of mandatory marriage registration on both polygamy and child marriages, which are critical in the context of developing economies with rigid patriarchal norms.

Lastly, we demonstrate how corruption can impede the effectiveness of policy interventions. Using an event study analysis, we show that the mandatory marriage registration policy was not effective enough to reduce DV until Bihar RTPS was introduced in 2011. This act was aimed to curb corruption and enhance the reliability and transparency in public services, including civil registration. Post-2011 RTPS, we find that the mandatory marriage registration act reduced DV significantly. This finding carries broader implications for public policy implementation in developing countries, where corruption often limits the effectiveness of public service delivery (Davis, 2004; Pandey, 2010). To support these findings, we examine data on the Civil Registration System (CRS) before and after the RTPS Act to demonstrate its impact on the efficiency of the registration system.

The rest of our paper is organized as follows: Section 2 provides an institutional context of mandatory marriage registration policies in India and the Right to Public Services Act in Bihar, Section 3 draws a conceptual framework for the analysis, Sections 4 and 5 explain the data and methodology, Section 6 presents the results, mechanisms, and robustness; and Section 7 concludes.

2 Institutional Context

2.1 A historical context of marriage registration policies in India

In India, the system of civil registration started with the enactment of Births, Deaths, and Marriage Registration Act in 1866 to introduce voluntary registration across British India. In 1969, the Act was renamed as the Registration of Births and Deaths Act, excluding marriage registration. Over time, the provision of marriage registration was made under different religion-specific laws, such as Hindu Marriage Act (1955), Special Marriages Act (1956), Indian Christian Mar-

riages Act (1872), Kazis Act (1880) and Parsi Marriages and Divorce Act (1936). However, there is no unified law that ensures mandatory registration and record-keeping of all the marriages registered in the country, irrespective of religion, region and local customs (Kumari et al., 2022). Moreover, in all the existing laws, registration is voluntary and there is no unified law to ensure mandatory registration for all marriages in India (Kumari et al., 2022). All the existing acts and laws empower the State governments to make any decision about the process of marriage registration (LCI, 2017).

In 2005, the National Commission of Women (NCW) drafted the 'Compulsory Registration of Marriages Bill', which points out an array of problems arising from non-registration of marriages, including child marriage, the practice of polygamy, fraudulent marriages and bride trafficking activities. Next year, in 2006, the Supreme Court referred to the NCW bill during the trial of 'Seema vs. Ashwani Kumar & ors', and observed that all the citizens of India, irrespective of their religion, should mandatorily register their marriages in the States where the marriage is solemnised[2]. Subsequently, several states have enacted laws or established regulations requiring the compulsory registration of marriages. Examples include Haryana, Madhya Pradesh and Kerala in 2008, Tamil Nadu and Rajasthan in 2009, Uttarakhand in 2010, Meghalaya, Punjab in 2012, Delhi in 2014 etc.

However, there are several states and union territories in India where marriage registration is still not mandatory (Motiani, 2024). These include Assam, Gujrat, West Bengal[3], Nagaland, Sikkim, Andaman & Nicobar and Lakshadweep. In Jammu & Kashmir, although Section 3 of the J&K Muslim Registration of Marriages Act (1981) mandates that marriages be registered within 30 days, this provision has not been enforced. In Pondicherry, registration of marriage is still governed under the French civil code. Meanwhile, in Goa and Daman & Diu, marriage registration is regulated under the Civil Registration Code of 1912, which is largely based on the

[2] 2006 (2) SCC 578.

[3] In West Bengal, while biometrics has been made mandatory for marriage registration recently (from Nov 1, 2023), registration itself is still not compulsory yet.

outdated Portuguese Code of 1867. In both cases, marriage registration is not enforced.

2.2 Mandatory marriage registration rule in Bihar (2006)

In this paper, we focus on the Compulsory Marriage Registration rules enacted in Bihar in 2006. This policy was implemented right after the Supreme Court directed all the states to frame rules to make marriage registration mandatory by passing an order on February 14, 2006 in Transfer Petition (C) Number 291 of 2005. Under this rule, effective from August 8, 2006, every couple marrying in the state of Bihar is required to register their marriages within 30 days of the solemnisation. Failure to comply results in a monetary penalty of Rs. 100 imposed on the husband for up to 90 days, with an additional Rs. 50 penalty for each subsequent month of non-compliance. Moreover, if an individual deliberately submits false documents or presents fake witnesses, they will be prosecuted under Section 192 of the Indian Penal Code (IPC)[4]. The rule also stipulates that the marriage certificate obtained through this registration process serves as rebuttable proof of the marriage.

The effectiveness of this policy depends on how well the public service delivery system functions in the state. In India, corruption is widespread in the process of registering a marriage, including bribes demanded by lawyers/clerks for issuing the marriage certificate (Nair, 2013; Indian Express, 2012) and monetary exploitation by external agents to expedite the process in the name of having connections with the registration officers (NDTV, 2012). In this context, the Bihar Right to Public Services Act (RPS) of 2011 becomes relevant, which is discussed below in detail.

[4]Section 192 of IPC deals with the crime of fabricating false evidence.

2.3 Bihar Right to Public Services Act (2011)

RTPS Act[5] was passed with an objective to increase accountability, reliability, accessibility and transparency in the public service delivery. This act mandated that the state government provide public services to citizens within a specified time period. Failure to meet this deadline would result in penalties being imposed on the officials involved, ranging from Rs 500 to Rs 5000.

Bihar implemented a comprehensive ICT framework for monitoring the complaints. Different components of this framework were: (i) *Adhikar* (a monitoring software), (ii) *Samadhan* (a helpline) and (iii) *Jigyasa* (a call centre to clarify people's queries about the Act).

Apart from the provision of registering complaints online, RTPS counters were set up in 534 block offices across the entire State of Bihar. Moreover, the Act mandated to generate receipts for the acknowledgment of each complaint lodged online/in-counter for better record keeping. There were provisions for up to two appeals in case the resolution is delayed, and also for tracking applications through online portal, SMS and call centres[6].

District-wide awareness campaigns were launched to make people aware of this policy right after its announcement in 2011. *'May I help you'* booths were also set up in each district headquarters for this purpose.

3 Conceptual Framework

In this section, we attempt to conceptually explain how mandatory marriage registration can impact DV. Figure 1 provides a summary of our conceptual framework. We identify two main channels through which mandatory marriage registration can reduce the likelihood of domestic

[5]Bihar Lok Sevaon ki Guarantee Adhiniyam, 2011 (Link).
[6]Please refer to Dayal (2013) for detailed explanation of how application lodging and tracking worked.

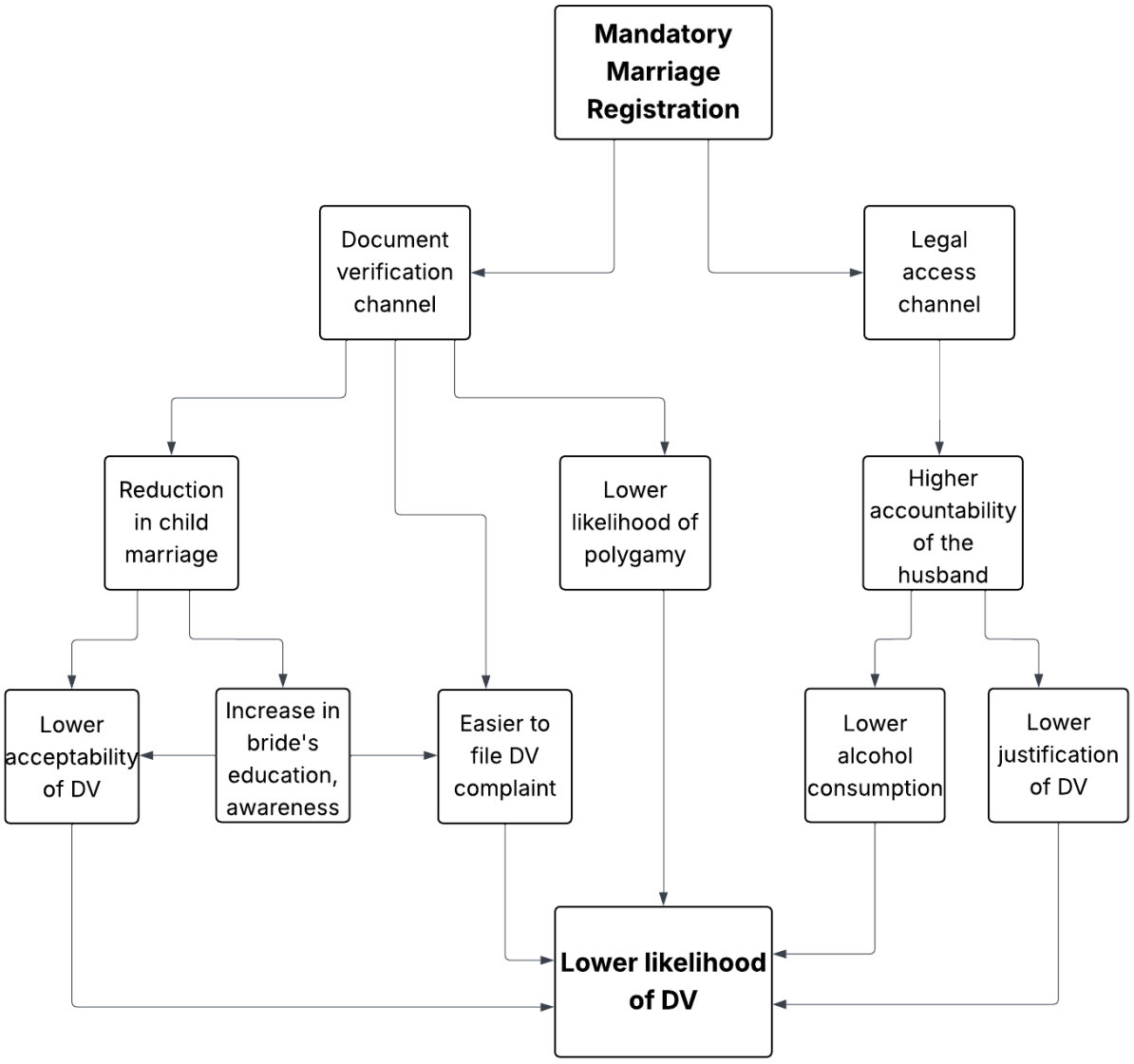


Figure 1: Conceptual Framework

violence: the document verification channel and the legal access channel.

The process of legally registering a marriage involves verification of all the relevant documents of the bride and the groom, such as proof of age (birth certificate/ matriculation certificate/ passport), proof of residence (Voter ID/ AADHAR ID[7]/ PAN card/ ration card/ electricity bill), photographs, signature from two witnesses each from both sides and an affirmation that the couple do not fall into any prohibited relationships, mentioned under the Hindu Marriage Act (1955). In case the marriage is already solemnized, the couple needs to furnish a wedding photograph, the wedding invitation card and the date and location details as proof. Additionally, if the bride/groom is divorced, they need to furnish a copy of the divorce decree. This process of rigorous document verification benefits the bride in several ways.

Firstly, the verification of age proof should reduce child marriage, as it is not possible to legally register a marriage before the bride reaches the age of 18. Existing literature suggests that an increase in age of marriage reduces the likelihood of DV, through increased educational achievement and bargaining power (Roychowdhury and Dhamija, 2021). Higher education might also result in lower acceptability of DV and raise awareness for women and thereby reduce the occurrence of DV (The Hindu, 2023).

Secondly, according to Section 5(1)(i) of the Hindu Marriage Act (1955), it is not possible to register more than one marriages legally until the previous marriage is null and void. Therefore, if the groom/bride has multiple marriages, the document verification process requires them to submit an attested copy of the divorce decree with their application. This reduces the likelihood of polygamy. Women in polygamous marriages have comparatively lower bargaining power (Bove and Valeggia, 2009), which makes them more vulnerable to DV.

Thirdly, a marriage certificate simplifies the procedure of filing DV cases by providing access to a legal documentation of marriage (Motiani, 2024). An unregistered marriage allows the husband

[7] AADHAR is a unique identification number given to each Indian citizen.

to deny the marital relationship, which can potentially nullify the case. Alternative proofs of marriage, such as wedding photographs and evidence of long-term cohabitation, are also acceptable, but their validity is susceptible to challenge, particularly in light of advancements in artificial intelligence technologies. In contrast, a marriage registration certificate remains an unequivocal legal proof of marriage in court (Buvinic and Carey, 2019). The importance of a marriage registration certificate was also highlighted by the Supreme Court of India in the judgement of the case of Seema V/s Ashwani Kumar, (2006) 2 SCC 578. Ease of filing DV complaint can potentially reduce the likelihood of DV. Indirectly, as an additional channel, increased education and awareness caused by reduced child marriage can also help women understand the legal procedure of filing a DV complaint.

Next, we move to the legal access channel. Marriage registration acts as a safety net for vulnerable women. It offers legal protection and rights, such as access to restraining orders, custody of children and even spousal support in case of a separation (Kumari et al., 2022). This can act as an additional incentive to file a DV complaint, especially in cases where the complainant expects a backlash from the perpetrator. The marriage certificate also enables women to formally file for a divorce (Motiani, 2024), which is considered to be a social shame, even for the groom's family.

Therefore, a registered marriage increases the accountability of the husband by raising the implicit cost of domestic violence for him. The cost involves the likelihood of prosecution, social shame and possible monetary loss from providing spousal support in case of a divorce. Higher accountability of the husband is expected to result in lower alcohol consumption and lower justification of DV, which can contribute to the lower likelihood of DV (Luca et al., 2015; Dixit and Mukherjee, 2025).

4 Data

To study the impact of mandatory marriage registration policy on DV, we use three data sources: (i) National Family Health Survey (NFHS 2015-16) (Fourth round), (ii) Data on the number of marriages registered obtained through a Right to Information (RTI) petition, (iii) Annual reports on 'Vital Statistics of India based on the Civil Registration System', and (iv) Indian Human Development Survey (IHDS) (2011-12)

NFHS:

For our main analysis, we use the fourth round of National Family Health Survey (NFHS) (IIPS, 2017), which was conducted between 2015 and 2016. The Ministry of Health and Family Welfare (MoHFW), Government of India, supervised the conduct of NFHS-4, and they appointed the International Institute of Population Sciences (IIPS) as the nodal agency for the same. The survey was conducted using stratified random sampling for all 29 states, 7 union territories and 640 districts in India, covering 601,509 households.

NFHS collects detailed data on the demographic and health characteristics of the Indian population, along with household characteristics, using four distinct questionnaires: Women, Men, Household and Biomarker. It is the only individual-level survey in India that collects sensitive information on domestic violence for ever-married women aged between 15 and 49. However, only 15% of the total sampled households are selected for the domestic violence module (as a part of the State module), and within these households, only one eligible woman is randomly chosen to respond to the questions. Women who revealed to be victims of domestic violence were further provided a list containing all the organizations they can approach to seek help. The data collection process followed international guidelines by World Health Organization (WHO) for carrying out research on domestic violence. Women surveyed for the module were assured that their identity information would be kept confidential.

We restrict our sample to women who were selected for the DV module in Bihar and Jharkhand, which are the treatment and control states, respectively[8]. To define the treatment status, we utilize the year of marriage variable in NFHS-4. Since the mandatory registration policy (2006) was applicable only for new marriages, our treatment group consists of women who got married after 2006 in Bihar. We further restrict our sample to women who got married between 2002 and 2015 because (i) Jharkhand emerged as a separate state from Bihar in 2002[9] and (ii) in 2016, Bihar banned alcohol, which could potentially have a strong confounding impact on DV (Luca et al., 2015). Lastly, we drop non-resident women members of the household from our sample. Our final sample consists of 3248 women in Bihar and Jharkhand aged 15-49. For details of data and sample construction, see A0.1.

For the mechanism results, we incorporate data from the men's file as well. To maintain consistency with the women's file, we limit the sample to the spouses of the women from our main dataset, who were selected for the DV module in Bihar and Jharkhand. The final sample from men's file comprises 3,071 men.

In our analysis, we focus on four main binary outcomes related to DV: emotional violence, sexual violence, physical violence and any form of violence. Additionally, we look into the husband's characteristics (polygamy, husband-reported alcohol consumption and justification of DV) and women's outcomes (women's age at marriage, child marriage, education, awareness and justification of DV) to understand the underlying mechanisms. Detailed descriptions of the primary as well as the mechanism outcomes, are listed in Table 1 alongside their mean, standard deviation and number of observations.

RTI Data:

[8]Jharkhand implemented the Compulsory Registration of Marriages Act in 2017. Therefore, for our period of analysis (2002-2015) Jharkhand serves as a control group.

[9]The Bihar Reorganization Act, passed on August 25, 2000, bifurcated the state of Bihar. However, according to section 70 of the same act, the administrative units continued to serve both states till December 1, 2001. Since 2002, Bihar and Jharkhand emerged as two geographically and administratively separate states.

Next, we sought district-wise annual number of marriages registered in Bihar from 2002 to 2015 through RTI[10]. However, we received our desired data only for two districts in Bihar[11], Araria and Bhagalpur[12]. For the rest, the data is either unavailable or incomplete.

Vital Statistics Reports:

We also use yearly reports on 'Vital Statistics of India based on the Civil Registration System' for the years 2009 to 2015 to get the annual data on total number of registration units inspected as a measure of effectiveness of the registration procedure[13]. These reports are published by the Office of the Registrar General & Census Commissioner, India (ORGI). The inspections are carried out according to the provisions mentioned in Section 18 of the Registration of Births and Deaths Act (1969) by the Chief Registrar and District Registrars in each State or Union Territory. However, these inspection numbers are only available for 7 states (Bihar, Chhattisgarh, Haryana, Karnataka, Madhya Pradesh, Manipur and Punjab) and therefore, we could not access the same numbers for Jharkhand (ORGI, 2015).

Indian Human Development Survey (IHDS) (2011-12)

IHDS is a nationally representative survey which has been conducted in two waves so far (2004-05 and 2011-12). IHDS records a wide range of socioeconomic outcomes, including poverty, income, consumption, health, education, employment, etc. We use the women's file from the second wave of IHDS (2011-12) (Desai and Vanneman, 2018), which was conducted in 42,152 households across all the states and union territories of India excluding Andaman & Nicobar

[10]The Right to Information (RTI) Act of 2005 enables Indian citizens to seek and access information held by public authorities. We filed the RTI claim through Bihar government's RTI portal.

[11]We attempted to acquire similar data for Jharkhand as well; however, to our best knowledge, there is no online RTI portal of Jharkhand state government. We requested the data for Jharkhand through the Government of India's RTI portal, but the application was returned, stating that marriage registration records are maintained by the state, not the central government.

[12]We did not get yearly data (2002-15) for other districts. Muzaffarpur and Nawada sent us the total number of marriages registered in that period. Jehanabad and Gopalganj sent us yearly data for 2012-15 and 2011-15, respectively. West Champaran, Madhubani, Sitamarhi, Munger, Seikhpura and Darbhanga mentioned the unavailability of the data.

[13]The reports (2009-10) are available here

Islands and Lakshadweep. Particularly, we are interested in four binary variables recorded in IHDS-2 that are related to the composition of marriage: (i) nature of the marriage (love/arranged), (ii) whether the woman grew up in the same village/town as her husband, (iii) whether the husband belongs to the same caste as the natal family of the women, and (iv) whether the husband has any blood-relation with the woman. These variables provide important insights regarding how the mandatory marriage registration policy interacts with the composition of new marriages. We follow a similar sample construction method as NFHS, which includes restricting the sample to women married between 2001 and 2015 in Bihar and Jharkhand. Our sample consists of a total of 597 women.

5 Empirical Strategy

For identification, we leverage the Compulsory Marriage Registration rules enacted in Bihar in 2006. Under this rule, effective from August 8, 2006, all new marriages in the state of Bihar are required to be registered within 30 days of the solemnisation.

To estimate the causal impact of this policy, we adopt a difference-in-differences (DID) framework, taking Bihar as the treatment state and the neighboring state of Jharkhand as the control state (see Muralidharan and Prakash (2017)). Jharkhand serves as a reliable comparison group for Bihar since both states were part of the unified state of Bihar until their separation in 2001. Consequently, they shared the same administrative and governance framework until 2001, and their governance quality remained similar for some time following the split (Muralidharan and Prakash, 2017). Since the mandatory marriage registration policy was implemented in 2006, women who got married before 2006 were not exposed to the policy change, and thereby, they form the control group of our analysis.

We use the following DID estimation equation:

$$Y_{imds} = \alpha_0 + \alpha_1 Bihar_i * Post_{im} + X'_{ids}\gamma + \delta_m + \theta_{ds} + \epsilon_{imds}, \tag{1}$$

where Y_{imds} is the outcome variable for woman i with year of marriage m, living in district d in state s. $Bihar_i$ is a dummy variable, taking value 1 if woman i lives in the state of Bihar and 0 if she lives in Jharkhand. $Post_{im}$ is another dummy variable that takes value 1 if woman i's year of marriage is post-2006 and 0 otherwise. X_{ids} is a vector of controls for woman i, including age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. δ_m is year of marriage fixed effect and θ_{ds} is district fixed effect. Standard errors are clustered at district level. The coefficient α_1 captures the effect of the mandatory registration policy.

Our estimation strategy relies on the parallel trends assumption, which requires Bihar and Jharkhand to follow similar time trends without the policy. We carry out event study analysis to test for parallel trends using the following equation:

$$Y_{imds} = \alpha_0 + \sum_{m=2003}^{2015} \alpha_m (Bihar_i * t_{im}) + X'_{ids}\gamma + \delta_m + \theta_{ds} + \epsilon_{imds}, \tag{2}$$

In Equation 2, t_{im} takes the value 1 if woman i is married in year m and 0 otherwise. Year 2002 is taken as the base year. All other terms have similar interpretations as in Equation 1.

6 Results

6.1 Impact of marriage registration policy on domestic violence

In Table 2, the DID estimates show the impact of mandatory marriage registration policy on four indicators of DV[14]. As discussed in Section 4, we use four indicators of DV: emotional violence, sexual violence, physical violence and any violence. Panel A of Table 2 shows estimates without controls, while Panel B includes controls for women's and household characteristics. All the models include district and year of marriage fixed effects, and standard errors are clustered at district level[15]. We report sharpened q-value (Anderson, 2008) to account for multiple-hypothesis testing and wild-bootstrapped p-value (Roodman et al., 2019) to account for small number of clusters.

We find that the mandatory marriage registration policy made emotional violence 8.7 percentage point (pp) less likely for women married after 2006 in Bihar compared to the control state of Jharkhand, whereas the reduction is 5.7 pp for sexual violence. In both cases, women married after 2006 are considered as the treatment group, and women already married before the 2006 policy form the control group. We observe a much stronger impact on physical violence, a reduction of 10.8 pp. This is due to the fact that physical violence, such as slapping, kicking, punching and hitting, is more conspicuous and easier to identify and to seek legal help (Roychowdhury and Dhamija, 2021). In contrast, it might be difficult for women, particularly those from under-educated and underprivileged backgrounds, to identify humiliations and insults as emotional violence. Additionally, women are often conditioned to believe that it is a wife's duty to fulfil the husband's physical needs; and therefore, they might again fail to identify forced sexual activities as sexual violence (Rahman et al., 2014). Finally, the strongest impact among the

[14]To mitigate reporting bias, we exclude observations where DV interviews were interrupted by the woman's husband or in-laws.

[15]Our results remain statistically significant with alternative clustering at PSU level and state level.

four indicators is observed for any form of violence, with a decrease of 11.6 pp.

Our effect sizes are consistent with the estimates found in previous studies. Luca et al. (2015) find a 5 pp increase in DV with increased alcohol availability, while Bobonis et al. (2013) find 8.2 pp reduction with public transfers in Mexico. Stevenson and Wolfers (2006) note a 30% reduction resulting from a relaxation of divorce laws in US. Erten and Keskin (2018) find a 2.8 pp reduction in physical violence with one additional year of education in Turkey.

6.2 Effectiveness of Mandatory Registration Policy

Due to the unavailability of individual-level data on having marriage certificates (Buvinic and Carey, 2019), we could not directly check the first-order impact of the policy on the number of marriages registered before and after the policy. Therefore, our estimates represent intent-to-treat (ITT) effects, and not average treatment effects (ATE) (Duru et al., 2005).

However, we have some suggestive evidence of the direct impact of the 2006 and 2011 policies on the number of marriages registered in Bihar. In India, there exists no centralized official record of the number of marriage registrations. Among the three primary forms of civil registration—birth, death, and marriage—data on marriage registration is notably the most unreliable and least accessible in the majority of developing countries (Buvinic and Carey, 2019). Given the unavailability of public data, we sought the district-wise annual data from 2002 to 2015 through an online RTI filing and successfully obtained the data for two districts in Bihar: Araria and Bhagalpur. Following multiple telephonic discussions with government officials at marriage registration offices, it became evident that systematic recordkeeping of marriage registrations commenced only after the implementation of the 2006 policy. Consequently, in most districts, data on marriage registrations prior to this policy is unavailable. In Figure 2, we plot the average number of marriages registered (normalized) in these two districts for three distinct time intervals: 2002-05 (prior to 2006 mandatory registration policy), 2006-10 (post-2006 policy, but pre-2011 RTPS policy) and

2011-15 (post-2011 policy). In Table A3, we show that these two districts are representative of the whole of Bihar, using data from the population census 2011. We observe an upward trend for the 2006-10 interval, which takes the form of a sharp increase following the implementation of 2011 RTPS Act during the 2011-15 interval. This trend offers insights into the changes in marriage registration numbers following the introduction of mandatory registration policy.

6.3 Checking the identifying assumptions

The validity of the DID estimates presented in Table 2 depends on the parallel trends assumption, which posits that in the absence of the policy, the DV outcomes in treatment and control states should follow similar trends over time. Following equation 2, we rely on event study analysis to check the validity of this assumption. We present the event study diagrams in Figure 3 for four indicators of DV. The underlying regression tables are presented in Table A1. In all four graphs, we consider 2002 as our base year, because Bihar and Jharkhand became administratively separate states from that year. The evolution of the four DV outcomes is shown for each year up to 2015. We observe that for the pre-policy periods (2002-2005), the difference between Bihar and Jharkhand is statistically insignificant, indicating the absence of pre-trends. However, the difference appears after the policy implementation and continues to widen until 2015. More specifically, we observe that post-policy differences emerge after the 2011 Bihar RTPS Act.

6.4 Right to Public Services Act, 2011

In India, corruption is widespread in public services, including the process of marriage registration (Transparency International, 2019). Most often, corruption takes the form of lawyers/clerks demanding bribes for issuing the marriage certificate (Nair, 2013; Indian Express, 2012) and external agents seeking exorbitant amounts of money to expedite the process in the name of having

connections with the registration officers (NDTV, 2012).

RTPS Act was aimed to increase the efficiency of public service delivery by mandating timely provision of services and imposition of penalties on officers failing deadlines[16]. This policy smoothened the process of registration and significantly reduced the frictions in the process. *However*, one might argue that the post-2011 differences in Bihar and Jharkhand are emerging due to the RTPS act, and not due to the 2006 marriage registration policy. Next, we explain why it is not our concern.

The Bihar RTPS Act was passed on August 15, 2011, right after the central government initiated the 'Citizens' Right to Grievance Redress Bill' to enhance the efficiency of government functioning at both the central and state levels. Following the path of Bihar, on November 15, 2011, Jharkhand also passed an identical act *'Jharkhand Right to Service Act'*. The objectives and implementation strategies of both acts were virtually similar and followed the framework laid out by central government (Dayal, 2013). Therefore, the post-2011 differences in Bihar and Jharkhand are not attributable to the RTPS Act. In Bihar, marriage registration was already mandatory in 2011 and RTPS just facilitated the citizens to obtain the registration certificate without any hassle. In contrast, Jharkhand did not have a mandatory registration policy in 2011 and thereby the citizens did not have any additional incentive to register their marriages. Consequently, RTPS enhanced the effectiveness of the mandatory registration policy in Bihar without having confounding impacts.

Another plausible concern is that RTPS might affect the reporting behavior for DV survivors, through an increased efficiency of police and courts. However, this is not possible in our context for two reasons. First, RTPS in Bihar covers a total of 50 services provided by 10 departments, including General Administration Department (GAD), departments for registration, commercial tax, food and consumer, land reforms, home, Transport, human resources, social welfare, urban

[16] See 2.3 for details of the policy implementation

development and revenue (Dayal, 2013). Police and the judicial system do not come under the purview of RTPS. Second, our outcome variable is not the official record of reported number of DV cases, but the incidents of DV experiences revealed to the NFHS interviewer in a private one-to-one setting. RTPS can only potentially impact the officially reported numbers (if police and judicial system came under its purview), but not the privately revealed incidents.

Next, we attempt to furnish evidence towards the effectiveness of the RTPS Act. According to a case study by OneWorld Foundation India (OFI, 2011), RTPS was effective in enhancing the efficiency of the public sector within a short span of time and an 'exemplary demand' came from the citizens to procure public services. Within the first two months of the enactment (between August 15 to September 15, 2011), a total of 1574989 applications were received, out of which 863373 were resolved and 711644 were pending. More specifically, the registration department received 137090 applications and 126809 applications were resolved within a month, leading to a success rate of 92.5%. More specifically, the registration department received 137,090 applications within first two months and 92.5% were resolved within a month.

We also use the reports on vital statistics of India to show before and after RTPS changes in the effectiveness of the registration process, measured by the number of registration units inspected. These inspections were done by the chief registrar and district registrars' offices, with the objective of improving the system of registration in both qualitative and quantitative terms. In Figure A1, we plot the number of registration units inspected in Bihar from 2009 to 2015 (collected from vital statistics reports) and observe a sharp increase in inspection after the 2011 RTPS Act. This provides data-based suggestive evidence towards the improvement of efficiency in civil registration system post RTPS (2011).

To better understand the post-2011 impact, we include another interaction term (*Treated x Post-2011*) in our main specification in equation 1. The results for DV outcomes and mechanism outcomes are shown in Tables 3 and A2, respectively. We find that the new interaction term is

significant for all outcomes, confirming our hypothesis of the 2006 mandatory registration policy being effective after the 2011 RTPS Act.

6.5 Mechanisms

This section explores channels through which mandatory marriage registration reduces DV. Table 4 presents the results: columns (1)-(4) indicate improvements in husbands' outcomes, while columns (5)-(10) show similar effects for women.

We find that Bihar's mandatory registration policy reduces the likelihood of polygamy (having more than one wife) by 1.8 pp compared to Jharkhand. Section 5(1)(i) of the Hindu Marriage Act (1955) prohibits second marriage during the subsistence of the first marriage, and therefore, can not be legally registered[17]. Women in polygamous relations often have less communication with their husbands and weaker emotional bonds (Bove and Valeggia, 2009). The situation often gets worse for junior wives, who have significantly lower bargaining power compared to senior wives in a polygamous marriage (Matz, 2016). Consequently, reduced polygamy translates into lower likelihood of DV.

Next, we look at the impact on husband's alcohol consumption, reported by the husbands themselves (column 2) and by their wives (column 3). The findings indicate a reduction in the likelihood of alcohol consumption in both cases, with a stronger decline reported by husbands (6 pp) compared to wives (4.9 pp). This follows from the increased social and legal accountability of husbands in case of a registered marriage, which can deter excessive consumption of alcohol, especially if it leads to negative consequences for the family. Luca et al. (2015); Heath et al. (2020) show that reduced alcohol consumption negatively impacts DV.

[17]However, the Hindu Marriage Act is not applicable for Muslims. We estimate the coefficients for Hindu and Muslim subsamples separately, and, as expected, find that the impact is statistically insignificant for Muslims. The estimation tables are available upon request.

Column (4) shows a 3.5 pp reduction in the likelihood of husbands justifying DV (significant at 10%). This marginally significant result can be attributed to the increased accountability associated with registered marriages, which bring legal protections and obligations that increase the repercussions of abusive behavior. Additionally, the act of registering a marriage may signal a commitment to adhering to norms and values that discourage harmful practices, such as DV.

Next, we look into how mandatory registration policy improves women's outcomes, such as age at marriage, education, awareness and justification of DV. Column (5) shows that the age of marriage increases by 3.7 years for women married after the mandatory registration policy in Bihar. Consistently, we find a decrease in the likelihood of child marriage by 15.3 pp (column 6). The primary reason for these substantial impacts is that the marriage registration can not be processed if the bride is below the legal age of marriage, which is 18 years in India[18]. The registrar's office verifies the age criteria by checking identity proofs like Voter card, AADHAR card, and birth certificate. Higher age of marriage makes women less vulnerable to DV (Hanmer and Elefante, 2016; Roychowdhury and Dhamija, 2021).

In columns (7) and (8), we look at two educational outcomes of women, literacy and years of education. We find that women who got married after the mandatory registration policy are 9.9 pp more likely to be literate and have 1.51 extra years of education. The mandatory registration policy increases education by preventing early marriage; and leading parents to send daughters to school or allow them to pursue higher education instead (Field and Ambrus, 2008). Educated women generally have a better understanding of the forms of DV and less tolerance towards them (Field and Ambrus, 2008). Education also helps women to marry 'higher-quality' husbands who are less likely to use violence (Erten and Keskin, 2018), which is reflected in our findings in columns (1)-(4).

Closely related to education, we explore the awareness channel using media exposure (TV/Radio/

[18]Child marriage is defined using India's legal age of marriage (18), though results remain consistent when the cut-off is adjusted to 17, 16, or 15. Result tables are available upon request.

Newspaper) as a proxy. The 6.6 pp increase in media exposure could be attributed to higher age of marriage and increased education. Better awareness enables women to gain knowledge about their rights and makes them less vulnerable to DV (Erten and Keskin, 2022).

Lastly, we find that women in the treated group are 5.9 pp less likely to justify DV, which is closely associated with the increased awareness in column (9). As women become more aware of their rights and the available channels for seeking justice, they are likely to internalize norms that reject violence, thereby influencing their attitudes.

While discussing the mechanisms, it is important to address whether the composition of marriage changes after the policy implementation. If the composition of marriage changes as a result of the policy, then the new marriages (after the policy implementation) become non-comparable with old marriages. We use the IHDS (2011-12) data to assess the impact on four indicators: (i) nature of the marriage (love/arranged), (ii) whether the woman grew up in the same village/town as her husband, (iii) whether the husband belongs to the same caste as the natal family of the women, and (iv) whether the husband has any blood-relation with the woman. In Table A4, we show that there is no statistically significant impact on the composition of marriage. The likelihood of love marriage, intercaste marriage and same-village marriage do not change after the policy, which is consistent with the absence of any direct incentive for the groom/bride to change the marriage pattern in response to the mandatory registration rules. On the other hand, while the Hindu Marriage Act (1955) prohibits marriages between blood relatives[19], no verification is done during the process of registration. Hence, we do not observe any change in marriages within blood relations, potentially due to this enforcement problem.

Another potential post-policy change could be the likelihood of divorce, as the registration certificate smoothens the process of getting divorced. However, in India, marriages are fairly stable (Srinivasan and James, 2015). In our NFHS sample, the number of divorced women is 4, which

[19]Such marriages fall under the list of prohibited relationships as per the Hindu Marriage Act (1955).

accounts for only 0.12% of the total sample size. In Bihar, there are only two divorced women, one in the pre-policy sample and the other in the post-policy sample, which indicates that we should not be concerned about the occurrence of divorce after policy implementation.

6.6 Robustness Checks

To provide more validity to our results, we implement a battery of robustness checks. Firstly, to deal with the potential selection bias problem, we carry out PSM-DID to select counterfactuals in the control group who are similar in observable characteristics[20] to the women in the treatment group and run DID with the matched sample. As presented in Table 5, the results remain consistent with PSM-DID. In Table A5, we show the summary statistics of the observable covariates for treated and control groups, in both matched and unmatched samples. We conclude that the bias is reduced significantly after using PSM.

Secondly, we use entropy balancing method (Hainmueller, 2012) to reweight the control group data to match the covariate moments in the treatment group and create a balanced sample. DID estimates using the balanced sample are presented in Table 6 and the results remain intact.

Thirdly, we choose three outcomes that are not likely to be impacted by the mandatory marriage registration policy: the likelihood of having twin child, age of the woman at menarche and the month of birth of the woman. We then apply the same DID model to falsification outcomes, as shown in Table 7. As expected, all coefficients are highly insignificant, confirming the absence of spurious correlations.

Fourthly, we choose Chhattisgarh as a placebo control state because (i) the mandatory marriage registration policy in Chhattisgarh was passed in 2006, which happen to be the same year when Bihar passed the similar policy and (ii) in 2011, Chhattisgarh enacted the *Chattisgarh Lok Sewa*

[20] We use education years, literacy, age, caste, religion, place of residence, gender of household head, household size and current marital status to generate the propensity scores used for the matching.

Guarantee Act, which is similar to Bihar's 2011 RTPS. Due to these two reasons, Chhattisgarh serves as an ideal placebo control state and we should expect no post-policy differences in DV between Bihar and Chhattisgarh. We present the DID estimates using Chhattisgarh as the control state in Table A6 and all the estimates are statistically insignificant. This provides an additional layer of robustness to our estimates.

Fifthly, we address the concern of potential endogeneity in the year of marriage (Calvi and Keskar, 2023). In Bihar, if households had any anticipation about the mandatory registration policy before 2006, they could have tried to marry off their underage daughters before the policy was passed. Anticipation could particularly be of our concern because of the Compulsory Registration of Marriages Bill of 2005, proposed by the National Commission of Women (NCW), which pointed out the problems of non-registration. To rule out this possibility of pre-policy anticipation, we exclude the policy year (2006), one year before and after the policy (2005 and 2007) from our sample and re-estimate the model in Table A7. We find that our results remain intact, which establishes that our estimated effects are not arising from short-term behavioral changes and are not sensitive to specific policy-year dynamics.

Sixthly, we follow the methodology of Duflo (2001); Calvi and Keskar (2023) to carry out a placebo treatment year test. We restrict our sample to only pre-policy years (2002-2005) and consider 2003 as the placebo treatment year. Here, we redefine the 'Post' variable as being equal to 1 if the year of marriage is post-2003 and 0 otherwise and re-estimate our DID model. The results are shown in Table A8. As expected, the estimates are statistically insignificant. This validates our no pre-trend claim, as the difference between Bihar and Jharkhand would have been significant in the presence of pre-trends.

Seventhly, in Table A9, we cluster the standard errors at the level of treatment (state) and report wild-bootstrapped standard errors to account for the insufficient number of clusters. For the main specifications, we use district-level clustering as we only have two state clusters (Bihar and

Jharkhand). Our results do not change even after clustering at the state level.

Lastly, we exclude bordering districts from our sample. Bloch et al. (2004) note that, in India, the average distance between a woman's natal home and her husband's residence is 21.1 miles. Therefore, the likelihood of inter-state marriage is higher for bordering districts, which could cause a potential blending between treatment and control groups. Table A10 shows that our results remain valid even after excluding bordering districts.

6.7 Ruling out Contemporary Policies

In this section, we discuss how other contemporaneous policies do not confound the impacts of the mandatory marriage registration policy on DV. A major concern could be *Mukhyamantri Balika Cycle Yojana*, which was introduced in Bihar in 2006, the same year when the mandatory registration policy was introduced. This program provided free bicycles to girls in grade 9, facilitating higher education (Muralidharan and Prakash, 2017), which could later influence DV outcomes. To address this concern, we restrict our sample to women who never completed grade 9 and thereby were never eligible for the bicycle program. Table A11, shows that DID estimates remain statistically significant for this restricted sample, indicating that our findings are not driven by the bicycle policy.

Next, we examine *JEEViKA*, a 2006 Bihar policy aimed at promoting rural women's socioeconomic inclusion through Self-Help Groups (Datta, 2015). If this policy influenced our results, stronger effects would be expected in rural areas. However, Table A12 shows no significant rural-urban heterogeneity, negating the confounding impacts of this policy. Similarly, we consider the *Mukhyamantri Kanya Vivah Yojana*, a 2007 Bihar initiative, offering Rs. 5,000 financial assistance to Below Poverty Line households for the marriage of girls. Had this policy driven our results, we would have expected stronger effects among poor households. However, Table A12 shows no statistically significant difference between poor and non-poor households, negating this

policy as a contributing factor.

Another policy that could impact DV is the *Dhanalakshmi* scheme (2008), a conditional cash transfer program with insurance coverage for girl children born after November 8, 2008. However, since girls born after this date are unlikely to marry during our post-treatment period (2007-2015), this policy should not pose any concern. The Prohibition of Child Marriage Act (2006) could have impacted DV by increasing the age of marriage. However, it applied to all Indian states and could not possibly have led to post-policy differences in Bihar and Jharkhand.

Next, we attempt to address the concern that the post-2011 effects might arise from other contemporaneous policies, and not RTPS. Upon a careful review of all the state-specific policies implemented in Bihar and Jharkhand in 2011, we do not find any policy that can drive the decline in domestic violence. In Table A13, we list all relevant policies for Bihar and Jharkhand which were implemented in the year 2011. Notably, we are not concerned about any pan-India policy or any policy implemented in both states, and therefore, we exclude them from the table. We find that in 2011, Bihar started incentivizing industries through capital and power subsidies, industrial infrastructural development and single window clearance for industry setup approvals. The government also started restoring infrastructure for Kosi flood survivors. While infrastructural development might have an indirect impact on DV, there is no reason for it to impact only women who married after 2006, who form our treatment group. The same argument goes for the development of overall facilities in slum areas through Bihar slum policy of 2011.

On the other hand, in 2011, Jharkhand focused mostly on raising tax revenues through amending Motor Vehicle Taxation Act, imposing entry tax on consumption of goods produced in other states and imposing luxury hotel tax. The government also set up funds for urgent public spending and constructing state roads. However, the benefits of those funds are not expected to impact our outcomes in the short run.

7 Conclusion

In this study, we find causal evidence of how mandatory marriage registration policy can help to lower domestic violence, including emotional, sexual and physical violence. Leveraging the mandatory marriage registration policy of Bihar (2006), we employ a standard difference-in-differences model to derive the causal estimates and check for the parallel trends assumption using an event study analysis. The policy is empirically shown to negatively impact polygamy and child marriage, which are two major concerns in a developing country like India. Additionally, the policy indirectly helps women to achieve higher levels of education and gain better awareness by raising their age at marriage.

We emphasize how corruption in the civil registration system can hinder the effectiveness of the mandatory registration policy. Our event study analysis confirms that the tangible impacts of the policy started showing up only after the enactment of the Right to Public Service Act in 2011, which was targeted to reduce corruption and enhance transparency in public service delivery. This finding could also serve as a crucial insight for policymakers.

In conclusion, mandatory marriage registration stands as a critical step in the fight against DV, but it should be combined with a broader strategy to reduce corruption in public service delivery that smoothens the process of marriage registration.

8 Tables and Figures

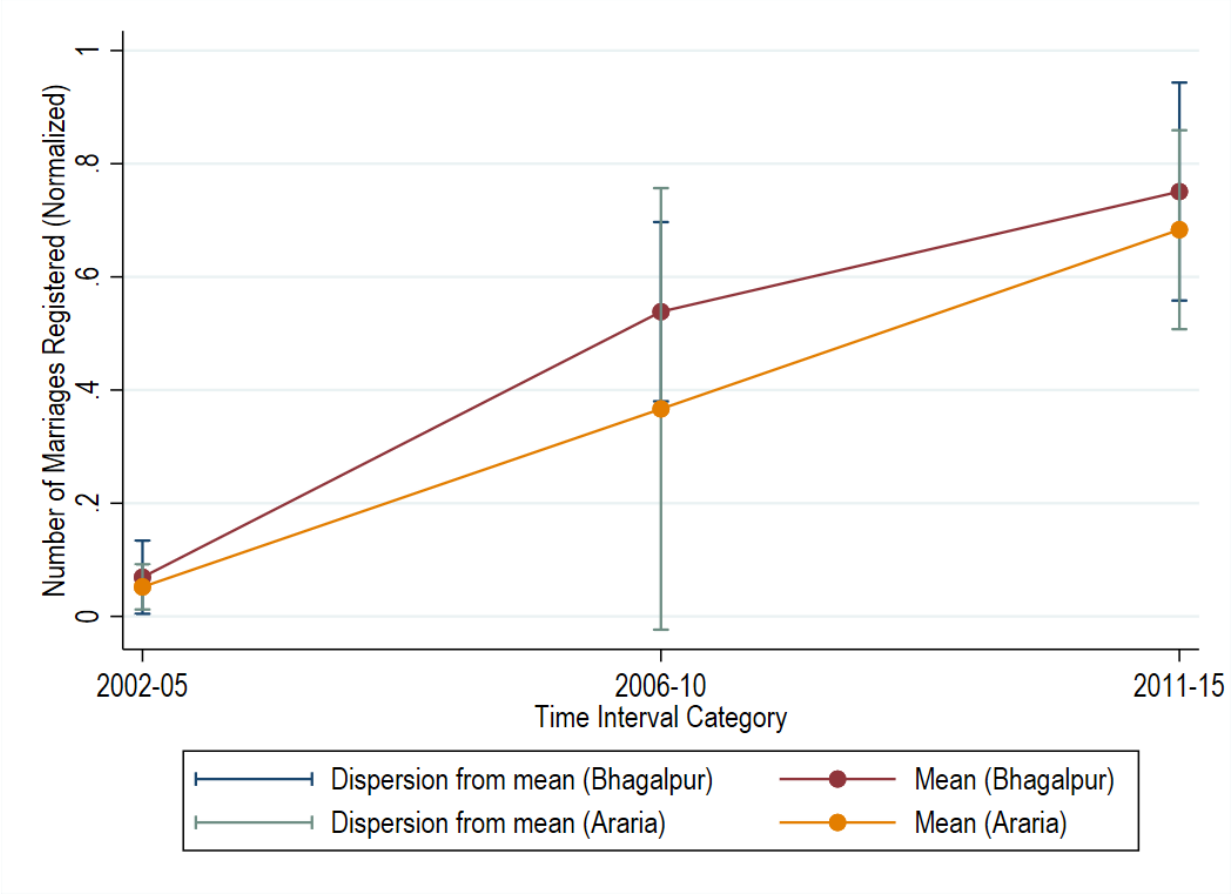
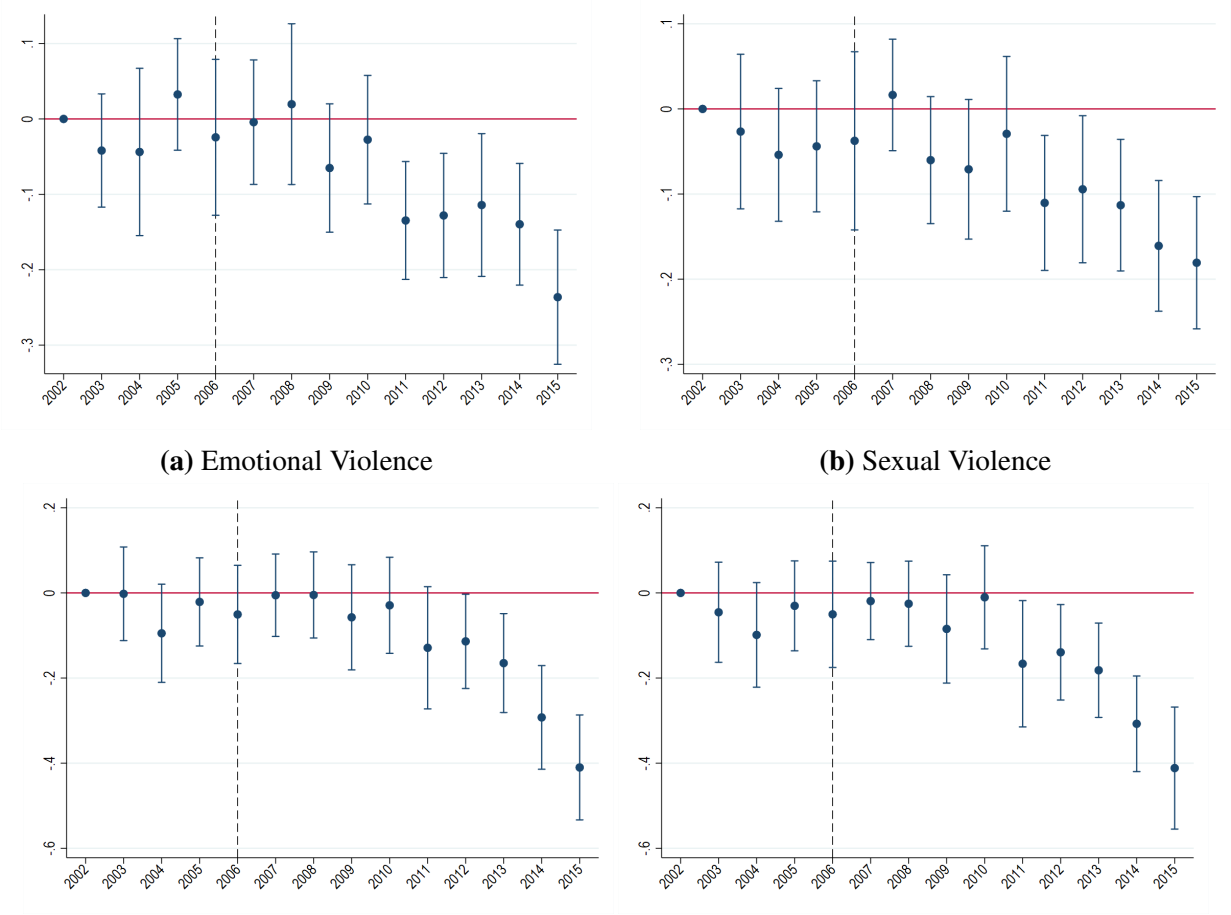


Figure 2: Number of Marriages Registered (Normalized)

Note: In this figure, we present the mean number of registered (normalized) in two districts of Bihar (Araria and Bhagalpur). We consider three time intervals: (i) 2002-2005 (Pre-2006 mandatory registration policy), (ii) 2006-2011 (Post-2006, but pre-2011 RTPS Act) and (iii) Post-2011 RTPS Act. Data collected through a RTI filing. Source: Authors' calculation.



(a) Emotional Violence

(b) Sexual Violence

(c) Physical Violence

(d) Any Violence

Figure 3: Event Study Graphs

Note: In this figure, we present the event study plots of the impact of the mandatory marriage registration policy of Bihar on four indicators of domestic violence. We treat 2002 as our base year. The policy was implemented in 2006, marked by the dotted vertical line. The regression results associated with these plots can be found in Table A1. Data is obtained from National Family Health Survey (2015-16). Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever been experienced emotional or sexual or physical violence; 0 otherwise. Source: Authors' calculation.

Table 1: Summary Statistics

	Description	Observations	Mean (S.D)
A. Domestic Violence Outcomes			
Emotional Violence	A dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise	3219	0.163 (0.370)
Sexual Violence	A dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise	3219	0.119 (0.324)
Physical Violence	A dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/ punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise	3219	0.371 (0.483)
Any Violence	A dummy variable that takes value 1 if the woman has ever been experienced emotional or sexual or physical violence; 0 otherwise	3219	0.406 (0.491)
B. Mechanism Outcomes			
Polygamy	A dummy variable that takes value 1 if the woman's husband has more than one wives; 0 otherwise	3245	0.025 (0.155)
Alcohol consump. (wife reported)	A dummy variable that takes value 1 if the woman reports that husband drinks alcohol; 0 otherwise	3219	0.377 (0.485)
Alcohol consump. (husb reported)	A dummy variable that takes value 1 if the husband reports that he drinks alcohol; 0 otherwise	3071	0.269 (0.444)
Justify violence (Husband)	A dummy variable taking value 1 if the husband justifies wife-beating in case the wife goes out without permission/neglects children/argues with husband/refuses to have sex with husband/does not cook properly; 0 otherwise.	3071	0.421 (0.494)
Age at Marriage	The woman's age when she got married	3248	18.100 (3.177)
Child Marriage	A dummy variable that takes value 1 if the woman's age at marriage was below 18; and 0 otherwise	3248	0.471 (0.499)
Literacy	A dummy variable that takes value 1 if the woman is literate; and 0 otherwise	3248	0.590 (0.492)
Years of Education	Years of education of the woman	3248	5.303 (5.185)
Awareness	A dummy variable that takes value 1 if the woman watches TV or listens to radio or reads newspaper regularly; 0 otherwise. This media exposure is taken as a proxy for awareness.	3248	0.517 (0.500)
Justify violence (Wife)	A dummy variable taking value 1 if the wife justifies husband beating her in case she goes out without permission/neglects children/argues with husband/refuses to have sex with husband/does not cook properly; 0 otherwise.	3245	0.393 (0.489)

Note: In this table, we present the summary statistics of the main outcome variables and mechanism variables in our sample. Data is obtained from National Family Health Survey (2015-16), eligible women's file and men's file. Source: Authors' calculation.

Table 2: Impact of Mandatory Marriage Registration on Domestic Violence

	(1)	(2)	(3)	(4)
	Emotional Violence	Sexual Violence	Physical Violence	All Violence
A. Without Controls				
Treated x Post	-0.082**	-0.057*	-0.106**	-0.117**
	(0.038)	(0.029)	(0.046)	(0.047)
R-Squared	0.098	0.082	0.117	0.121
Adjusted R-Squared	0.069	0.053	0.089	0.094
p-value	0.037	0.052	0.025	0.015
Sharpened q-value	0.052	0.052	0.052	0.052
Wild-bootstrapped pvalue	0.041	0.050	0.027	0.020
B. With Controls				
Treated x Post	-0.087**	-0.057**	-0.108***	-0.116***
	(0.035)	(0.026)	(0.039)	(0.041)
R-Squared	0.123	0.096	0.163	0.167
Adjusted R-Squared	0.090	0.062	0.131	0.135
p-value	0.016	0.036	0.008	0.006
Sharpened q-value	0.017	0.019	0.017	0.019
Wild-bootstrapped pvalue	0.023	0.024	0.005	0.008
Control Mean	0.159	0.116	0.370	0.402
Observations	2439	2439	2439	2439

Note: In this table, we present the difference-in-differences estimates of the impact of the mandatory marriage registration policy of Bihar on domestic violence outcomes, treating Jharkhand as a control state. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. 'Post' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2006 and 0 otherwise. Panel A presents the estimates without any control and Panel B presents estimates with additional controls, including age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever experienced emotional or sexual or physical violence; 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

Table 3: Impact on Domestic Violence with Post-2011 interaction

	(1)	(2)	(3)	(4)
	Emotional Violence	Physical Violence	Sexual Violence	All Violence
Treated x Post	-0.017	-0.069	-0.004	-0.064
	(0.041)	(0.044)	(0.037)	(0.044)
Treated x Post 2011	**-0.152*****	**-0.083***	**-0.114****	**-0.113****
	(0.036)	(0.042)	(0.048)	(0.046)
Observations	2439	2439	2439	2439
Control Mean	0.159	0.116	0.370	0.402
R-Squared	0.131	0.164	0.102	0.169
Adjusted R-Squared	0.097	0.132	0.067	0.136

Note: In this table, we present the difference-in-differences estimates of the impact of the mandatory marriage registration policy of Bihar on domestic violence outcomes, including an additional interaction term for the post-2011 period. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. 'Post' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2006 and 0 otherwise. 'Post 2011' is another dummy variable that takes value 1 if the woman's year of marriage is after 2011 and 0 otherwise. All the estimates include additional controls like age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever been experienced emotional or sexual or physical violence; 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

Table 4: Impact of Mandatory Marriage Registration on Mechanism Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Husband's Outcomes					Women's Outcomes			
	Polygamy	Alcohol Consumption (Wife-reported)	Alcohol Consumption (Husb. reported)	Justify Violence (Husband)	Age at Marriage	Child Marriage	Literacy	Years of Education	Awareness (Media-exposure)	Justify Violence (Wife)
Without Controls										
Treated x Post	-0.018**	-0.078***	-0.080***	-0.010	1.299***	-0.164***	0.182***	2.038***	0.074***	-0.077***
	(0.009)	(0.025)	(0.025)	(0.021)	(0.181)	(0.026)	(0.020)	(0.194)	(0.021)	(0.023)
R-Squared	0.028	0.074	0.081	0.076	0.097	0.070	0.083	0.107	0.097	0.099
Adjusted R-Squared	0.009	0.055	0.062	0.057	0.079	0.052	0.065	0.090	0.080	0.081
p-value	0.039	0.002	0.003	0.648	0.000	0.000	0.000	0.000	0.001	0.002
Sharpned qvalue	0.009	0.002	0.003	0.07	0.001	0.001	0.001	0.001	0.002	0.002
With Controls										
Treated x Post	-0.018**	-0.049*	-0.060**	-0.035*	3.701***	-0.153***	0.099***	1.511***	0.066***	-0.059**
	(0.008)	(0.025)	(0.028)	(0.020)	(0.171)	(0.025)	(0.021)	(0.227)	(0.024)	(0.024)
R-Squared	0.375	0.120	0.152	0.108	0.490	0.090	0.152	0.196	0.175	0.117
Adjusted R-Squared	0.360	0.101	0.132	0.086	0.479	0.070	0.133	0.178	0.156	0.097
p-value	0.019	0.053	0.035	0.091	0.000	0.000	0.000	0.000	0.007	0.016
Sharpned qvalue	0.015	0.028	0.023	0.029	0.001	0.001	0.001	0.001	0.009	0.015
Control Mean	0.025	0.377	0.504	0.260	18.1	0.471	0.590	5.303	0.517	0.256
Observations	3245	3219	3071	3071	3248	3248	3248	3248	3248	3248

Note: In this table, we present the difference-in-differences estimates of the impact of the mandatory marriage registration policy of Bihar on our mechanism outcomes, treating Jharkhand as a control state. Columns (1)-(4) present the husband's outcomes and columns (5)-(10) present the estimates for women's outcomes. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. 'Post' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2006 and 0 otherwise. Panel A presents the estimates without any control and Panel B presents estimates with additional controls, including age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. Polygamy is a dummy variable that takes value 1 if the woman's husband has more than one wives; 0 otherwise. Alcohol consumption is a dummy variable that takes value 1 if the woman's husband drinks alcohol; 0 otherwise. Justify violence is a dummy variable taking value 1 if the husband (col. 4)/the woman (col. 10) justifies wife-beating in case she goes out without permission/neglects children/argues with husband/refuses to have sex with husband/does not cook properly; 0 otherwise. Child marriage is a dummy variable that takes value 1 if the woman's age at marriage was below 18; and 0 otherwise. Literacy is a dummy variable that takes value 1 if the woman is literate; and 0 otherwise. Awareness is dummy variable that takes value 1 if the woman watches TV or listens to radio or reads newspaper regularly; 0 otherwise (This media exposure is taken as a proxy for awareness). All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). We use eligible women's file for columns (1)-(2) and (5)-(10) and men's file for columns (3) and (4). Source: Authors' calculation.

Table 5: Difference-in-difference estimates with PSM-DID

	(1) Emotional Violence	(2) Sexual Violence	(3) Physical Violence	(4) All Violence
Treated x Post	-0.063*	-0.053*	-0.097**	-0.086*
	(0.035)	(0.030)	(0.045)	(0.050)
Observations	2326	2326	2326	2326
R-Squared	0.131	0.091	0.175	0.167
Adjusted R-Squared	0.096	0.054	0.142	0.134

Note: In this table, we present the DID results from the matched sample using Propensity Score Matching (PSM) following Leuven and Sianesi (2003). We use radius matching selects multiple matches for each treated unit within a caliper of 0.1. We do the matching based on observable characteristics including age, religion, caste, place of residence, gender of household head, marital status and household size. We drop the unmatched units, where zero weight is assigned. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. All estimates include controls like age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever been experienced emotional or sexual or physical violence; 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

Table 6: Difference-in-difference estimates with Entropy Balancing

	(1) Emotional Violence	(2) Sexual Violence	(3) Physical Violence	(4) All Violence
Treated x Post	-0.074**	-0.052*	-0.092**	-0.091*
	(0.033)	(0.027)	(0.044)	(0.048)
Observations	2434	2434	2434	2434
R-Squared	0.120	0.086	0.148	0.145
Adjusted R-Squared	0.086	0.051	0.116	0.113

Note: In this table, we present the DID results from the matched sample using entropy balancing method. We do the matching based on observable characteristics including age, religion, caste, place of residence, wealth index, gender of household head, marital status and household size. We reweight the control group data to match the covariate moments in the treatment group to create a balanced sample. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. 'Post-2003' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2003 and 0 otherwise. All estimates include controls like age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever been experienced emotional or sexual or physical violence; 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

Table 7: Falsification Test

	(1)	(2)	(3)
	Twin Child	Age at Menarche	Month of Birth
Treated x Post	-0.002	-0.015	0.187
	(0.007)	(0.281)	(0.285)
Observations	3237	1300	3237
R-Squared	0.030	0.042	0.085
Adjusted R-Squared	0.002	-0.026	0.058

Note: In this table, we present the difference-in-differences estimates of the falsification tests of the impact of the mandatory marriage registration policy of Bihar. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. 'Post' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2006 and 0 otherwise. 'Twin Child' is a dummy variable that takes value 1 if the woman has a twin child, and 0 otherwise. Age at menarche captures the woman's age at her first menstrual cycle. Month of birth takes the values 1 to 12 according to the woman's month of birth. All the estimates include additional controls like age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

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Online Appendix

A0.1 Appendix A: Details of sample construction

Below we detail the sample construction procedure for our study:

1. Start with the eligible women's file of NFHS-4, which surveyed 699,686 women.

2. Keep only those women who got married in between years 2002 to 2015, for reasons detailed in Section 4. This leaves us with 253,221 women.

3. Keep only women from our treatment and control states, Bihar and Jharkhand. This leaves us with 29,143 women.

4. Keep only those women who were selected for domestic violence module. This leaves us with 3404 women.

5. Lastly, drop 156 non-resident women. This gives us our final sample of 3248 women.

6. For our estimation of domestic violence outcomes, we further drop 783 women for whom the interview was interrupted by their husbands and/or in-laws. This is done to mitigate reporting bias.

7. All the domestic violence variables have some missing observations. We lose 26 observations due to these missing values.

A0.2 Appendix B: Tables and Figures

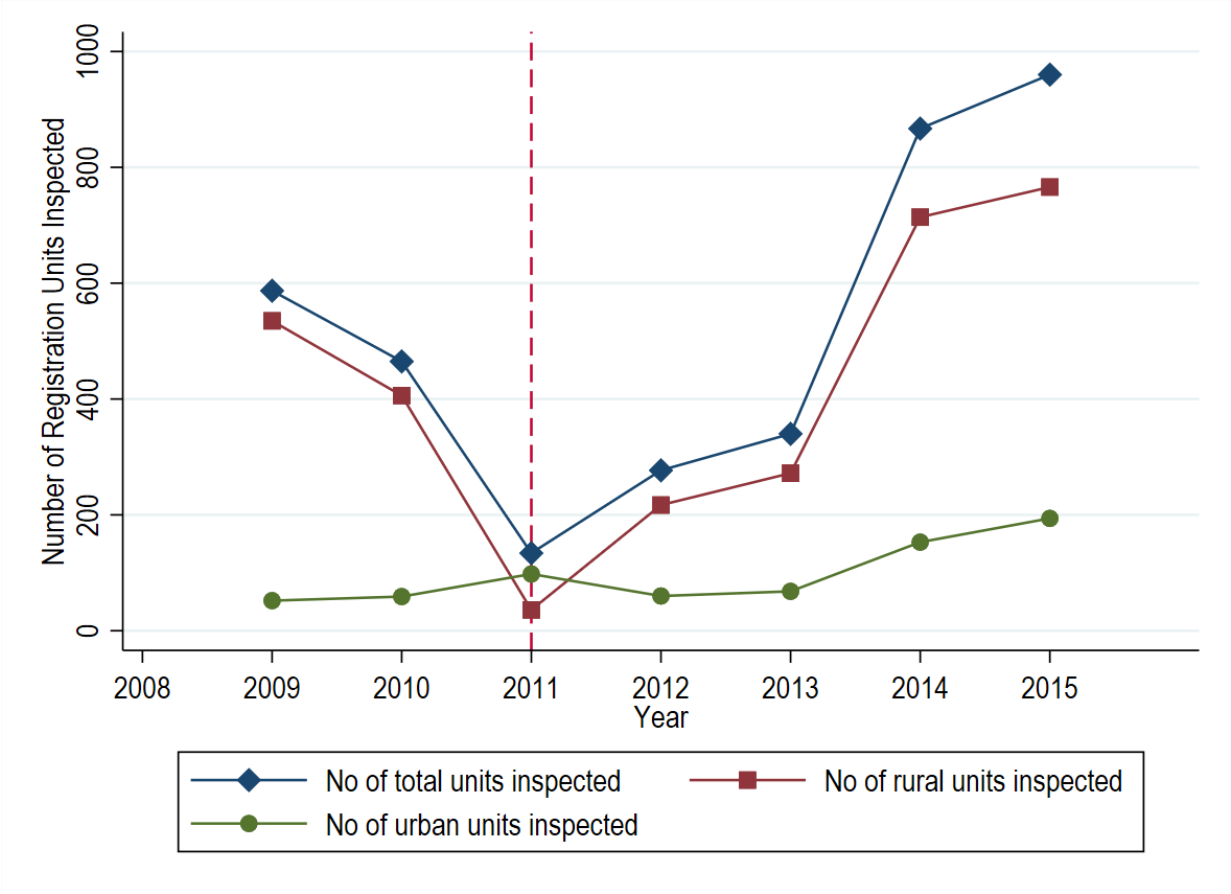

Figure A1: Number of Registration Units Inspected (2009-2015)

Note: In this figure, we present the number of registration units inspected in Bihar (separately for overall, rural and urban areas). The vertical dotted line at 2011 indicated the year of introduction of the RTPS act. Data source: Reports on Vital Statistics of India based on Civil Registration System. Source: Authors' calculation.

Table A1: Regression tables for event study

	(1)	(2)	(3)	(4)
	Emotional Violence	Sexual Violence	Physical Violence	Any Violence
Treated x 2003	-0.042	-0.027	-0.002	-0.045
	(0.037)	(0.045)	(0.055)	(0.059)
Treated x 2004	-0.044	-0.054	-0.095	-0.099
	(0.055)	(0.039)	(0.058)	(0.062)
Treated x 2005	0.032	-0.044	-0.021	-0.030
	(0.037)	(0.038)	(0.052)	(0.053)
Treated x 2006	-0.024	-0.037	-0.050	-0.050
	(0.052)	(0.052)	(0.057)	(0.062)
Treated x 2007	-0.004	0.016	-0.005	-0.019
	(0.041)	(0.033)	(0.048)	(0.045)
Treated x 2008	0.019	-0.060	-0.005	-0.025
	(0.053)	(0.037)	(0.051)	(0.050)
Treated x 2009	-0.065	-0.071*	-0.057	-0.085
	(0.043)	(0.041)	(0.062)	(0.064)
Treated x 2010	-0.027	-0.029	-0.029	-0.010
	(0.042)	(0.045)	(0.056)	(0.061)
Treated x 2011	-0.135***	-0.110***	-0.129*	-0.166**
	(0.039)	(0.039)	(0.072)	(0.074)
Treated x 2012	-0.128***	-0.094**	-0.114**	-0.140**
	(0.041)	(0.043)	(0.055)	(0.056)
Treated x 2013	-0.114**	-0.113***	-0.165***	-0.182***
	(0.047)	(0.039)	(0.058)	(0.055)
Treated x 2014	-0.140***	-0.161***	-0.293***	-0.308***
	(0.040)	(0.038)	(0.061)	(0.056)
Treated x 2015	-0.236***	-0.181***	-0.410***	-0.412***
	(0.044)	(0.039)	(0.062)	(0.072)
Observations	3363	3363	3363	3363
R-Squared	0.079	0.077	0.117	0.116
Adjusted R-Squared	0.056	0.054	0.094	0.094

Note: In this table, we present the event study estimates of the impact of the mandatory marriage registration policy of Bihar. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. Year dummies are defined in such a way that it takes value 1 if the woman got married in that particular year and 0 otherwise. Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever been experienced emotional or sexual or physical violence; 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

Table A2: Impact on mechanism outcomes with post-2011 interaction

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Husband's Outcomes					Women's Outcomes			
	Polygamy	Alcohol Consumption (Wife-reported)	Alcohol Consumption (Husb. reported)	Justify Violence (Husband)	Age at Marriage	Child Marriage	Literacy	Years of Education	Awareness (Media-exposure)	Justify Violence (Wife)
Treated x Post	-0.012	0.003	-0.058*	-0.033	2.862***	-0.103***	0.044*	0.885***	0.023	-0.074***
	(0.007)	(0.028)	(0.032)	(0.022)	(0.149)	(0.024)	(0.023)	(0.224)	(0.025)	(0.027)
Treated x Post 2011	-0.016**	-0.130***	-0.058*	-0.030	2.855***	-0.123***	0.181***	2.084***	0.143***	-0.042
	(0.007)	(0.024)	(0.035)	(0.027)	(0.158)	(0.027)	(0.029)	(0.251)	(0.028)	(0.029)
Observations	3245	3219	3071	3071	3248	3248	3248	3248	3248	3248
R-Squared	0.376	0.127	0.142	0.088	0.097	0.095	0.083	0.107	0.097	0.111
Adjusted R-Squared	0.361	0.107	0.122	0.066	0.079	0.075	0.065	0.090	0.080	0.091

Note: In this table, we present the difference-in-differences estimates of the impact of the mandatory marriage registration policy of Bihar on mechanism outcomes, including an additional interaction term for the post-2011 period. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. 'Post' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2006 and 0 otherwise. 'Post 2011' is another dummy variable that takes value 1 if the woman's year of marriage is after 2011 and 0 otherwise. All the estimates include additional controls. Polygamy is a dummy variable that takes value 1 if the woman's husband has more than one wives; 0 otherwise. Alcohol consumption is a dummy variable that takes value 1 if the woman's husband drinks alcohol; 0 otherwise. Justify violence is a dummy variable taking value 1 if the husband (col. 4)/the woman (col. 10) justifies wife-beating in case she goes out without permission/neglects children/argues with husband/refuses to have sex with husband/does not cook properly; 0 otherwise. Child marriage is a dummy variable that takes value 1 if the woman's age at marriage was below 18; and 0 otherwise. Literacy is a dummy variable that takes value 1 if the woman is literate; and 0 otherwise. Awareness is dummy variable that takes value 1 if the woman watches TV or listens to radio or reads newspaper regularly; 0 otherwise (This media exposure is taken as a proxy for awareness). All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). We use eligible women's file for columns (1)-(2) and (5)-(10) and men's file for columns (3) and (4). Source: Authors' calculation.

Table A3: Comparison of Araria and Bhagalpur with Bihar

Name	Area	Gender ratio (male/female)	Share of SC population	Share of ST population	Share of literate population	Share of working population	Share of literate male population	Share of literate female population	Share of working male population	Share of working female population
Bihar	Rural	1.086	0.166	0.014	0.485	0.340	0.567	0.397	0.467	0.202
Araria	Rural	1.083	0.139	0.015	0.414	0.385	0.487	0.335	0.485	0.277
Bhagalpur	Rural	1.136	0.110	0.027	0.486	0.331	0.553	0.410	0.458	0.186
Bihar	Urban	1.117	0.104	0.006	0.654	0.286	0.704	0.599	0.449	0.104
Araria	Urban	1.118	0.098	0.003	0.601	0.306	0.652	0.543	0.465	0.129
Bhagalpur	Urban	1.135	0.082	0.003	0.646	0.295	0.690	0.597	0.457	0.111
Bihar	Total	1.089	0.159	0.013	0.504	0.334	0.582	0.419	0.465	0.191
Araria	Total	1.085	0.136	0.014	0.425	0.381	0.497	0.347	0.484	0.268
Bhagalpur	Total	1.136	0.105	0.022	0.518	0.324	0.580	0.447	0.458	0.171

Note: Source: Authors' calculation. Data is taken from Population census 2011.

Table A4: Impact of mandatory marriage registration policy on composition of marriage

	(1) Love marriage	(2) Husband from same village	(3) Husband from same caste	(4) Blood relation with husband
Treated x Post	-0.038	-0.016	0.030	-0.010
	(0.056)	(0.040)	(0.035)	(0.062)
Observations	597	594	594	597
R-Squared	0.295	0.050	0.298	0.343
Adjusted R-Squared	0.254	-0.006	0.257	0.304

Note: 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. 'Post-2003' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2003 and 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from Indian Human Development Survey (IHDS) (wave 1 and 2). Source: Authors' calculation.

Table A5: Summary statistics of unmatched and matched sample using PSM-DID

Variable	Unmatched (U)/ Matched (M)	Mean		% Bias	% Reduct in Bias	t-test	
		Treated	Control			t-stat	p-value
Education years	U	4.806	6.014	-23.4		-6.58	0.000
	M	4.831	5.075	-4.7	79.8	-1.47	0.142
Literate (0/1)	U	0.543	0.656	-23.3		-6.50	0.000
	M	0.546	0.564	-3.7	84.1	-1.12	0.264
Age group (20-24)	U	0.324	0.286	8.2		2.29	0.022
	M	0.324	0.318	1.2	85.0	0.37	0.709
Age group (25-29)	U	0.395	0.382	2.7		0.76	0.449
	M	0.395	0.388	1.4	48.6	0.43	0.669
Age group (30-34)	U	0.148	0.204	-14.6		-4.14	0.000
	M	0.149	0.161	-3.1	78.6	-1.01	0.313
Age group (35-39)	U	0.021	0.047	-13.8		-4.01	0.000
	M	0.022	0.022	-0.2	98.8	-0.06	0.950
Age group (40-44)	U	0.002	0.007	-7.8		-2.31	0.021
	M	0.0021	0.00271	-0.9	88.7	-0.38	0.702
Age group (45-49)	U	0.001	0.001	-0.9		-0.26	0.798
	M	0.000	0.000	-0.1	94.3	-0.16	0.876
Religion (Muslim)	U	0.161	0.113	13.9		3.84	0.000
	M	0.15983	0.14561	4.1	70.2	1.22	0.223
Religion (Others)	U	0.001	0.163	-61.8		-19.09	0.000
	M	0.001	0.001	0.0	100.0	0.00	1.000
Marginalized Caste (0/1)	U	0.841	0.895	-15.9		-4.38	0.000
	M	0.844	0.857	-3.7	76.6	-1.09	0.278
Rural (0/1)	U	0.860	0.783	20.2		5.75	0.000
	M	0.859	0.848	3.0	85.1	1.00	0.316
Male Head (0/1)	U	0.752	0.875	-32.1		-8.80	0.000
	M	0.756	0.796	-10.4	67.5	-2.97	0.003
Household size	U	5.679	5.309	15.6		4.31	0.000
	M	5.666	5.690	-1.0	93.7	-0.29	0.771
Currently Married (0/1)	U	0.977	0.976	0.1		0.04	0.967
	M	0.976	0.973	2.0	-1267.4	0.60	0.549

Note: In this table, we present the summary statistics of covariates in treated and control districts, separately for the unmatched sample and the matched sample using propensity scores. The extent of bias reduction after matching is also shown. Treated indicates observations from Bihar and Control indicates observations from Jharkhand. Source: Authors' calculation using National Family Health Survey (NFHS) 2015-16.

Table A6: Difference-in-differences estimates with placebo state (Chhattisgarh)

	(1)	(2)	(3)	(4)
	Emotional Violence	Sexual Violence	Physical Violence	All Violence
Treated x Post	-0.010	-0.022	-0.041	-0.051
	(0.039)	(0.030)	(0.042)	(0.046)
Observations	2983	2983	2983	2983
R-Squared	0.080	0.106	0.122	0.123
Adjusted R-Squared	0.053	0.080	0.097	0.097

Note: In this table, we present the difference-in-differences estimates of the impact of the mandatory marriage registration policy of Bihar on domestic violence outcomes, treating Chhattisgarh as a placebo control state. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Chhattisgarh. 'Post' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2006 and 0 otherwise. All estimates include controls for age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever been experienced emotional or sexual or physical violence; 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

Table A7: No Anticipation Assumption Check

	(1)	(2)	(3)	(4)
	Emotional Violence	Sexual Violence	Physical Violence	All Violence
Treated x Post	-0.111***	-0.083**	-0.147***	-0.151***
	(0.034)	(0.036)	(0.045)	(0.049)
Observations	1836	1836	1836	1836
R-Squared	0.129	0.110	0.183	0.182
Adjusted R-Squared	0.085	0.066	0.142	0.142

Note: In this table, we exclude the years 2005, 2006 and 2007 from the sample and present the difference-in-differences estimates of the impact of the mandatory marriage registration policy of Bihar on domestic violence outcomes, treating Jharkhand as a control state. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. 'Post' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2006 and 0 otherwise. All estimates include controls like age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever been experienced emotional or sexual or physical violence; 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

Table A8: Difference-in-differences estimates with placebo treatment year (2003)

	(1)	(2)	(3)	(4)
	Emotional Violence	Sexual Violence	Physical Violence	All Violence
Treated x Post-2003	0.011	-0.091	-0.007	-0.087
	(0.066)	(0.073)	(0.095)	(0.095)
Observations	813	813	813	813
R-Squared	0.211	0.183	0.263	0.260
Adjusted R-Squared	0.126	0.095	0.184	0.181

Note: In this table, we exclude the post-policy years (2006-2015) from the sample and consider 2003 as our placebo treatment year. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. 'Post-2003' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2003 and 0 otherwise. All estimates include controls like age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever been experienced emotional or sexual or physical violence; 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

Table A9: Difference-in-difference estimates with State-level clustering

	(1)	(2)	(3)	(4)
	Emotional Violence	Sexual Violence	Physical Violence	All Violence
Treated x Post	-0.087**	-0.057**	-0.108**	-0.116***
	(0.002)	(0.001)	(0.003)	(0.001)
p-value	0.014	0.016	0.015	0.005
Wild-bootstrapped pvalue	0.000	0.000	0.000	0.000
Observations	2439	2439	2439	2439
R-Squared	0.123	0.096	0.163	0.167
Adjusted R-Squared	0.090	0.062	0.131	0.135

Note: In this table, we present the difference-in-differences estimates with state-level clustering using wild-bootstrapped standard errors following Roodman (2015). 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. 'Post' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2006 and 0 otherwise. Panel A presents the estimates without any control and Panel B presents estimates with additional controls, including age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever experienced emotional or sexual or physical violence; 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the state level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

Table A10: Difference-in-difference estimates excluding the bordering districts

	(1) Emotional Violence	(2) Sexual Violence	(3) Physical Violence	(4) All Violence
Treated x Post	-0.095**	-0.064*	-0.131**	-0.145***
	(0.038)	(0.037)	(0.050)	(0.053)
Observations	1703	1703	1703	1703
R-Squared	0.150	0.117	0.194	0.205
Adjusted R-Squared	0.113	0.079	0.159	0.171

Note: In this table, we exclude the 19 bordering districts of Bihar and Jharkhand from our sample. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. All estimates include controls like age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever been experienced emotional or sexual or physical violence; 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

Table A11: Difference-in-differences estimates excluding women above Grade 9

	(1)	(2)	(3)	(4)
	Emotional Violence	Sexual Violence	Physical Violence	All Violence
Treated x Post	-0.082*	-0.077*	-0.102**	-0.126**
	(0.042)	(0.041)	(0.049)	(0.052)
Observations	1584	1584	1584	1584
R-Squared	0.128	0.125	0.137	0.140
Adjusted R-Square	0.075	0.072	0.085	0.088

Note: In this table, we exclude all women who completed grade 9 from the sample and present the difference-in-differences estimates of the impact of the mandatory marriage registration policy of Bihar on domestic violence outcomes, treating Jharkhand as a control state. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. 'Post' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2006 and 0 otherwise. All estimates include controls like age, religion, caste, area of residence (rural/urban), years of education, literacy status, number of household members, current marital status and gender of the household head. Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever been experienced emotional or sexual or physical violence; 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

Table A12: Heterogeneity based on economic status and place of residence

	(1) Emotional Violence	(2) Sexual Violence	(3) Physical Violence	(4) Any Violence
A. Poor vs. Non-poor				
Treated x Post	-0.142*	-0.092	-0.082	-0.141
	(0.072)	(0.060)	(0.093)	(0.093)
Treated x Post x Poor	0.094	0.058	-0.010	0.057
	(0.089)	(0.076)	(0.109)	(0.115)
Treated x Poor	-0.025	-0.043	-0.002	-0.068
	(0.080)	(0.062)	(0.087)	(0.095)
Post x Poor	-0.018	-0.042	-0.075	-0.088
	(0.040)	(0.039)	(0.063)	(0.072)
Poor	0.043	0.068**	0.229***	0.243***
	(0.029)	(0.034)	(0.051)	(0.054)
B. Urban vs. Rural				
Treated x Post	-0.077*	-0.045	-0.111**	-0.121**
	(0.045)	(0.031)	(0.048)	(0.049)
Treated x Post x Urban	-0.025	-0.056	0.087	0.063
	(0.083)	(0.085)	(0.108)	(0.104)
Treated x Urban	0.086	0.045	0.082	0.095
	(0.091)	(0.078)	(0.101)	(0.104)
Post x Urban	-0.012	0.016	0.005	-0.011
	(0.037)	(0.030)	(0.062)	(0.061)
Urban	-0.030	-0.050	-0.163**	-0.156**
	(0.031)	(0.035)	(0.062)	(0.062)
Observations	2439	2439	2439	2439

Note: In this table, we present the heterogeneity test estimates of the impact of the mandatory marriage registration policy of Bihar, treating Jharkhand as a control state. 'Treated' is a dummy variable that takes value 1 if the woman is from Bihar and 0 if she is from Jharkhand. 'Post' is another dummy variable that takes the value 1 if the woman's year of marriage is after 2006 and 0 otherwise. To check the heterogeneity, we use an additional triple interaction term. 'Poor' is a binary variable that takes value 1 if the woman belongs to a household which belong to the lowest three wealth quintiles and 0 otherwise. 'Urban' is a binary variable that takes value 1 if the woman is a resident of an urban area, 0 otherwise. Emotional violence is a dummy variable that takes value 1 if the woman has ever been humiliated or threatened or insulted or made feel bad by her husband; 0 otherwise. Sexual violence is a dummy variable that takes value 1 if the woman has ever been physically forced into unwanted sex or sexual activities by her husband; 0 otherwise. Physical violence is a dummy variable that takes the value 1 if the woman has ever been pushed/had something thrown at/slapped/punched/hit/kicked/dragged/strangled/burnt/threatened with weapons; 0 otherwise. Any violence is a dummy variable that takes value 1 if the woman has ever been experienced emotional or sexual or physical violence; 0 otherwise. All estimates include district fixed effect and year of marriage fixed effect. Here, * implies $p < 0.1$, ** implies $p < 0.05$ and *** implies $p < 0.01$. Standard errors are in the parentheses and are clustered at the district level. Data is obtained from National Family Health Survey (2015-16). Source: Authors' calculation.

Table A13: State-level policies implemented in Bihar and Jharkhand in 2011

Name of the policy	Policy objective
A. Bihar	
Bihar Industrial Incentive Policy	Attract investment via capital subsidies, power subsidies and industrial infrastructure support
Bihar Policy for Promotion of New & Renewable Energy Sources	Encourage renewable energy projects (solar, wind, biomass etc.) through regulatory and fiscal incentives
Kosi Reconstruction & Rehabilitation Programme	Livelihood and infrastructure restoration for Kosi flood survivors
Single-Window Clearance System for industries	Industry setup approvals through a centralized portal, reducing delays and curbing rent-seeking
Bihar Slum Policy	To address needs and challenges of slum dwellers
B. Jharkhand	
Jharkhand Contingency Fund (Amendment) Act	Amendment in the management an emergency contingency fund for urgent public spending
Jharkhand Motor Vehicle Taxation (Amendment) Act	Amendment of taxation rules for motor vehicles in the state
Jharkhand State Road Development Fund Act	Create a sustainable funding plan for constructing, and maintaining state roads
Jharkhand Entry Tax on Consumption or Use of Goods Act	Impose tax on goods entering Jharkhand from other states
Jharkhand Taxation on Luxuries in Hotels Act	Impose luxury tax on hotel services to generate additional state revenue
Jharkhand University of Technology Act	Consolidate technical education institutions under one umbrella university

Source: Authors' compilation.